CITY OF BAKERSFIELD

McAllister Ranch Groundwater Banking Project

Draft Environmental Impact Report

SCH No. 2020060267

VOLUME I: MAIN DOCUMENT

July 2022

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NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT REPORT

DATE: July 18, 2022

TO: State Clearinghouse, Agencies, Organizations, and Interested Parties

PROJECT: SPA-GPA/ZC No. 19-0342 (McAllister Ranch Groundwater Banking Project) (SCH No. 2020060267)

NOTICE IS HEREBY GIVEN that the City of Bakersfield (City) is the lead agency for preparation of a draft Environmental Impact Report (DEIR) pursuant to the California Environmental Quality Act (CEQA) for construction and operation of the McAllister Ranch Groundwater Banking Project (Proposed Project). This DEIR was prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended) and the CEQA Guidelines (California Code of Regulations [CCR] title 14, section 15000 et seq.). The City hereby invites comments on the adequacy and completeness of the environmental analyses in the DEIR.

Project Title: McAllister Ranch Groundwater Banking Project

Property Owner(s): Buena Vista Water Storage District and Rosedale-Rio Bravo Water Storage District

Document Availability: The DEIR and supporting documents are available for download from the City's website: https://www.bakersfieldcity.us/279/Environmental-Documents.

Public Comment Period: The issuance of this NOA begins a 45-day public review period, which begins on **July 18, 2022, and ends on September 1, 2022**. Comments may be submitted any time during the public review period. All public and agency comments must be received or postmarked by 5:00 p.m. on September 1, 2022. Due to the time limits mandated by state law, the City recommends that your feedback is provided at the earliest possible date, but not later than 45 days (September 1, 2022) after the start of the public review period. If applicable, please include the name of a contact person for your agency. All comments should be directed to:

City of Bakersfield – Development Services Department
Attn: Kassandra Gale, Principal Planner
1715 Chester Avenue, 2nd Floor
Bakersfield, CA 93301

Comments may also be emailed to KGale@bakersfieldcity.us.

Emailed comments are preferred and should include your name, address, and daytime telephone number so a representative of the City can contact you if clarifications regarding your comments are required.

All comments received, including names and addresses, will become part of the official public record. A Final EIR will be prepared that will include responses to comments received during the public review period.

Project Location: Site consists of approximately 2,072 acres at the northwest corner of the Panama Lane/S. Allen Road intersection, commonly known as McAllister Ranch, in Bakersfield, CA. Project APN: 537-010-47-00-1 + multiple

Current General Plan Designation: SR (Suburban Residential), LR (Low Density Residential), LMR (Low Medium Density Residential), HMR (High Medium Density Residential), HR (High Density Residential), and GC (General Commercial)

Current Zoning: R-1 (One Family Dwelling), E (Estate), R-2/PUD (Limited Multiple Family Dwelling/Planned Unit Development), R-3/PUD (Multiple Family Dwelling/Planned Unit Development), C-1/PCD (Neighborhood Commercial/Precise Commercial Development), C-C-/PCD-PE (Commercial Center/Precise Commercial Development-Petroleum Extraction Combining) and DI (Drill Island)

Brief Description of the Proposed Project: The Project is a change in land use of approximately 2,072 acres of undeveloped land, commonly known as McAllister Ranch (Property) in western Bakersfield to enable the construction and operation of a groundwater recharge and recovery facility. The Project would include and involve a Specific Plan Amendment to rescind the McAllister Ranch Specific Plan; General Plan Amendment to amend the Land Use Element of the Metropolitan Bakersfield General Plan (MBGP), amend the Circulation Element of the MBGP, and amend the Housing Element of the MBGP; Zone Change to change the zone classification on the Property; and construction of a water banking facility, including water conveyance to and from the Property and spreading and recovery facilities onsite.

Environmental Review: The DEIR evaluates the potential environmental impacts of the Proposed Project and two alternatives: a Reduced Pumping Alternative (modified schedule of groundwater pumping for the Proposed Project that would allow a larger percentage of stored groundwater to remain within the aquifer) and a Reduced Recharge Area Alternative (reduce the area operated as part of the Proposed Project from 2,070 acres to 1,910 acres by removing Basin 24 from the project area). A No Project Alternative was also evaluated (BVWSD and RRBWSD would not construct groundwater recharge ponds, a conveyance pipeline to carry water from the City's 2800 Acre Facility to the site, or build infrastructure required to operate a groundwater recharge facility at the site of the previously approved McAllister Ranch Specific Plan area). No significant and unavoidable impacts were identified for the Proposed Project. All potentially significant effects identified in the impact analysis would be reduced to less-than-significant levels with implementation of mitigation measures.

Hazardous Materials: The Proposed Project is not located on the lists enumerated under Section 65962.5 of the Government Code, including, but not limited to, lists of hazardous waste facilities.

Following the close of the public review period, the City will prepare a Final Environmental Impact Report that will include responses to comments received during the review period. At least ten days prior to the public hearing on the EIR, the City's responses to comments received during the public review period will be available for review and will be sent to those who have commented in writing on the EIR during the public review period.

City of Bakersfield

McAllister Ranch Groundwater Banking Project

Draft Environmental Impact Report

SCH No. 2020060267

Prepared for: **City of Bakersfield**
1715 Chester Avenue, 2nd Floor
Bakersfield, CA 93301

Contact: Kassandra Gale, Principal Planner

Prepared by: **Horizon Water and Environment, LLC**
266 Grand Avenue, Suite 210
Oakland, CA 94610

Contact: Ken Schwarz, Principal

July 2022

Horizon Water and Environment. 2022. McAllister Ranch Groundwater Banking Project – *Draft Environmental Impact Report.* (SCH No. 2020060267). July. (20.016) Oakland, CA.

City of Bakersfield

McAllister Ranch Groundwater Banking Project

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Acronyms and Abbreviations

Abbreviation	Full Term
°F	degrees Fahrenheit
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
A	
A	attainment (attainment status)
AB	Assembly Bill
ACM	asbestos -containing materials
ADT	average daily traffic
AF	acre-feet
AFY	acre-feet per year
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
amplitude	pressure level or energy content
Applicant	Buena Vista Water Storage District
APS	Aerial Photomapping Services
ASM	ASM Affiliates
AST	above-ground storage tank
ASTM	American Society for Testing and Materials
ATCM	airborne toxic control measure
A-WR	Agriculture – Water Recharge Combining
B	
BAAQMD	Bay Area Air Quality Management District
Basin Plan	Water Quality Control Plan for the Sacramento and San Joaquin River Basins
BFD	Bakersfield Fire Department
BIOS	CDFW Biogeographic Information and Observation System
BLM	Bureau of Land Management
BMP	best management practice
BNLL	blunt-nosed leopard lizard
BPS	Best Performance Standard
BSA	Biological Study Area
BUOW	burrowing owl
BVWSD	Buena Vista Water Storage District
C	
C-1/PUD	Neighborhood Commercial/Precise Commercial Development
CAA	federal Clean Air Act
CAAQS	California Ambient Air Quality Standards

Abbreviation	Full Term
CAC	county agricultural commissioner
CAFE	Corporate Average Fuel Economy
CalARP	California Accidental Release Prevention
CAL EMA	California Emergency Management Agency
CAL FIRE	California Department of Forestry and Fire Protection
CA Govt Code	California Government Code
Cal OES	California Office of Emergency Services
CAL/OSHA	California Occupational Safety and Health Administration
CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Code
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
Cal Water	California Water Service
CARB	California Air Resource Board
CASGEM	California Statewide Groundwater Elevation Monitoring
CBC	California Building Code
C-C/PCD-PE	Commercial Center/Precise Commercial Development – Petroleum Extraction Combining
CCAA	California Clean Air Act
CCAP	Climate Change Action Plan
CCR	California Code of Regulations
CCTC	Central California Taxonomic System
CDC	U.S. Centers for Disease Control
CDFW	California Department of Fish and Wildlife
CDMG	California Division of Mines and Geology
CDOC	California Department of Conservation
CDPH	California Department of Public Health
CDPR	California Department of Pesticide Regulation
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFDG	California Fish and Game Code
CFR	Code of Federal Regulations
cfs	cubic feet per second

Abbreviation	Full Term
CGS	California Geological Survey
CH_4	methane
CHP	California Highway Patrol
CI	the fungus *Coccidioides immitis*
City	City of Bakersfield
CNDDB	California Natural Diversity Database
CNEL	Community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRC	California Resources Corporation
CRHR	California Register of Historic Resources
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CVC	Cross Valley Canal
CVP	Central Valley Project
CVRWQCB	Central Valley RWQCB
CWA	Clean Water Act
D	
dB	decibel
dBA	A-weighted decibel
DEIR	draft environmental impact report
Delta	Sacramento–San Joaquin River Delta
DI	Drill Island
Districts	Buena Vista Water Storage District and Rosedale-Rio Bravo Water Storage District
DPM	diesel particulate matter
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
E	
E	Estate
EDD	California Employment Development Department
EIA	U.S. Energy Information Administration
EIR	environmental impact report
EMFAC	In-Use Off-Road Diesel Emission Factors model
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act

Abbreviation	Full Term
ESA	Environmental Site Assessment
F	
F&G Code	California Fish and Game Code
FAA	Federal Aviation Administration
FEIR	Final environmental impact report
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FRA	Federal Responsibility Area
frequency	rate of oscillation of sound waves
ft/sec	feet per second
FTA	Federal Transit Authority
fugitive dust	PM2.5 and PM10
G	
GAMAQI	SJVAPCD Guidance for Assessing and Mitigating Air Quality Impacts
GC	General Commercial
GHG	greenhouse gas
GKR	giant kangaroo rat
GPA	General Plan Amendment
GPS	Global Positioning System
GSA	groundwater sustainability agency
GSP	groundwater sustainability plan
GWP	global warming potential
H	
H_2O	water
H_2S	hydrogen sulfide
HAP	hazardous air pollutant
Haro	Haro Environmental, Inc.
HCD	California Department of Housing and Community Development
HCP	Habitat Conservation Plan
HDPP	high-density polypropylene
HFC	hydrofluorocarbon
HMBP	hazardous materials business plan
HMR	High Medium Density Residential
hp	horsepower
HR	High Density Residential

Abbreviation	Full Term
HWCL	Hazardous Waste Control Law
Hz	Hertz
I	
in/sec	inches per second
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
ITP	Incidental Take Permit
J	
JOC	Joint Operations Committee
K	
KCFD	Kern County Fire Department
KCL	Kern County Land Company
KCWA	Kern County Water Agency
KDWD	Kern Delta Water District
Kern COG	Kern Council of Governments
KGA	Kern Groundwater Agency
KRGSA	Kern River Groundwater Sustainability Agency
L	
LACPH	Los Angeles County Public Health
Ldn	Day-night sound level
Leq	Equivalent sound level
Lmax	Maximum sound level
Lmin	Minimum sound level
LMR	Low Medium Density Residential
LOS	level of service
LR	Low Density Residential
LRA	Local Responsibility Area
M	
M&I	municipal and industrial
MA	management agreement
MAA	management agency agreement
MAF	million acre-feet
MBGP	Metropolitan Bakersfield General Plan
MBHCP	Metropolitan Bakersfield Habitat Conservation Plan
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level

Abbreviation	Full Term
MDM	Mount Diablo Meridian
MEI	Maximally Exposed Individual
mgd	million gallons per day
mg/L	milligrams per Liter
Mitigation Joint Use Agreement	McAllister Ranch Use of Facilities and Mitigation Agreement
MLD	Most likely descendant
$MMTCO_2e$	million metric tonnes of carbon dioxide equivalent
MOU	Memorandum of Understanding
MS4	municipal separate storm sewer system
MT	metric tonnes
MT	metric tons
MUTCD	California Manual on Uniform Traffic Control Devices
N	
N	non-attainment
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Communities Conservation Plan
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Oceanic and Atmospheric Administration National Marine Fisheries Service
NOP	Notice of Preparation
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSF	National Science Foundation
NTR	National Toxics Rule
NWI	USFWS National Wetlands Inventory

Abbreviation	Full Term
O	
O_2	oxygen
O_3	ozone
OBD	on-board diagnostic
OEHHA	Office of Environmental Health Hazard Assessment
OHWM	Ordinary High Water Mark
OPR	Governor's Office of Planning and Research
ORV	off-road vehicle
OS	Open Space (Golf Course)
OSHA	Occupational Safety and Health Administration
P	
P	Public Facilities
pCi/L	picocuries per liter
PERP	Portable Equipment Registration Program
PFC	perfluorocarbon
PG&E	Pacific Gas and Electric Company
Phase I ESA	Phase I Environmental Site Assessment – Revised Draft
Pioneer Project	Pioneer Project Water Bank
PM	particulate matter
PM10	particulate matter of aerodynamic radius of 10 micrometers or less
PM2.5	particulate matter of aerodynamic radius of 2.5 micrometers or less
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PPE	personal protective equipment
ppm	parts per million
PPV	peak particle velocity
Proposed Project	McAllister Ranch Groundwater Banking Project
Proposition 65	Safe Drinking Water and Toxic Enforcement Act
PS	Public Schools
PST	Pacific Standard Time
PT	Public Transportation
Pub. Res. Code	Public Resources Code
PVC	polyvinyl chloride
R	
R-1	One Family Dwelling
R-2/PUD	Limited Multiple Family Dwelling/Planned Unit Development
R-3/PUD	Multiple Family Dwelling/Planned Unit Development

Abbreviation	Full Term
RCP	reinforced concrete pipe
RCRA	Resource Conservation and Recovery Act
R-EA	Resource – Extensive
REC	recognized environmental condition
Reclamation	U.S. Bureau of Reclamation
RHNA	Regional Housing Needs Assessment
RMP	risk management plan
ROG	Reactive Organic Gas
RPS	Renewables Portfolio Standard
RRBWSD	Rosedale-Rio Bravo Water Storage District
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
S	
SAFE	Safer Affordable Fuel-Efficient
SAR	Second Assessment Report
SB	Senate Bill
SBCAPCD	Santa Barbara County Air Pollution Control District
SCAQMD	South Coast Air Quality Management District
SDWA	Safe Drinking Water Act
SF_6	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
SHMA	Seismic Hazards Mapping Act
SHRC	State Historical Resources Commission
SIP	State Implementation Plan
SJAS	Nelson's (San Joaquin) antelope squirrel
SJKF	San Joaquin kit fox
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMARA	Surface Mining and Reclamation Act
SO_2	sulfur dioxide
SO_4	sulfate
SORE	small off-road engine
South of Delta	21 contractors located south of the Sacramento–San Joaquin River Delta that receive water from the California Aqueduct
SO_X	sulfur oxides
SPA	Specific Plan Amendment
SPCC	Spill Prevention, Control, and Countermeasure
SR	Suburban Residential

Abbreviation	Full Term
SR 99	State Route 99
SRA	State Responsibility Area
SSC	Species of Special Concern
SSJVIC	Southern San Joaquin Valley Information Center
SWCA	SWCA Environmental Consultants
SWHA	Swainson's hawk
SWMP	storm water management plan/program
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
T	
TAC	toxic airborne contaminant
TCP	1,2,3-trichloropropane
TCP	Traditional Cultural Property
TCR	tribal cultural resource
TDS	total dissolved solids
TH & Co.	Thomas Harder & Company
THP	total petroleum hydrocarbons
THPd	total petroleum hydrocarbons in diesel fuel
THPg	total petroleum hydrocarbons in gasoline
THPm	total petroleum hydrocarbons in motor oil
TKR	Tipton kangaroo rat
TMDL	Total Maximum Daily Load
TPHd	petroleum hydrocarbons in the diesel fuel
TPHg	petroleum hydrocarbons in the gasoline
TPHm	petroleum hydrocarbons in the motor oil
TRI	Toxic Release Inventory
TSD	total dissolved solids
U	
U	unclassified (attainment status)
UCMP	University of California, Berkeley Museum of Paleontology
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service

Abbreviation	Full Term
USGS	U.S. Geological Survey
UST	underground storage tank
V	
VdB	velocity in decibels
VFMP	Valley Fever Management Plan
VMT	vehicle-miles traveled
VOC	volatile organic compound
W	
WDR	waste discharge requirement
WQO	water quality objective
WWTP	Wastewater Treatment Plant
Z	
ZC	Zone Change

EXECUTIVE SUMMARY

ES.1 Introduction

The City of Bakersfield (City) has prepared this draft environmental impact report (DEIR) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of the McAllister Ranch Groundwater Banking Project (Proposed Project). This DEIR was prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended) and the CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.).

Buena Vista Water Storage District (BVWSD), the project applicant, and the Rosedale-Rio Bravo Water Storage District (RRBWSD), are proposing to divert water from multiple existing sources and store it at the project site to recharge the groundwater basin and therefore allow the water to be later recovered for irrigation and municipal and industrial (M&I) uses when needed.

The Proposed Project consists of construction and operation of a water banking project on approximately 2,070 acres of undeveloped real property located north of Panama Lane and west of South Allen Road, in Bakersfield, California. The Proposed Project would include constructing up to 24 shallow percolation ponds to facilitate the recharge activities, as well as other features to enable the storage and transport of water. At full buildout, up to approximately 200,000 acre-feet per year (AFY) of water could be diverted and recharged in the groundwater basin.

The maximum recovery of stored water in a single year would be approximately 56,000 AF. Recharge water for the Proposed Project would be secured and acquired by BVWSD and RRBWSD from various sources, potentially including federal, state, and local supplies. Water would be acquired through transfers, balanced and unbalanced exchange agreements, purchase, temporary transfers, or other means as available. The stored water would be recovered through a proposed onsite well field or existing offsite wells that are owned by BVWSD within its service area or privately owned but within RRBWSD's service area.

ES.2 Proposed Project Background, Purpose, and Objectives

The project site was originally approved for development by Kern County in 1993 as a planned residential subdivision, known as the McAllister Ranch Specific Plan. Construction began on the development in 2006, with mass grading and installation of some infrastructure. Due to a downturn in the real estate market, development was discontinued in 2008. The property was purchased by BVWSD and RRBWSD in 2011. In 2017, BVWSD acquired 584 acres of the original 2,070 acres that had been partially developed and entitled for urban use, leaving the joint ownership between the districts at 1,486 acres.

Primary water management goals of independent water storage districts are to benefit the lands, landowners, and water users within their respective boundaries, as well as water banking partners, by providing a reliable, affordable, and usable water supply through economic and efficient storage, distribution, and use of available water supplies. Such districts must also

facilitate programs that protect and benefit the groundwater basins that underlie their areas, as required by the Sustainable Groundwater Management Act (SGMA) (California Water Code Sections 10720 et seq.). The Proposed Project site is within the jurisdictional boundary of the Kern River Groundwater Sustainability Agency (KRGSA). The KRGSA would have an interest in monitoring operation of the Proposed Project and coordinating with BVWSD and RRBWSD to ensure consistency with the groundwater sustainability plan (GSP). BVWSD is also a GSA and operates under its own GSP (BVWSD GSA 2020). RRBWSD is a member of the Kern Groundwater Authority GSA and operates under its own chapter of the KGA GSP (KGA GSA 2020).

In support of the general water management goal described above, the Proposed Project would provide the following benefits (purposes):

- Conserve available water supplies for use during below-average years or as otherwise needed for BVWSD's and RRBWSD's purposes;
- Provide water recharge, storage, and recovery capacity, which would allow for the efficient management of water supplies in BVWSD's and RRBWSD's service areas; and
- Provide flexibility in implementing Conjunctive Use Programs.

More specific objectives of the Proposed Project include the following:

- To increase water supply reliability in the area, in a cost-effective and environmentally sound manner, by providing a means to store water in the groundwater aquifer and provide a means to extract and use the stored groundwater when needed;
- To reduce BVWSD's and RRBWSD's dependence on the Sacramento–San Joaquin River Delta (Delta) through programs such as the State Water Project (SWP) and Central Valley Project (CVP), by storing water locally in the groundwater aquifer for later extraction and use;
- Capture, recharge, and store water from the Kern River, SWP, Federal projects, and other available sources for later use;
- Provide operating flexibility for BVWSD's and RRBWSD's existing and future Conjunctive Use Programs with banking partners, exchanges, and sales;
- Assist in achieving groundwater sustainability within Kern County Sub-basin of the San Joaquin Valley Groundwater Basin through implementation of projects consistent with California Executive Order N-10-19 directing State agencies to develop a "water resilience portfolio"; and
- Provide ecosystem public benefits and water supply benefits for agricultural and M&I uses.

ES.3 Proposed Project Location

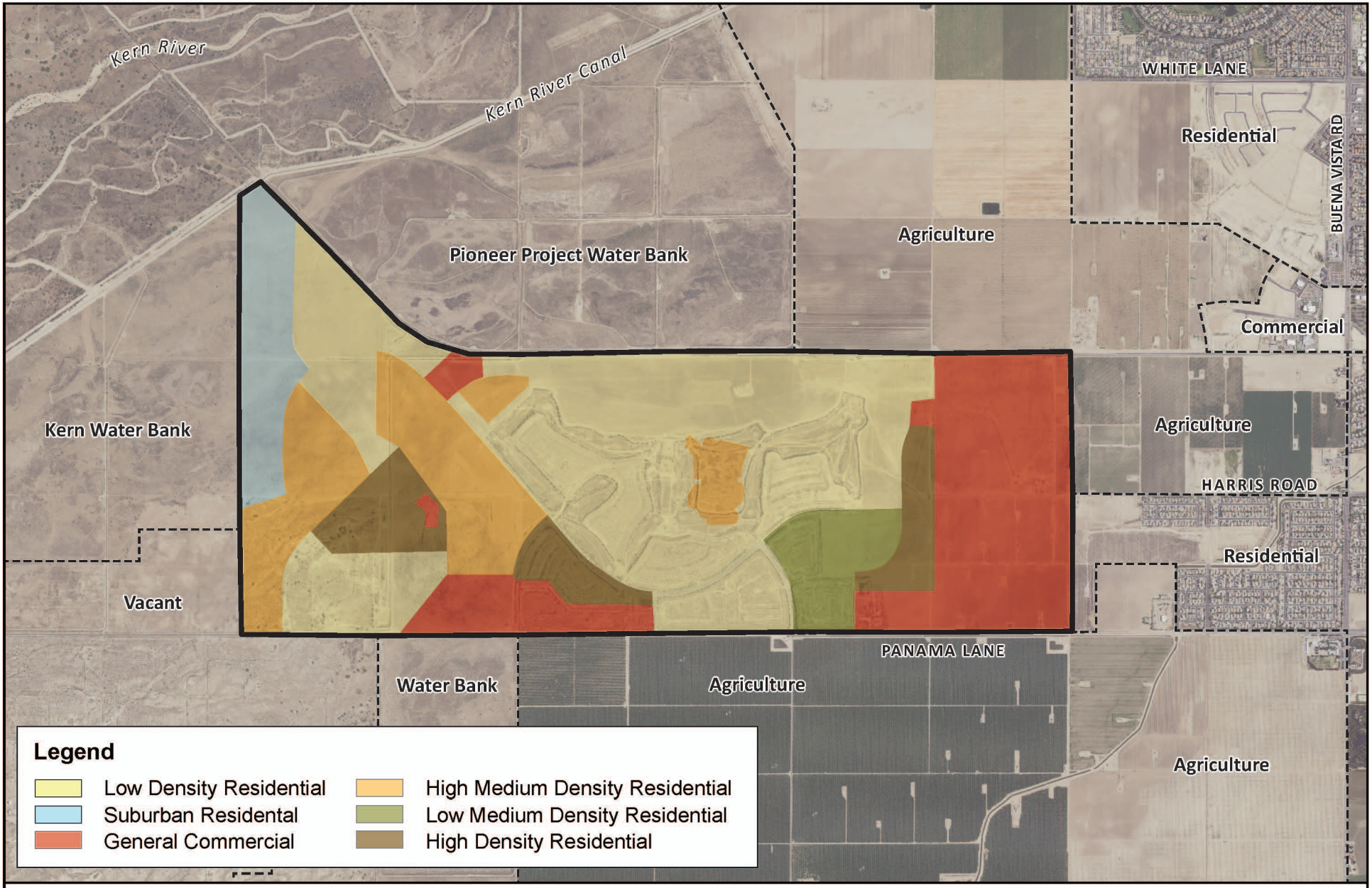
The McAllister Ranch property is located in the western area of Bakersfield and encompasses approximately 2,070 acres (**Figure ES-1**). The property has been disturbed and continues to be disturbed; most of the site had been used for agricultural purposes before it was extensively graded for development. Additionally, the property contains several active and abandoned oil wells and several reserved drill islands. The drill islands are areas zoned for drilling (by others) for the purpose of extracting subsurface oil or gas resources, the rights to which are owned by private parties.

ES.4 Description of Proposed Project

ES.4.1 Proposed Project Actions

The Applicant is requesting a change to the land use designation of approximately 2,070 acres of undeveloped land, commonly known as McAllister Ranch, in western Bakersfield to enable the construction and operation of a groundwater recharge and recovery facility. The Proposed Project would include the following actions:

- Specific Plan Amendment/General Plan Amendment (SPA-GPA) to:
  - rescind the McAllister Ranch Specific Plan, including all goals, policies, and implementation measures;
  - amend the Land Use Element of the Metropolitan Bakersfield General Plan (MBGP) to change the designation of the Property from SR (Suburban Residential), LR (Low Density Residential), LMR (Low Medium Density Residential), HMR (High Medium Density Residential), HR (High Density Residential), and GC (General Commercial) to R-EA (Resource – Extensive);
  - amend the Circulation Element of the MBGP to remove all McAllister Ranch interior street alignments approved by Resolution 094-07, including McAllister Drive, Canfield Parkway, Old Settler Road, Stetson Way, Erikson Drive, Marino Parkway, Conestoga Way, and any other unnamed local streets within the Plan boundary with no other changes to Circulation for Panama Lane, the West Beltway, or South Allen Road; and
  - amend the Housing Element of the MBGP to remove the housing units approved with the McAllister Ranch Specific Plan from the City's Vacant Land Inventory.
  - Zone Change (ZC) for the Property from R-1 (One Family Dwelling), E (Estate), R-2/PUD (Limited Multiple Family Dwelling/Planned Unit Development), R-3/PUD (Multiple Family Dwelling/Planned Unit Development), C-1/PCD (Neighborhood Commercial/Precise Commercial Development), C-C/PCD-PE (Commercial Center/Precise Commercial Development – Petroleum Extraction Combining) and DI (Drill Island) to A-WR (Agriculture – Water Recharge Combining); and
  - Design, construction, and operation of a water banking facility (storage and recovery) on the Property, including water conveyance to and from the site and spreading and recovery facilities on site at the Property.



Aerial: USGS Stevens Quad Map 2018
Land Uses: City of Bakersfield/Kern County 2020

Figure ES-1.
Proposed Project Location

Prepared by:
Horizon WATER and ENVIRONMENT

McAllister Ranch Groundwater Banking Project

ES.4.2 Proposed Project Construction

Construction of the Proposed Project would involve developing levees to create approximately 1,600 acres of percolation ponds, up to 14 groundwater extraction wells, water conveyance facilities, up to four pumping plants and two gravity turnouts, and up to eight groundwater monitoring wells.

Offsite improvements for the Proposed Project would include a new gravity turnout from Basin 1 of the City's existing 2800 Acre Groundwater Recharge Facility and two new siphon crossings at the Kern River Canal and the Union Pacific Railroad (UPRR) tracks.

Construction of the Proposed Project is anticipated to take approximately 5 years, finishing in 2028.

Intake/Conveyance Facilities – To convey water to the project site, a new head gate and gravity turnout would be constructed at the southeast corner of Basin 1 of the City's 2800 Acre Groundwater Recharge Facility, where the conveyance channel would enter the Pioneer Project Water Bank (Pioneer Project), which is owned and operated by RRBWSD. This facility would have a capacity of approximately 500 cubic feet per second (cfs).

Demolition and Grading – All remaining aboveground infrastructure components from the McAllister Ranch residential development would be removed, including street pavement, curbs, sidewalks, golfcart paths, block walls footings, and the burned down building foundation. Underground utilities would be removed as needed during the grading process for the recharge ponds. The residential development portion of the site would not be regraded before grading commences for construction of the recharge ponds.

Recharge Basins and Interbasin Flow Control Structures – The Proposed Project would consist of 24 individual recharge ponds with perimeter and contour levees. The perimeter levees would be offset about 15 feet inside the property line. The contour levees would generally follow the existing ground contours. Recharge basins were designed based on the following considerations: (1) levees were located to avoid existing, permanent, aboveground facilities, the petroleum extraction area, and locations of protected cultural and biological resources; (2) the height of the perimeter and contour levees was limited to 6 feet; and (3) the minimum allowance for freeboard was 2 feet.

The individual recharge basins would be connected by a series of interbasin flow control structures, which would convey water from basin to basin. At least one interbasin structure would be located at every levee; larger recharge basins with longer levees would have two interbasin structures.

ES.4.3 Proposed Project Operations

The Proposed Project would be operated and managed by BVWSD and RRBWSD, although day-to-day operations or portions thereof may be contracted to other parties. Operation of the Proposed Project would include conveying water to the project site, recharging that water in the basins, storing that water in underground aquifer, and recovering water from the aquifer for transport to beneficial uses offsite. The Proposed Project would be in active operation primarily

when sufficient water is available to allow conveyance to the project site (i.e., during wet seasons in wet years) and when water is needed to meet demand within BVWSD's and RRBWSD's service areas (i.e., during irrigation seasons in extremely dry years).

It is expected that up to 200,000 AF of water could be stored by the Proposed Project during any given year. The most likely period when water would be conveyed to the project site would be December through July. In an exceptionally wet year, however, water could be diverted to the project site throughout the year. It is anticipated that up to 56,000 AF of stored water could be extracted from the aquifer in any given year. Of that amount, approximately 75 percent is expected to be recovered from wells within the project site; the remaining 25 percent is expected to be recovered from existing offsite facilities within BVWSD's and RRBWSD's service areas and used for irrigation and M&I uses and consistent with BVWSD's and RRBWSD's Conjunctive Use Programs, all of which are existing points of use.

Water Sources

Recharge water for the Proposed Project would be secured and acquired from various sources, potentially including federal, state, and local supplies. Water would be acquired through transfers, balanced and unbalanced exchange agreements, purchase or temporary transfers, or other means as available. Potential sources of water for recharge and storage during operation of the Proposed Project include water from the Kern River, SWP, and CVP, depending on annual availability and appropriative (pre-1914 and post-1914) water rights; Friant-Kern Canal; floodwater; and possibly other sources that may be available to BVWSD and RRBWSD from time to time.

Bicycle Path

BVWSD and RRBWSD propose to dedicate an easement to the City for use as a bicycle path that would connect trails in the western suburban area of Bakersfield with the Kern River Canal and, from there, across the canal to the Kern River Parkway Trail. The proposed bicycle path is conceptual in nature at this time; **t**he City Recreation and Parks Department would design, construct, and maintain the trail, which would be located in such a way that users would not have access to areas within the Proposed Project site. General characteristics of the trail would conform to bicycle path requirements in the *City of Bakersfield Recreation and Parks Master Plan* (City of Bakersfield 2007) and the *City of Bakersfield Bicycle Transportation Plan* (City of Bakersfield 2013). When funding is available and design of the trail is more developed, the City would determine whether additional CEQA review is required.

ES.5 Native American Tribal Input to Project Design

As discussed in detail in Chapter 6, *Cultural Resources*, and Chapter 17, *Tribal Cultural Resources*, up to four pre-contact Native American Resources are known to be located within the Proposed Project area. All of the resources have been determined eligible for listing the National Register of Historic Places and/or California Register of Historical Resources during previous studies, and all are identified as tribal cultural resources by the Tejon Indian Tribe and the Santa Rosa Rancheria Tachi Yokut Tribe.

The City and BVWSD are committed to work with the tribes to protect the sites through modification of the project design. Prior to approving project design plans, BVWSD would retain

a qualified archaeologist to work with the tribes to accurately map the boundaries of the known resources. Following delineation of the sites, the City and BVWSD will then discuss potential design elements to protect the sites with the tribes, and provide the tribes the opportunity to discuss and review the project design plans at 60 percent completion and 90 percent completion to ensure that the resources are avoided or treated appropriately. The design plans shall also designate a protected area within the Project limits that will be used to reinter any Native American human remains and associated grave items that may be discovered during construction.

ES.6 Anticipated Permits and Approvals

Under CEQA, a responsible agency is a public agency, other than the lead agency, that has responsibility for carrying out or approving a project (Public Resources Code [Pub. Res. Code] Section 21069). BVWSD and RRBWSD are responsible agencies for the Proposed Project.

CEQA defines a trustee agency as a state agency that has jurisdiction by law over natural resources affected by a project, that are held in trust for the people of the State of California (Pub. Res. Code Section 21070). The California Department of Fish and Wildlife is a trustee agency for the Proposed Project, for the purposes of this EIR.

Table ES-1 identifies potential permits and approvals that may be required for the Proposed Project.

Table ES-1. Anticipated Regulatory Permits, Approvals, and Consultations

Agency	Permit / Approval / Consultation
Federal Agencies	
U.S. Fish and Wildlife Service	Endangered Species Act compliance may be required if biological surveys reveal that the project could result in take of a covered species.
State Agencies	
California Department of Transportation	Encroachment permit
California Department of Fish and Wildlife	Trustee agency for the Proposed Project. Approval may be required if there is incidental take of any state-listed species.
California Department of Water Resources	Approval may be required for water storage and recovery operations, any potential modifications to water rights, and compliance with groundwater sustainability plans.
California Department of Housing and Community Development	Approval may be required for revision to the Housing Element of the City's general plan.
California Department of Conservation, Geologic Energy Management Division	Approval may be required for project elements affecting or adjacent to oilfield facilities.

Agency	Permit / Approval / Consultation
State Water Resources Control Board	Approval may be required for compliance with drinking water regulations.
Native American Heritage Commission	Consultation may be required for cultural or historic resource mitigation plans.
Regional Agencies	
Regional Water Quality Control Board	Section 401 Water Quality Certification and/or Waste Discharge Requirements (for activities that would include the placement of fill or discharge within waters of the state, or cause other effects to beneficial uses as described in the Basin Plan)
San Joaquin Valley Air Pollution Control District	Consultation may be required to confirm compliance with the district's Air Quality Attainment Plan; approval of a permit to operate generators and other equipment may be required.
Local Agencies	
City of Bakersfield	Approval of DEIR and Project as Lead Agency and approval of General Plan Amendment, Specific Plan Amendment, Zoning Code Amendment, and water supply conveyance through Kern River channel and City's 2800 Acre facility; certification of final EIR as Lead Agency.
Buena Vista Water Storage District	Approval of DEIR as Responsible Agency and approval of the water banking element of Project.
Rosedale-Rio Bravo Water Storage District	Approval of DEIR as Responsible Agency and approval of the water banking element Project.
Kern County Water Agency	Approval of the supply canal through the Pioneer Project.

ES.7 Summary of the Impact Analysis

This draft EIR evaluates the potential for the Proposed Project and alternatives to affect environmental resources as listed in Appendix G of the CEQA Guidelines. **Table ES-2** at the end of this Executive Summary summarizes the impact analysis and significance determinations for the Proposed Project.

No significant and unavoidable impacts were identified for the Proposed Project. All potentially significant effects identified in the impact analysis would be reduced to less-than-significant levels with implementation of mitigation measures.

ES.8 Alternatives Analysis

Section 15126.6 of the CEQA Guidelines requires that an EIR "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of

the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives."

The Proposed Project's purpose and objectives, as well as its potentially significant environmental impacts, were considered while developing alternatives. In addition to the No Project Alternative, a Reduced Pumping Alternative and a Reduced Recharge Area Alternative were developed to reduce the general magnitude of anticipated adverse environmental effects associated with the Proposed Project.

ES.8.1 No Project Alternative

Under the No Project Alternative, BVWSD and RRBWSD would not construct groundwater recharge ponds, a conveyance pipeline to carry water from the City's 2800 Acre Facility to the site, or build infrastructure required to operate a groundwater recharge facility at the site of the previously approved McAllister Ranch Specific Plan area. The existing, derelict improvements to the site would remain in place. The general plan and zoning approvals for the existing specific plan would remain in effect, although there are no current or foreseeable plans or known project proponents who are considering development of the site.

Implementing the No Project Alternative would forego the opportunity to support achieving groundwater sustainability within Kern County Sub-basin; provide ecosystem public benefits and water supply benefits for agricultural and M&I uses; and reduce BVWSD's and RRBWSD's dependence on the California Delta by storing water locally in the groundwater aquifer for later extraction and use. The No Project Alternative would not achieve any of the Proposed Project's objectives.

ES.8.2 Alternative 1: Reduced Pumping Alternative

Alternative 1 would involve a modified schedule of groundwater pumping for the Proposed Project that would allow a larger percentage of stored groundwater to remain within the aquifer. Hydrologic modeling indicated that there is some potential for the Proposed Project to have adverse effects during very low groundwater conditions. Groundwater pumping drawdown, relative to the baseline condition, would be greatest in the west central part of the project area. Maximum groundwater drawdown in project wells is predicted to be as high as approximately 50 feet in the shallow/intermediate aquifer and up to 60 feet in the deep aquifer. Maximum pumping interference in the nearest non-project wells occurs in the deep aquifer and is predicted to range from approximately 13 to 29 feet. Alternative 1 would place additional restrictions on the timing and amount of groundwater recovery to avoid or reduce pumping interference in non-project wells to 10-15 feet or less.

Implementing Alternative 1 would meet most, but not all, of the project objectives, though at a reduced level of performance compared to the Proposed Project. Limiting recovery during very low groundwater conditions would reduce the project's ability to increase operating flexibility for BVWSD's and RRBWSD's existing and future Conjunctive Use Programs. However, operations would remain unchanged during most years.

ES.8.3 Alternative 2: Reduced Recharge Area Alternative

Alternative 2 would reduce the area operated as part of the Proposed Project from 2,070 acres to 1,910 acres by removing Basin 24 (measuring approximately 160 acres) from the project area. This area would be fenced off to separate it from the remaining groundwater recharge area. No project-related activities would take place within this area. As shown in Table 2-3, the loss of this area would eliminate approximately 41.4 cubic feet per second (cfs) of recharge capacity, which would reduce the overall recharge capacity of the Proposed Project by approximately 8 percent, from 488 cfs to 446.6 cfs.

Implementing Alternative 2 would meet most of the project objectives, albeit at a reduced level of performance. Removing Basin 24 from the project area would reduce the amount of water stored in the groundwater aquifer and could, during dry or multiple-dry years, reduce the amount of water available for recovery.

ES.8.4 Environmentally Superior Alternative

Of the alternatives evaluated in detail above, Alternative 2: Reduced Recharge Area Alternative is considered the environmentally superior alternative among the alternatives (excluding the Proposed Project) carried forward for full analysis in this EIR. Alternative 2 is considered environmentally superior as it would reduce some of the environmental impacts associated with implementing the Proposed Project, including avoidance of impacts on some special-status plant and wildlife species and avoidance of impacts on significant cultural and tribal cultural resources. It would achieve most of the Proposed Project's objectives, but at a reduced performance level. The Reduced Recharge Area Alternative would also reduce the Proposed Project's amount of water storage and potentially the availability of groundwater for recovery.

ES.9 Areas of Known Controversy

Section 15123(b)(2) of the CEQA Guidelines requires that the summary of an EIR identify areas of controversy known to the lead agency, including issues raised by agencies and the public. No areas of controversy are known to the lead agency. Several aspects of the Proposed Project and its potential effects were raised during the scoping period, however, and have been addressed in the EIR:

- Potential for impacts on groundwater quality and quantity in surrounding areas: SGMA (California Water Code Sections 10720 et seq.) requires water districts to facilitate programs that protect and benefit the groundwater basins that underlie their areas. The Proposed Project site is within the jurisdictional boundary of the KRGSA. The agency would have an interest in monitoring operation of the Proposed Project and coordinating with BVWSD and RRBWSD to ensure consistency with its GSP. BVWSD is also a GSA and operates under its own GSP (BVWSD GSA 2020). RRBWSD is a member of the Kern Groundwater Authority GSA and operates under its own chapter of the KGA GSP (KGA GSA 2020).
- Potential for impacts on cultural and tribal cultural resources: Several pre-contact Native American resources are known to be located within the Proposed Project area. All of these resources have been determined eligible for listing the National Register of Historic Places and/or California Register of Historical Resources during previous studies, and all are

identified as tribal cultural resources by the Tejon Indian Tribe and the Santa Rosa Rancheria Tachi Yokut Tribe.

The City and BVWSD are committed to work with the tribes to protect the sites through modification of the project design. The parties have developed a mutually agreeable approach to site design that would protect known resources and unanticipated discoveries, if they occur.

ES.10 Public Involvement

ES.10.1 Scoping Period

The City prepared a Notice of Preparation (NOP) for the Proposed Project that highlighted the environmental issues to be addressed in the DEIR. The NOP was circulated for a 30-day scoping period, from June 12 to July 13, 2020, allowing the public agencies, the general public, and interested parties to provide comments on the scope of the EIR. Copies of the NOP were distributed by mail and email to a broad range of stakeholders, including state, federal, and local regulatory agencies and jurisdictions, water districts and other utilities, and interested individuals. In addition, the NOP was published on the City's website. The NOP is included in this EIR as **Appendix A**, *Scoping Summary*.

In addition, the City held a public scoping meeting during the scoping period. The scoping meeting was held on June 29, 2020, at 12:00 p.m. at the City of Bakersfield's Council Chambers, at 1501 Truxtun Avenue in Bakersfield. The scoping meeting included a brief presentation describing the Proposed Project and a preliminary review of potential environmental effects.

The City did not receive any verbal or written comments at the scoping meeting; however, five comment letters were received during the 30-day scoping period. These comments were considered during preparation of this EIR and are summarized in Appendix A.

ES.10.2 Draft EIR Public Comment Period

This draft EIR is currently undergoing public review for 45 days, beginning on the date specified in the Notice of Availability (NOA) of this draft EIR. Written or emailed comments may also be submitted at any time during the draft EIR public review period. All comments must be received by 5:00 p.m. on the closing date identified in the NOA and directed to the name and address listed below:

Contact Name: Kassandra Gale, Principal Planner
Address: 1715 Chester Avenue, 2nd Floor, Bakersfield, CA 93301
Email: KGale@bakersfieldcity.us

Submittal of written comments by e-mail (Microsoft Word or portable document format [PDF]) would be greatly appreciated. Written, emailed, and oral comments received in response to this draft EIR during the public review period will be addressed in the "Responses to Comments" section of the final EIR.

All documents mentioned herein or related to this Proposed Project can be reviewed online at the City's website: https://www.bakersfieldcity.us/279/Environmental-Documents.

ES.10.3 Final EIR

Following the close of the public comment period, the City will respond to substantive comments submitted on the draft EIR. A final EIR will be prepared that includes responses to comments; revisions to the text of the draft EIR, if necessary; and any other new information that was not available at the time the draft EIR was published. The final EIR will be provided to agencies that commented on the draft EIR at least 10 days before the City considers whether to certify the EIR and approve the Proposed Project. A public hearing will be held at that time, at which agencies and the public will have another opportunity to comment on the EIR.

Table ES-2. Summary of Environmental Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Air Quality			
AQ-1: Conflict with or obstruct implementation of an applicable air quality plan	LTS	None required	LTS
AQ-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard	LTS	None required	LTS
AQ-3: Expose sensitive receptors to substantial pollutant concentrations	LTS	None required	LTS
AQ-4: Expose sensitive receptors to toxic air contaminants	S	**AQ-1:** Develop and Implement a Valley Fever Management Plan	LSM
AQ-5: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people	LTS	None required	LTS
Biological Resources			
BIO-1: 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 CDFW or USFWS	S		LSM
Special-Status Plants	S	**BIO-1:** Conduct a Preconstruction Survey for Kern Mallow **BIO-2:** Implement Kern Mallow Avoidance Buffers **BIO-3:** Compliance with USFWS ITP/HCP Requirements, if Applicable **BIO-4:** Prepare and Implement Environmental Training Program **BIO-5:** Biological Construction Monitoring	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Special-Status Reptiles	S	**BIO-4:** Prepare and Implement Environmental Training Program **BIO-5:** Biological Construction Monitoring **BIO-6:** Conduct Pre-construction Biological Surveys **BIO-7:** Develop and Implement Measures to Avoid Take of Blunt-nosed Leopard Lizard **BIO-8:** Avoid or Relocate Special-Status Reptiles **BIO-9:** Prepare a Special-Status Species Relocation Plan	LSM
Special-Status Birds	S	**BIO-10:** Conduct Pre-construction Surveys for Swainson's Hawk **BIO-11:** Establish Buffers to Avoid or Minimize Impacts on Swainson's Hawk **BIO-12:** Swainson's Hawk Take Authorization **BIO-13:** Conduct Pre-construction Surveys for Burrowing Owl **BIO-14:** Establish Avoidance Buffers for Burrowing Owl **BIO-15:** Develop a Burrowing Owl Exclusion and Mitigation Plan **BIO-16:** Remove Trees or Shrubs Outside of the Nesting Season **BIO-17:** Conduct Pre-construction Nesting Bird Surveys **BIO-18:** Establish Avoidance Buffers Around Active Nests	LSM
Special-Status Mammals	S	**BIO-4:** Prepare and Implement Environmental Training Program **BIO-5:** Biological Construction Monitoring **BIO-6:** Conduct Pre-construction Biological Surveys **BIO-7:** Develop and Implement Measures to Avoid Take of Blunt-nosed Leopard Lizard **BIO-8:** Avoid or Relocate Special-Status Reptiles **BIO-9:** Prepare a Special-Status Species Relocation Plan **BIO-19:** Avoid and Minimize Impacts to Chenopod Scrub **BIO-20:** Conduct Pre-construction Surveys in Chenopod Scrub Habitat	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		BIO-21: Develop a Small Mammal Relocation Plan **BIO-22:** Implement Avoidance Measures for Natal San Joaquin Kit Fox or American Badger Dens **BIO-23:** If Active San Joaquin Kit Fox Dens are Present, Coordinate with USFWS and/or CDFW **BIO-24:** Implement Measures During Construction and Operation to Protect San Joaquin Kit Fox	
BIO-2: Impacts on Riparian Habitat or Other Sensitive Natural Communities	S	**BIO-4:** Prepare and Implement Environmental Training Program **BIO-5:** Biological Construction Monitoring **BIO-19:** Avoid and Minimize Impacts to Chenopod Scrub **BIO-20:** Conduct Pre-construction Surveys in Chenopod Scrub Habitat	LSM
BIO-3: Impact on State or Federally Protected Wetlands or Waters of the U.S.	NI	None required	NI
BIO-4: Impact on Movement of Resident or Migratory Fish or Wildlife Species, Established Native Resident or Migratory Wildlife Corridors, or Native Wildlife Nursery Sites	NI	None required	NI
BIO-5: Conflicts with Local Policies or Ordinances Protecting Biological Resources	NI	None required	NI
BIO-6: Conflicts with Habitat Conservation Plans, Natural Community Conservation Plans, or Other Approved Conservation Plans	NI	None required	NI
Cultural Resources			
CR-1: Adverse change in the significance of a historical resource	NI	None required.	NI
CR-2: Adverse change in the significance of an archaeological resource	S	**CR-1:** Conduct Preconstruction Cultural Resources Awareness Training and Construction Monitoring	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		CR-2: Prepare an Unanticipated Discovery Plan, Immediately Halt Construction if Cultural Resources Are Discovered, Evaluate All Identified Cultural Resources for Eligibility for Inclusion in the NRHP/CRHR, and Implement Appropriate Mitigation Measures for Eligible Resources	
CR-3: Disturbance of any human remains, including those interred outside of formal cemeteries	S	**CR-1:** Conduct Preconstruction Cultural Resources Awareness Training and Construction Monitoring **CR-2:** Prepare an Unanticipated Discovery Plan, Immediately Halt Construction if Cultural Resources Are Discovered, Evaluate All Identified Cultural Resources for Eligibility for Inclusion in the NRHP/CRHR, and Implement Appropriate Mitigation Measures for Eligible Resources **CR-3:** Comply with Required Response Protocol for the Unanticipated Discovery of Human Remains	LSM
Energy			
ENR-1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation	LTS	None required	LTS
ENR-2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency	LTS	None required	LTS
Geology, Soils, and Seismicity			
GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction	LTS	None required	LTS
GEO-2: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides	LTS	None required	LTS

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
GEO-3: Result in substantial soil erosion or loss of topsoil	LTS	None required	LTS
GEO-4: 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	LTS	None required	LTS
GEO-5: Result in risk to property and life from expansive soils	LTS	None required	LTS
GEO-3: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	S	**GEO-1:** Halt Construction if Paleontological Resources Are Discovered, Evaluate Discoveries for Uniqueness, and Implement Appropriate Mitigation Measures for Unique Resources	LSM
Greenhouse Gas Emissions			
GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment	LTS	None required	LTS
GHG-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs	LTS	None required	LTS
Hazards and Hazardous Materials			
HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials	S	**HAZ-1:** Abatement of Airborne Insects	LSM
HAZ-2: 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	S	**HAZ-2:** Collection of Soil Sample **HAZ-3:** Management of Unknown Hazardous Materials	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
HAZ-3: Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile or an existing or proposed school	NI	None required	NI
HAZ-4: Located on a site that is included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment	NI	None required	NI
HAZ-5: Result in a safety hazard or excessive noise for people residing or working on the project area if the project is within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public-use airport	NI	None required	NI
HAZ-6: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan	LTS	None required	LTS
HAZ-7: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires	NI	None required	NI
Hydrology and Water Quality			
WQ-1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality	LTS	None required	LTS
WQ-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin	LTS	None required	LTS

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
WQ-3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:			
i. Result in substantial erosion or siltation on- or offsite	LTS	None required	LTS
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite	LTS	None required	LTS
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff	LTS	None required	LTS
iv. Impede or redirect flood flows	LTS	None required	LTS
WQ-4. Result in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation	LTS	None required	LTS
WQ-5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan	LTS	None required	LTS
Land Use and Planning			
LU-1: Potential to physically divide an established community	NI	None required	NI
LU-2: Conflicts with applicable land use plans, policies, or regulations community	LTS	None required	LTS

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Noise			
NOI-1: Substantial temporary or permanent increase in ambient noise levels in the vicinity of proposed maintenance areas in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state or federal standards	LTS	None required	LTS
NOI-2: Generation of excessive groundborne vibration or groundborne noise levels	LTS	None required	LTS
NOI-3: Location in the vicinity of a private airstrip or an airport land use plan area, or, within 2 miles of a public airport, and exposure of people residing or working in the area to excessive noise levels	NI	None required	NI
Population and Housing			
POP-1: Potential to induce population growth within the City of Bakersfield	LTS	None required	LTS
POP-2: Potential effects to existing housing stock within the City of Bakersfield	LTS	None required	LTS
Public Services			
PS-1: 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 would cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for:			

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
i. Fire protection	LTS	None required	LTS
ii. Police protection	LTS	None required	LTS
Recreation			
REC-1: Include recreational facilities that would have an adverse physical effect on the environment	LTS	None required	LTS
REC-2: increase the use of existing recreational facilities	NI	None required	NI
Tribal Cultural Resources			
TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074, that is Listed or eligible for listing in the CRHR as defined in Public Resources Code Section 5020.1(k); OR 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	S	**CR-1:** Conduct Preconstruction Cultural Resources Awareness Training and Construction Monitoring **CR-2:** Prepare an Unanticipated Discovery Plan, Immediately Halt Construction if Cultural Resources Are Discovered, Evaluate All Identified Cultural Resources for Eligibility for Inclusion in the NRHP/CRHR, and Implement Appropriate Mitigation Measures for Eligible Resources **CR-3:** Comply with Required Response Protocol for the Unanticipated Discovery of Human Remains **TCR-1:** Implement Mitigation Measures Recommended in Public Resources Code Section 21084.3 to Avoid Damaging Effects on Tribal Cultural Resources	LSM
Utilities and Service Systems			
UTL-1: Require or result in the relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects	LTS	None required	LTS

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
UTL-2: Have insufficient water supplies to supply the project and reasonably foreseeable future development during normal, dry and multiple dry years	LTS	None required	LTS
UTL-3: 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	S	**UTL-1:** Comply with CALGreen Waste Diversion Requirements to the Extent Feasible	LSM
UTL-4: Failure to comply with federal, state, and local management and reduction statutes and regulations related to solid waste	S	**UTL-1:** Comply with CALGreen Waste Diversion Requirements to the Extent Feasible	LSM
Cumulative Impacts			
Cum-1: Effects on Biological Resources	S	BIO-1 through BIO-13, BIO-23 through BIO-25	LSM
CUM-2: Effects on Cultural and Tribal Cultural Resources	S	CR-1 through CR-3, TCR-1	LSM
CUM-3: Effects on Hydrology and Water Quality	LTS	None required	LTS

Chapter 1
INTRODUCTION

The City of Bakersfield (City) has prepared this draft environmental impact report (DEIR) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of the McAllister Ranch Groundwater Banking Project (Proposed Project). This DEIR was prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended) and the CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.).

1.1 Proposed Project Overview

The Proposed Project consists of construction and operation of a water banking project on approximately 2,070 acres of undeveloped real property located north of Panama Lane and west of South Allen Road, in Bakersfield, California. Buena Vista Water Storage District (BVWSD), the project applicant, and the Rosedale-Rio Bravo Water Storage District (RRBWSD) are proposing to divert water from multiple existing sources and store it at the project site to recharge the groundwater basin and therefore allow the water to be later recovered for irrigation and municipal and industrial (M&I) uses when needed. The Proposed Project would include constructing up to 24 shallow percolation ponds to facilitate the recharge activities, as well as other features to enable the storage and transport of water. At full buildout, up to approximately 200,000 acre-feet per year (AFY) of water could be diverted and recharged in the groundwater basin.

Recharge water for the Proposed Project would be secured and acquired by BVWSD and RRBWSD from various sources, potentially including federal, state, and local supplies. Water would be acquired through transfers, balanced and unbalanced exchange agreements, purchase, temporary transfers, or other means as available. The stored water would be recovered through a proposed onsite well field or existing offsite wells that are owned by BVWSD, RRBWSD, or their landowners and within their service areas. All project recovery operations would be subject to the conditions of various policies and agreements, including Memoranda of Understanding and Operations Plans, as more fully described in Chapter 2, *Project Description*.

The Proposed Project requires the City's approval, as well as approval of land use designation change requests. The project site is the site of the McAllister Ranch Specific Plan, which was a planned residential development comprising residential, commercial, and recreational space, as well as school and railcar transportation facilities. Therefore, the City would have to approve changes to the approved land use designations to allow for the construction and operation of a water banking facility on the site.

1.2 Overview of CEQA Requirements

As described in Public Resources Code (Pub. Res. Code) Section 21000, CEQA has several basic purposes, to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or substantially reduced.
- Prevent significant, avoidable damage to the environment by requiring implementation of feasible mitigation measures or project alternatives that would substantially lessen any significant effects that a project would have on the environment.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

With certain strictly limited exceptions, CEQA requires all state and local government agencies to consider the environmental consequences of projects over which they have discretionary authority before approving or carrying out projects. CEQA establishes both procedural and substantive requirements that agencies must satisfy to meet CEQA's objectives. For example, the agency with principal responsibility for approving or carrying out a project (the lead agency) must first assess whether a proposed project would result in significant environmental impacts. If there is substantial evidence that the project would result in significant environmental impacts, CEQA requires that the agency prepare an EIR, analyzing both the proposed project and a reasonable range of potentially feasible alternatives.

As described in the CEQA Guidelines (14 CCR Section 15121 [a]), an environmental impact report (EIR) is an informational document that assesses potential environmental effects of a proposed project and identifies mitigation measures and alternatives to the project that could reduce or avoid potentially significant environmental impacts. Other key CEQA requirements include developing a plan for implementing and monitoring the success of the identified mitigation measures and carrying out specific public notice and distribution steps to facilitate public involvement in the environmental review process. As an informational document used in the planning and decision-making process, an EIR's purpose is not to recommend either approval or denial of a project. Note that an EIR does not expand or otherwise provide independent authority of the lead agency to impose mitigation measures or avoid project-related significant environmental impacts beyond the authority already within the lead agency's jurisdiction.

1.2.1 Intent and Scope of this Document

The City is the lead agency for the CEQA process and has discretionary review and approval authority for project activities that are subject to CEQA (CEQA Guidelines Section 15378). The City will use the analyses presented in this DEIR, as well as information or comments provided by the public through the public review process, to evaluate the Proposed Project's environmental impacts. The City of Bakersfield City Council will use this information to consider the potential certification of this DEIR and approval of the Proposed Project. BVWSD and RRBWSD are Responsible Agencies, and their Boards of Directors will use this information and rely on this DEIR to consider the approval of the water banking element of the Proposed Project.

The intent of this DEIR is to evaluate in detail the potential environmental impacts of the Proposed Project. The analysis in the DEIR has been prepared at a project level in accordance with CEQA Guidelines Section 15161. Accordingly, this DEIR focuses on the changes in the environment that could result during all phases of the Proposed Project, including construction and ongoing operations, such that the DEIR adequately satisfies all CEQA requirements to support the project without the need for further CEQA documentation.

1.3 CEQA Process

1.3.1 Notice of Preparation

The Notice of Preparation (NOP) is a form required by CEQA Guidelines Section 15082 that is prepared by the lead agency and sent to the Governor's Office of Planning and Research (OPR) and each responsible and trustee agency, notifying them of the lead agency's plan to prepare an EIR for a project. An NOP for the Proposed Project was prepared by the City and was circulated on June 12, 2020. This initiated a 30-day scoping period that ended on July 13, 2020, allowing the public agencies, the general public, and interested parties to provide comments on the scope of the EIR. The NOP presented general background information about the Proposed Project, described the scoping process, and provided an Initial Study (IS), based on the environmental checklist found in Appendix G of the CEQA Guidelines, that highlighted the environmental issues to be addressed in the DEIR. Copies of the NOP were distributed by mail and email to a broad range of stakeholders, including state, federal, and local regulatory agencies and jurisdictions, utilities, and interested individuals in the area. In addition, the NOP was published on the City's website. The NOP is included in this DEIR in **Appendix A**, *Scoping Summary*.

1.3.2 Scoping Comments and Meetings

To provide the public, as well as responsible and trustee agencies, an opportunity to ask questions and submit comments on the Proposed Project and the scope of the DEIR, the City held a public scoping meeting during the scoping period. As described above, notices of the meeting were mailed to regulatory agencies and interested parties; in addition, scoping meeting information was published on the City's website prior to the event.

The scoping meeting was held on Monday, June 29, 2020, at 12:00 p.m. at the City of Bakersfield's Council Chambers, at 1501 Truxtun Avenue in Bakersfield. The scoping meeting included a brief presentation describing the Proposed Project and a preliminary review of potential environmental effects.

The City did not receive any verbal or written comments at the scoping meeting; however, five comment letters were received during the 30-day scoping period. These comments were considered in this CEQA evaluation and are summarized in Appendix A.

1.3.3 Draft EIR

The City has prepared this DEIR, as informed by public and agency input received during the scoping period, to disclose potentially significant environmental impacts associated with the Proposed Project. Where any such impacts are significant, the DEIR identifies and discusses

feasible mitigation measures and potentially feasible alternatives that substantially reduce or avoid such effects. The public review period provides the public an opportunity to provide input to the lead agency on the DEIR.

1.3.4 Final EIR

Once the public review period is closed, the City will prepare a Final EIR (FEIR). The FEIR will incorporate this DEIR by reference and will contain all comments submitted on this DEIR (including those made at public meetings), responses to those comments, and any necessary revisions to the text of this DEIR. The FEIR will be reviewed by the City of Bakersfield Planning Commission and considered for approval by the City Council.

Written, emailed, and oral comments received in response to the DEIR will be addressed in the "Responses to Comments" section of the FEIR. Together with the DEIR and any related changes to the substantive discussion in the DEIR, these responses will constitute the FEIR. The FEIR, in turn, will inform the City's exercise of its discretion as a lead agency under CEQA in deciding whether or how to approve the Proposed Project.

1.4 Organization of this DEIR

This DEIR contains the following components:

Executive Summary. A summary of the Proposed Project, a description of the issues of concern, alternatives to the Proposed Project, and a summary of environmental impacts and mitigation measures are provided in this chapter.

Chapter 1, *Introduction.* This chapter describes the purpose and organization of the EIR and its preparation, review, and certification process.

Chapter 2, *Project Description.* This chapter summarizes the Proposed Project, including a description of its purpose and objectives; a brief description of the project area; actions that would be taken for construction, operation, and maintenance of the Proposed Project; and related permits and approvals associated with these activities.

Chapter 3, *Introduction to the Environmental Analysis.* This chapter is an introduction to the impact analysis conducted in this DEIR and identifies resource topic areas determined, in the IS/NOP or through subsequent analysis, not to be affected by the Proposed Project.

Chapters 4-18 describe the environmental resources and potential environmental impacts of the Proposed Project. Each chapter describes the existing setting and background information for the resource topic area under consideration to aid the reader in understanding the conditions that could be affected by the Proposed Project. In addition, each chapter includes a discussion of the criteria used in determining the significance levels of the Proposed Project's environmental impacts. Each chapter also provides mitigation measures to reduce, where possible, the adverse effects of potentially significant impacts.

Chapter 19, *Alternatives Analysis.* This chapter describes the process by which alternatives to the Proposed Project were developed and screened, evaluates their likely environmental impacts, and identifies the environmentally superior alternative.

Chapter 20, *Other Statutory Considerations.* This chapter addresses the Proposed Project's potential to contribute to cumulative impacts. Chapter 20 also outlines the Proposed Project's potential to induce growth and identifies significant, irreversible environmental changes resulting from the Proposed Project.

Chapter 21, *Report Preparation,* lists the individuals involved in preparing this DEIR.

Chapter 22, *References,* provides a bibliography of printed references, websites, and personal communications used in preparing this DEIR.

Appendices

- Appendix A. *Scoping Summary*
- Appendix B. *Draft Mitigation Joint Use Agreement, Operations Plan, and MOU*
- Appendix C. *Traffic Impact Study*
- Appendix D. *Air Quality Pollutant Emissions, Greenhouse Gas Emissions, and Energy Use Calculations*
- Appendix E. *Biological Evaluation Report*
- Appendix F. *Cultural Resources Review*
- Appendix G. *Phase I Environmental Site Assessment*
- Appendix H. *Hydrogeological Technical Memo*
- Appendix I. *Noise Calculations*

1.5 Submittal of Comments

The City is circulating this DEIR for a 45-day public review, beginning and ending on the dates identified in the NOA. As discussed above and described in the NOA, the City will host one public hearing during this period at which oral comments will be received. The purpose of public review is to provide agencies and interested individuals with opportunities to comment on or express concerns regarding the contents of this DEIR.

Agencies or interested individuals can submit oral comments concerning this DEIR during the public meeting, as described above and in the NOA, or submit written or emailed comments at any time during the DEIR public review period. All comments must be received by 5:00 p.m. on the closing date identified in the NOA and directed to the name and address listed below:

Contact Name: Kassandra Gale, Principal Planner
Address: 1715 Chester Avenue, 2nd Floor, Bakersfield, CA 93301
Email: KGale@bakersfieldcity.us

Submittal of written comments by e-mail (Microsoft Word or portable document format [PDF]) would be greatly appreciated. Written, emailed, and oral comments received in response to this DEIR during the public review period will be addressed in the "Responses to Comments" section of the FEIR.

All documents mentioned herein or related to this Proposed Project can be reviewed online at the City's website: https://www.bakersfieldcity.us/279/Environmental-Documents.

Chapter 2
Project Description

This chapter describes the location, objectives, key components, construction, and operation of the McAllister Ranch Groundwater Banking Project.

2.1 PROJECT OVERVIEW

The McAllister Ranch Groundwater Banking Project consists of construction and operation of a water banking project on approximately 2,070 acres of undeveloped real property located north of Panama Lane and west of South Allen Road, in Bakersfield, California. Water supplies available to Buena Vista Water Storage District (BVWSD), the project applicant, and the Rosedale-Rio Bravo Water Storage (RRBWSD), would primarily be delivered from the Kern River, recharged, and stored at the project site and would later be recovered for irrigation and municipal and industrial (M&I) uses when needed. The Proposed Project would include constructing several shallow percolation ponds to facilitate the recharge activities, as well as other features to enable the storage, recovery, and transport of water. At full buildout, up to approximately 200,000 acre-feet per year (AFY) of water could be diverted and recharged to the groundwater basin. The maximum recovery of stored water would be approximately 56,000 AFY. Project elements are described more specifically in Sections 2.7 and 2.8 below.

2.2 PROJECT LOCATION

2.2.1 Project Site and Vicinity

The project site, known locally as McAllister Ranch, is located in the City of Bakersfield, Kern County, California, within Sections 16, 21, 22, and 23, Township 30 South, Range 26 East, Mount Diablo Meridian (MDM), as shown in **Figures 2-1 and 2-2**. The property is located on the Kern River alluvial fan, which is well suited for groundwater banking operations.

The site was formerly a planned residential development that was in the early stages of construction. Due to the downturn in the real estate market, development was discontinued, and the property was sold in a bankruptcy proceeding. BVWSD and RRBWSD jointly purchased the property in 2011.

The McAllister Ranch property is located in the western area of Bakersfield and encompasses approximately 2,070 acres. The property has been disturbed and continues to be disturbed; most of the site had been used for agricultural purposes before it was extensively graded for development. Additionally, the property contains several active and abandoned oil wells and several reserved drill islands. The drill islands are areas zoned for drilling (by others) for the purpose of extracting subsurface oil or gas resources, the rights to which are owned by private parties.

2.2.2 Surrounding Land Uses

The project site is located just within the western extent of Bakersfield's corporate limits. Land uses surrounding the site include water banking operations owned by the Kern County Water Agency (KCWA), the City of Bakersfield (City), and Kern Water Bank to the north and west; petroleum production operations to the southwest; agriculture and Kern Delta Water District water banking operations to the south; residential, commercial development, agricultural, and the Pioneer Project water bank to the east and northeast; and agriculture, petroleum production, and open space to the north and northeast. Portions of the City's 2800 Acre Groundwater Recharge Facility and the Pioneer Banking Project are farther located north and west of the project site. These surrounding land uses are depicted in Figure 2-2.

2.2.3 Climate

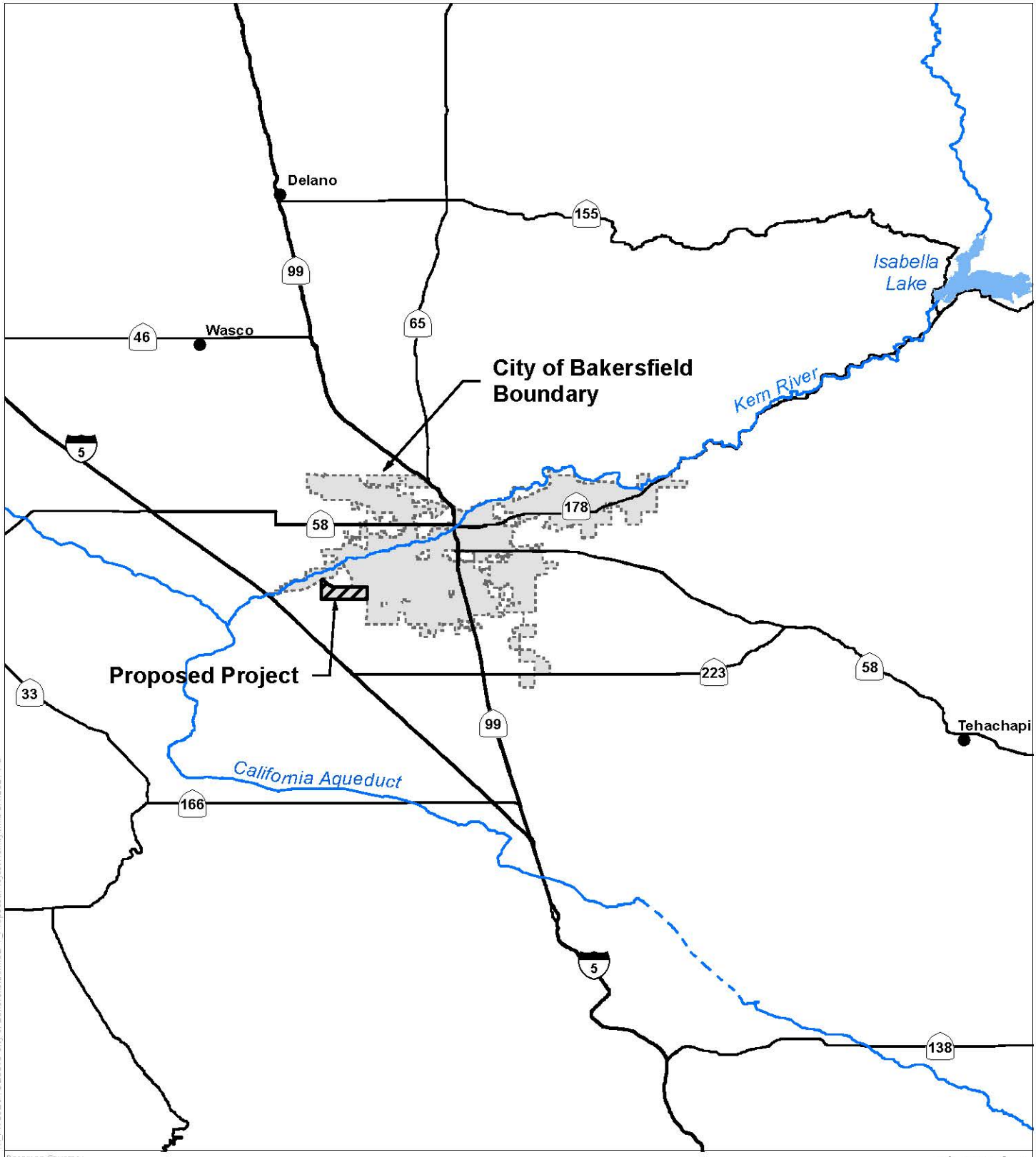
The climate of the project area is typical of the southern San Joaquin Valley, with temperatures ranging from an average maximum of 97 degrees Fahrenheit (°F) during summer months to an average minimum of 37°F during winter months. Precipitation averages approximately 5.7 inches per year, with most rainfall occurring from December through April. Average annual and monthly climate data for the local area were obtained from the Western Regional Climate Center and are summarized in **Table 2-1**. While the immediate project area has very little rainfall and high rates of evapotranspiration, water supply sources are available to support the project from the Kern River and other local, state, or federal programs. Water in the Kern River is largely supplied from headwater areas in the high Sierra Nevada, where snowpack melting and runoff in the spring months flow downstream via the Kern River toward Bakersfield. Lake Isabella is a large reservoir about 40 miles northeast of Bakersfield that stores Kern River water for managed releases throughout the year. The water sources that are available to support the Proposed Project are described further in Section 2.7.4.

Table 2-1. Climate Data for Bakersfield, California

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
Average Max. Temperature (°F)	57.3	63.3	68.5	73.7	84.2	91.3	97.4	96.1	91.1	78.8	65.9	58.9	77.2
Average Min. Temperature (°F)	36.8	39.0	43.2	47.5	54.8	61.1	68.5	66.7	62.0	52.6	42.8	37.0	51.0
Average Total Precipitation (inches)	1.16	1.15	0.82	0.74	0.21	0.01	0.01	0.00	0.05	0.30	0.41	0.85	5.70

Note: °F = degrees Fahrenheit

Source: Western Regional Climate Center 2020.



Basemap Sources:

Figure 2-1
Proposed Project Vicinity

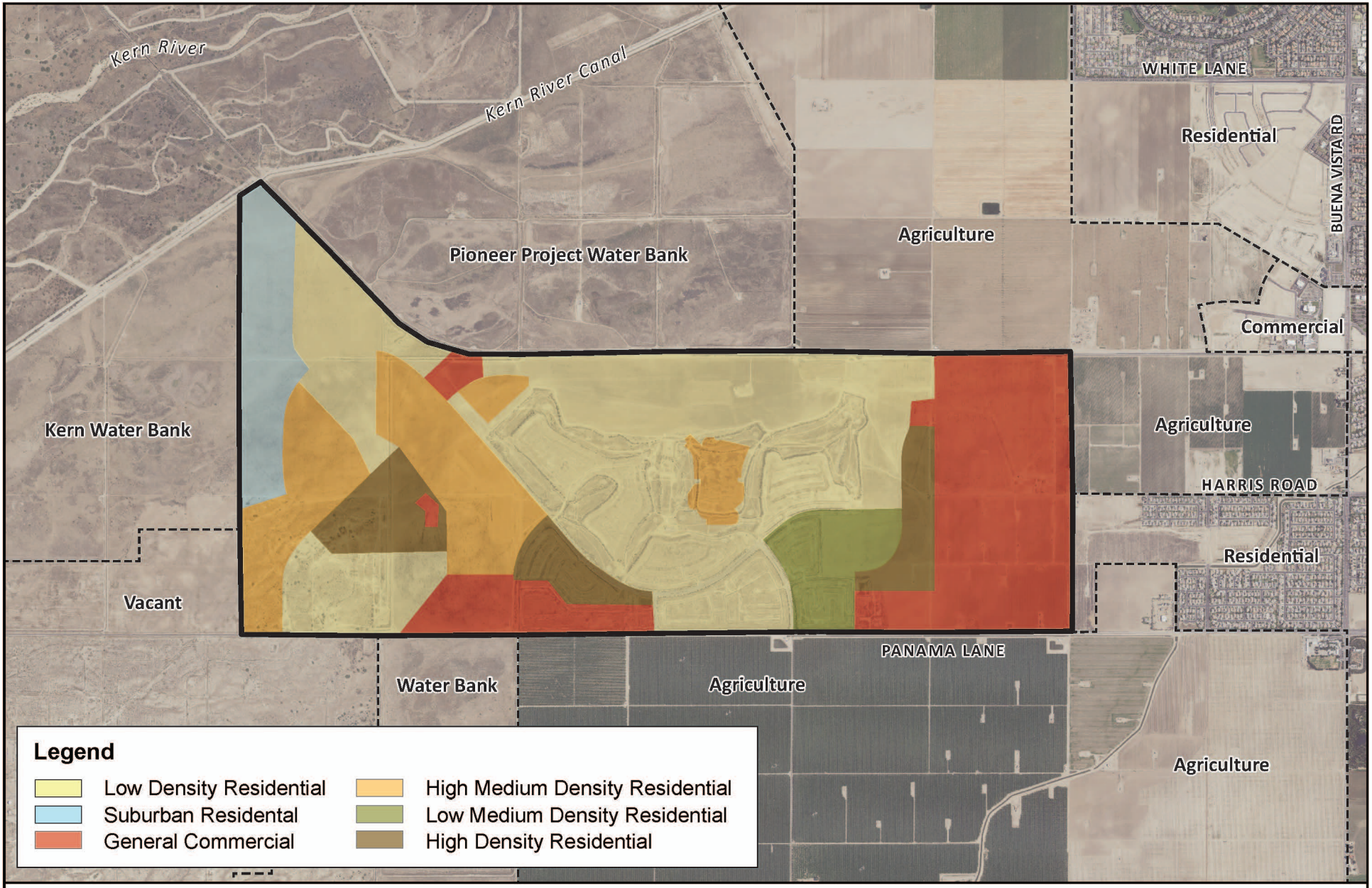
N

0 5 10
Miles

Horizon
WATER and ENVIRONMENT

McAllister Ranch Groundwater Banking Project

T:_PROJECTS\30016 City of Bakersfield\Mxd\2-1_ProposedProjectVicinity.mxd 3/1/2021 PG



Aerial: USGS Stevens Quad Map 2018
Land Uses: City of Bakersfield/Kern County 2020

Figure 2-2.
Proposed Project Location

Prepared by:
Horizon WATER and ENVIRONMENT

McAllister Ranch Groundwater Banking Project

2.3 PLANNING BACKGROUND OF MCALLISTER RANCH

In November 1993, Kern County certified an EIR (State Clearinghouse No. 1993032017), adopted the McAllister Ranch Specific Plan, and amended the Metropolitan Bakersfield 2010 General Plan to implement the McAllister Ranch Specific Plan project, a planned residential development with the following land uses:

- 1,160 acres (up to 9,000 units) of residential use;
- 355 acres of commercial uses;
- 290 acres of recreational uses, including a public 18-hole golf course and support facilities, a 31-acre lake with beach club and swimming lagoon, and multipurpose bicycle/equestrian/hiking trails;
- Three school sites to serve K-12 students; and a
- Potential site for a high speed/light rail terminal facility.

Table 2-2 lists the acreages of each land use type.

Table 2-2. McAllister Ranch Specific Plan Components

General Plan Designation	Recommended No. of Units	Total Acreage
Residential		
Suburban Residential (SR)	338	135.21
Low Density Residential (LR)	2,850	584.86
Low Medium Density Residential (LMR)	220	66.47
High Medium Density Residential (HMR)	2,261	237.86
High Density Residential (HR)	3,331	137.54
Total Residential	9,000	1,161.94
General Commercial[1] (GC)	–	359.12
Public Facilities (P)	–	21.54
Schools (PS)	–	40.00
Public Transportation (PT)[2]	–	195.51
Open Space (Golf Course) (OS)	–	198.33
Open Space – Parks/Lake	–	94.37
Total	N/A	2,070.81

[1] Includes beach club, specialty retail center, neighborhood retail center, and intensified activity center.
[2] Includes streets, West Beltway corridor, and High Speed Rail corridor.

Construction began on the McAllister Ranch Specific Plan development in 2006, with mass grading and installation of some infrastructure. Due to a downturn in the real estate market, development was discontinued in 2008. The property was purchased by BVWSD and RRBWSD in 2011. In 2017, BVWSD acquired 584 acres of the original 2,070 acres that had been partially developed and entitled for urban use, leaving the joint ownership between the districts at 1,486 acres.

2.4 PURPOSE AND OBJECTIVES

The CEQA Guidelines (Title 14, Division 6 CCR, Chapter 3, Sections 15000-15387) call for an EIR to identify objectives sought by a proposed project (CEQA Guidelines Section 15124[b]). A statement of objectives helps convey the reasons for considering approval of the project, including its intended benefits, and guides the development of a reasonable range of alternatives to evaluate in the EIR.

Primary water management goals of independent water storage districts, landowners, and water users within their respective boundaries, as well as water banking partners, by providing a reliable, affordable, and usable water supply through economic and efficient storage, distribution, and use of available water supplies. Such districts must also facilitate programs that protect and benefit the groundwater basins that underlie their areas, as required by the Sustainable Groundwater Management Act (SGMA) (California Water Code Sections 10720 et seq.). The Proposed Project site is within the jurisdictional boundary of the Kern River Groundwater Sustainability Agency (KRGSA). The KRGSA would have an interest in monitoring operation of the Proposed Project and coordinating with the BVWSD and RRBWSD to ensure consistency with the groundwater sustainability plan (GSP). BVWSD is also a GSA and operates under its own GSP (BVWSD GSA 2020).

In support of the general water management goal described above, the Proposed Project would provide the following benefits (purposes):

- Conserve available water supplies for use during below-average years or as otherwise needed for BVWSD's and RRBWSD's purposes;
- Provide water recharge, storage, and recovery capacity , which would allow for the efficient management of water supplies in BVWSD's and RRBWSD's service areas; and
- Provide flexibility for implementing Conjunctive Use Programs.

More specific objectives of the Proposed Project include the following:

- To increase water supply reliability in the area, in a cost-effective and environmentally sound manner, by providing a means to store water in the groundwater aquifer and provide a means to extract and use the stored groundwater when needed;
- To reduce BVWSD's and RRBWSD's dependence on the Sacramento–San Joaquin River Delta (Delta) through programs such as the State Water Project (SWP) and Central Valley Project (CVP), by storing water locally in the groundwater aquifer for later extraction and use;
- Capture, recharge, and store water from the Kern River, SWP, Federal projects, and other available sources for later use;

- Provide operating flexibility for BVWSD's and RRBWSD's existing and future Conjunctive Use Programs with banking partners, exchanges, and sales;
- Assist in achieving groundwater sustainability within Kern County Sub-basin of the San Joaquin Valley Groundwater Basin through implementation of projects consistent with California Executive Order N-10-19 directing State agencies to develop a "water resilience portfolio"; and
- Provide ecosystem public benefits and water supply benefits for agricultural and M&I refuge uses.

2.5 SUMMARY OF REQUESTED ACTIONS

The Applicant is requesting a change to the land use designation of approximately 2,070 acres of undeveloped land, commonly known as McAllister Ranch, in western Bakersfield to enable the construction and operation of a groundwater recharge and recovery facility. The Proposed Project would include the following actions:

- Specific Plan Amendment/General Plan Amendment (SPA-GPA) to:
  - rescind the McAllister Ranch Specific Plan, including all goals, policies, and implementation measures;
  - amend the Land Use Element of the Metropolitan Bakersfield General Plan (MBGP) to change the designation of the Property from SR (Suburban Residential), LR (Low Density Residential), LMR (Low Medium Density Residential), HMR (High Medium Density Residential), HR (High Density Residential), and GC (General Commercial) to R-EA (Resource – Extensive);
  - amend the Circulation Element of the MBGP to remove all McAllister Ranch interior street alignments approved by Resolution 094-07, including McAllister Drive, Canfield Parkway, Old Settler Road, Stetson Way, Erikson Drive, Marino Parkway, Conestoga Way, and any other unnamed local streets within the Plan boundary with no other changes to Circulation for Panama Lane, the West Beltway, or South Allen Road; and
  - amend the Housing Element of the MBGP to remove the housing units approved with the McAllister Ranch Specific Plan from the City's Vacant Land Inventory.
- Zone Change (ZC) for the Property from R-1 (One Family Dwelling), E (Estate), R-2/PUD (Limited Multiple Family Dwelling/Planned Unit Development), R-3/PUD (Multiple Family Dwelling/Planned Unit Development), C-1/PCD (Neighborhood Commercial/Precise Commercial Development), C-C/PCD-PE (Commercial Center/Precise Commercial Development – Petroleum Extraction Combining) and DI (Drill Island) to A-WR (Agriculture – Water Recharge Combining); and
- Design, construction, and operation of a water banking facility (storage and recovery) on the Property, including water conveyance to and from the site and spreading and recovery facilities on site at the Property.

Construction, operational, and maintenance activities associated with the Proposed Project are described in detail below.

2.6 NATIVE AMERICAN TRIBAL INPUT TO PROJECT DESIGN

As discussed in Chapter 6, *Cultural Resources*, and Chapter 17, *Tribal Cultural Resources*, up to four pre-contact Native American Resources are known to be located within the Proposed Project area. All of the resources have been determined eligible for listing the National Register of Historic Places and/or California Register of Historical Resources during previous studies, and all are identified as tribal cultural resources by the Tejon Indian Tribe and the Santa Rosa Rancheria Tachi Yokut Tribe.

The City and BVWSD are committed to work with the tribes to protect the sites through modification of the project design. Prior to approving project design plans, BVWSD would retain a qualified archaeologist to work with the tribes to accurately map the boundaries of the known resources. Following delineation of the sites, the City and BVWSD will then discuss potential design elements to protect the sites with the tribes, and provide the tribes the opportunity to discuss and review the project design plans at 60 percent completion and 90 percent completion to ensure that the resources are avoided or treated appropriately. The design plans shall also designate a protected area within the Project limits that will be used to reinter any Native American human remains and associated grave items that may be discovered during construction.

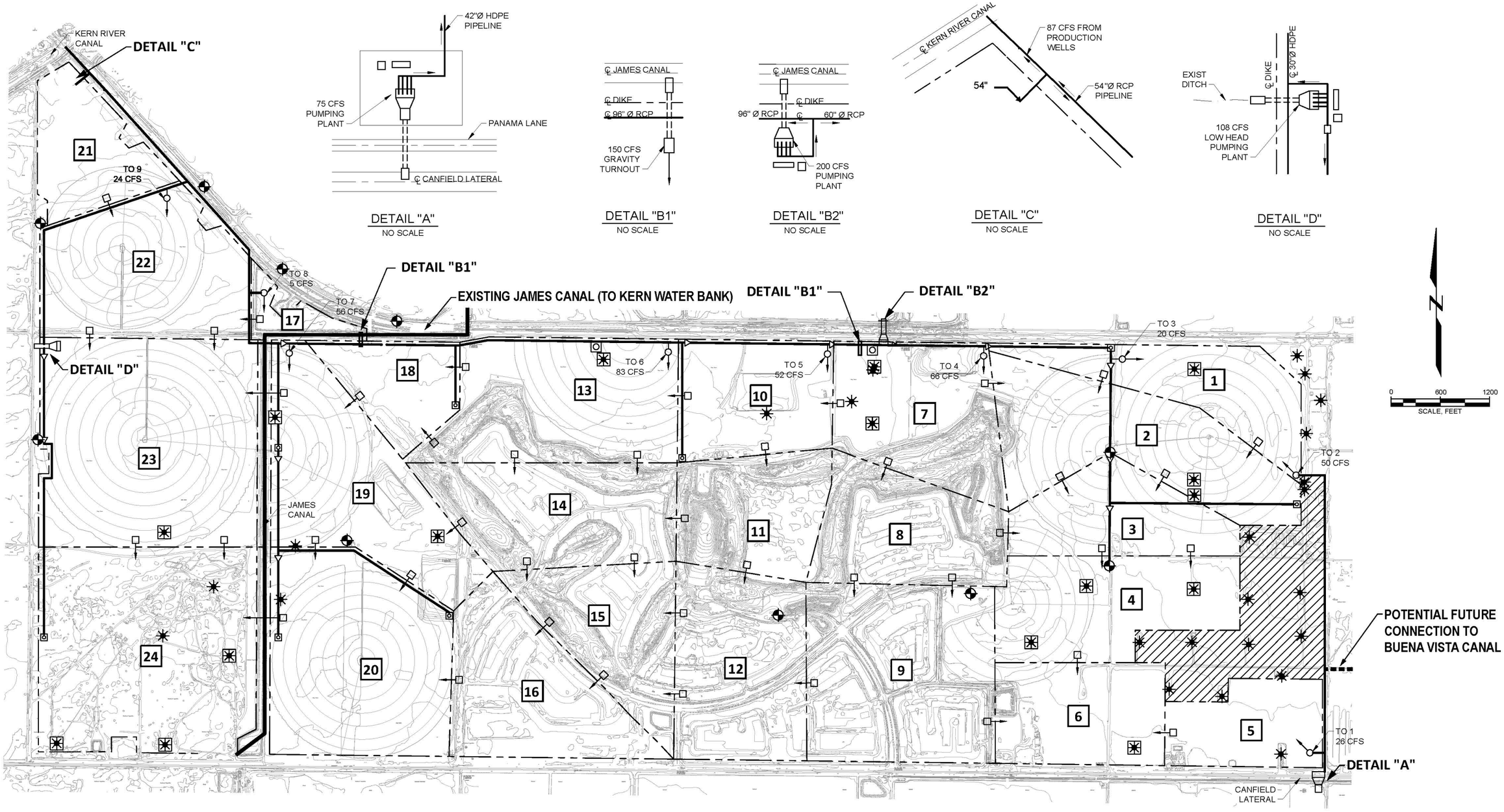
2.7 PROPOSED CONSTRUCTION ACTIVITIES

Construction of the Proposed Project would involve developing levees to create approximately 1,600 acres of percolation ponds, up to 14 groundwater extraction wells, water conveyance facilities, up to four pumping plants and two gravity turnouts, and up to eight groundwater monitoring wells, as shown in **Figure 2-3**.

Offsite improvements for the Proposed Project would include a new gravity turnout from Basin 1 of the City's existing 2800 Acre Groundwater Recharge Facility and two new siphon crossings at the Kern River Canal and the Union Pacific Railroad (UPRR) tracks. The locations of the proposed offsite improvements are depicted in **Figure 2-4**.

2.7.1 Intake/Conveyance Facilities

To convey water to the project site, a new headgate and gravity turnout would be constructed at the southeast corner of Basin 1 of the City's 2800 Acre Groundwater Recharge Facility, where the conveyance channel would enter the Pioneer Project Water Bank (Pioneer Project),which is owned and operated by KCWA. This facility would have a capacity of up to approximately 500 cubic feet per second (cfs).



DETAIL "A"
NO SCALE

DETAIL "B1"
NO SCALE

DETAIL "B2"
NO SCALE

DETAIL "C"
NO SCALE

DETAIL "D"
NO SCALE

Source: Adapted from GEI 2019

Legend

- ℄ Dike
- ℄ Pipeline
- Reducer
- 3 — Recharge Basin Number
- Not Part of Recharge Basin
- Exist Water Well
- Active Oil Well
- Inactive Oil Well
- Turnout from Pipeline
- Interbasin Structure
- Proposed Water Well

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Figure 2-3.
Proposed Project Site Plan

McAllister Ranch Groundwater Banking Project

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Aerial: USGS Stevens Quad Map 2018
Source: Adapted from GEI 2019

Figure 2-4.
Offsite Improvements

Prepared by:
Horizon
WATER and ENVIRONMENT

McAllister Ranch Groundwater Banking Project

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An unlined canal would be constructed from Basin 1 along the east side of the Central and South Pioneer Project recharge ponds,[1] as shown in Figure 2-4. The canal would be approximately 8 feet deep and is anticipated to carry water to a depth of 6 feet to facilitate flows of up to 500 cfs. The canal would cross a bike path/roadway immediately adjacent to the Basin 1 turnout, an area with multiple pipelines, the Kern River Canal, and the UPRR tracks. Accordingly, new siphon crossings would be required at each of these locations. Approximate ranges of pipe sizes for the new siphon crossings have been estimated based on the required capacity; however, the final sizing of the siphon crossings would be determined once a final hydraulic analysis is performed. Locations of these improvements are shown in Figure 2-4.

The intake structure where the unlined canal enters the project site would include a canal-side pumping plant sized to fill Ponds 1 through 9, which would have a combined delivery capacity of about 100 cfs. A gravity component would also be included with pipeline and turnouts sized to fill Ponds 10 through 24, which would have a combined delivery capacity of about 400 cfs.

2.7.2 Demolition and Grading

All remaining aboveground infrastructure components from the McAllister Ranch development would be removed, including street pavement, curbs, sidewalks, golfcart paths, block walls footings, and the burned down building foundation. Underground utilities would be removed as needed during the grading process for the recharge ponds. The residential development portion of the site would not be regraded before grading commences for construction of the recharge ponds.

The materials removed during demolition and grading would be ground and used onsite for roadways and levee protection, assuming the materials are determined to be suitable for these uses. Additionally, the housing and golf course areas would be regraded after construction of the recharge ponds to facilitate interbasin flow transfer. It is estimated that most materials removed during demolition and grading would be used on site (e.g., asphalt, concrete); approximately 70-100 truckloads of steel rebar, plastic, and conduit would be disposed of offsite.

2.7.3 Recharge Basins and lnterbasin Flow Control Structures

The Proposed Project would consist of about 24 individual recharge ponds with perimeter and contour levees. All levees would have a trapezoidal cross section, with a top width of about 16 feet, a bottom width ranging from 28 to 40 feet, and a height ranging from 3 to 6 feet above the original grade. The perimeter levees would be located along the outer edges of the project site and would be offset about 15 feet inside the property line. The contour levees would be internal to the site and would generally follow the existing ground contours.

[1] It is important to note that the portion of the canal crossing the Pioneer Project area would be constructed separately from the Proposed Project and has already been analyzed by RRBWSD in a previous CEQA document (RRBWSD and Irvine Ranch Water District 2022). As such, this portion of the canal is not analyzed in this EIR.

Recharge basins were designed based on the following considerations: (1) levees were located to avoid existing, permanent, aboveground facilities, the petroleum extraction area, and locations of protected cultural and biological resources; (2) the height of the perimeter and contour levees was limited to 6 feet; and (3) the minimum allowance for freeboard was 2 feet.

To assist in the layout of the recharge basins, RRBWSD retained Aerial Photomapping Services (APS) to prepare an aerial survey map of the project site showing the property boundary, ground elevation contours at 2-foot intervals, all visible features (including aboveground permanent facilities), and spot ground elevations (Figure 2-3). This aerial survey map was used to design the layout of the recharge basins, determine levee elevations, and project water surface elevations for the recharge basins.

The total recharge basin area comprises about 24 individual recharge basins. The gross area for each basin was estimated by scaling from the topographic survey map. The net basin area was assumed to be 85 percent of the gross area to account for levees, well pads, and other areas that would not be wetted during recharge operations. **Table 2-3** presents the gross and net area of each basin, ranging from about 11 acres to about 139 acres. In all, the recharge basin area would cover 1,898 gross acres (1,613 net acres).

Table 2-3. Recharge Basin Areas and Capacity

Basin No.	Gross Area (acres)	Net Area (acres)	Recharge Capacity (cfs)	Basin No.	Gross Area (acres)	Net Area (acres)	Recharge Capacity (cfs)
1	57.1	48.5	14.7	13	97.8	83.1	25.2
2	95.3	81.0	24.5	14	81.6	69.3	21.0
3	54.6	46.4	14.0	15	62.8	53.4	16.2
4	76.3	64.9	19.6	16	79.5	67.6	20.4
5	42.7	36.3	11.0	17	13.4	11.4	3.4
6	59.0	50.1	15.2	18	37.6	32.0	9.7
7	76.7	65.2	19.7	19	98.8	84.0	25.4
8	67.4	57.3	17.3	20	118.7	100.9	30.5
9	114.2	97.1	29.4	21	43.9	37.3	11.3
10	60.9	51.7	15.7	22	92.0	78.2	23.6
11	58.0	49.3	14.9	23	163.8	139.3	42.1
12	84.4	71.7	21.7	24	161.1	137.0	41.4
				Total*	**1,898**	**1,613**	**488**

* Totals are rounded.

The individual recharge basins would be connected by a series of interbasin flow control structures, which would convey water from basin to basin. At least one interbasin structure would be located at every levee; larger recharge basins with longer levees would have two interbasin structures. Figure 2-3 shows 42 interbasin structures; the size of each interbasin structure has not yet been determined, but capacity in each would range from 5 cfs to 83 cfs.

2.7.4 Construction Equipment and Personnel

Various types of equipment would be needed to construct the features of the Proposed Project. The types of equipment that would be used are listed in **Table 2-4**.

During construction, approximately 13 workers would be on site daily. At the peak of construction, 18 trips are anticipated to take place each day for material deliveries.

2.7.5 Construction Schedule

The Proposed Project is anticipated to be under construction for 5 years, from 2022 to 2027. Construction activities would take place Monday through Friday, from 6:00 a.m. to 4:00 p.m.

The length of construction for each portion of the Proposed Project is shown in **Table 2-5**. A total of 1,856 construction days are estimated.

Table 2-4. Types of Equipment Used for Proposed Project Construction

Equipment Type	Pipelines	Ponds	Pumps	Control Structures	Canal Improvements	Wells	Demolition
Front-End Loader	X		X				X
Excavator	X		X	X	X		X
Bulldozer					X		
Motorized Grader	X	X			X		
Backhoe	X			X		X	
Boom Truck				X		X	
Work Truck	X	X	X	X	X	X	X
Drill Rig						X	
Service Truck	X	X		X	X	X	X
Mixer-Equipped Concrete Truck			X	X		X	
Generator			X	X		X	
Welder			X	X		X	
Semi-Trailer Truck	X		X	X		X	X
Crane	X		X				
Compactor	X						
Water Truck	X	X	X	X	X		X
Self-Loading Scraper		X					
Self-Propelled Compactor							
Trencher	X						
Forklift	X					X	
Manual Compactor	X		X	X			

Table 2-5. Proposed Project Construction Schedule

Equipment Type	Pipelines	Ponds	Pumps	Control Structures	Canal Improvements	Wells	Demolition
Construction Units	miles	1,600 acres	stations	structure	miles	well	10 acres
Construction Unit Values (days per unit)	18	30	25	25	4	20	2
Project Units	7.8	11.25	3	37	4.5	12	60
Project Days	140	338	75	925	18	240	120
Total Construction Days	1,856						

Note: Assumes one construction crew; ponds require three scrapers per crew.

2.8 PROPOSED PROJECT OPERATIONS

The Proposed Project would be operated and managed by the Districts, although day-to-day operations or portions thereof may be contracted to other parties. Operation of the Proposed Project would include conveying water to the project site, recharging that water in the basins, storing that water in underground aquifer, and recovering water from the aquifer for transport to beneficial uses offsite. The Proposed Project would be in active operation primarily when sufficient water is available to allow conveyance to the project site (i.e., during wet seasons in wet years) and when water is needed to meet demand within the Districts' service areas (i.e., during irrigation seasons in extremely dry years).

It is expected that up to 200,000 AF of water could be stored by the Proposed Project during any given year. The most likely period when water would be conveyed to the project site would be December through July. In an exceptionally wet year, however, water could be diverted to the project site throughout the year. It is anticipated that up to 56,000 AF of stored water could be extracted from the aquifer in any given year. Of that amount, approximately 75 percent is expected to be recovered from wells within the project site; the remaining 25 percent is expected to be recovered from existing offsite facilities within the Districts' service areas and used for irrigation and M&I uses and consistent with the Districts' Conjunctive Use Programs, all of which are existing points of use.

Pumps, wells, pipelines, levees, basins, and unlined canals would be constructed at the project site to accommodate water delivery, groundwater recharge, and groundwater recovery; see the description in Section 2.6 for more information. In addition, a small field office would be constructed to provide a working space for staff and equipment storage. Because 1-2 employees would visit the site only briefly during periods of inactivity, the field office would not contain restroom or kitchen facilities. Internet, telecommunications, and climate control would be provided.

The Proposed Project would operate continuously 7 days per week when in operation. Employees on site would be 1-2 daily, with occasional (less than 1 per day) deliveries. It is anticipated that the project site would be inactive approximately 85 percent of the time, fenced and maintained as dry ponds.

Operation of the Project is expected to include the following activities:

- Conveyance of water to percolation ponds from an intake structure constructed through the Pioneer Project area;
- Percolation and storage of water in the groundwater aquifer via up to 24 proposed percolation ponds;
- Operational exchanges of water with other entities to optimize project operations (although such actions would be evaluated more specifically, as necessary, for their potential environmental effects when such exchanges are identified and planned for implementation);

- Recovery of stored water from the groundwater aquifer through operation of up to 14 onsite and offsite groundwater recovery wells, and conveyance of the recovered water offsite through the Kern River Canal and other facilities to its ultimate place of use;
- Monitoring of groundwater levels and groundwater quality in the area through proposed groundwater monitoring wells;
- Banking of water for other entities, if and when capacity is available, to expand the benefits of the Proposed Project (although such actions would be evaluated more specifically, as necessary, for their potential environmental effects when such partnerships are identified and planned for implementation); and
- Transfers of banked supplies for other entities located within Kern County (although such actions would be evaluated more specifically, as necessary, for their potential environmental effects when such partnerships are identified and planned for implementation).

All Kern River water stored at the Proposed Project site would remain in Kern County.

2.8.1 Water Conveyance to the Project Site

Water to fill the recharge basins would be conveyed through a new head gate at the southeast corner of Basin 1 on the City's 2800 Acre Groundwater Recharge Facility to a new, unlined canal built along the eastern boundary of the Pioneer Project site (Figure 2-4). The canal would be gravity fed with pumps and siphons installed at several crossing locations, described in more detail below. The anticipated capacity of the canal is sufficient to provide up to 500 cfs to the project site.

2.8.2 Groundwater Recharge

Long-term recharge rates are expected to be in the range of 0.2-0.3 foot per day. Initial rates are anticipated to be higher but, as soil moisture content increases, the infiltration rate is anticipated to decrease. To facilitate initial filling of the recharge basins, the conveyance facilities (i.e., pumping plants, pipelines, and turnouts) were designed to accommodate an infiltration rate of 0.6 foot per day (twice the maximum expected long-term rate, but more representative of initial higher infiltration rates).

Up to four pumping plants would be located on the project site, equipped with pumps ranging from 75 cfs to 200 cfs in capacity (Figure 2-3). The Districts could cycle these pumps to allow for maximum efficiency at varying flow rates over time. The required conveyance or delivery capacity to each pond is provided in Table 2-3.

2.8.3 Groundwater Recovery

Water banked and stored as part of the Proposed Project would be recovered through both onsite and existing offsite facilities. It is expected that up to 56,000 AF of stored water could be extracted from the aquifer in any given year. Of that amount, approximately 75 percent is expected to be recovered from wells within the project site; the remaining 25 percent is expected to be recovered from existing offsite facilities within the Districts' service areas. Offsite recovery would not involve any new construction and would continue using existing programs

already in operation, including integration with the Districts' Conjunctive Use Programs and other projects by means of existing recovery facilities, as described in more detail below.

Recovery operations would be generally consistent with the McAllister Ranch Use of Facilities and Mitigation Agreement(Mitigation Joint Use Agreement) between the Districts and the City, as well as the MOUs and the Operations Plans described below. Banking and recovery would be monitored for potential groundwater level impacts resulting from operation of the Proposed Project on neighboring agricultural, municipal, and domestic wells, and significant impacts would be avoided, eliminated, or mitigated by implementing one or more of the corrective actions listed therein. As required by SGMA, the KRGSA would also monitor operation of the Proposed Project to ensure consistency with its GSP.

Operation of onsite and offsite recovery facilities is described below.

Memoranda of Understanding and Operations Plans

The Districts have entered into Memoranda of Understanding (MOUs) regarding groundwater banking programs with adjoining entities in the Kern Fan area, including Semitropic Water Storage District, Henry Miller Water Storage District, Berrenda Mesa Water Storage District, Kern Water Bank Authority (KWBA), Improvement District No. 4, and West Kern Water District. The MOUs provide guidelines for operation and monitoring of groundwater banking programs. The Proposed Project would be subject to and consistent with the conditions of these MOUs, which are provided in Appendix B.

The MOUs allow groundwater banking operations to achieve maximum water storage and withdrawal benefits, while also avoiding, eliminating, or mitigating adverse impacts to the groundwater basin and the operation of other groundwater banking programs in the Kern Fan area. The operating objectives defined in the MOUs include the following:

- Maintain or, if possible, enhance the quality of the groundwater in the area. For example, the Districts will attempt to implement recovery operations in such a manner that total dissolved solids (TDS) in recovery waters will exceed TDS of recharge waters.
- Control the migration of poor quality water. For example, the Districts could increase water recharge in areas with favorable groundwater gradients.
- Operate recharge and recovery facilities in such a manner to "prevent, eliminate, or mitigate significant adverse impacts." Mitigation measures to avoid adverse impacts could include, but would not be limited to, the following:
  - if necessary, provide buffer areas between recovery wells and neighboring districts / entities;
  - limit monthly or annual recovery rates;
  - provide redundancy in recovery wells and rotate pumping from recovery wells;
  - provide adequate well spacing;
  - adjust or stop pumping if necessary to reduce impacts; and
  - use recharge water that otherwise is not recharging the Kern Fan area.

The MOUs also establish a Monitoring Committee, which includes the Districts and all Adjoining Entities. The Monitoring Committee is collectively responsible for monitoring groundwater levels and water quality in the Kern Fan area. Operation of the Proposed Project would be coordinated with the Districts' other banking programs, and this EIR would satisfy the CEQA requirements as indicated in the MOUs.

Long-Term Operations Plan

The Proposed Project would be subject to the terms of a Long-Term Project Recovery Operations Plan substantially similar to the *Long-Term Project Recovery Operations Plan Regarding Kern Water Bank Authority Project,* which implements the provisions of the MOUs and is provided in Appendix B. This Long-Term Operations Plan is based on the *Project Recovery Operations Plan Regarding Pioneer Project, Rosedale-Rio Bravo Water Storage District, and Kern Water Bank Authority Projects* (Project Recovery Operations Plan), under which RRBWSD and other adjoining banking projects are currently required to operate.[2] The Proposed Project would be operated in accordance with the Long-Term Operations Plan, the purpose of which is to designate specific measures to be employed to "prevent, eliminate or mitigate significant adverse impacts" resulting from project operations. A general description of the primary components of the Long-Term Operations Plan is provided below.

A. Establish a Protocol for Monitoring and Reporting Groundwater Conditions

- Conduct monitoring of groundwater conditions during years when recovery is expected from a groundwater banking project, in addition to the monitoring conducted by the Kern Fan Monitoring Committee; report current groundwater levels monthly to the Districts' Boards of Directors; and make reports available to the public on the Districts' websites.
- Regularly update the groundwater model to actual conditions; use the model to predict future groundwater conditions; report modeling results to the Boards of Directors; and make modeling results available to the public on the Districts' websites.
- Recovery in any calendar year shall not commence until the model has been run for projected operations.

[2] The Project Recovery Operations Plan is a voluntary agreement entered into by RRBWSD, KWB, and KCWA. It governs the operations of various banking projects, including RRBWSD's projects that are subject to an MOU, the Kern Water Bank Project, and the Pioneer Project (which is operated by KCWA). The purpose of the Project Recovery Operations Plan is to designate specific measures to be employed to "prevent, eliminate or mitigate significant adverse impacts" resulting from project operations. The intent of the parties to the Project Recovery Operations Plan is to mitigate and/or compensate for legitimate project impacts. The initial term of the Project Recovery Operations Plan expired on January 31, 2019. The parties have agreed to extend the term to January 31, 2023. The Districts will agree to a further extension of the term. The Proposed Project would be subject to and consistent with the conditions of the Project Recovery Operations Plan during the effective term of that agreement. The Project Recovery Operations Plan is included in Appendix B. The Long-Term Operations Plan and the Project Recovery Operations Plan are collectively referred to as the "Operations Plans."

B. Implement Proactive Measures

- A groundwater model will be used to predict the contribution of the Proposed Project to groundwater level declines in the area. The model will be used to simulate and compare the No-Project Condition to the Project Condition. The No-Project Condition is the water level that would have been at any particular well location absent the Proposed Project.
- The model will be periodically run and updated as recovery plans become known or change in any given year.
- The model will be used to identify a negative project impact (NPI) based on the comparison of No-Project Conditions and Project Conditions, and to identify the wells at risk of impact during recovery operations.

C. Establish Triggers and Mitigation Actions

- An NPI is triggered when the model results predict that groundwater levels under Project Conditions are 30 feet deeper than No-Project Conditions at a nearby existing and operative well, and the well has experienced (or is expected to experience) mechanical failure or other operational problems due to declining water levels. Given historical fluctuations in groundwater levels in the area when other nearby groundwater banking projects are recovering, it is expected that additional declines attributable to the Proposed Project beyond historic low groundwater levels could result in operational problems at some existing wells.
- Agricultural Wells. The following measures would be implemented when an NPI is triggered for an operational agricultural well:
  - When the model predicts an NPI outside the current operating range of the pump but within the potential operating range of the well, then the Districts will provide compensation to lower the well pump to meet the landowner's needs.
  - When the model predicts an NPI outside the current and potential operating range of the well, then the Districts will supply an equivalent water supply to the affected landowner from an alternate source at no greater cost; provide other acceptable mitigation to the landowner; or reduce or adjust pumping as necessary to prevent, avoid, or eliminate the NPI.
- Domestic Wells. The following measures would be implemented when an NPI is triggered for a domestic well:
  - When the model predicts an NPI such that production ceases or is likely to cease, then the Districts will provide compensation to implement one of the following: lower the domestic submersible pump bowl setting sufficient to restore and maintain service; provide a one-time permanent connection to the nearest water service provider; or drill and equip a new domestic well. If necessary, the Districts will provide interim in-home water supplies until one of these actions is completed.

Onsite Recovery Facilities

Onsite recovery would include the development of a well field, including new and existing recovery wells, a system of collector pipelines to convey water away from the recovery wells, and an outflow structure at the Kern River Canal. These facilities are described below.

Well Field and Collector Pipelines

The well field would consist of a network of wells and collector pipelines to facilitate recovery and conveyance of stored water. Up to 14 recovery wells and up to eight monitoring wells would comprise the well field, six of which are existing recovery wells. Each well would be located a minimum of one-third of a mile from any existing wells, in accordance with the MOUs. Each recovery well would be plumbed to the recovery pipeline.

The recovery pipeline would be constructed as a branching system of buried polyvinyl chloride (PVC), high-density polypropylene (HDPP), and reinforced concrete (RCP) pipelines that would collect stored water being pumped from the recovery wells and convey it to the Kern River Canal outflow structure. The well spacing would determine the exact location and alignment of the recovery pipeline, but approximate locations are shown in Figure 2-3. Based on the conceptual layout of the well field, approximately 35,450 linear feet of pipeline would be required, ranging in diameter from 15 inches to 96 inches. The size of each segment of the recovery pipeline was determined based on the number of wells plumbed to that segment and assuming that all wells would be operated simultaneously at their design discharge rate of approximately 6.2 cfs. The pipeline would also serve a recharge conveyance role, however, and certain segments were sized based on recharge conveyance requirements rather than recovery requirements. Furthermore, the collector pipe was sized to maintain a maximum flow rate of approximately 5-6 feet per second (ft/sec).

Power lines would be installed at the project site to convey electricity to each of the wells; existing and proposed power lines are shown in **Figure 2-5**.

Table 2-6 indicates the approximate diameter, length, and material of pipelines for the well field collection system.

Table 2-6. Pipeline Measurements

Diameter (inches)	Length (linear feet)	Material*
15”	12,650	PVC
21”	1,600	PVC
27”	2,400	PVC
48”	5,500	HDPE

Diameter (inches)	Length (linear feet)	Material*
60”	1,900	HDPE
72”	1,800	RCP
90”	5,000	RCP
96”	4,600	RCP
Total	35,450	N/A

* Material: HDPE = high-density polypropylene; PVC = polyvinyl chloride; RCP = reinforced concrete pipe.

Outflow Structure

Recovered groundwater would be pumped from the well field and conveyed through the collector pipeline to the outlet structure at the northwestern corner of the project site for discharge into the Kern River Canal. The outlet structure was sized under the assumption that all recovery wells could be operated simultaneously and could convey the full 87 cfs (14 wells x 6.2 cfs per well) of design recovery capacity.

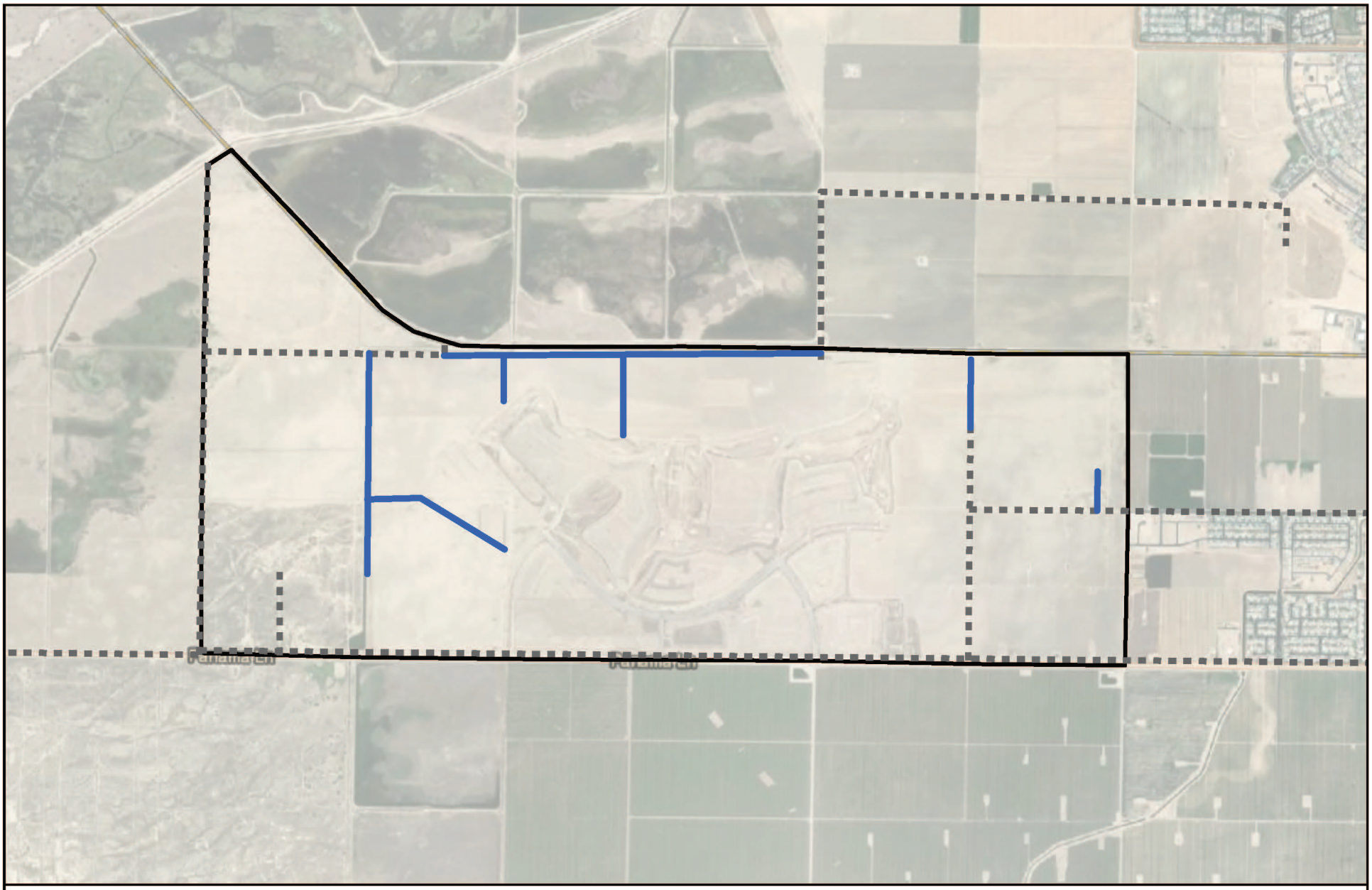
Offsite Recovery Facilities

Offsite recovery would rely on existing recovery wells and extraction facilities owned or operated by the Districts and their landowners. Existing wells and recovery facilities owned by BVWSD are shown in **Figure 2-6**; existing banking and recovery facilities owned by or available to RRBWSD are shown in **Figures 2-7 and 2-8**, respectively. Offsite recovery activities would be integrated with recovery operations of the Districts' existing conjunctive use programs. No new construction would be required for offsite recovery. The Proposed Project would provide flexibility for the Districts in the management of surface water and groundwater to improve overall reliability of water supply. Water banked on the project site (less losses) could be recovered from any combination of the Proposed Project's wells and other existing extraction facilities owned by BVWSD (Figure 2-6), and within RRBWSD's service area by means of offsite private wells and existing RRBWSD wells (Figures 2-7 and 2-8). Recovery would occur to meet the Districts' existing recovery obligations, for themselves and their banking partners, for agricultural, domestic, and industrial uses.

Extraction for the Proposed Project would be limited to the amount previously recharged less losses and would be subject to the conditions of operations required by MOUs, operations plans, and mitigation agreements (as described above). Under SGMA, the Districts would be required to coordinate with KRGSA to ensure consistency with the KRGSA's GSP and the Districts' respective GSPs. In-lieu recovery by exchange could also take place in addition to direct recovery through extraction. An exchange in-lieu of recovery may be accomplished through the use of SWP, Kern River, or other supplies through various water management programs and/or other available surface supplies. The exchange of surface supplies would be subject to the approval of those entities with discretionary authority over such supplies, as well as any necessary CEQA review by those entities.

The Districts could recover water from the Proposed Project as needed to meet existing or future commitments under their Conjunctive Use Program. It is expected that banked supplies would be recovered in the event of a water shortage, for improved reliability and redundancy, and to diversify recovery locations. If recharged water is sold to other agencies that choose to recover the water from their service areas, those activities would be evaluated more specifically, as necessary, for their potential environmental effects when such partnerships are identified and planned for implementation.

Water recharged as part of the Proposed Project would be used by the Districts to supplement existing uses. The operation of the offsite recovery facilities has been subject to prior CEQA review when the facilities were constructed and would not require additional environmental approval (BVWSD 2002, 2006, 2009; Kern Fan Authority 2020; RRBWSD 2001, 2003, 2008, 2009, 2011; RRBWSD and Irvine Ranch Water District 2015, 2022).



Source: BVWSD 2013

Legend

Proposed lines

Existing lines

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Figure 2-5.
Existing and Proposed Power Lines

McAllister Ranch Groundwater Banking Project

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2.8.4 Water Sources

Recharge water for the Proposed Project would be secured and acquired by the Districts from various sources, potentially including federal, state, and local supplies. Water would be acquired through transfers, balanced and unbalanced exchange agreements, purchase or temporary transfers, or other means as available. Potential sources of water for recharge and storage during operation of the Proposed Project include water from the Kern River, SWP, and CVP, depending on annual availability and appropriative (pre-1914 and post-1914) water rights; Friant-Kern Canal; floodwater; and possibly other sources that may be available to the Districts from time to time. Potential sources of water and conveyance routes are shown in **Figure 2-9**.

Central Valley Project Water

The CVP is a network of dams, power plants, and canals operated by the U.S. Bureau of Reclamation (Reclamation) that provides water supply reliability to the Central Valley in periods of drought. Under Section 215 of the federal Reclamation Reform Act of 1982 (P.L. 97-293), which authorized the CVP, Reclamation can make excess, non-storable floodwater available during wet years.

RRBWSD is a fourth-priority non-CVP contractor that can take CVP water under certain conditions. If conveyance capacity is available, this surplus CVP water could be delivered to the project site from the Friant-Kern Canal through the Cross Valley Canal (CVC).

State Water Project Water

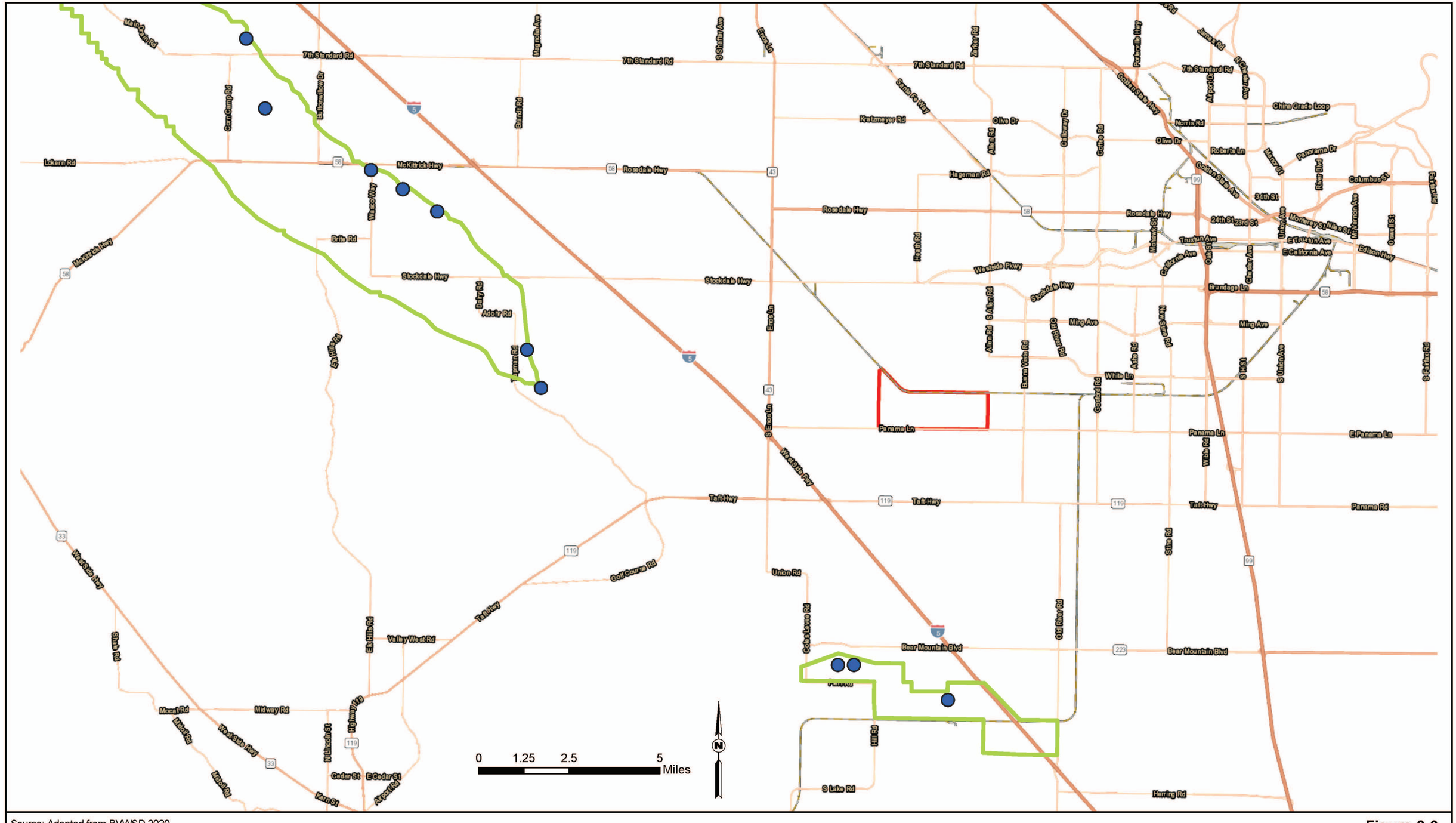
As part of the SWP system, the California Department of Water Resources (DWR) delivers water through the California Aqueduct to 29 contractors, including 21 contractors located south of the Sacramento–San Joaquin River Delta (known as "South of Delta" contractors). These contracts are with both M&I and agricultural water users. The foundation allocation of water to each contractor is based on their respective "Table A" entitlement, which is the maximum amount of water delivered to them by the SWP on an annual basis. SWP contractors can order water up to their Table A allocation even if the water is not needed in that year, and this excess water can be stored outside the contractor's place of service for future use. The Districts currently receive SWP water for their Conjunctive Use Programs through a water supply contract with KCWA, one of the 29 SWP contractors.

Article 21 of the long-term SWP water supply contract establishes an interruptible supply of uncontrolled water that cannot be stored in state-operated reservoirs. During wet hydrologic years, DWR may declare Article 21 water available; these supplies are available in short duration, and, if conveyance capacity exists, can be purchased and stored for future use. The Districts may purchase excess Article 21 water through KCWA for delivery to the Proposed Project's recharge facilities using the CVC when such water is available.

Under certain contracts and/or guidelines, DWR allows for the exchange of stored water on either an even or unbalanced basis. Even exchanges are "one-for-one" in that an equal amount of water is exchanged, less losses. In an unbalanced exchange, in return for storage, the original water contractor only receives a percentage or pro ration of the original amount of water being stored. For example, for every 2 AF of water recharged, the water supplier will only receive

1 acre-foot, less losses. SWP water available for exchange could be acquired for the Project. Water banking through the execution of even or unbalanced exchanges or other transactions approved by DWR would require the cooperation and agreement of the exchange contractor, DWR, and KCWA.

Under any of these scenarios, SWP water would be conveyed to the project site through the CVC, which conveys water to the Kern River, or any other conveyance facility (i.e., pipeline or canal) available to the Districts, subject to any necessary approvals or agreements (see Figure 2-9).



Source: Adapted from BVWSD 2020

Legend

- BVWSD Wells
- BV Boundary
- McAllister Ranch

Prepared by: Horizon Water and Environment

Figure 2-6.
Existing BVWSD Recovery Wells

McAllister Ranch Groundwater Banking Project

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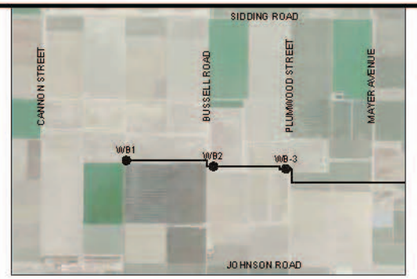
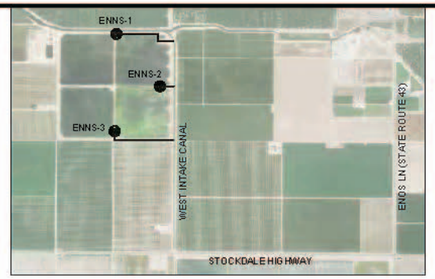


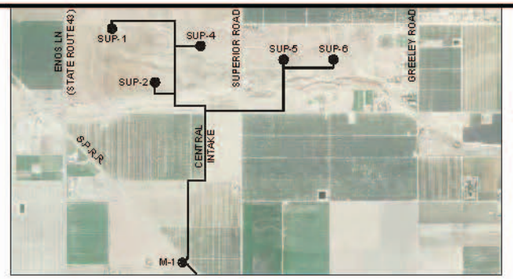
DETAIL "A" WEST BASIN WELLS

SCALE: 1" = 2000'



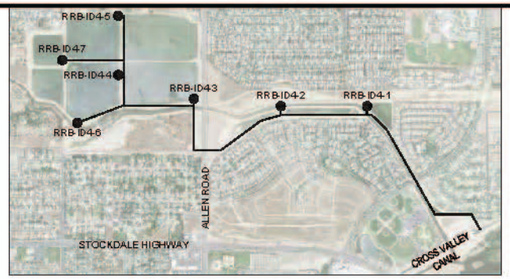
DETAIL "B" ENNS - 1, 2, 3 WELL FACILITIES

SCALE: 1" = 1600'



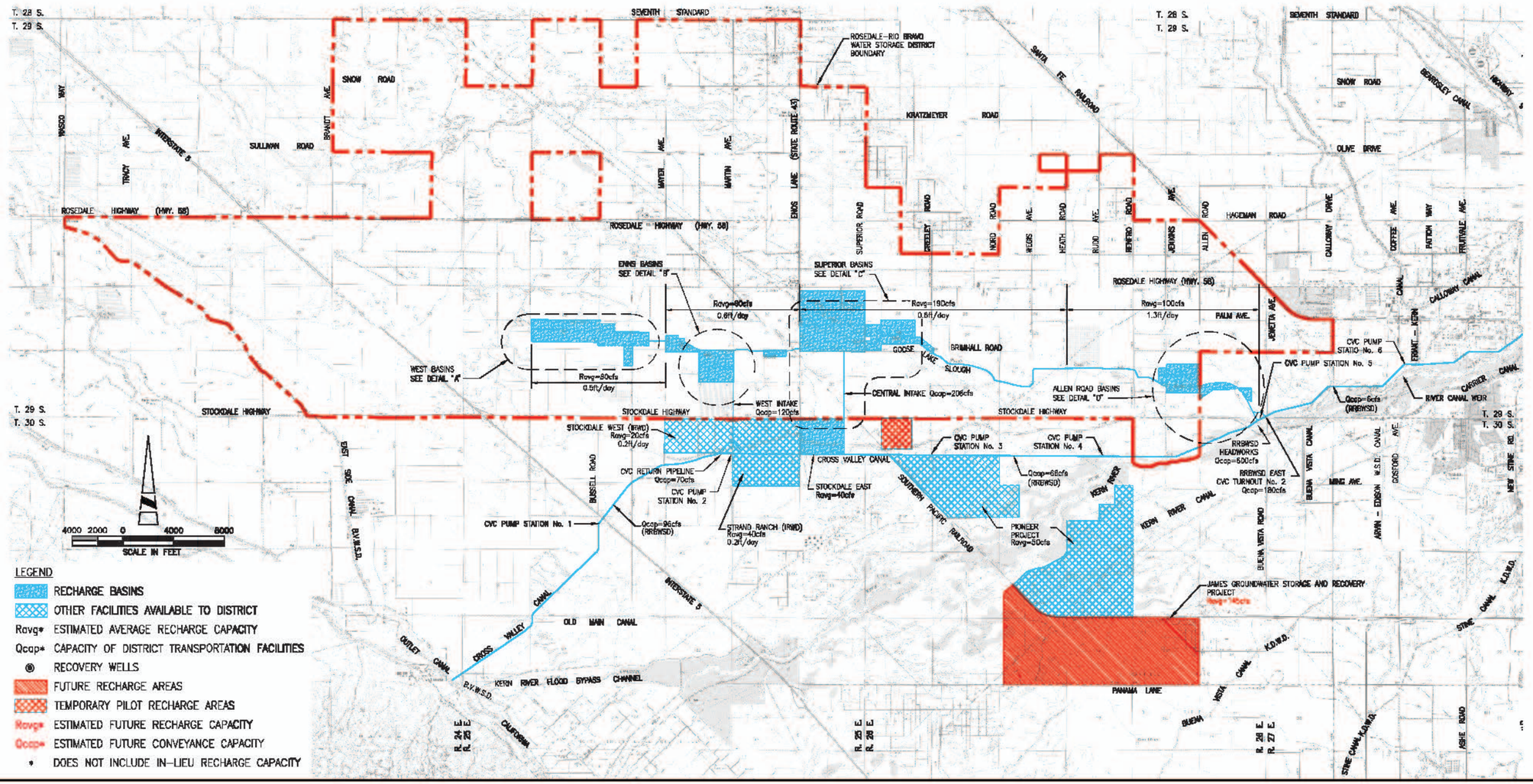
DETAIL "C" SUPERIOR RECOVERY FACILITIES

SCALE: 1" = 2000'



DETAIL "D" RRB-ID4 RECOVERY FACILITIES (JURP)

SCALE: 1" = 2000'



Source: RRBWSD 2020

Figure 2-7.
Existing RRBWSD Recovery Plan

Prepared by:
Horizon WATER and ENVIRONMENT

McAllister Ranch Groundwater Banking Project

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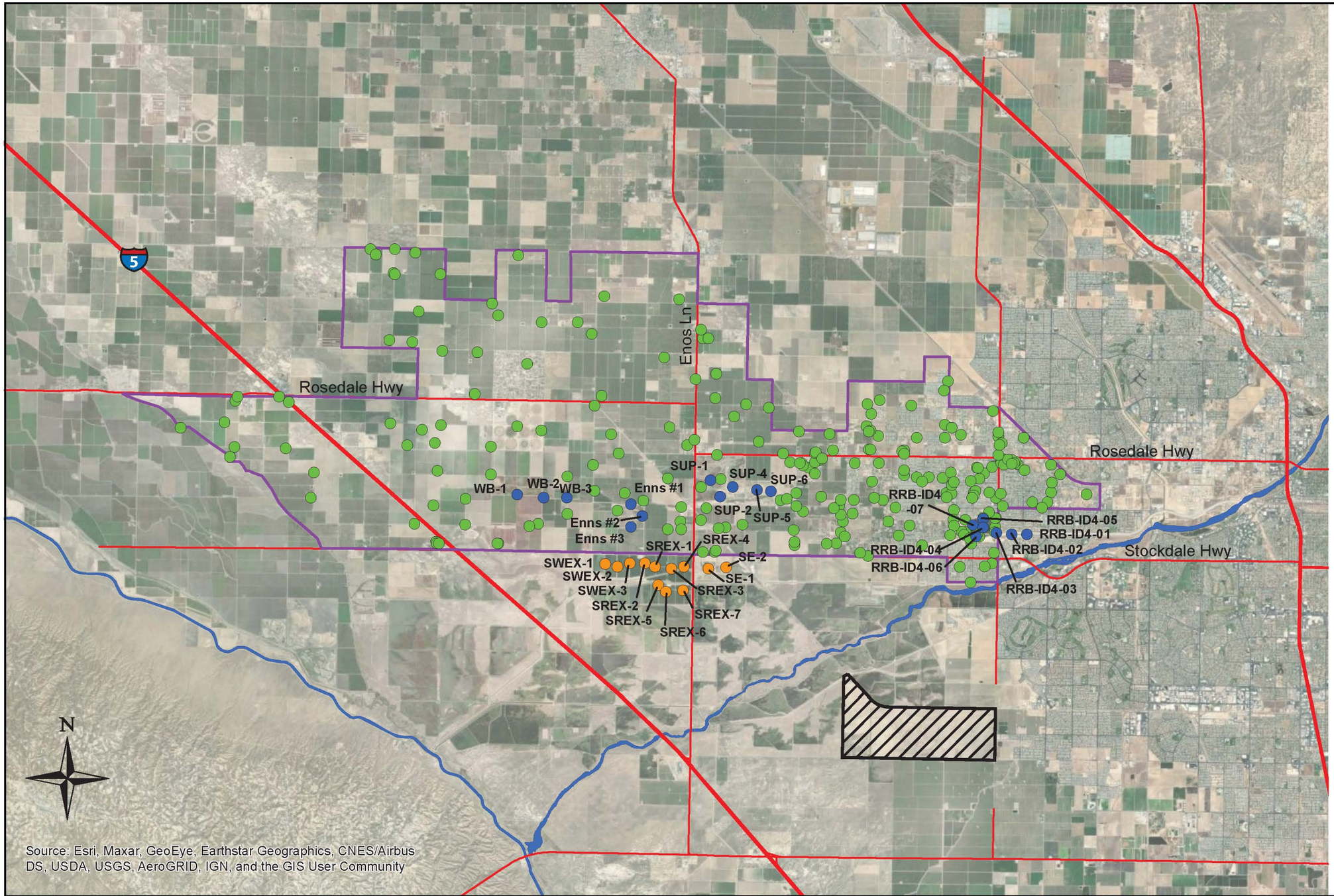

Source: Adapted from RRBWSD 2020

0 1 2 4 Mile

NAD 83 State Plane Zone 5

Prepared by:
Horizon WATER and ENVIRONMENT

Figure 2-8.
Existing RRBWSD Recovery Wells

McAllister Ranch Groundwater Banking Project

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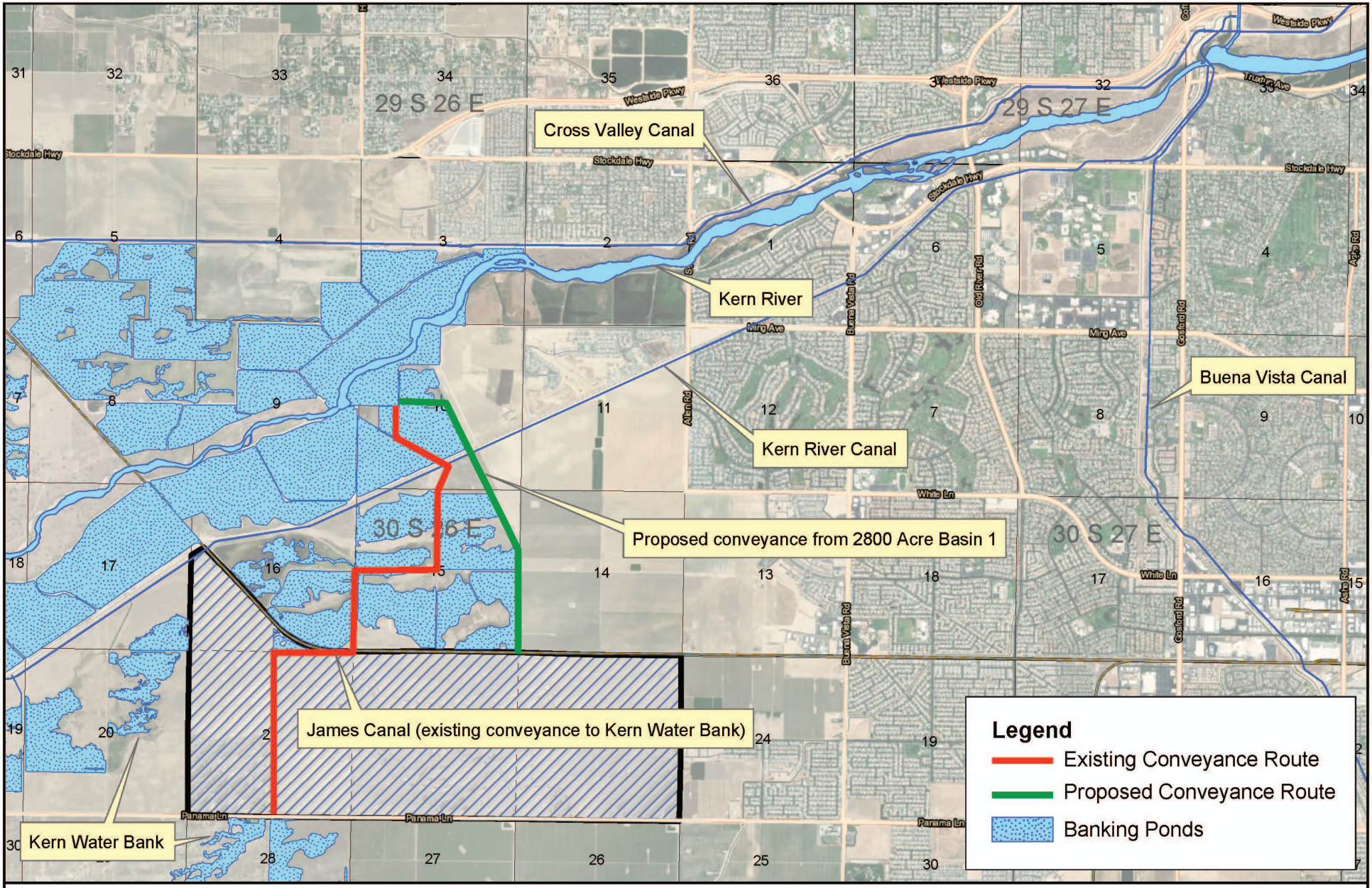

Source: Adapted from BVWSD 2020

Prepared by: Horizon WATER and ENVIRONMENT

Figure 2-9.
Conveyance Routes for Water Sources

McAllister Ranch Groundwater Banking Project

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Appropriative Kern River Water Rights

RRBWSD currently receives Kern River water when it is available for groundwater recharge through a 1961 water service agreement with the City, as amended, as well as from BVWSD and other Kern River interests through banking and temporary water service agreements.

BVWSD owns pre-1914 Kern River rights associated with its "Second Point Right," or the water to which the district is entitled, from the Second Point of Measurement allocation under the Miller-Haggin Agreement of July 28, 1888, and as subsequently amended. This Second Point Right provides BVWSD with an average entitlement of approximately 150,000 AFY of surface water from the Kern River. The Kern River Watermaster, in coordination with the City Water Department's daily management of Kern River flows, records the amount of water released daily from the Isabella Reservoir into the Kern River. Because of BVWSD's pre-1914 rights on the Kern River, the District has access to large quantities of high-flow Kern River water supplies in wet years. BVWSD and its predecessor-in-interest Miller & Lux have long realized the value of capturing and storing its Second Point Right entitlement, especially in high-flow years for later use when supplies are not available. Accordingly, aquifer storage and recovery programs and surface storage have, and continue to be, utilized to maximize the use of surplus wet-year water supplies.

During periods of mandatory release on the Kern River, water released from the Isabella Reservoir may be available for diversion to the Proposed Project by the Districts.

Kern River water would be conveyed to the project site through the 2800 Acre Basin 1 headgate to the canal through the Pioneer Project as described above.

2.8.5 Electricity Usage

Groundwater storage at the site would rely primarily on gravity-fed irrigation canals to transport water to and around the recharge basins. Groundwater recovery would require electricity to operate wells, pumps, and other equipment during periods of active operation.

During construction of the Proposed Project, direct energy use would include the consumption of petroleum (e.g., diesel and gasoline) for operation of construction vehicles and equipment, as well as consumption of electricity for alternatively powered equipment. **Table 2-7** shows the estimated fuel consumption associated with Proposed Project construction based on the proposed construction schedule and equipment use.

Table 2-7. Estimated Construction Fuel Consumption

Activity Fuel Consumption	Gasoline (gallons)	Diesel (gallons)
Construction Activity On-Road Vehicles	7,900	44,905
Construction Activity Off-Road Equipment		217,215
Total for Construction	**7,900**	**262,120**

Source: Calculations provided in Appendix D

Operational equipment would primarily use electricity to power the pumps to convey water. The electricity use of the pumps was estimated based on the anticipated electricity use to pump 200,000 AFY for recharge and 56,000 AFY pumped at recovery wells. This was estimated to be a total of 34,752,101 kilowatt-hours per year. The amount of fossil fuel used by vehicles to conduct maintenance and routine operations in negligible since there are only eight trips per day and is estimated at under 1,000 gallons of gasoline and diesel each.

2.8.6 Security Features

The project site is in the southwest corner of Bakersfield and is isolated from most developed areas. In addition, active groundwater recharge and recovery operations at the site are anticipated to take place only approximately 15 percent of the time. For these reasons, security at the site would be a priority. The project area would be fenced to prevent inadvertent or unauthorized access. Entry to the site would be provided by a driveway and security gate. The Districts would install downward-facing lighting to monitor the site while operations are inactive.

2.8.7 Proposed Bicycle Path

The Districts propose to dedicate an easement to the City for use as a bicycle path that would connect trails in the western suburban area of Bakersfield with the Kern River Canal and, from there, across the canal to the Kern River Parkway Trail. The proposed bicycle path is conceptual in nature at this time; a conceptual alignment is described in Chapter 16, *Recreation*. The City Recreation and Parks Department would design, construct, and maintain the trail, which would be located in such a way that users would not have access to areas within the Proposed Project site. General characteristics of the trail would conform to bicycle path requirements in the *City of Bakersfield Recreation and Parks Master Plan* (City of Bakersfield 2007) and the *City of Bakersfield Bicycle Transportation Plan* (City of Bakersfield 2013). When funding is available and design of the trail is more developed, the City would determine whether additional CEQA review is required.

2.9 BEST MANAGEMENT PRACTICES

The Districts and their contractors would implement standard housekeeping best management practices (BMPs) to protect wildlife in the project area from being injured or otherwise harmed during construction and operation of the Proposed Project. These BMPs, described in more detail in Section 2.9, would be implemented during all phases of project construction and during operation of the recharge facilities.

BMP-1: Remove Trash. Trash and food items shall be contained in closed, wildlife-proof containers and removed weekly at a minimum from the project site.

BMP-2: Prohibit Firearms and Pets. Firearms and pets shall be prohibited from the project site. Wildlife-friendly fencing will be installed along the bike trail to prevent pets from accessing sensitive habitat areas.

BMP-3: Limit Vehicle Use to Existing Roads and Minimize Vehicle Speed. Existing roads/routes of travel shall be used to the maximum extent feasible. Off-road/cross-country travel by

construction equipment and vehicles is prohibited unless specifically authorized by the Project Biologist.

Project employees shall exercise caution when traveling or working within listed species' habitats. To minimize wildlife injury/mortality, the daytime speed limit on unpaved roads shall be a maximum of 20 miles per hour (mph). If conditions warrant, the maximum speed may be lowered to 10 mph, for example along a narrow road in highly sensitive habitat; this determination shall be made by the biological monitor. The maximum speed shall be posted in the project area.

BMP-4: Check for Wildlife Under Vehicles and Equipment. All vehicle/equipment operators shall check for wildlife under vehicles and equipment prior to operation. If animals are observed, vehicles and equipment will not be moved until observed wildlife move away on their own so that they are not under threat of injury/mortality, or the Project Biologist has relocated the wildlife out of harm's way (if such relocation is authorized by the involved regulatory agencies).

2.10 Anticipated Permits and Approvals

Under CEQA, a responsible agency is a public agency, other than the lead agency, that has responsibility for carrying out or approving a project (Public Resources Code [Pub. Res. Code] Section 21069). The Districts are responsible agencies for the Proposed Project.

CEQA defines a trustee agency as a state agency that has jurisdiction by law over natural resources affected by a project, that are held in trust for the people of the State of California (Pub. Res. Code Section 21070). The California Department of Fish and Wildlife is a trustee agency for the Proposed Project, for the purposes of this EIR.

Table 2-7 identifies potential permits and approvals that may be required for the Proposed Project.

Table 2-8. Anticipated Regulatory Permits, Approvals, and Consultations

Agency	Permit / Approval / Consultation
Federal Agencies	
U.S. Fish and Wildlife Service	Endangered Species Act compliance may be required if biological surveys reveal that the project could result in take of a covered species.
State Agencies	
California Department of Transportation	Encroachment permit
California Department of Fish and Wildlife	Trustee agency for the Proposed Project. Approval may be required if there is incidental take of any state-listed species.
California Department of Water Resources	Approval may be required for water storage and recovery operations, any exchanges using SWP supplies, and compliance with groundwater sustainability plans.

Agency	Permit / Approval / Consultation
California Department of Housing and Community Development	Approval may be required for revision to the Housing Element of the City's general plan.
California Department of Conservation, Geologic Energy Management Division	Approval may be required for project elements affecting or adjacent to oilfield facilities.
State Water Resources Control Board	Approval may be required for compliance with drinking water regulations and potential modifications to water rights.
Native American Heritage Commission	Consultation may be required for cultural or historic resource mitigation plans.
Regional Agencies	
Regional Water Quality Control Board	Section 401 Water Quality Certification and/or Waste Discharge Requirements (for activities that would include the placement of fill or discharge within waters of the state, or cause other effects to beneficial uses as described in the Basin Plan)
San Joaquin Valley Air Pollution Control District	Consultation may be required to confirm compliance with the district's Air Quality Attainment Plan; approval of a permit to operate generators and other equipment may be required.
Local Agencies	
City of Bakersfield	Approval of DEIR and Project as Lead Agency and approval of General Plan Amendment, Specific Plan Amendment, Zoning Code Amendment, and water supply conveyance through Kern River channel and City's 2800 Acre facility; certification of final EIR as Lead Agency.
Buena Vista Water Storage District	Approval of DEIR as Responsible Agency and approval of the water banking element of Project.
Rosedale-Rio Bravo Water Storage District	Approval of DEIR as Responsible Agency and approval of the water banking element of Project.
Kern County Water Agency	Approval of the supply canal through the Pioneer Project.

Chapter 3
INTRODUCTION TO THE ENVIRONMENTAL ANALYSIS

3.1 Overview

Chapters 4 through 18 of this DEIR describe the environmental resources and potential environmental impacts of the Proposed Project. Each chapter describes the existing environmental setting and background information for a specific resource topic to help the reader understand the baseline conditions that could be affected by the Proposed Project. In addition, each chapter includes a discussion of the criteria used in determining the significance levels of the Proposed Project's environmental impacts. Finally, each chapter recommends mitigation measures to reduce, where possible, the adverse effects of significant impacts.

3.2 Significance of Environmental Impacts

According to the CEQA statutes and CEQA Guidelines, an EIR should define the thresholds of significance and explain the criteria used to determine whether an impact is above or below that threshold. Significance criteria are identified for each environmental resource topic to determine whether implementation of the project would result in a significant environmental impact when evaluated against the baseline conditions as described in the environmental setting. The significance criteria vary depending on the environmental resource topic. In general, effects can be either significant or potentially significant (exceed the threshold) or less than significant (do not exceed the threshold). In some cases, a significant impact will be identified as significant and unavoidable if no feasible mitigation measures are available to reduce the impact to a less-than-significant level. If a project is subsequently adopted despite identified significant impacts that would result from the project, CEQA requires the lead agency to prepare and adopt a statement of overriding considerations describing the social, economic, and other reasons for moving forward with the project despite its significant impacts.

3.2.1 Impact Terminology and Use of Language in CEQA

This DEIR uses the following terminology to describe environmental effects of the Proposed Project:

- A finding of *no impact* is made when the analysis concludes that the Proposed Project would not affect the particular environmental resource or issue.
- An impact is considered *less than significant* if the analysis concludes that no substantial adverse change in the environment would result and that no mitigation is needed.
- An impact is considered *significant* or *potentially significant* if the analysis concludes that a substantial adverse effect on the environment would or could result.

- An impact is considered *less than significant with mitigation* if the analysis concludes that no substantial adverse change in the environment would result with the inclusion of the mitigation measures described.
- An impact is considered *significant and unavoidable* if the analysis concludes that a substantial adverse effect on the environment would result and no feasible mitigation measures are available to reduce the impact to a less-than-significant level.
- An impact is considered *beneficial* if the analysis concludes that the Proposed Project would result in a positive change in the environment.
- *Mitigation* refers to specific measures or activities adopted to avoid, minimize, rectify, reduce, eliminate, or compensate for a significant impact on the environment.
- A *cumulative impact* can result when a change in the environment results from the incremental impact of a project in combination with other related past, present, and reasonably foreseeable future projects. Significant cumulative impacts may result from individually minor but collectively substantial effects. The cumulative impacts analysis in this DEIR (found in Section 20.5 of Chapter 20, *Other Statutory Considerations*) focuses on whether the Proposed Project's incremental contribution to other significant cumulative impacts caused by past, present, and probable future projects would be cumulatively considerable (i.e., significant).
- Because the term "significant" has a specific usage in evaluating impacts under CEQA, it is used only to describe the exceedance of a threshold and is not used in other contexts within this document. Synonyms such as "substantial" have been used when not discussing the significance of an environmental impact.

3.2.2 Format of Impact Titles

Impact titles are formatted to summarize information about the impact, as follows:

Impact TOPIC-#: Impact Title– Impact Conclusion

These terms are further described as follows:

- **TOPIC:** An abbreviation of the resource topic to which the impact applies (e.g., AG for agriculture and forestry resources). The reader can determine the impact's resource topic by reading the impact topic.
- **#:** Impacts are numbered sequentially.
- **Impact Title:** A brief text description of the impact. The reader can determine the specific issue that the impact discussion is addressing.
- **Impact Conclusion:** identifies the level of impact (no impact, less than significant, less than significant with mitigation, significant and unavoidable, or beneficial). The reader can determine the impact's significance by reading the impact conclusion.

3.3 Baseline Conditions

Under CEQA, the environmental setting or "baseline" serves as a gauge against which to assess changes to existing physical conditions that would occur as a result of a proposed project. CEQA Guidelines Section 15125 states that, for the purposes of an EIR, the environmental setting/baseline is normally the existing physical conditions in and around the vicinity of the proposed project as those conditions exist at the time the NOP is published.

The project site has been vacant since well before the Applicant purchased the property in 2011. As discussed in Chapter 2, *Project Description*, the project site was approved by Kern County for a planned residential/commercial development, McAllister Ranch, in 1993. This former project began the early stages of development in 2006; however, development was discontinued in 2008. The site was extensively graded and development that was completed consists of street pavement, curbs, sidewalks, golfcart paths, block walls footings, a burned down building foundation, and underground utilities. Before development of McAllister Ranch, the majority of the property was used for agricultural purposes. Additionally, the property contains several active and abandoned oil wells and several reserved drill islands. The drill islands are areas zoned for drilling (by others) for the purpose of extracting subsurface oil or gas resources, the rights to which are owned by the CRC.

3.4 Sections Eliminated from Further Analysis

The NOP for the Proposed Project included an Initial Study with the Environmental Checklist that is found in Appendix G of the CEQA Guidelines. This checklist provides multiple questions under each resource topic to ensure all elements of that resource are evaluated. This Initial Study identified three resource topics that did not warrant further discussion in the EIR. A more detailed discussion on each of these resource topics can be found in the Initial Study (included with the NOP as an attachment to the Scoping Summary in Appendix A); however, a brief summary is provided below. In addition, one resource topic was determined to have no potential for significant impacts during the EIR analysis. Therefore, these four topics have been eliminated from further analysis based on the nature and scope of the Proposed Project.

It should be noted that the Initial Study also identified specific criteria within multiple resource topics that did not warrant further discussion. These individual criteria are identified in the applicable resource topic chapters.

3.4.1 Aesthetics

The project site is relatively flat and predominantly vacant. The site does not contain any scenic resources, is not designated as visually important or scenic by the Metropolitan Bakersfield General Plan, and is not near any scenic highways. Furthermore, the tallest structures being proposed are the levees with a maximum height of 6 feet, which would not block or restrict any views. The Proposed Project is proposing only security lighting at the entrance gates, which would be shielded and downward facing. Therefore, impacts to aesthetics are considered less than significant and are not evaluated further in this EIR.

3.4.2 Agricultural Resources and Forestry

Although some areas designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance are located within the project site, there are no active farming operations. Furthermore, during the initial grading and construction of the McAllister Ranch Specific Plan project, some areas with prime soils were disturbed, excavated, or covered. The site is not under Williamson Act contract, does not contain any forest or timber land, and is zoned for residential and commercial development. The Proposed Project would not involve any changes to the existing environment that, 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. Therefore, no impacts on agriculture and forestry resources would occur and this topic is not evaluated further in this EIR.

3.4.3 Transportation

The criteria for evaluating transportation impacts under CEQA are whether the Proposed Project would (a) conflict with a program, plan, ordinance, or policy addressing the circulation system; (b) conflict or be inconsistent with CEQA Guidelines Section 15064.3(b) regarding the potential to increase vehicle miles traveled (VMT); (c) substantially increase hazards from design features or incompatible uses; or (d) result in inadequate emergency access.

Because the Proposed Project is a groundwater recharge facility with minimal operational staffing or traffic, and because construction activities would take place at a site already cleared and graded for a previously approved development, criteria (a), (c), and (d) would result in no impact.

To evaluate criterion (b), a traffic impact study was prepared for the Proposed Project (Ruettgers & Schuler Civil Engineers 2021; provided as **Appendix C** of this EIR). The study determined that, during the peak construction period, worker commute trips and truck trips would result in 75 trips per day. During operations, worker commute trips and truck trips would result in 8 trips per day.

Guidelines for assessing project VMT as part of a transportation impact analysis under CEQA are contained in the *Technical Advisory on Evaluating Transportation Impacts in CEQA*, published by the Governor's Office of Planning and Research in December 2018. The Technical Advisory contains screening thresholds for identifying whether a land use project would be expected to result in a less-than-significant transportation impact under CEQA. According to the Technical Advisory, a project that generates fewer than 110 trips per day may be assumed not to cause a significant transportation impact. Therefore, the Proposed Project can be assumed to have no impacts on transportation, and this topic is not evaluated further in this EIR.

3.4.4 Wildfire

The Proposed Project site is moderately flat, not located within a moderate- to high-risk area for wildfires, not near wildlands, does not contain high fire fuel loads (vegetation or other burnable material), and would comply with the City of Bakersfield Hazardous Materials Emergency Plan. Therefore, impacts to wildfire are considered less than significant and are not evaluated further in this EIR.

Chapter 4
AIR QUALITY

4.1 Overview

This chapter evaluates the Proposed Project's air quality impacts. The chapter first describes the air quality regulatory and environmental settings and then evaluates the Proposed Project's air quality impacts. The impact evaluation begins by describing the air quality significance criteria and the methodology used to evaluate significance, and then presents the impact evaluation. Mitigation measures are identified for impacts that are determined to be significant.

Air quality is described for a specific location as the concentration of various pollutants in the atmosphere. Air quality conditions at a particular location are a function of the type and amount of air pollutants emitted into the atmosphere, the size and topography of the regional air basin, and the prevailing meteorological conditions.

Key sources used in preparing this chapter are as follows:

- *Metropolitan Bakersfield General Plan* (MBGP) (City of Bakersfield 2002);
- San Joaquin Valley Air Pollution Control District (SJVAPCD) Mitigation Measures guidance document (SJVAPCD 2021a);
- SJVAPCD *Guidance for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015a); and
- *Air Quality & Greenhouse Gas Impact Analysis for McAllister Ranch Groundwater Banking Project, Bakersfield, CA* (Ambient Air Quality & Noise Consulting 2021, provided as Appendix D of this DEIR).

4.2 Regulatory Setting

4.2.1 Federal Laws, Regulations, and Policies

Clean Air Act

The federal Clean Air Act (CAA) is implemented by USEPA and sets ambient air limits, known as the National Ambient Air Quality Standards (NAAQS), for six criteria pollutants: carbon monoxide (CO), lead, nitrogen dioxide (NO_2), ground-level ozone (O_3), sulfur dioxide (SO_2), and particulate pollution. Two types of particulate pollution are regulated: particulate matter of aerodynamic radius of 10 micrometers or less (PM10) and particulate matter of aerodynamic radius of 2.5 micrometers or less (PM2.5). Of these six criteria pollutants, particulate matter and ground-level ozone pose the greatest threats to human health. **Table 4-1** shows the current attainment status for NAAQS, as well as state standards referenced below.

Table 4-1. Attainment Status of the Federal and State Ambient Air Quality Standards

Contaminant	Averaging Time	Concentration	State Standards Attainment Status[1]	Federal Standards Attainment Status[2]
Ozone (O_3)	1-hour	0.09 ppm	N (Severe)	See footnote 3
	8-hour	0.070 ppm	N	
		0.075 ppm		N (Extreme)
Carbon Monoxide (CO)	1-hour	20 ppm	U/A	
		35 ppm		U/A
	8-hour	9.0 ppm	U/A	U/A
Nitrogen Dioxide (NO_2)	1-hour	0.18 ppm	A	
		0.100 ppm[5]		U/A
	Annual arithmetic mean	0.030 ppm	A	
		0.053 ppm		U/A
Sulfur Dioxide (SO_2)	1-hour	0.25 ppm	A	
		0.075 ppm		U/A
	24-hour	0.04 ppm	A	
		0.14 ppm		U/A
	Annual arithmetic mean	0.030 ppm		U/A
Particulate Matter (PM10)	24-hour	50 µg/m^3	N	
	24-hour	150 µg/m^3		A
	Annual arithmetic mean	20 µg/m^3	N	
Fine Particulate Matter (PM2.5)	24-hour	35 µg/m^3		N (Moderate)
	Annual arithmetic mean	12 µg/m^3	N	N (Moderate)
Sulfates	24-hour	25 µg/m^3	A	
Lead [6]	30-day average	1.5 µg/m^3	A	
Hydrogen Sulfide (H2S)	1-hour	0.03 ppm	U	

Contaminant	Averaging Time	Concentration	State Standards Attainment Status[1]	Federal Standards Attainment Status[2]
Vinyl Chloride[6] (chloroethene)	24-hour	0.010 ppm	A	
Visibility-Reducing Particles	8-hour (10:00 to 18:00 PST)	See footnote 4	U	

1 A – attainment
2 N – non-attainment
3
4 U – unclassified
5 ppm – parts per million
6
7 µg/m^3 – micrograms per cubic meter
8 PST – Pacific Standard Time
9

Notes:

1. California standards for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM10, and visibility-reducing particles are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour, or 24-hour average (i.e., all standards except for lead and the PM10 annual standard), then some measurements may be excluded. In particular, measurements that are excluded include those that the California Air Resource Board (CARB) determines would occur less than once per year on average.
2. National standards shown are the "primary standards" designed to protect public health. National air quality standards are set by U.S. Environmental Protection Agency (USEPA) at levels determined to be protective of public health with an adequate margin of safety. National standards other than for ozone, particulates, and those based on annual averages are not to be exceeded more than once per year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.075 ppm (75 parts per billion) or less. The 24-hour PM10 standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m^3. The 24-hour PM2.5 standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m^3. Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM10 is met if the 3-year average falls below the standard at every site. The annual PM2.5 standard is met by spatially averaging annual averages across officially designated clusters of sites and then determining if the 3-year average of these annual averages falls below the standard.
3. The national 1-hour ozone standard was revoked by USEPA on June 15, 2005. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 ppm to 0.070 ppm. An area meets the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. This table provides the attainment statuses for the 2015 standard of 0.070 ppm.
4. Statewide Visibility-Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.
5. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average of nitrogen dioxide at each monitoring station within an area must not exceed 0.100 ppm (effective January 22, 2010).
6. CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure below which there are no adverse health effects determined.

Source: CARB 2016, CARB 2020, USEPA 2021

USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, non-road engines, and certain types of locomotives. USEPA also has jurisdiction over emission sources outside state waters (outer continental shelf) and establishes emission standards for vehicles sold in states other than California (California has received a waiver to establish its own emission standards that are lower than the federal standards). As part of its enforcement responsibilities, USEPA requires each state with "nonattainment" areas to prepare and submit a state implementation plan (SIP) that demonstrates the means to attain the NAAQS before the USEPA-mandated deadline. The SIP must integrate federal, state, and local plan components and regulations and identify specific measures to reduce pollution, using a combination of performance standards and market-based programs, within the specified timeframe. A maintenance plan must be prepared for each former nonattainment area that subsequently demonstrates compliance with the standards.

CAA also contains regulations dealing with operating permits for large industrial and commercial sources that release pollutants into the air. Operating permits contain information on which pollutants are being released, the quantity that may be released, and what steps the owner or operator of the emission source must take to reduce pollution.

Non-road Vehicle Emission Regulations

USEPA has adopted emission standards for different types of non-road engines, equipment, and vehicles. For non-road diesel engines, USEPA has adopted multiple tiers of emission standards.

USEPA signed a final rule in May 2004, introducing the Tier 4 emission standards, to be phased in between 2008 and 2015 (69 Code of Federal Regulations [CFR] 38957–39273, June 29, 2004). The Tier 4 standards require that particulate matter (PM) and oxides of nitrogen (NO_X) emissions be further reduced by about 90 percent. Such emission reductions can be achieved through the use of control technologies, including advanced exhaust gas after-treatment. To enable sulfur-sensitive control technologies in Tier 4 engines, USEPA also mandated reductions in sulfur content in non-road diesel fuels. In most cases, federal non-road regulations also apply in California, which has only limited authority to set emission standards for new non-road engines. The CAA preempts California's authority to control emissions from new farm and construction equipment less than 175 horsepower (hp) (CAA Section 209[e][1][A]) and requires California to receive authorization from USEPA for controls over other off-road sources (CAA Section 209[e][2][A]).

On-road Vehicle Emission Regulations

In April 2010, USEPA and the National Highway Traffic Safety Administration (NHTSA) established a program to reduce greenhouse gas (GHG) emissions and improve fuel economy standards for new model year 2012–2016 cars and light trucks. In August 2011, USEPA and the NHTSA announced standards to reduce GHG emissions and improve fuel efficiency for heavy-duty trucks and buses. In August 2016, the agencies jointly finalized Phase 2 Heavy-Duty National Program standards to reduce GHG emissions and improve fuel efficiency of medium- and heavy-duty vehicles for model year 2018 and beyond (USEPA 2020a). However, some of these standards have been stayed by a court order and USEPA has proposed repealing certain Phase 2 emissions standards (Center for Climate and Energy Solutions 2020). In April 2020,

USEPA and the NHTSA amended the Corporate Average Fuel Economy (CAFE) and GHG emission standards for passenger cars and light trucks and established new, less stringent standards covering model years 2021–2026, known as the Safer Affordable Fuel-Efficient (SAFE) I Rule (USEPA 2020b). USEPA and the NHTSA are currently considering repealing the SAFE I Rule as it may have overstepped the agencies' authority by issuing regulations and preempting state and local laws related to fuel economy standards (NHTSA 2021).

4.2.2 State Laws, Regulations, and Policies

California Clean Air Act

Responsibility for attaining and maintaining air quality standards in California is divided between CARB and regional air quality districts. Areas of control for the regional districts are set by CARB, which divides the state into air basins. The California Clean Air Act (CCAA) requires nonattainment areas to achieve and maintain the health-based California Ambient Air Quality Standards (CAAQS) by the earliest practicable date. The act is administered by CARB at the state level and by local air quality management districts at the regional level; the air districts are required to develop plans and control programs for attaining the state standards. Unlike the federal CAA, the CCAA does not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards.

CARB is responsible for ensuring implementation of the CCAA, meeting state requirements of the federal CAA, and establishing the CAAQS. The state standards are generally more stringent than the federal standards and incorporate additional standards for sulfate (chemical formula SO_4), hydrogen sulfide (chemical formula H_2S), vinyl chloride, and visibility-reducing particles (Table 4-1). CARB sets emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB also establishes passenger vehicle fuel specifications.

In-use Off-road Diesel Vehicle Regulation

In 2007, CARB adopted a regulation to reduce diesel particulate matter (DPM) and NO_X emissions from in-use, off-road, heavy-duty diesel vehicles in California. The regulation imposes limits on vehicle idling and requires fleets to reduce emissions by retiring, replacing, repowering, or installing exhaust retrofits to older engines. In December 2011, the regulation was amended to modify the compliance dates for performance standards and establish requirements for compliance with verified diesel emission control technologies that reduce PM and/or NO_X emissions. Heavy-duty trucks used for project construction or operations would be required to comply with this regulation.

Truck and Bus Regulation

In 2008, CARB approved a regulation to substantially reduce emissions of DPM, NO_X, and other pollutants from existing on-road diesel vehicles operating in California. The regulation requires affected trucks and buses to meet performance standards and requirements by 2023. Affected vehicles included on-road, heavy-duty, diesel-fueled vehicles ("heavy duty" is typically defined as having a gross vehicle weight rating greater than 14,000 pounds). The regulation was updated

in 2011 and 2014 to provide more compliance flexibility and reflect the impact of the 2008 economic recession on vehicle activity and emissions. Heavy-duty trucks used for project construction or operations would be required to comply with this regulation.

Heavy-duty On-board Diagnostic System Regulations

In 2004, CARB adopted regulations requiring on-board diagnostic (OBD) systems on all 2007 and later model year heavy-duty engines and vehicles in California. CARB subsequently adopted a comprehensive OBD regulation for heavy-duty vehicles model years 2010 and beyond. The heavy-duty OBD regulations were updated in 2010, 2013, and 2016 with revisions to enforcement requirements, testing requirements, and implementation schedules. Heavy-duty trucks used during project construction or operations would be required to comply with the heavy-duty OBD regulatory requirements.

Heavy-duty Vehicle Inspection Program

The heavy-duty vehicle inspection program requires heavy-duty trucks and buses to be inspected for excessive smoke and tampering and for compliance with engine certification labels. Any heavy-duty vehicle traveling in California, including vehicles registered in other states and foreign countries, may be tested. Tests are performed by CARB inspection teams at border crossings, California Highway Patrol weigh stations, fleet facilities, and randomly selected roadside locations. Owners of trucks and buses found to be in violation are subject to penalties starting at $300 per violation. Heavy-duty trucks used during project construction or operations would be subject to the inspection program.

California Standards for Diesel Fuel Regulations

These regulations require diesel fuel with sulfur content of 15 parts per million (ppm) or less (by weight) to be used for all diesel-fueled vehicles that are operated in California. The standard also applies to non-vehicular diesel fuel, other than diesel fuel used solely in locomotives or marine vessels. The regulations also contain standards for the aromatic hydrocarbon content and lubricity of diesel fuels.

AB 1346: Air Pollution: Small Off-road Engines

Assembly Bill (AB) 1346 requires CARB to adopt cost-effective and technologically feasible regulations to prohibit engine exhaust and evaporative emissions from new small off-road engines (SOREs) by July 1, 2022, to apply to engines produced on or after January 1, 2024, or as soon as CARB determines is feasible. In determining technological feasibility, CARB is to consider emissions from SOREs in the state, timeline for zero-emission SORE development, increased electricity demand from charging zero-emission SOREs, cases for both commercial and residential users of SOREs, and expected availability of zero-emission generators and emergency response equipment. In addition, CARB is required to identify and make available funding for rebates or incentives.

Airborne Toxic Control Measures

CARB regulates toxic airborne contaminants (TACs) by requiring implementation of various airborne toxic control measures (ATCMs), which are intended to reduce emissions associated with toxic substances. The following ATCMs may be relevant to the proposed project:

ATCM to Limit Diesel-fueled Commercial Motor Vehicle Idling

On October 20, 2005, CARB approved an ATCM to limit idling of diesel-fueled commercial motor vehicles. This regulation was a follow-up to previous idling ATCMs, and it consists of new engine and in-use truck requirements, as well as idling emission performance standards. The regulation requires 2008 and newer model year heavy-duty diesel-fueled engines to be equipped with a nonprogrammable engine shutdown system that automatically shuts down the engine after 5 minutes of idling or, optionally, meets a stringent NO_X idling emission standard (i.e., 30 grams per hour). The regulation also applies to the operation of in-use trucks, requiring operators of both in-state and out-of-state registered, sleeper berth–equipped trucks to manually shut down their engines when idling more than 5 minutes at any location within California, beginning in 2008. Affected vehicles include diesel-fueled commercial vehicles with a gross vehicle weight rating greater than 10,000 pounds. The regulation contains exceptions for equipment that requires the engine to remain on to operate, such as ready-mix concrete trucks. Trucks used for hauling or vendor delivery of materials for project construction or operations would be required to comply with these requirements.

Portable Engine ATCM

The California Portable Engine ATCM is designed to reduce the PM emissions from portable diesel-fueled engines rated at 50 brake hp or larger. This regulation requires that an owner's fleet of portable engines meet emission standards that reduce the amount of PM emissions over time.

Portable Equipment Registration Program

The statewide Portable Equipment Registration Program (PERP) establishes a system to uniformly regulate portable engines and portable engine–driven equipment units. After being registered in this program, engines and equipment units may operate throughout the state without the need to obtain permits from individual air districts. Owners or operators of portable engines and certain types of equipment can voluntarily register their units under this program. Operation of registered portable engines may still be subject to certain district requirements for reporting and notification. Engines with less than 50 brake hp are exempt from this program. Some of the engines used for the proposed project may operate under PERP.

TAC Regulations

In addition to ATCMs, TACs are controlled under several different regulations in California, including the Tanner Air Toxics Act, Air Toxics Hot Spots Information Act, and AB 2588: Air Toxics "Hot Spots" Information and Assessment Act. In addition, Proposition 65 (the Safe Water and Toxic Enforcement Act of 1996) requires the state to publish a list of chemicals known to cause cancer or birth defects or other reproductive harm. Proposition 65 requires businesses to notify

Californians about substantial amounts of chemicals in the products they purchase or that are released into the environment.

AB 203 Occupation Safety and Health: Valley Fever

Enacted in 2019, AB 203 modifies Section 6709 of the California Labor Code to require construction employers in counties where Valley Fever is highly endemic (more than 20 cases per 100,000 people per year) to provide training to all employees by May 1, 2020, and annually thereafter. Kern County is considered a highly endemic area for Valley Fever. Training requirements must include the following topics:

- What Valley Fever is and how it is contracted;
- Areas, environmental conditions, and types of work that pose high risk of contracting Valley Fever;
- Personal factors that put employees at higher risk of infection or disease development, including pregnancy, diabetes, having a compromised immune system due to conditions such as human immunodeficiency virus or acquired immunodeficiency syndrome, having received an organ transplant, or taking immunosuppressant drugs such as corticosteroids or tumor necrosis factor inhibitors;
- Methods to prevent personal and environmental exposure, such as water-based dust suppression, good hygiene practices when skin and clothing are soiled by dust, avoiding contamination of drinks and food, working upwind from dusty areas when feasible, wet-cleaning dusty equipment when feasible, and wearing a respirator when exposure to dust cannot be avoided;
- The importance of early detection, diagnosis, and treatment to prevent the disease from progressing because the effectiveness of medication is greatest in the early stages of the disease;
- Recognizing common signs and symptoms of Valley Fever, including cough, fatigue, fever, headache, joint pain or muscle aches, rash on upper body or legs, shortness of breath, and symptoms similar to influenza that linger longer than usual;
- The importance of reporting symptoms to the employer and seeking prompt medical attention from a physician for appropriate diagnosis and treatment; and
- Prognosis and common treatment for Valley Fever.

Cal/OSHA Regulations Applicable to Valley Fever

Since Kern County has a high incidence of Valley Fever, construction contractors are required to comply with the following California Occupational Safety and Health Administration (Cal/OSHA) recommendations and regulations:

- Employers have a legal responsibility to immediately report to Cal/OSHA any serious injury, illness, or death (including any due to Valley Fever) of an employee occurring in a place of employment or in connection with any employment. Employers also have responsibilities to control workers' exposure to hazardous materials.

- Applicable regulations with regard to Valley Fever protection and exposure can be found in the following sections of California Code of Regulation, Title 8:
  - Section 342 (Reporting Work-Connected Fatalities and Serious Injuries),
  - Section 3203 (Injury and Illness Prevention),
  - Section 5141 (Control of Harmful Exposures),
  - Section 5144 (Respiratory Protection), and
  - Section 1433 (Employer Records – Log 300).

4.2.3 Local Laws, Regulations, and Policies

At the local level, air quality district responsibilities include overseeing regulation of stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality monitoring stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents under CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws, as well as for ensuring that the NAAQS and CAAQS are met.

Local governments are essential partners in the effort to reduce air pollutant emissions. The local governments have influence through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations.

San Joaquin Valley Air Pollution Control District

SJVAPCD has local air quality jurisdiction over the portion of Kern County where the Proposed Project would be located and in the multiple other counties in the San Joaquin Valley that comprise the San Joaquin Valley Air Basin (SJVAB). SJVAPCD's recommended CEQA thresholds are outlined in its *Guidance for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015a). SJVAPCD has adopted attainment plans to address ozone and PM.

1-Hour Ozone

Although USEPA revoked its 1979 1-hour ozone standard in June 2005, many planning requirements remain in place, and the SJVAB must still attain this standard before CAA Section 185 fees (which are required when attainment is not reached) can be rescinded. SJVAPCD's most recent 1-hour ozone plan, the 2013 Plan for the Revoked 1-hour Ozone Standard (SJVAPCD 2013), demonstrated attainment of the 1-hour ozone standard by 2017. In July 2016, USEPA made a final determination that the SJVAB has attained the 1-hour ozone NAAQS based on the most recent 3-year data period (2012–2014) of sufficient, quality-assured, and certified data (SJVAPCD 2021c). For the SJVAB to be officially designated as an attainment area, SJVAPCD must verify that attainment is due to permanent and enforceable emission reductions and prepare a maintenance plan.

8-Hour Ozone

SJVAPCD's far-reaching 2007 Ozone Plan demonstrates attainment of USEPA's 1997 8-hour ozone standard by 2023. USEPA approved the 2007 Ozone Plan effective April 30, 2012. The

district has prepared a 2016 Ozone Plan to address USEPA's 2008 8-hour ozone standard, which the SJVAB must attain by 2032 (SJVAPCD 2016). This extremely stringent standard is nearing the SJVAB's naturally occurring background concentrations of ozone. The 2016 plan identifies that, without mobile sources transitioning to near-zero emission levels through the implementation of transformative measures such as ultra-low tailpipe emissions standards (which SJVAPCD does not have the authority to implement), attainment of the federal standards is not possible (SJVAPCD 2016).

PM10

PM is a complex mixture of extremely small particles and liquid droplets, made up of multiple components, including acids, organic chemicals, metals, and soil or dust particles. PM10 is typically found near roadways and around dusty industrial sites. Based on PM10 measurements from 2003-2006, USEPA found that the SJVAB has reached attainment of federal PM10 standards. In September 2007, the SJVAPCD Governing Board adopted the 2007 *PM10 Maintenance Plan and Request for Redesignation*, which demonstrated that the SJVAB will continue to meet the PM10 standard. USEPA approved the document and, in September 2008, the SJVAB was redesignated to attainment/maintenance (SJVAPCD 2017b). CARB prepared the *2017 San Joaquin Valley Air Pollution Control District PM10 Maintenance Plan*, an update to the 2007 PM10 maintenance plan (CARB 2017), to document the nature and causes of PM10 exceedances that occurred in San Joaquin Valley in 2013 and 2014.

PM2.5

PM2.5 is found in smoke and haze. Changes in the federal PM2.5 air quality standard (in 1997, 2006, and 2012) and recent drought conditions in California have resulted in the development of multiple PM2.5 air quality plans by SJVAPCD. In November 2018, SJVAPCD adopted the *2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards* (SJVAPCD 2018a). This plan addresses the USEPA federal 1997 annual PM2.5 standard and 24-hour PM2.5 standard; the 2006 24-hour PM2.5 standard; and the 2012 annual PM2.5 standard. This plan demonstrates attainment of the federal PM2.5 standards as expeditiously as is practicable.

The plan consists of a combination of innovative regulatory and nonregulatory measures. New regulations to reduce more emissions from flaring, internal combustion engines, boilers/steam generators, glass melting furnaces, agricultural operations, and other local sources are purposed. This plan also includes aggressive incentive-based control measures. Along with comprehensive efforts at the local level to reduce emissions, actions that are not under the direct authority of SJVAPCD to reduce mobile source emissions are critical to attaining the standard. Thus, this plan includes requirements for CARB to provide additional regulations and financial assistance to reduce emissions from heavy-duty trucks, agricultural equipment, locomotives, and off-road equipment.

In August 2021, the SJVAPCD Governing Board approved the *Attainment Plan Revision for the 1997 Annual PM2.5 Standard* to establish a new attainment target for the 1997 annual PM2.5 standard. The SJVAB was on track to meet this standard by the projected attainment target of 2020 but was unable to do so because of substantial wildfire impacts and data collection issues at the air monitoring site in Bakersfield (SJVAPCD 2021d).

SJVAPCD Rules

The Proposed Project may be subject to some or all of the following rules adopted by SJVAPCD to reduce emissions throughout the SJVAB:

Rule 2010 – Permits Required requires an applicant to obtain an Authority to Construct and Permit to Operate for certain types of stationary air pollution sources.

Rule 2201 – New and Modified Stationary-Source Review Rule applies to all new stationary sources and all modifications to existing stationary sources subject to SJVAPCD permit requirements that, after construction, emit or may emit one or more pollutants regulated by the rule.

Rule 2280 – Portable Equipment Registration applies to portable emissions units that may operate in participating districts throughout California. The rule requires applicable portable equipment to be registered.

Rule 3135 – Dust Control Plan Fees requires the applicant to submit a fee in addition to a dust control plan. The purpose of this rule is to recover SJVAPCD's cost for reviewing these plans and conducting compliance inspections.

Rule 4101 – Visible Emissions prohibits emissions of visible air contaminants into the atmosphere and applies to any source operation that emits or may emit air contaminants.

Rule 4102 – Nuisance applies to any source operation that emits or may emit air contaminants or other materials. In the event that the project or construction of the project creates a public nuisance, it could be in violation of this rule and subject to SJVAPCD enforcement action.

Rule 4201 – Particulate Matter Concentration applies to any source operation which emits or may emit dust, fumes, or total suspended particulate matter.

Rule 4202 – Particulate Matter – Emissions Rate limits particulate matter emissions by establishing allowable emission rates.

Rule 4601 – Architectural Coatings limits volatile organic compound (VOC) emissions from architectural coatings.

Rule 4701 – Internal Combustion Engines – Phase 1 limits the emissions of NO_X, CO, and VOCs from internal combustion engines. These limits are not applicable to standby engines as long as they are used fewer than 200 hours per year (e.g., for testing during non-emergencies).

Rule 4702 – Internal Combustion Engines – Phase 2 limits the emissions of NO_X, CO, and VOCs from spark-ignited internal combustion engines.

Regulation VIII – Fugitive PM10 Prohibitions (Rules 8011–8081) is designed to reduce PM10 emissions (predominantly dust and dirt) generated by human activity, including

construction, road construction, bulk materials storage, landfill operations, and other activities. This regulation is discussed in more detail below.

Rule 9410 – Employer-Based Trip Reduction requires large employers to establish an Employer Trip Reduction Implementation Plan, which encourages employees to use alternative transportation and ridesharing for their commutes.

Rule 9510 – Indirect Source Review is intended to reduce a project's impact from indirect sources such as on-road and off-road vehicles on air quality through project design elements or mitigation by payments of applicable off-site mitigation fees. Compliance with Rule 9510 is designed to reduce construction exhaust NO_X and PM10 emissions by 20 percent and 45 percent, respectively, and operational emissions of NO_X and PM10 emissions by 33.3 percent and 50 percent, respectively. This rule is only applicable to certain development projects that exceed size requirements at buildout (e.g., 25,000 square feet of light industrial space).

Fugitive Dust Measures (Regulation VIII)

The Proposed Project would be required to implement the mandatory control measures listed in Table 2 of the *SJVAPCD Mitigation Measures* guidance document (SJVAPCD 2021a) to reduce fugitive dust emissions. These mandatory control measures are not considered mitigation measures under CEQA because they are required by law.

The Regulation VIII requirements that may be applicable to the Proposed Project are listed below:

- All disturbed areas, including storage piles, which are not being actively used for construction purposes, will be effectively stabilized for dust emissions using water or a chemical stabilizer/suppressant, or covered with a tarp or other suitable cover or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads will be effectively stabilized for dust emissions using water or a chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities will be effectively controlled of fugitive dust emissions by utilizing an application of water or by presoaking.
- All materials transported off site will be covered or effectively wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container will be maintained.
- All operations will limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, piles will be effectively stabilized to prevent fugitive dust emissions utilizing sufficient water or a chemical stabilizer/suppressant.

- Within urban areas, trackout will be immediately removed when it extends 50 or more feet from the site and at the end of each workday.

Metropolitan Bakersfield General Plan

Chapter V, Conservation Element, of the MBGP (City of Bakersfield 2002) includes policies pertaining to air quality that may be relevant to the Proposed Project:

Policy V-AQ.1. Comply with and promote SJVUAPCD control measures regarding Reactive Organic Gases (ROG).

Policy V-AQ.2. Encourage land uses and land use practices which do not contribute significantly to air quality degradation.

Policy V-AQ.3. Require dust abatement measures during significant grading and construction operations.

Policy V-AQ.6. Participate in alternative fuel programs.

Policy V-Q.29. Encourage the use of alternative fuel and low or zero emission vehicles.

4.3 Environmental Setting

This section presents information on the existing physical environmental conditions in the Proposed Project vicinity related to air quality. This information is used to determine impacts that could result from construction and operation of the Proposed Project. The project site is located on the southwestern edge of the City of Bakersfield. The site has existing oil and gas wells. The project site was approved for development as a specific plan area with residential, commercial, and light industrial development; however, development was limited to land clearing and grading activities. To the east of the project site is a residential development and some agriculture lands. To the north of the project site are several water banks and water conveyance operations. In addition, agriculture and oil and gas activities are located in all directions around the project site.

4.3.1 San Joaquin Valley Air Basin

Bakersfield is located in the SJVAB, which encompasses the southern half of California's Central Valley and is approximately 250 miles long and averages 35 miles wide. The SJVAB is bounded by the Sierra Nevada to the east, the Coast Ranges to the west, and the Tehachapi Mountains to the south. The SJVAB contains all of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare Counties, as well as a portion of Kern County.

4.3.2 Climate and Topography

The Bakersfield area has an inland Mediterranean climate that is characterized by hot, dry summers and mild, semi-arid winters. Summer high temperatures often exceed 100 degrees Fahrenheit (°F) and average in the 90s. Bakersfield, situated in the extreme south end of the San Joaquin Valley, is partially surrounded by a horseshoe-shaped rim of mountains with an open side to the northwest and the crest at an average distance of 40 miles. Because of the nature of

the surrounding topography, large climatic variations can be experienced within relatively short distances. These zones of variation may be classified as valley, mountain, and desert areas. The overall climate, however, is warm and semi-arid.

Although marine air generally flows into the basin from the Bay-Delta region, the surrounding mountain ranges restrict air movement through and out of the valley. Wind speed and direction influence the dispersion and transportation of pollutants; the greater the wind flow, the lower the accumulation. The vertical dispersion of air pollutants in the SJVAB is limited by the presence of persistent temperature inversion, leading to higher concentrations of emitted pollutants (SJVAPCD 2015a).

Precipitation and fog tend to reduce pollutant concentrations. Ozone is formed when chemical compounds such as VOCs and NO_X (collectively known as ozone precursors) react with sunlight. Clouds and fog block the solar radiation for the ozone-forming reaction. Annual precipitation in the San Joaquin Valley decreases from north to south, with Bakersfield averaging 6.5 inches per year (National Oceanic and Atmospheric Administration [NOAA] 2021).

4.3.3 Existing Air Quality Conditions

Air Monitoring Data

USEPA, CARB, and local air districts operate an extensive air monitoring network to measure maintenance of or progress toward attainment of NAAQS and CAAQS. **Table 4-2** shows the most recent three years of available data.

Table 4-2. Air Monitoring Data for 2018–2020

Monitoring Station	Pollutant	Standard	2018 No. Exceed[1]	2018 Maximum Concentration	2019 No. Exceed[1]	2019 Maximum Concentration	2020 No. Exceed[1]	2020 Maximum Concentration
Bakersfield -5558 California Avenue	PM10	24-hour	*/0	142.0 µg/m^3	108.1/ 0	125.9 µg/m^3	*/*	196.8 µg/m^3
	PM2.5	24-hour	40.3	98.5 µg/m^3	12.3	59.1 µg/m^3	46.4	159.7 µg/m^3
	Ozone	8-hour	64/60	0.098 ppm	28/24	0.088 ppm	25/25	0.098 ppm
	Ozone	1-hour	8/0	0.107 ppm	2/0	0.097 ppm	3/0	0.110 ppm

Notes: CO = carbon monoxide; NO_2 = nitrogen dioxide; PM2.5 = particulate matter of 2.5 micrometers or less; PM10 = particulate matter of 10 micrometers or less; SO_2 = sulfur dioxide; ppm = parts per million; µg/m^3 = micrograms per cubic meter; * = insufficient (or no) data available to determine the value.

1. The number of exceedance days recorded annually at this monitoring station for a particular constituent compared to that constituent's NAAQS and CAAQS. The first number is the state value and the second number is the federal value if they are different.

Source: CARB 2021b.

Existing Regional Sources of Air Pollution and Odors

Existing sources of air pollution and odor in the Bakersfield region include heavy-duty trucks, locomotives, passenger vehicles, farm equipment, off-road equipment, oil and gas operations, and agricultural operations.

4.3.4 Air Pollutants

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas that is highly toxic. CO is formed by the incomplete combustion of fuels and is emitted directly into the air. Ambient CO concentrations normally are considered a localized effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic, forming pollutant hot spots. CO concentrations are also influenced by wind speed and atmospheric mixing. Under inversion conditions, CO concentrations can be distributed more uniformly over an area to some distance from vehicular sources. CO binds with hemoglobin, the oxygen-carrying protein in blood, and reduces the blood's capacity for carrying oxygen (O_2) to the heart, brain, and other parts of the body. At high concentrations, CO can cause heart difficulties in people with chronic diseases, impair mental abilities, and cause death.

Nitrogen Oxides

Nitrogen oxides (NO_X) are a family of gaseous nitrogen compounds and are precursors to the formation of O_3 and PM. NO_2, the major component of NO_X, is a reddish-brown gas that is toxic at high concentrations. NO_X results primarily from the combustion of fossil fuels under high temperature and pressure. Fuel combustion, primarily from on-road and off-road motor vehicles, and industrial sources are the major sources of this air pollutant, according to SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI) (SJVAPCD 2015a).

Volatile Organic Compounds

VOCs are hydrocarbon compounds that exist in the ambient air. VOCs contribute to the formation of smog and/or might themselves be toxic. VOC emissions are a major precursor to the formation of O_3. VOCs are also commonly referred to as ROG (SJVAPCD 2015a).

Ozone

Ozone (O_3) is a reactive gas consisting of three oxygen atoms. In the stratosphere, O_3 exists naturally and shields the earth from harmful incoming ultraviolet radiation. In the troposphere (the lowest region of the atmosphere); however, it is a secondary pollutant that is formed when NO_X and VOCs react in the presence of sunlight. O_3 at the earth's surface causes numerous adverse health effects and is a pollutant regulated by state and federal air quality agencies. It is a major component of smog. High concentrations of ground-level O_3 can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments. O_3 also damages natural ecosystems, such as forests, foothill communities, and agricultural crops, as well as some human-made materials, such as rubber and plastics (SJVAPCD 2015a).

Meteorology and terrain play major roles in ozone formation, and conditions for maximum ozone generation occur on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. Short-term exposure (lasting for a few hours) to ozone at levels typically observed in Central California can result in health effects.

Particulate Matter

Particulate matter (PM) is a complex mixture of extremely small particles and liquid droplets. PM is made up of multiple components, including acids, organic chemicals, metals, and soil or dust particles. Particle size is directly linked to the potential for causing health problems. PM10 is of concern because these particles pass through the throat and nose and are deposited in the thoracic region of the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. PM10 is typically found near roadways and around dusty industrial sites. Fine particles (PM2.5), which are found in smoke and haze, penetrate even more deeply into the thoracic and alveolar regions of the lungs (SJVAPCD 2015a).

When inhaled, PM2.5 and PM10 can penetrate the human respiratory system's natural defenses and damage the respiratory tract. PM2.5 and PM10 can increase the number and severity of asthma attacks and cause or aggravate bronchitis and other lung diseases. Whereas PM10 tends to collect in the upper portion of the respiratory system, PM2.5 is so tiny that it can penetrate deeper into the lungs and damage lung tissues. Health effects of PM2.5 include mortality (all causes), hospital admissions (respiratory, asthma, cardiovascular), emergency room visits (asthma), and acute myocardial infarction (non-fatal). For ozone, the endpoints are mortality, emergency room visits (respiratory), and hospital admissions (respiratory).

Sulfur Dioxide

Sulfur dioxide (SO_2) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fossil fuels. Suspended SO_2 particles contribute to poor visibility and are a component of PM10 (SJVAPCD 2015a).

Lead

Lead (element symbol Pb) is a metal found naturally in the environment as well as in manufactured products. Historically, the major sources of lead emissions have been mobile and industrial activities. The health effects of lead poisoning include loss of appetite, weakness, apathy, and miscarriage. lead poisoning can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract (SJVAPCD 2015a).

In the past, gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. Because the use of leaded fuel has been mostly phased out, ambient concentrations of lead have dramatically decreased.

Hydrogen Sulfide

Hydrogen sulfide (chemical formula H_2S) is associated with refining, geothermal activity, sewage treatment plants, oil and gas production, and confined animal feeding operations. H_2S is extremely hazardous in high concentrations and can cause death (SJVAPCD 2015a).

Sulfates

Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds result primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates is comparatively rapid and complete in urban areas of California because of their regional meteorological features (SJVAPCD 2015a).

CARB's sulfate standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels that exceed the standard include decreased ventilatory function, aggravation of asthmatic symptoms, and increased risk of cardiopulmonary disease. Sulfates are particularly effective in degrading visibility and, because they are usually acidic, can harm ecosystems and damage materials and property (SJVAPCD 2015a).

Vinyl Chloride

Vinyl chloride is a colorless gas that does not occur naturally; it is formed when substances such as trichloroethane, trichloroethylene, and tetrachloroethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC), which is used in plastic products, such as pipes, wire and cable coatings, and packaging materials (SJVAPCD 2015a).

Toxic Air Contaminants

TACs are air pollutants that can lead to serious illness or increased mortality, even when present in relatively low concentrations. Hundreds of different types of TACs exist, with varying degrees of toxicity. Many TACs are confirmed or suspected carcinogens or are known or suspected to cause birth defects or neurological damage. For some chemicals, such as carcinogens, no threshold exists below which exposure can be considered risk free.

Sources of TACs include stationary sources, area-wide sources, and mobile sources. USEPA maintains a list of 187 TACs, identified federally as hazardous air pollutants (HAPs). These HAPs are included on CARB's list of TACs along with additional chemicals identified as TACs in California (CARB 2021b). According to the *California Almanac of Emissions and Air Quality* (CARB 2013), many researchers consider DPM to be a primary contributor to health risk from TACs because particles in the exhaust carry many harmful organics and metals, rather than being a single substance like other TACs. Unlike many TACs, outdoor DPM is not monitored by CARB because no routine measurement method exists; however, using the CARB emission inventory's PM10 database, ambient PM10 monitoring data, and results from several studies, CARB has made preliminary estimates of DPM concentrations throughout the state (California Office of Environmental Health Hazard Assessment [OEHHA] 2001).

Valley Fever

Coccidioidomycosis, often referred to as San Joaquin Valley Fever or Valley Fever, is one of the most studied and oldest known fungal infections. Valley Fever varies with the season and most commonly affects people who live in hot, dry areas with alkaline soil. This disease, which affects both humans and animals, is caused by inhalation of arthroconidia (spores) of the fungus

Coccidioides immitis (CI). CI spores are found in the top few inches of soil and the existence of the fungus in most soil areas is temporary. The cocci fungus lives as a saprophyte (an organism, especially a fungus or bacterium, which grows on and derives its nourishment from dead or decaying organic matter) in dry, alkaline soil. When weather and moisture conditions are favorable, the fungus "blooms" and forms many tiny spores that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-disturbing activities and become airborne. Agricultural workers, construction workers, and other people who are outdoors and are exposed to wind, dust, and disturbed topsoil are at an elevated risk of contracting Valley Fever (CDPH 2021).

Most people exposed to the CI spores do not develop the disease. Of 100 persons who are infected with Valley Fever, approximately 40 will exhibit some symptoms and two to four will have the more serious disseminated forms of the disease. After recovery, nearly all, including the asymptomatic, develop a life-long immunity to the disease (Guevara 2014). African-Americans, Asians, women in the third trimester of pregnancy, and persons with compromised immune systems are most likely to develop the most severe form of the disease (U.S. Centers for Disease Control [CDC] 2013). In addition to humans, 70 different animal species are known to be susceptible to Valley Fever infections, including dogs, cats, and horses, with dogs being the most susceptible (Los Angeles County Public Health [LACPH] 2007).

The Proposed Project site is located in an area designated as "suspected endemic" for Valley Fever. In 2019, the highest number of new cases in California was reported in Kern County, with 3,371 cases or a case rate of 368 cases per 100,000 people. Annual case reports for 2013 through 2019 from CDPH indicate that Kern County has reported incident rates for Valley Fever that range from 106 to 368 cases per year per 100,000 population (CDPH 2020). These incidence rates for Kern County are among the highest in the state during the period.

4.3.5 Sensitive Receptors

Sensitive receptors are those segments of the population most susceptible to the effects of poor air quality—children, elderly persons, and individuals with preexisting serious health problems affected by air quality (e.g., asthma) (CARB 2005). Examples of locations that contain sensitive receptors are residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. Residences include houses, apartments, and senior living complexes. Medical facilities can include hospitals, convalescent homes, and health clinics. Playgrounds include play areas associated with parks or community centers.

A few residential receptors are located near the Proposed Project site. These are primarily to the east of the project site in the adjacent residential developments and agricultural farm residences. No schools or medical facilities are located near the site.

4.4 Impact Analysis

4.4.1 Methodology

Construction-related and operation-related air quality impacts of the Proposed Project within the SJVAB were modeled and evaluated quantitatively and qualitatively by considering the Proposed Project's sources of criteria pollutants, TACs, and odor emissions; proximity to

sensitive receptors; and frequency and duration of emissions. In addition, the existing air quality attainment status and applicable air quality plans of the SJVAB were reviewed and considered in the impact analysis. As required by SJVAPCD, the California Emissions Estimator Model (CalEEMod), version 2020.4.0, was used to quantify criteria pollutant emissions from construction and operation activities. These emissions were then compared to the SJVAPCD's thresholds to determine the significance of impacts on air quality.

Project-specific construction parameters (e.g., construction schedule, total acres disturbed, quantity of import material, amount of development per land use) were used as inputs in the air quality modeling. Construction was modeled to last approximately 60 months, with construction typically occurring 5 days per week. Construction equipment type and number of pieces were based on estimates specific to the project, where provided by BVWSD and RRBWSD and project engineers. CalEEMod default horsepower and load factors were used otherwise.

As described in Chapter 2, *Project Description*, the Proposed Project was estimated to require import of 4,500 cubic yards of material and/or soil over all construction phases. Worker and truck trips for construction activities assumed 39 one-way worker trips and 18 round trips for vendors and hauling combined. The vendor and hauling trip estimates assumed the use of heavy-duty trucks and a trip distance of 20 miles. The CalEEMod default value was used for worker trip length.

Operational emissions were estimated based on eight trips per day and assumed that these were all primary trips. No generators or other fossil-fueled equipment were modeled during operation as the pumps are electric. Where project-specific information was not otherwise available, default parameters provided by each model were used. It should be noted that default assumptions in the models are typically conservative to avoid underestimating emissions.

The SJVAPCD has established thresholds of significance for criteria pollutant emissions, which are based on SJVAPCD New Source Review offset requirements for stationary sources (described in Section 4.4.2). As such, the impact analysis uses these thresholds of significance.

For TACs and odors associated with all of the Proposed Project components, impacts were evaluated qualitatively using the SJVAPCD's GAMAQI (SJVAPCD 2015a). Other pertinent information regarding TAC and odor sources (i.e., frequency of emissions, type of sources) and the proximity to sensitive receptors were also considered.

4.4.2 Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard;

- Expose sensitive receptors to substantial pollutant concentrations as defined by the SJVAPCD; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

GAMAQI Thresholds

The SJVAPCD's recommended CEQA thresholds are outlined in its GAMAQI (SJVAPCD 2015a) and summarized in **Table 4-3**. SJVAPCD's thresholds for ROG and NO_X, which are ozone precursors, are 10 tons/year for each pollutant. Ozone precursor emissions are generated from both heavy- and light-duty vehicle use. The SJVAPCD has determined that projects with ozone precursor emissions below the thresholds of significance for criteria pollutants would be in compliance with the applicable SJVAPCD air quality plans (SJVAPCD 2015a).

According to the SJVAPCD's guidance, impacts of operational and construction emissions are considered to be less than significant if fugitive dust (PM10 and PM2.5) emissions are below the significance levels listed in Table 4-3. In addition, SJVAPCD Regulation VIII requires all projects that involve earthmoving or travel on unpaved roads to implement fugitive dust control measures. Implementation of these control measures would be sufficient to reduce PM10 and PM2.5 impacts to a level considered less than significant.

These threshold limits apply separately to construction emissions, operational permitted sources and activities, and operational non-permitted activities on an annual basis. In other words, a project can emit up to 10 tons of NO_X during construction, 10 tons of NO_X from operational permitted activities, and 10 tons of NO_X from non-permitted activities – for a total of 30 tons of NO_X emissions – and still be under the CEQA significance threshold, which would therefore be considered less than significant.

Table 4-3. Applicable SJVAPCD Construction and Operational Project-Level Significance Thresholds under CEQA

Pollutant	Construction Emissions Threshold (tons/year)	Operational Permitted Activities (tons/year)	Operational Non-permitted activities (tons/year)
Carbon monoxide (CO)	100	100	100
Oxides of nitrogen (NO_X; ozone precursor)	10	10	10
Reactive organic gases (ROG; ozone precursor)	10	10	10
Sulfur oxides (SO_X)	27	27	27
Particulate matter (PM10)	15	15	15
Fine particulate matter (PM2.5)	15	15	15

Source: SJVAPCD 2015a

The following quantitative TAC thresholds of significance are identified in the GAMAQI (SJVAPCD 2015a), with implementation of the latest revisions to SJVAPCD's risk management policy (SJVAPCD 2018b) also serving as revisions to the CEQA thresholds:

- Probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 20 in 1 million, or
- Ground-level concentrations of non-carcinogenic TACs result in a Hazard Index greater than 1 for the MEI.

Because the Proposed Project site is in a rural setting and most of the construction activity would be located far from any sensitive receptors, a qualitative analysis was determined to be the appropriate level of detail required to determine the impact of construction-related TAC emissions.

For operational TAC emissions, the SJVAPCD requires the Proposed Project's facilities to be below the health effects quantitative thresholds in order to obtain the required operating permits, consistent with SJVAPCD regulations regarding permitted sources. For construction and operation, health risks from TACs were evaluated by identifying the Proposed Project's potential to generate TAC emissions and determining whether sensitive receptors could be affected by those emissions.

4.4.3 Environmental Impacts

Impact AQ-1: Conflict with or obstruct implementation of an applicable air quality plan — Less than Significant

The SJVAB is in nonattainment for the federal standards for ozone (8 hour) and PM2.5. The SJVAB is also in nonattainment for the state standards of ozone (1 hour and 8 hour), PM10, and PM2.5. Therefore, the SJVAPCD has prepared attainment plans for the SJVAB to demonstrate achievement of the state and federal ambient air quality standards. The attainment plans have been approved by CARB and have been incorporated into the SIP. The air quality plans in effect are listed below:

- 2013 Plan for the Revoked 1-hour Ozone Standard
- 2016 Ozone Plan for the 8-hour Ozone Standard
- 2007 PM10 Maintenance Plan and Request for Redesignation
- 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards

The SJVAPCD's GAMAQI is an advisory document that provides local jurisdictions with procedures for addressing air quality impacts in environmental documents. The GAMAQI includes methods for assessing air quality impacts, thresholds of significance, and recommended mitigation measures. The GAMAQI indicates that projects evaluated to have impacts less than the thresholds of significance would not result in significant impacts to air quality and would not conflict with or obstruct implementation of the region's air quality plans. Because the air quality plans account for growth, projects that are consistent with the thresholds and mitigation

measures in the GAMAQI are by definition consistent with the SJVAPCD's adopted air quality plans.

As discussed above (and in further detail in Impact AQ-2), the emissions from the construction and operation of the project would not exceed the emission thresholds established by the SJVAPCD. Therefore, the Proposed Project would not conflict with or obstruct implementation of the SJVAPCD's adopted air quality plans, and the Proposed Project would have a **less-than-significant impact**.

Impact AQ-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard – Less than Significant

As shown in Table 4-1, the Proposed Project site is located in a region that is designated in non-attainment for ozone, PM10, and PM2.5. The SJVAPCD has determined that projects that do not have mass emissions exceeding the screening level significance thresholds would not create a cumulatively considerable net increase in emissions. The general rationale for this determination is provided below.

The ambient concentration of criteria pollutants is a result of complex atmospheric chemistry; models to determine the concentrations and related health effects of emissions of pollutant precursors and direct emissions are not readily available at the project-specific level. Such modeling would require detailed information not only about the project, but also about the other pollutants being emitted in the region; this information is not widely available and, where it is available, its use would be speculative.

NO_X and ROG are precursors to ozone, and NO_X, ROG, and sulfur oxides (SO_X) are precursors to secondarily formed PM2.5. Chemical and physical processes transform some of these precursors to the criteria pollutant concentrations in the atmosphere. Multiple variables determine whether emissions of air pollutants from the project move and disperse in the atmosphere in a manner in which concentrations of criteria pollutants would become elevated and result in health impacts.

A specific mass of precursor emissions does not equate to an equivalent concentration of the resultant ozone or secondary particulate matter in that area. The resulting health effects of ambient air concentrations are further based on a complex relationship of multiple variables and factors. The calculated health effects are dependent upon the concentrations of pollutants to which the receptors are exposed, the number and type of exposure pathways for a receptor, and the intake parameters for a receptor, which vary based upon age and sensitivity (e.g., presence of pre-existing conditions). Health effects would be more likely for individuals with greater susceptibility to exposure, and the location of receptors relative to the project impacts would affect whether receptors are exposed to project-related pollutants. Health effects from ozone, PM2.5, and PM10 are summarized in Section 4.3.4 above.

During construction of the Proposed Project, the combustion of fossil fuels for construction equipment, material hauling, and worker trips would result in criteria air pollutant emissions. Emissions were estimated using CalEEMod Version 2020.4.0 based on the information provided

in Chapter 2, *Project Description,* including site-specific information and default assumptions. The Proposed Project's criteria air pollutant emissions during construction are shown in **Table 4-4**. CalEEMod and other supporting calculations and modeling results for the Proposed Project are provided in Appendix D, *Air Pollutant Emissions, Greenhouse Gas Emissions, and Energy Use Calculations*.

Table 4-4. Maximum Annual Construction Emissions (tons per year)

Year	ROG	NO_X	CO	SO_2	PM10	PM2.5
2022	0.03	0.32	0.39	0.001	0.04	0.02
2023	0.36	3.37	3.01	0.008	0.52	0.20
2024	0.33	3.03	3.05	0.008	0.49	0.17
2025	0.18	1.41	1.94	0.005	0.11	0.07
2026	0.22	1.81	2.03	0.006	0.45	0.24
Maximum Annual Emissions, Construction	0.36	3.37	3.05	0.008	0.52	4
SJVAPCD Significance Threshold	10	10	100	27	15	15
Exceeds Threshold?	No	No	No	No	No	No

Notes: CO = carbon monoxide; NO_X = oxides of nitrogen; PM10 = respirable particulate matter; PM2.5 = fine particulate matter; ROG = reactive organic gases; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide.

Source: Appendix D

As indicated in Table 4-4, construction emissions would be below the applicable SJVAPCD thresholds of significance for the criteria pollutants. This would be a less-than-significant construction-related impact.

Operation of the Proposed Project would emit criteria air pollutants from vehicle trips to and from the site. No other operational sources of criteria air pollutants have been identified, as the pumps would be electric and no emergency generators are planned for the site. **Table 4-5** shows the estimated operational emissions from vehicle trips.

Table 4-5. Maximum Annual Operational Emissions (tons per year)

Year	ROG	NO_X	CO	SO_2	PM10	PM2.5
Annual Operational Emissions	0.004	0.008	0.04	0.0001	0.01	0.003
SJVAPCD Significance Threshold	10	10	100	27	15	15
Exceeds Threshold?	No	No	No	No	No	No

Notes: CO = carbon monoxide; NO_X = oxides of nitrogen; PM10 = respirable particulate matter; PM2.5 = fine particulate matter; ROG = reactive organic gases; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide.

Source: Appendix D

As indicated in Table 4-5, operational emissions would be below the applicable SJVAPCD thresholds of significance for criteria pollutants. Therefore, based on the SJVAPCD GAMAQI, the Proposed Project is assumed to not result in a substantial change to the ambient air quality even though the area may be in non-attainment for some air pollutants, including ozone and PM.

Both the construction and operational mass emissions are substantially lower than the mass emission screening level significance thresholds. Operational emissions shown above reflect estimated emissions from operations at the new facility. Particulate matter emissions from the Proposed Project would be minimized through compliance with all of the SJVAPCD's applicable regulations, particularly Regulation VIII, which prescribes fugitive dust control requirements as well as other PM emission limits on the permitted stationary sources. NO_X and ROG, which are ozone precursors, are below the mass emission screening level of significance and controlled by engine emission standards. Therefore, the Proposed Project would have a **less-than-significant impact** and would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations – Less than Significant

Sensitive receptors near the Proposed Project site could be exposed to various TACs during construction activities. Construction of the Proposed Project would result in the generation of DPM emissions associated with the use of off-road diesel-powered equipment. Health-related risks associated with diesel exhaust emissions are primarily associated with long-term exposure and associated risk of contracting cancer. For residential land uses, the calculation of cancer risk associated with exposure to TACs is typically based on a 25- to 30-year period of exposure. The use of diesel-powered construction equipment at the Proposed Project site, however, would be temporary and episodic and would occur over a relatively large area. Assuming that construction activities involving the use of diesel-fueled equipment would occur over an approximately 60-month period, project-related construction activities would constitute a small fraction of the typical risk-associated exposure period. It is also important to note that the use of heavy-duty diesel-fueled equipment (e.g., graders, scrapers) would be largely limited to the initial site preparation and grading phases, primarily occurring in the second and third years of construction. Outside of this period, the modeled DPM emissions are an order of magnitude

less. Given the high dispersion characteristics of DPM, the large and dispersed area over which the construction activity would take place, and the significant distance from sensitive receptors to most of the site, exposure to construction-generated DPM would not exceed applicable thresholds (i.e., incremental increase in cancer risk of 20 in 1 million).

In addition, BVWSD and RRBWSD would be required to comply with the following regulations related to air quality, which would result in further reductions of on-site DPM emissions.

Section 2485 of Title 13 of the California Code of Regulations – On-road Diesel Vehicles: This regulation limits idling from diesel-fueled commercial motor vehicles with gross vehicular weight ratings of more than 10,000 pounds and licensed for operation on highways. It applies to California and non-California based vehicles. In general, the regulation specifies that drivers of said vehicles:

a. Shall not idle the vehicle's primary diesel engine for greater than 5 minutes at any location, except as noted in Subsection (d) of the regulation; and,

b. Shall not operate a diesel-fueled auxiliary power system to power a heater, air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth for greater than 5.0 minutes at any location when within 1,000 feet of a restricted area, except as noted in Subsection (d) of the regulation.

Section 2449(d)(2) of CARB's In-Use Off-Road Diesel Regulation: A fact sheet describing the specific requirements and exceptions related to CARB's 5-minute idling restriction can be reviewed at the CARB website (CARB 2016). In addition, off-road equipment shall, at a minimum, meet Tier 3 emission standards or use Level 3 Diesel Particulate Filter on Tier 2 engines.

SJVAPCD Regulation VIII for Control of Fugitive Dust Emissions. Regulation VIII is posted on the SJVAPCD's website under "Current District Rules and Regulations" (SJVAPCD 2021e). At a minimum, the following measures must be implemented:

a. All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.

b. All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.

c. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.

d. With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.

e. When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.

f. All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)

g. Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.

h. On-road vehicle speeds on unpaved surfaces of the project site shall be limited to 15 mph.

i. Sandbags or other erosion control measures shall be installed sufficient to prevent silt runoff to public roadways from sites with a slope greater than one percent.

j. Excavation and grading activities shall be suspended when winds exceed 20 mph (Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation).

k. The above measures for the control of construction-generated emissions shall be included on site grading and construction plans.

In addition, the following best management practices would be implemented by BVWSD, RRBWSD and their contractors:

- Signs shall be posted at the project site construction entrance to remind drivers and operators of the state's 5-minute idling limit.
- To the extent available, fossil-fueled equipment will be replaced with alternatively fueled (e.g., natural gas) or electrically driven equivalents.
- Construction truck trips shall be scheduled, to the extent feasible, to occur during non-peak hours, and truck haul routes shall be selected to minimize impacts to nearby residential dwellings.
- The burning of vegetative material shall be prohibited.

As described in Impact AQ-2, operational emissions would be below the applicable SJVAPCD thresholds of significance for criteria pollutants (Table 4-5). Therefore, based on the SJVAPCD GAMAQI, the Proposed Project is assumed to not result in a substantial change to the ambient air quality even though the area may be in non-attainment for some air pollutants, including ozone and PM.

The Proposed Project's construction-related and operational air pollutant emissions would not exceed applicable thresholds, assuming compliance with identified air quality regulations. This impact would be **less than significant**.

Impact AQ-4: Expose sensitive receptors to toxic air contaminants – Less than Significant with Mitigation

Valley Fever (Coccidioidomycosis) is a fungal infection caused by inhalation of spores found in the top few inches of soil. When the spores are stirred up by wind, vehicles, excavation, or other ground-disturbing activities and become airborne, agricultural workers, construction workers, and other people who are outdoors and are exposed to wind, dust, and disturbed topsoil are at an elevated risk of contracting Valley Fever (CDPH 2021).

The potential for an increase incidence of Valley Fever cases associated with Proposed Project construction is high given that Kern County has one of the highest incidence rates in the state. Cal/OSHA regulations address worker health and safety issues related to Valley Fever. Since Valley Fever is endemic to the area, some nearby sensitive receptors may already have developed immunity. However, even after implementation of Cal/OSHA regulations and the SJVAPCD's Regulation VIII fugitive dust mitigation measures, the potential exists for spores to reach nearby sensitive receptors and result in cases of Valley Fever. This would be a significant impact. **Mitigation Measure AQ-1 (Develop and Implement a Valley Fever Management Plan)** requires that, prior to the start of construction, BVWSD, RRBWSD, or their contractors develop and implement a Valley Fever Management Plan, consult with the California Department of Public Health and the Kern County Department of Public Health regarding Valley Fever best mitigation practices, and implement all such feasible measures recommended by these agencies.

Exposure of sensitive receptors to Coccidioidomycosis spores during construction could result in an increased incidence of Valley Fever; implementation of Mitigation Measure AQ-1 would reduce the impact to a less-than-significant level by ensuring that construction activities at the site comply with applicable public health guidance. Therefore, this impact would be **less than significant with mitigation**.

Mitigation Measure AQ-1: Develop and Implement a Valley Fever Management Plan.

BVWSD, RRBWSD, or their contractors shall implement the following measures:

- Prepare a Valley Fever Management Plan (VFMP). The VFMP shall be submitted to the California Department of Public Health and the Kern County Department of Public Health for review and to the City of Bakersfield for final approval prior to the start of construction. The VFMP shall include, but will not be limited to, the following elements as currently recommended by the California Department of Public Health:
  - Adopt site plans and work practices that reduce workers' exposure and which would also help minimize primary and secondary exposure to the community through direct dispersal of spores or secondary dispersal from contaminated

workers or equipment bringing spores to the community. The site plans and work practices may include some or all of the following measures:

- Minimize the area of soil disturbed.
- Use water, appropriate soil stabilizers, and/or re-vegetation to reduce airborne dust.
- Stabilize all spoils piles by tarping or other methods.
- Provide air-conditioned cabs for vehicles that generate heavy dust and make sure workers keep windows and vents closed.
- Suspend work during heavy winds.

- Take measures to reduce transporting spores offsite, such as the following:
  - Clean tools, equipment, and vehicles before transporting offsite.
  - If workers' clothing is likely to be heavily contaminated with dust, provide coveralls and change rooms, and showers where possible.
- Identify a health care provider for occupational injuries and illnesses who is knowledgeable about the diagnosis and treatment of Valley Fever. This helps to ensure proper diagnosis and treatment as well as tracking potential outbreaks that may affect the community.
- Train workers and supervisors about the risk of Valley Fever, the work activities that may increase the risk, and the measures used onsite to reduce exposure. Also train on how to recognize Valley Fever symptoms. This helps to ensure proper diagnosis and treatment as well as tracking potential outbreaks that may affect community.
- Encourage workers to report Valley Fever symptoms promptly to a supervisor. Not associating these symptoms with workplace exposures can lead to a delay in appropriate diagnosis and treatment. This helps to ensure proper diagnosis and treatment as well as tracking potential outbreaks that may affect community.

Impact AQ-5: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people — Less than Significant

The Proposed Project's construction- and operation-related activities would emit the criteria pollutants discussed above as well as potentially odor-causing emissions. Diesel exhaust from construction activities may temporarily generate odors while construction of the Proposed Project is underway. Once construction activities have been completed, these odors would cease. Operational activities would also generate odors, mainly associated with gasoline and diesel fuel and exhaust; these odors would be short-lived and would occur intermittently. The SJVAPCD has compiled a list of potential odor sources in the GAMAQI and recommends that these types of facilities be located a certain distance away from sensitive receptors in order to minimize odor impacts. The land uses associated with the Proposed Project are not typically odorous according to the GAMAQI. Impacts related to other potential emissions adversely affecting a substantial number of people are thus expected to be **less than significant**.

Chapter 5
BIOLOGICAL RESOURCES

5.1 Overview

This section presents the environmental setting, regulatory setting, and potential impacts of the Proposed Project related to biological resources. The impact analysis describes the methodology used to evaluate significance and then presents the impact evaluation. Much of the information in this chapter is taken from the *Biological Evaluation Report for the McAllister Ranch Groundwater Banking Project, Bakersfield, Kern County, California* by SWCA Environmental Consultants (SWCA) (SWCA 2021), provided as **Appendix E** of this EIR.

5.2 Regulatory Setting

5.2.1 Federal Laws, Regulations, and Policies

Federal Endangered Species Act of 1973

The Federal Endangered Species Act (FESA) provides legislation to protect federally listed plant and animal species. FESA Section 9 protects federally listed plant and animal species from unlawful take. "Take" is defined by the FESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under the FESA, all take of federally listed fish and wildlife species as detailed in a Biological Opinion (or Habitat Conservation Plan [HCP]) must be incidental to otherwise lawful activities and not the purpose of such activities. Impacts to listed species resulting from the implementation of a project would require the responsible agency or the applicant to coordinate with the U.S. Fish and Wildlife Service (USFWS) or National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) to determine the extent of impact to a particular species. If the USFWS or NOAA Fisheries determine that impacts to a federally listed species would likely occur, alternatives and measures to avoid or reduce impacts must be identified. The USFWS and NOAA Fisheries also regulate activities conducted in federal critical habitat, which are geographic units designated as areas that support primary habitat constituent elements for listed species.

Applicants proposing projects must comply with the FESA either through FESA Section 7 or Section 10. FESA Section 7 requires all federal agencies to use their authorities to conserve endangered and threatened species in consultation with the USFWS and directs all federal agencies to ensure that the actions they authorize, fund, or carry out do not jeopardize the continued existence of endangered or threatened species or destroy or adversely modify critical habitat. FESA Section 7 formal consultation typically results in the issuance to the applicant of a Biological Opinion and Incidental Take Statement, which states the opinion of the USFWS as to whether or not the federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. A Biological Opinion typically requires terms and conditions that the applicant must follow to remain in compliance

with the FESA. FESA Section 10 authorizes the USFWS to issue permits to non-federal entities allowing for the incidental take of threatened or endangered species, which would otherwise be prohibited under FESA. This requires the applicant to develop an HCP and obtain a federal Incidental Take Permit (ITP) from the USFWS (or qualify for coverage under an HCP/ITP already in place), and typically requires terms and conditions that the applicant must follow to remain in compliance with the FESA.

As the Proposed Project does not require any federal authorization, funding, or any other identified federal nexus, FESA compliance is expected to be facilitated through FESA Section 10.

Metropolitan Bakersfield Habitat Conservation Plan

The Proposed Project would need to remain in compliance with the provisions of the FESA. The proposed project is located within the coverage area of the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP), which addresses biological impacts within the Metropolitan Bakersfield General Plan (MBGP) area. SWCA's review of the MBHCP, specifically the MBHCP's Implementation/Management Agreement, indicates the applicability of the MBHCP pertains primarily to "Urban Development." According to MBHCP Implementing Agreement Section 2.20 Urban Development:

> The term "Urban Development" means a change in land use from Open Land to any other land use for which a permit such as a grading permit, grading plan approval, building permit or use permit is required from the City or County, including but not limited to, the construction of buildings on lots of record and projects undertaken directly by the City or County.

According to MBHCP Implementing Agreement Section 2.21 Urban Development Permit:

> The term "Urban Development Permit" means issuance of a building permit by the City or County for a project that would result in Urban Development. Where a project would ultimately result in Urban Development, the term "Urban Development Permit" also means issuance of a use permit or grading plan approval, or approval of activities undertaken by a public agency including but not limited to public works construction and related activities, if applicable by the City or County.

Based on the language in the MBHCP Implementing Agreement text regarding "a project that would result in Urban Development" (i.e., Section 2.21 Urban Development Permit), the Proposed Project does not appear to be covered under the MBHCP for FESA compliance. If FESA coverage is needed for the Proposed Project, BVWSD or RRBWSD would develop an HCP and obtain a federal ITP, as discussed above.

Although the Proposed Project would not be covered under the MBHCP, many of the MBHCP requirements and measures have been adopted and used by the City as protection measures for covered species, as discussed below. Species covered under the current MBHCP with a federal ITP are included in **Table 5-1**.

Table 5-1. Species Covered under the Metropolitan Bakersfield Habitat Conservation Plan/Federal Incidental Take Permit

Common Name	Scientific Name
Plants	
Bakersfield cactus	*Opuntia basilaris* var. *treleasei*
California jewelflower	*Caulanthus californicus*
San Joaquin woollythreads	*Monolopia congdonii*
Hoover's eriastrum	*Eriastrum hooveri*
Kern mallow	*Eremalche parryi* ssp. *kernensis*
Animals	
blunt-nosed leopard lizard	*Gambelia sila*
giant kangaroo rat	*Dipodomys ingens*
Tipton kangaroo rat	*Dipodomys nitratoides nitratoides*
San Joaquin kit fox	*Vulpes macrotis mutica*

Source: SWCA 2021

Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act (MBTA) protects all migratory birds, including their eggs, nests, and feathers. The MBTA was originally drafted to put an end to the commercial trade in bird feathers popular in the latter part of the 1800s. The MBTA is enforced by the USFWS, and potential impacts to species protected under the MBTA are evaluated by the USFWS in consultation with other federal agencies. On April 11, 2018, the USFWS issued guidance on the recent M-Opinion affecting MBTA implementation. The M-Opinion concludes that the take of birds resulting from an activity is not prohibited by the MBTA when the underlying purpose of that activity is not to take birds. The USFWS interprets the M-Opinion to mean the MBTA prohibitions on take apply when the purpose of the action is to take migratory birds, their eggs, or their nests. Working with other federal agencies on migratory bird conservation is an integral mission of the USFWS; therefore, the USFWS maintains that potential impacts to migratory birds resulting from federal actions should be addressed under the National Environmental Policy Act (NEPA). The chenopod scrub habitat in the BSA may support habitat for nesting birds. If proposed ground-disturbing activities are implemented during the nesting bird season, preconstruction nesting bird surveys would be conducted to avoid impacts to nesting migratory birds, as described further in Section 5.4.

Clean Water Act

The Clean Water Act (CWA) (33 U.S. Code [USC] Section 1251 et seq.) establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. and regulating quality standards for surface waters. Section 404 of the CWA regulates the discharge of dredged

and fill materials into waters of the U.S., which includes all navigable waters, their tributaries, lakes and ponds, and impoundments of jurisdictional waters, as well as some wetlands adjacent to the aforementioned waters (33 Code of Federal Regulations [CFR] Section 328.3). Areas typically not considered to be jurisdictional waters include ephemeral features, diffuse stormwater runoff and directional sheet flow over upland, non-tidal drainage and irrigation ditches excavated on dry land, prior converted cropland, artificially irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial waterbodies such as swimming pools, vernal pools, water-filled depressions, stormwater control features, groundwater recharge structures, water reuse and wastewater recycling structures, and waste treatment systems (33 CFR Section 328.3). Areas meeting the regulatory definition of waters of the U.S. are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) under the provisions of CWA Section 404. Activities involving placement of fill into jurisdictional waters of the U.S. are regulated by USACE through permit requirements. No USACE permit is effective in the absence of state water quality certification pursuant to Section 401 of CWA.

Section 401 of the CWA requires an evaluation of water quality when a proposed activity requiring a federal license or permit could result in a discharge to waters of the U.S. In California, the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs) issue water quality certifications. Each RWQCB is responsible for implementing Section 401 in compliance with the CWA and its water quality control plan (also known as a Basin Plan). Applicants for a federal license or permit to conduct activities that may result in a discharge to waters of the U.S. (including wetlands or vernal pools) must also obtain a Section 401 water quality certification to ensure that any such discharge will comply with the applicable provisions of the CWA.

5.2.2 State Laws, Regulations, and Policies

California Endangered Species Act and Species of Special Concern

California has a parallel mandate to the FESA, which is embodied in the California Endangered Species Act (CESA). The CESA ensures legal protection for plants listed as rare or endangered and wildlife species formally listed as endangered or threatened. The state also maintains a list of California Species of Special Concern, defined as species that have limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. Under state law, the California Department of Fish and Wildlife (CDFW) is empowered to review projects for their potential to impact special-status species and their habitats. Under the CESA, CDFW reserves the right to request the replacement of lost habitat that is considered important to the continued existence of CESA-protected species. CDFW regulates activities that may result in the "take" of such species. The CESA has a much less inclusive definition of "take" (limited to direct take, such as hunting, shooting, or capturing) that does not include the broader definitions in federal law.

The Proposed Project would need to remain in compliance with the provisions of CESA. CDFW indicated in their comment and recommendation letter (CDFW 2020a) in response to the CEQA Notice of Preparation (NOP) that, in regard to the 2014 ITP No. 2081-2013-058-04 issued to the City and County for CESA compliance, the ITP pertains to "Urban Development." For the purpose of the ITP, the CDFW stated that Urban Development does not include activities for water recharge and extraction facilities (not including wells developed in an urban setting) within lands

owned by the California Department of Water Resources, Kern County Water Agency, Kern Water Bank Authority, or other water districts. CDFW did not concur that the proposed project is an activity covered under ITP No. 2081-2013-058-04. CDFW recommended that the land ownership within and adjacent to the proposed project site be disclosed in the proposed project EIR. Further, CDFW has advised that the applicant coordinate with CDFW to comply with the CESA in advance of any proposed project approval or implementation.

As a result of this determination by CDFW, any proposed project-related activities that could result in take of state-listed species would need to be covered under a separate ITP to be obtained by BVWSD or RRBWSD for CESA compliance.

California Fish and Game Code

Pursuant to Division 2, Chapter 6, Sections 1600–1602 of the California Fish and Game Code (F&G Code), CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFW defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." CDFW jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife.

CDFW also manages the California Native Plant Protection Act (NPPA) (F&G Code Section 1900 et seq.), which was enacted to identify, designate, and protect rare plants. In accordance with CDFW guidelines, plant species with California Rare Plant Ranks 1A, 1B, 2A, 2B, and 3 are considered "rare" under the NPPA. Impacts to plants with these rarity rankings must be fully evaluated under CEQA. Plants with Rank 4 have limited distributions but are not necessarily eligible for listing; however, it is recommended that impacts to plants with Rank 4 also be evaluated per CEQA.

Per F&G Code Section 2835, in absence of a CDFW-approved Natural Communities Conservation Plan (NCCP), CDFW cannot authorize take of a Fully Protected species. The classification of Fully Protected was the state's initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. Most "fully" protected species have been listed as threatened or endangered species under the CESA. F&G Code Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) include provisions to protect Fully Protected species, such as: (1) prohibiting take or possession "at any time" of the species listed in the statute, with few exceptions; (2) stating that "no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to "take" a species that has been designated as Fully Protected; and (3) stating that no previously issued permits or licenses for take of these species "shall have any force or effect" for authorizing take or possession. Unless an applicant has developed a CDFW-approved NCCP, CDFW is unable to authorize incidental take of Fully Protected species when activities are proposed in areas inhabited by those species.

F&G Code Section 3503 (Protections of Bird's Nests) includes provisions to protect the nests and eggs of birds. Section 3503 states: "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

Porter-Cologne Water Quality Control Act

The SWRCB works in coordination with the nine RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its region and may approve, with or without conditions, or deny projects that could affect waters of the state. Their authority comes from the CWA and the State's Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (California Water Code Section 13000 et seq.). The Porter-Cologne Act broadly defines waters of the state as "any surface water or groundwater, including saline waters, within the boundaries of the state." Because the Porter-Cologne Act applies to any water, whereas the CWA applies only to certain waters, California's jurisdictional reach overlaps and may exceed the boundaries of waters of the U.S. For example, Water Quality Order No. 2004-0004-DWQ states that shallow waters of the state include headwaters, wetlands, and riparian areas. Where riparian habitat is not present, such as may be the case at headwaters, jurisdiction is taken to the top of bank.

On April 2, 2019, the SWRCB adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State, which became effective on May 28, 2020. In these new guidelines, riparian habitats are not specifically described as waters of the state but instead as important buffer habitats to streams that do conform to the State Wetland Definition. The Procedures describe riparian habitat buffers as important resources that may be included in required mitigation packages when granting permits that involve impacts to waters of the state, as well as to other areas requiring permit authorization from the RWQCBs.

Pursuant to the CWA, projects that are regulated by USACE must also obtain a Section 401 water quality certification from the RWQCB. This certification ensures that the proposed project will uphold state water quality standards. Because California's jurisdiction to regulate its water resources is much broader than that of the federal government, proposed impacts on waters of the state require water quality certification even if the area occurs outside of USACE jurisdiction. Moreover, the RWQCB may impose mitigation requirements even if USACE does not, such as for riparian habitats which are buffers to waters of the state. Under the Porter-Cologne Act, the SWRCB and RWQCBs also have the responsibility of granting CWA National Pollutant Discharge Elimination System (NPDES) permits and waste discharge requirements for certain point-source and non-point-source discharges to waters. These regulations limit impacts on aquatic and riparian habitats from a variety of urban sources.

5.2.3 Local Laws, Regulations, and Policies

Metropolitan Bakersfield General Plan

The Conservation Element of the MBGP (City of Bakersfield 2002) is the official policy document addressing biological resources in Bakersfield. Chapter V, Conservation/Biological Resources, of the MBGP contains the following goals, policies, and implementation programs that are relevant to the Proposed Project's environmental analysis.

Goal 1: Conserve and enhance Bakersfield's biological resources in a manner which facilitates orderly development and reflects the sensitivities and constraints of these resources.

Goal 2: To conserve and enhance habitat areas for designated "sensitive" animal and plant species.

At the end of each policy is listed in parentheses a code beginning with the letter "I" followed by a number. This code refers to the pertinent implementing program.

Policy 1: Direct development away from "sensitive biological resource" areas, unless effective mitigation measures can be implemented (I-1, I-3, I-4).

Policy 2: Preserve areas of riparian vegetation and wildlife habitat within floodways along rivers and streams, in accordance with the Kern River Plan Element and channel maintenance program designed to maintain flood flow discharge capacity (I-4).

Policy 3: Discourage, where appropriate, the use of off-road vehicles to protect designated sensitive biological and natural resources (I-2).

Policy 4: Determine the feasibility of enhancing sensitive biological habitat and establishing additional wildlife habitat in the study area with State and/or Federal assistance (I-3).

Policy 5: Determine the locations and extent of suitable habitat areas required for the effective conservation management of designated "sensitive" plant and animal species (I-3).

Implementation Measure 1: When considering discretionary development proposals, consult available biological resources data covering the area. Determine the potential impacts and necessary mitigation measures for identified biological resources, as required by CEQA. Regularly consult with responsible resource agencies.

Implementation Measure 2: Develop ordinances (where appropriate) to protect sensitive biological resources from adverse impacts of off-road vehicle use.

5.3 Environmental Setting

5.3.1 Existing Conditions

Physical Conditions

The Proposed Project site exhibits limited topographical relief with elevations between 330 to 350 feet. The region experiences a Mediterranean climate with dry, hot summers and mild winters with low annual precipitation, with most rainfall October to March. Much of the site had previously been in agricultural production for over 20 years, including grain and other crops, such as carrots and potatoes; the site was recently taken out of agricultural production within the last few years and is routinely disked/disturbed (BPR Consulting 2020). Four soil map units have been identified in the proposed project area (**Figure 5-1**): Map Unit 127 – Granoso sandy loam, 0 to 2 percent slopes, overwash; Map Unit 152 – Excelsior sandy loam; Map Unit 174 – Kimberlina fine sandy loam, 0 to 2 percent slopes; and Map Unit 179 – Kimberlina fine sandy loam, saline-sodic, 0 to 2 percent slopes (U.S. Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS] 2021).

A brief description of each soil map unit follows:

127 Granoso sandy loam, 0 to 2 percent slopes, overwash is a somewhat excessively drained soil that formed in alluvium derived from rocks of mixed mineralogy. Slope is 0 to 2 percent. Permeability is moderately rapid. Runoff is negligible to low and flooding is none to rare.

152 Excelsior sandy loam is a deep, well-drained soil that is found on alluvial fans. It formed in alluvium derived from a mixed rock source. Slope is 0 to 2 percent. Permeability is slow and the available water capacity is low to moderate. Runoff is slow and the hazard for water erosion is slight.

174 Kimberlina fine sandy loam, 0 to 2 percent slopes is a deep, well-drained soil on alluvial fans and plains. It is formed in alluvium derived dominantly from granitic and sedimentary rock. Permeability is moderate. Available water capacity is high. Runoff is slow, and the hazard for erosion slight.

179 Kimberlina fine sandy loam, saline-sodic, 0 to 2 percent slopes is a deep, well-drained soil on recent alluvial fans and plains. It is formed in alluvium derived dominantly from granitic and sedimentary rock. Permeability is moderately slow. Available water capacity is very low to moderate. Runoff is slow, and the hazard for erosion slight.

Hydrological Conditions

The Kern River occurs just north of the Proposed Project site and drains approximately northwest to southeast before heading south to its terminus at Buena Vista Lake, located approximately 7.5 miles southeast of the Proposed Project site. Agricultural fields in the region support various canals/ditches that divert water from the Kern River for irrigation. CDFW Biogeographic Information and Observation System (BIOS) and USFWS National Wetlands

Inventory (NWI) data accessible online show historical drainage features that previously occurred on-site (BIOS 2020; NWI 2020) (**Figure 5-2**). SWCA accessed NWI metadata that shows those drainage features were mapped based on 1984 aerial imagery and were characterized as excavated drainage features (presumably for irrigation/agricultural purposes). The site has undergone extensive site disturbance and land conversion since 1984. An old irrigation ditch/canal feature known as the James Canal borders a portion of the northern area of the Proposed Project site and proceeds south through the western area of the Proposed Project site toward Panama Lane. Dense weedy species, such as Russian thistle, black mustard, summer mustard, and non-native annual grasses were observed growing in the irrigation ditch/canal with no evidence of wetland or riparian plant species or visible signs of an ordinary high water mark (OHWM). SWCA noted that the ditch/canal did not contain natural flows and would not be subject to CDFW 1602 jurisdiction.

Based on the recent (i.e., 2020 and 2021) observations of SWCA field biologists, there are no potentially jurisdictional drainage features or wetlands currently on-site.

Habitats/Land Uses

The Proposed Project site, also referred to as the Biological Study Area (BSA), encompasses approximately 2,070 acres of land comprised mainly of fallow agricultural fields and residential ruderal (encompassing the footprint of the former McAllister Ranch). There is also a patch of chenopod scrub habitat at the southwestern corner of the BSA, a patch of disturbed annual grassland at the northwestern corner, a patch of what can be characterized as ruderal oil field toward the eastern edge of the BSA, and an irrigation canal/drainage ditch that borders the northern edge of the BSA before traversing southward through the western side of the BSA (see **Figure 5-3**). Four borrow pits that appeared to be seasonally inundated and were generally dominated by salt grass (*Distichlis spicata*), red brome (*Bromus madritensis* ssp. *rubens*), and Russian thistle (*Salsola tragus*), with scattered mule fat (*Baccharis salicfolia*) and saltcedar (*Tamarix ramosissima*) shrubs were identified in 2013 by Live Oak Associates in the southern boundary of BSA. Since 2013, the land in the project site has been heavily disturbed and the borrow pits are no longer distinguishable from the surrounding areas.

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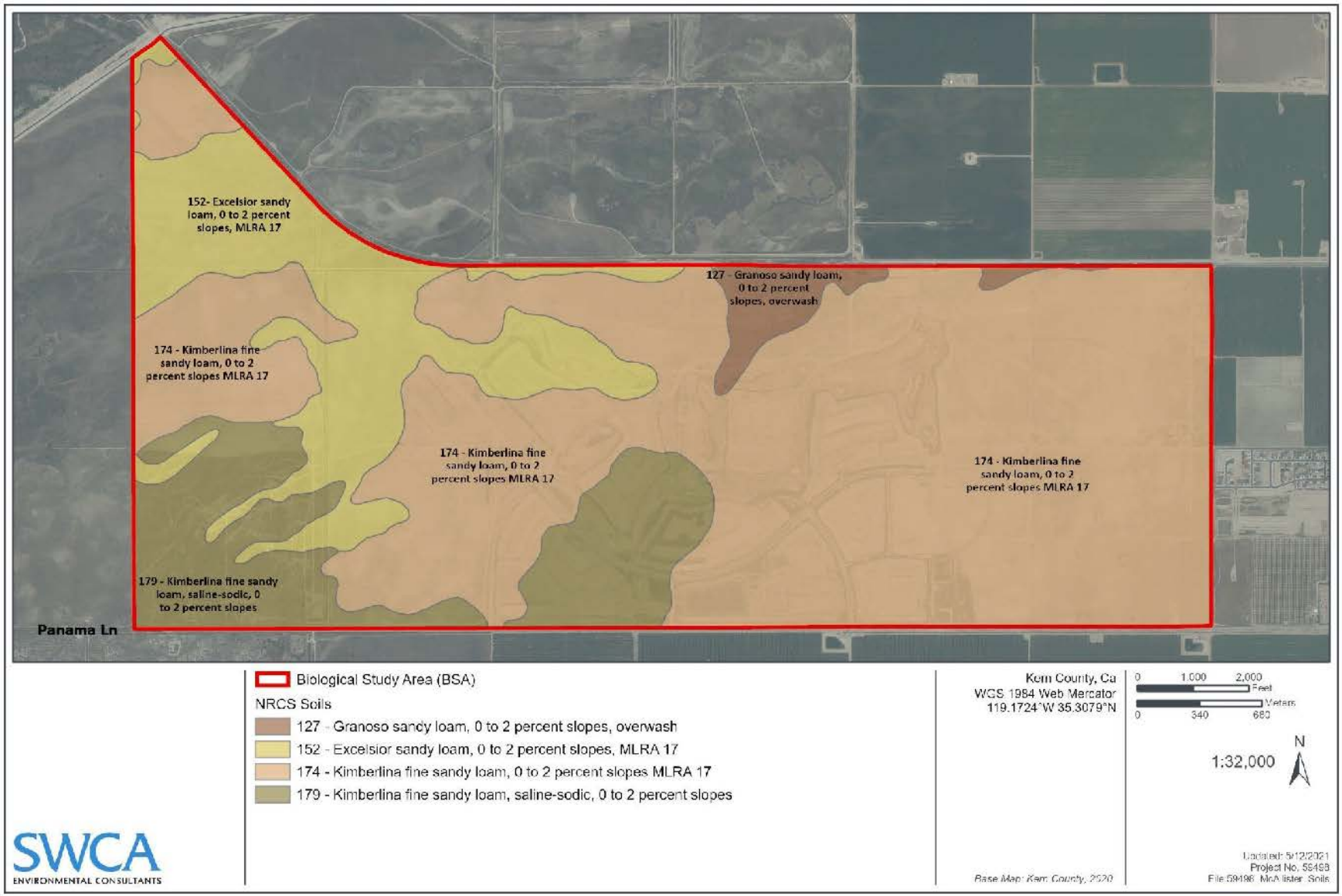

Figure 5-1. Soils Map

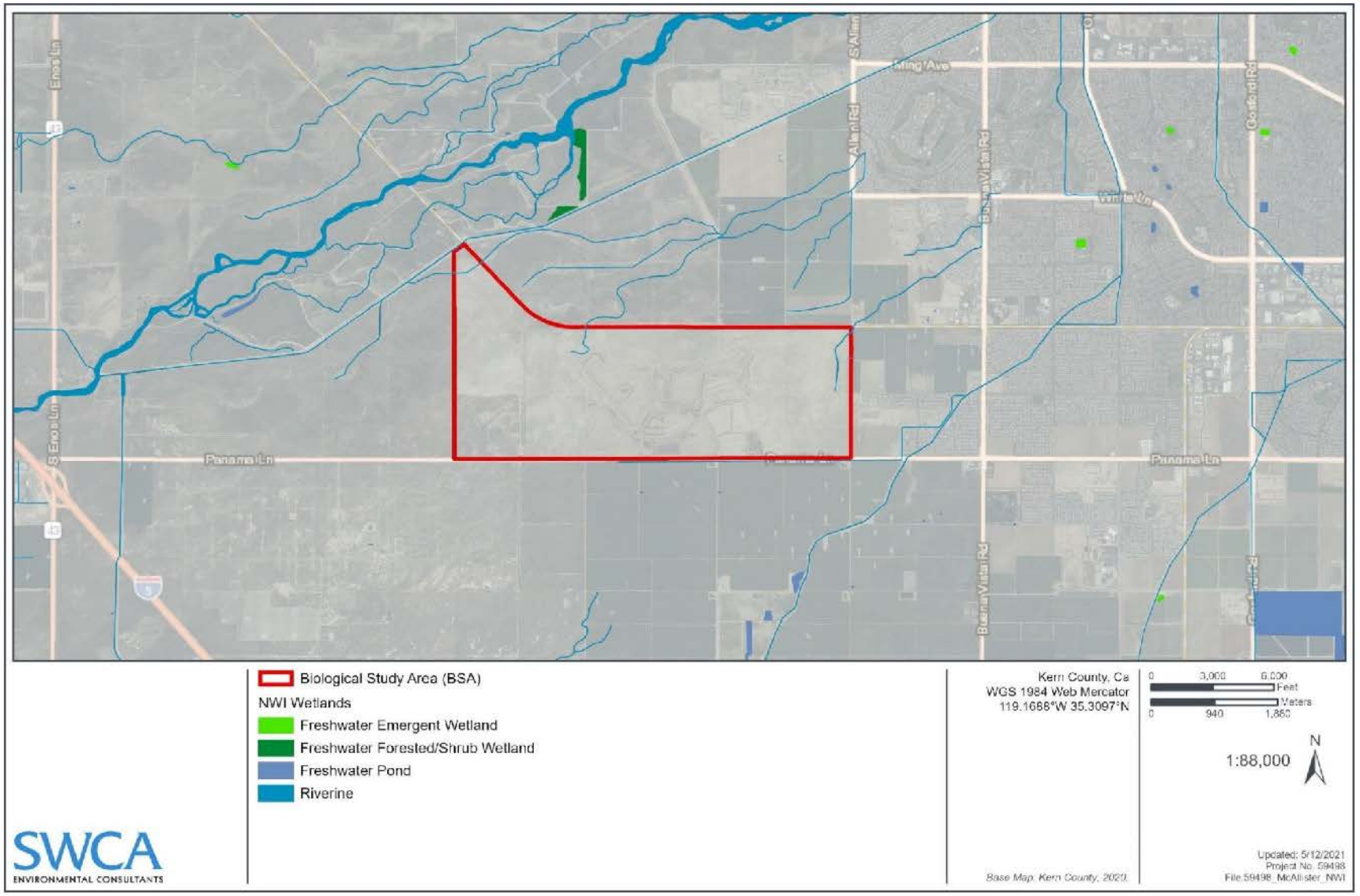

Figure 5-2. National Wetlands Inventory Map

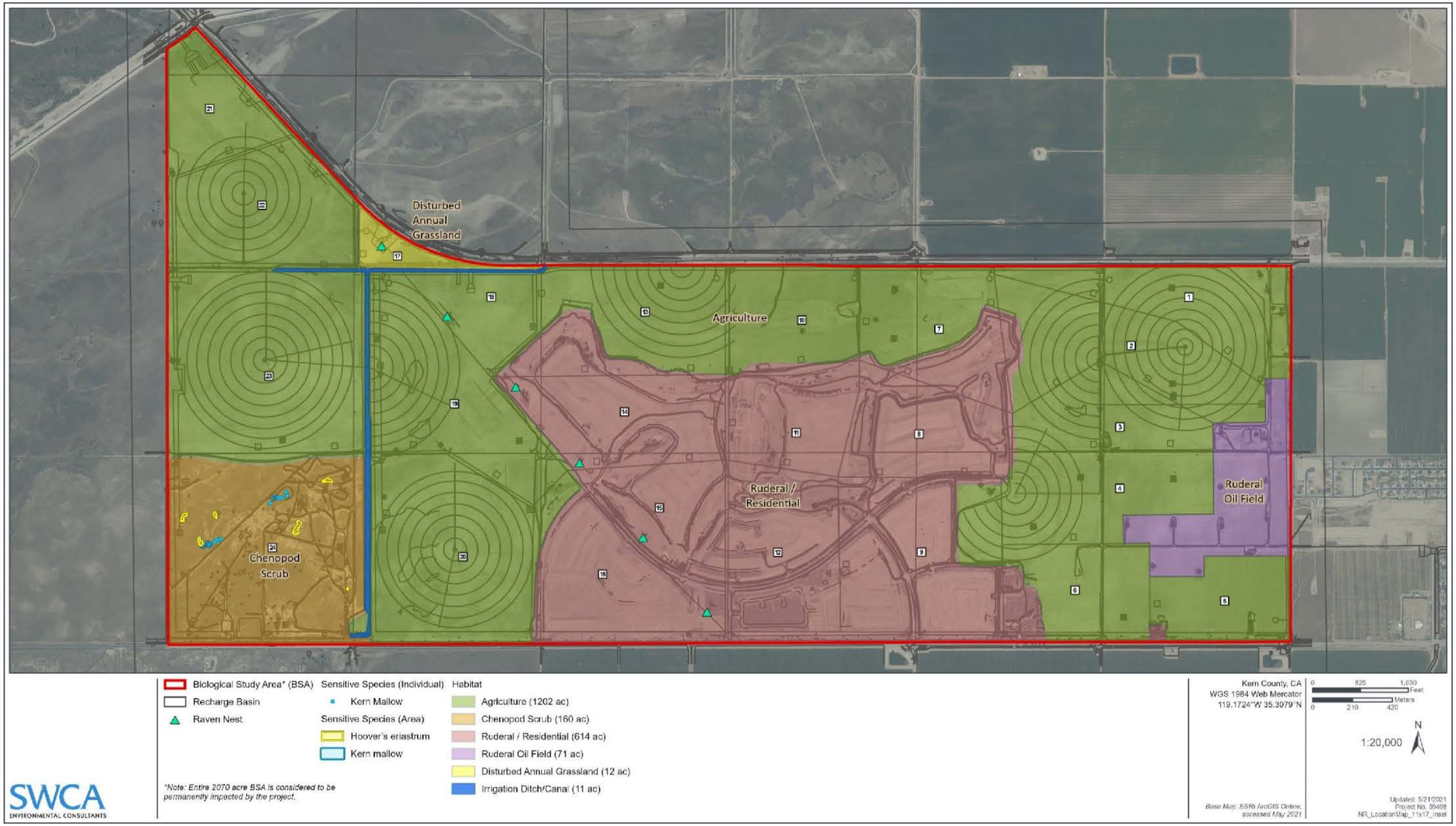

Figure 5-3. Proposed Project Site Aerial Map with Project Layout Overlay and Habitats

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Fallow Agricultural Fields

The vast majority of the BSA (approximately 1,202 acres) supports agricultural fields that were observed to be fallow during the April and June 2020 field surveys. Wheat (*Triticum vulgare*) and potatoes (*Solanum tuberosum*) have been reported as past crops grown onsite (Live Oak Associates 2013). Due to routine disking disturbances, fallow agricultural fields support extremely low habitat values for native plants and animals in these areas and are not expected to support suitable habitat conditions for special-status species. Weedy species such as Russian thistle/tumbleweed and non-native annual grasses dominate the landscape in the fallow agricultural fields onsite.

Residential Ruderal

Areas classified as residential ruderal (approximately 614 acres) were previously under development to be the McAllister Ranch residential development. As mentioned in Chapter 2, *Project Description,* the proposed McAllister Ranch project was abandoned during the 2008 financial crisis. Roads, sidewalks, landscaping, curbs and gutters, electrical lines and other related development infrastructure had been built/installed, but then abandoned, prior to project completion. Residential ruderal areas on-site are highly disturbed with chiefly non-native weedy plants.

Typical species are weeds such as Russian thistle and London rocket (*Sisymbrium irio*) and non-native brome grasses (*Bromus* spp.). Few ornamental/landscaped plants successfully have survived without supplemental irrigation, and most planted trees or shrubs have died. Residential ruderal areas are not expected to provide suitable habitat for special-status plant and wildlife species.

Ruderal Oil Field

Ruderal oil field (approximately 71 acres) occurs along the eastern edge of the BSA. Approximately 10 oil wells are located sporadically within an otherwise fallow field. Minimal ruderal vegetation was observed growing around oil wells (which have vegetation periodically cleared around the wells). The ruderal oil fields will not be impacted by the Proposed Project.

Chenopod Scrub

Chenopod scrub habitat (approximately 160 acres) was identified within the BSA as habitat with potential for special-status plant and wildlife species. Live Oak Associates (2013) identified additional small areas of chenopod scrub just south of the railroad tracks and along the northeastern edge of the BSA, but these areas were observed to be no longer vegetated by chenopod scrub in 2020. There is evidence of off-road vehicle (ORV) use sporadically observed throughout the chenopod scrub habitat, along with piles of rubble and debris. Some areas are sparsely vegetated due to high use; other areas that are less disturbed are densely vegetated and did not show much sign of disturbance.

Chenopod scrub on-site is dominated by allscale saltbush (*Atriplex polycarpa*) and big saltbush (*Atriplex lentiformis*) with occasional western honey mesquite (*Prosopis glandulosa* var. *torreyana*) shrubs. Two rare plant species were observed in chenopod scrub habitat within the southwestern corner of the BSA: Kern mallow (*Eremalche parryi* ssp. *kernensis*) and Hoover's

eriastrum (*Eriastrum hooveri*). The area of chenopod scrub habitat was the only area of the Proposed Project site determined to have small mammal burrows with the potential to support special-status species.

Disturbed Annual Grassland

Disturbed annual grassland (approximately 12 acres) occurs in a triangular-shaped area at the northwestern corner of the BSA. This area is routinely disturbed through trespass by ORV use and as a makeshift recreational target range. Several small berms and dirt mounds have been formed in the area. Vegetation in this area includes Mediterranean grasses, such as common wild oats, brome grasses, and rattail fescue (*Festuca myuros*); dense weeds, such as Russian thistle/tumbleweed, black mustard (*Brassica nigra*), and summer mustard (*Hirschfeldia incana*); and a few saltbush (*Atriplex* spp.) shrubs. Due to disturbances in this area, it is considered marginal habitat for special-status species.

Irrigation Ditch/Canal

An irrigation ditch/canal traverses the northern boundary of the BSA before turning due south through the western area of the BSA, totaling approximately 11 acres/9,258 linear feet. This irrigation ditch/canal is referred to locally as the James Canal. Other areas with historical irrigation ditches/canals on-site have evidently been filled or otherwise altered. None of the ditches/canals were inundated during the April and June 2020 surveys. Commonly growing within the irrigation ditch/canal were dense weedy species, such as Russian thistle, black mustard, summer mustard, and non-native annual grasses. Most areas along the irrigation/ditch canal are unsuitable for special-status species due to overgrowth of weeds, but it could be occasionally used as a travel/dispersal corridor by species such as the San Joaquin kit fox (SJKF) (*Vulpes macrotis mutica*).

The offsite improvements would construct a siphon that would go beneath the Kern River Canal, which is in active use.

5.3.2 Special-Status Species

Prior to conducting field surveys, SWCA conducted a literature review to evaluate special-status species and other sensitive biological resources with potential to occur within the vicinity of the proposed project. This included a review of the previous *Biological Evaluation for the James Groundwater Storage and Recovery Project, Kern County, California* (Live Oak Associates 2013) and the current MBHCP (MBHCP Steering Committee 1984).

To facilitate compliance with CEQA/State of California requirements for consideration of special-status biological resources, a query of the California Natural Diversity Database (CNDDB) maintained by CDFW was conducted using the RareFind 5 internet application tool on May 14, 2020, for the search area encompassing the Stevens, California USGS 7.5-minute quadrangle and the surrounding quadrangles (Tupman, Rio Bravo, Rosedale, Oildale, Gosford, Conner, Millux, and Mouth of Kern) (CNDDB 2021). The CNDDB list of special-status plants, animals, and sensitive natural communities documented to occur within the search area is included in Appendix E. In addition to the CNDDB, the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2021) was reviewed online to provide additional information on rare plants that are known to occur in the vicinity of the proposed project.

To facilitate compliance with the FESA, SWCA accessed the Information for Planning and Consultation (IPaC) website maintained by the USFWS to obtain an automatically generated IPaC Resource List of federally listed species, migratory birds, and other resources such as critical habitat (collectively referred to as trust resources) under the jurisdiction of USFWS that are known or expected to be on or near the proposed project area (USFWS 2021); this list is being used in lieu of an official USFWS species list required for FESA Section 7 compliance since the proposed project is a non-federal project and it is assumed that no FESA Section 7 compliance would be required. The most recent USFWS IPaC Resource List is included in Appendix E. No species list request from NOAA Fisheries was determined to be necessary because the proposed project site occurs in an inland location and no resources under the jurisdiction of NOAA Fisheries (e.g., anadromous fish, marine mammals, other marine species) are expected to be affected by the proposed project.

Surveys

Several biological surveys were required to provide a comprehensive understanding of the biological resources occurring within the BSA. A summary of the biological surveys conducted for the Proposed Project is included in **Table 5-2**. Representative photo point locations were recorded with Global Positioning System (GPS) technology throughout the BSA; a map of photo point locations and site photographs are included in Appendix E. Habitat mapping of the site chiefly followed the previous habitat mapping by Live Oak Associates (2013) with adjustments as noted based on current observed site conditions.

Botanical surveys for sensitive plants were conducted on April 1–3 and June 26, 2020. The botanical surveys were floristic (i.e., conducted within a range of months when target species were flowering and identifiable) following the *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 2000) and *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018). Meandering transect surveys focused on the 160-acre area vegetated by chenopod scrub and the 12-acre disturbed annual grassland area, as they are the only areas remaining with natural habitat on-site. The results of the survey determined that areas associated with the previous McAllister Ranch development and areas with previous disturbance from routine disking, grading, and agricultural activities were not suitable habitat for special-status plant species. A list of plant and wildlife species observed during surveys of the BSA is included in Appendix E.

Table 5-2. Summary of Biological Surveys Conducted for the Proposed Project

Type of Survey	Methodology/Protocol	Dates Surveys Conducted	Personnel
Botanical Surveys	*Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 2000) *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018)	April 1–3, 2020 June 26, 2020	John Moule Marlee Anthill
Blunt-Nosed Leopard Lizard Protocol Surveys	*Revised Survey Methodology for the Blunt-Nosed Leopard Lizard* (CDFW 2019)	April 24–27, 2020 May 2, 3, 8, 9, and 29–31, 2020 June 5, 2020 August 29 and 30, 2020 September 25–27, 2020	Ben Ruiz (Level II Researcher, BPR Consulting) assisted by other BPR Consulting staff (Level I Researchers)
Protocol Swainson's Hawk Surveys	*Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000) *Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California* (California Energy Commission and Department of Fish and Game 2010)	April 4, 18, and 24, 2020 May 3, 8–10, and 23, 2020 July 2, 2020	Ben Ruiz

Type of Survey	Methodology/Protocol	Dates Surveys Conducted	Personnel
Burrowing Owl	*Burrowing Owl Survey Protocol and Mitigation Guidelines* (California Burrowing Owl Consortium 1993)	April 26, 2020 May 3, 8, and 9, 2020 December 9, 11, 15, and 21, 2020	Ben Ruiz assisted by other BPR Consulting staff
Biological Reconnaissance Survey[1]	No formal protocol	December 12 and 13, 2020	Ben Ruiz assisted by BPR Consulting staff

[1]Additional reconnaissance wildlife surveys also coincided with each of the other survey efforts.

Source: SWCA 2021

Protocol-level surveys for the blunt-nosed leopard lizard (BNLL) (*Gambelia sila*), federally listed and state listed as endangered, were completed per the *Revised Survey Methodology for the Blunt-Nosed Leopard Lizard* (CDFW 2019). Protocol BNLL surveys were conducted within areas identified as potential BNLL habitat, which included a 160-acre area of chenopod scrub at the southwestern corner of the BSA and a 12-acre triangular-shaped area at the northwestern edge of the BSA. A Blunt-Nosed Leopard Lizard Survey Report and Survey Reporting Forms are included in Appendix E.

Protocol surveys for the Swainson's hawk (SWHA) (*Buteo swainsoni*), state listed as threatened, were completed per the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). SWHA surveys were conducted to determine whether suitable nest trees for raptors and other avian species were present within an approximately 0.5-mile radius of the project site. A Swainson's Hawk Survey Report with Nest Survey Data Forms are included in Appendix E.

Protocol surveys for the burrowing owl (BUOW) (*Athene cunicularia*), a California Species of Special Concern, were completed per the *Burrowing Owl Survey Protocol and Mitigation Guidelines* (California Burrowing Owl Consortium 1993). BUOW breeding/nesting season surveys and wintering/non-breeding season surveys were conducted throughout the entirety of the BSA in areas identified as potential BUOW habitat. A Burrowing Owl Survey Report with Survey Data Forms are included in Appendix E.

No small mammal trapping effort to replicate the previous 2013 Live Oak Associates effort was conducted. BVWSD has proposed that an updated small mammal trapping effort would be conducted during the proposed project permitting process, if necessary.

General reconnaissance-level wildlife surveys coincided with botanical and protocol wildlife surveys, and species that were observed were documented. An additional reconnaissance survey was conducted in December 2020 by BPR Consulting biologists to investigate the potential for special-status species—primarily SJKF, Tipton kangaroo rat (TKR) (*Dipodomys nitratoides nitratoides*), and Nelson's (San Joaquin) antelope squirrel (SJAS)

(*Ammospermophilus nelsoni*)—throughout the BSA. The Biological Reconnaissance Survey Report is included in Appendix E.

In addition, potential areas that could require compliance with federal and/or state regulations such as "Waters of the United States" and "Waters of the State" were considered during the field investigation. No jurisdictional wetlands, streams, or other waters were observed within the BSA, consistent with the 2013 Live Oak Associates findings.

Special-Status Plant Species

For the purposes of this section, special-status plant species are defined as the following:

- Plants listed or proposed for listing as threatened or endangered under the FESA (50 CFR Section 17.12 for listed plants and various notices in the Federal Register for proposed species).
- Plants that are candidates for possible future listing as threatened or endangered under the FESA.
- Plants that meet the definitions of rare or endangered species under CEQA (State CEQA Guidelines Section 15380).
- Plants considered by the CNPS to be "rare, threatened, or endangered" in California (California Rare Plant Ranks 1A, 1B, 2A, and 2B in CNPS 2021).
- Plants listed by the CNPS as plants about which we need more information and plants of limited distribution (Ranks 3 and 4 in CNPS 2021).
- Plants listed or proposed for listing by the State of California as threatened or endangered under CESA (14 CCR Section 670.5).
- Plants listed under the NPPA (F&G Code Section 1900 et seq.).
- Plants considered sensitive by other federal agencies (i.e., U.S. Forest Service, U.S. Bureau of Land Management), state and local agencies, or jurisdictions.

Based on the literature review for this proposed project, 20 special-status plant species and five special-status plant communities have been documented by the CNDDB (2021) in the Stevens, California U.S. Geological Survey (USGS) 7.5-minute quadrangle and the surrounding eight quadrangles. Special-status plant species are listed in Table 4 of Appendix E. A CNDDB map of rare plant occurrences reported within a 5-mile radius of the BSA is included in **Figure 5-4**. A list of plant species observed on-site is included as an attachment to Appendix E.

Special-Status Animal Species

For the purposes of this section, special-status animal species are defined as the following:

- Animals listed or proposed for listing as threatened or endangered under the FESA (50 CFR 17.11 for listed animals and various notices in the Federal Register for proposed species).

- Animals that are candidates for possible future listing as threatened or endangered under the FESA.
- Animals that meet the definitions of rare or endangered species under CEQA (State CEQA Guidelines Section 15380).
- Animals listed or proposed for listing by the State of California as threatened and endangered under the CESA (14 CCR 670.5).
- Animal species considered by the State of California/CDFW to be a California Species of Special Concern or included on CDFW's Watch List.
- Animal species that are fully protected in California (F&G Code Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

Based on a CNDDB query and a review of existing literature, 49 special-status wildlife species have been documented by the Stevens, California USGS 7.5-minute quadrangle and surrounding eight quadrangles (CNDDB 2021); these species are listed in Table 5 of Appendix E. A CNDDB map of rare animal occurrences reported within a 5-mile radius of the BSA is included in **Figure 5-5**. The Buena Vista Lake shrew (*Sorex ornatus relictus*), federally listed as endangered, was considered because this species was addressed in the previous Live Oak Associates study and it is also included on the USFWS IPaC Resource List (see Appendix E). Other species included on the USFWS IPaC Resource List included the vernal pool fairy shrimp (*Branchinecta lynchi*), federally listed as threatened, and the southwestern willow flycatcher (*Empidonax traillii extimus*), federally listed and state listed as endangered. In addition, the "other nesting birds" category was added for the numerous species of birds with potential for occurrence in the BSA that are protected by the MBTA and F&G Code Section 3503. A list of animal species observed on-site is included as an attachment to Appendix E.

Regional Sensitive Habitats

The CNDDB (2021) documents several sensitive habitats/natural communities that occur within the region. These are included in Table 6 in Appendix E, along with a general description of the habitat types. The rationale section summarizes the potential for these habitats to occur in the BSA or be affected by the proposed project.

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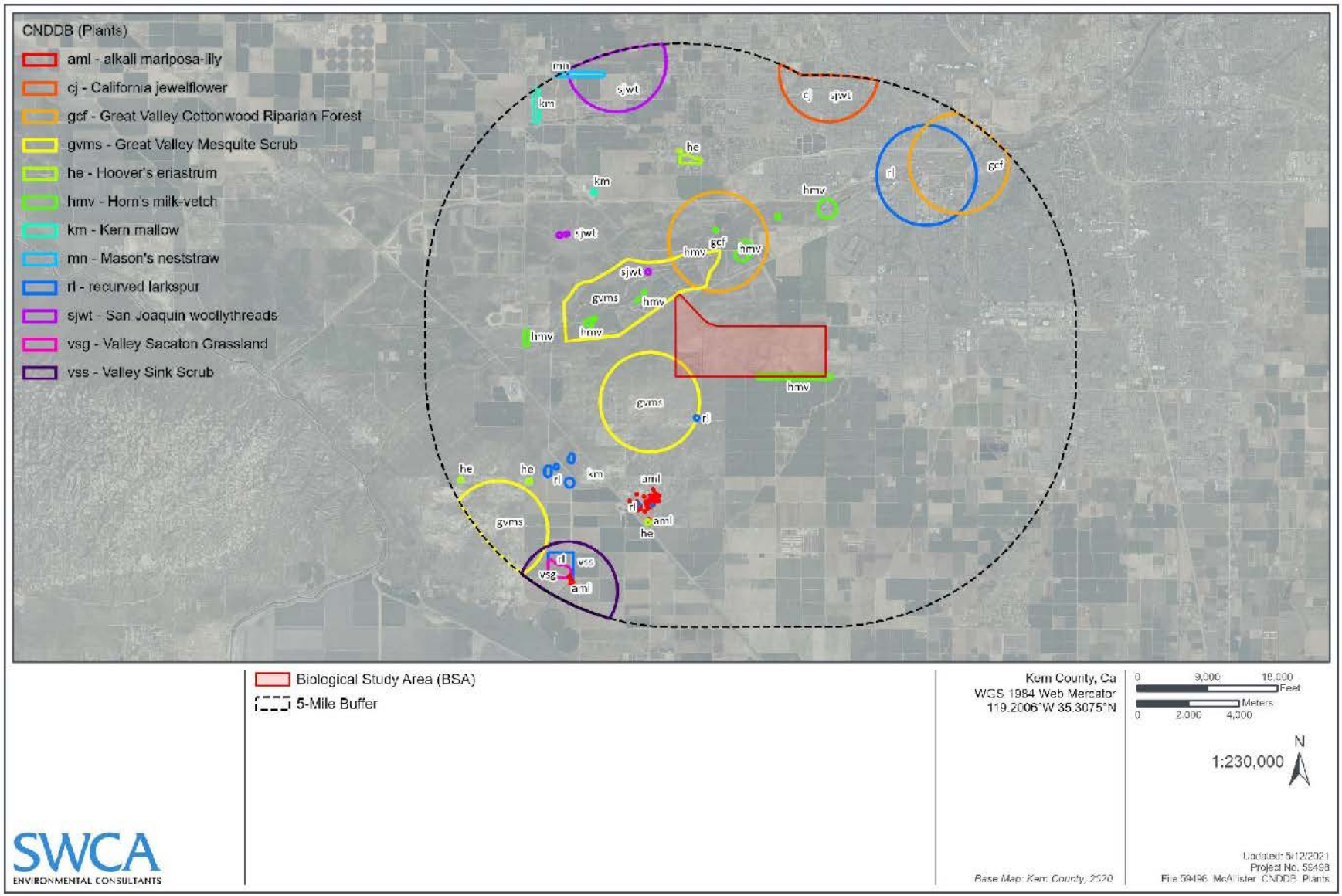

Figure 5-4. CNDDB Rare Plant Occurrences Map

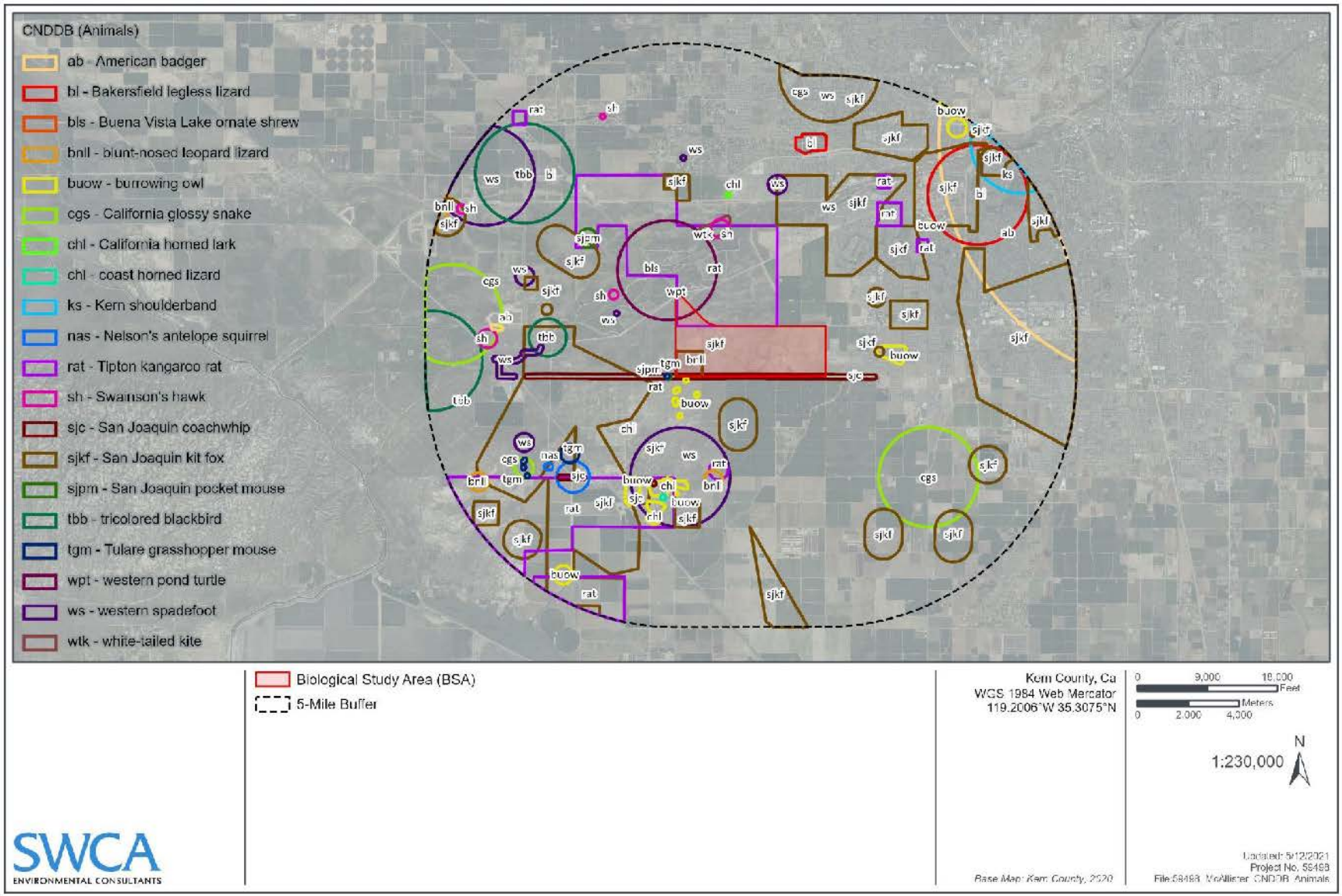

Figure 5-5. CNDDB Rare Animal Occurrences Map

Results of Biological Surveys

Botanical Survey Results

Botanical surveys were completed by SWCA biologists following the guidelines of USFWS (2000) and CDFW (2018). Botanical surveys were conducted in April and June 2020 in the 160-acre area of chenopod scrub at the southwestern corner of the BSA and the 12-acre triangular shaped area at the northwestern edge of the BSA, which were the only areas of the BSA with potential habitat for rare plants. The botanical surveys revealed the presence of two special-status plant species: Kern mallow and Hoover's eriastrum. Approximately 200 Kern mallow plants were observed within chenopod scrub habitat within the southwestern corner of the BSA. Approximately 2,000 Hoover's eriastrum plants were observed throughout chenopod scrub habitat within the southwestern corner of the BSA. Occurrences are shown in Figure 5-3; photos are provided in an attachment to Appendix E). More detailed descriptions of these species are provided in Section 4.4 of Appendix E; a list of all plant species observed during surveys is included as an attachment to Appendix E.

Wildlife Survey Results

Protocol-level surveys were conducted for the following species:

- Blunt-nosed leopard lizard: No BNLL were observed.
- Swainson's hawk: The cumulative SWHA protocol survey effort resulted in no observations of SWHA within the survey radius, and the species was determined to not currently nest in or within 0.5 mile of the BSA.
- Burrowing owl: No BUOW or sign of BUOW were observed during any of the wintering/non-breeding season surveys.

Information about the protocol-level surveys for each species is provided in attachments to Appendix E.

A two-day site reconnaissance survey was conducted to determine the presence of potentially occurring sensitive biological resources and special-status species, primarily SJKF, TKR, and SJAS and potential dens and burrows. Survey personnel identified 14 areas of potential TKR burrows in the southwestern corner of the BSA with 160 acres of chenopod scrub habitat; no TKR sightings were made. No SJKF or SJAS sightings or signs of their presence were identified. The Biological Reconnaissance Survey Report is included as an attachment to Appendix E.

5.4 Impact Analysis

5.4.1 Methodology

The biological resources analysis for the DEIR relies on both a review of existing databases and Biological Evaluation Report that was conducted during planning for the Proposed Project, as described in Section 5.3. The following impact analysis focuses on reasonably foreseeable effects of the Proposed Project compared with baseline conditions at the time the NOP was published (June 2020).

As described in Section 2.9, “Best Management Practices,” BVWSD and its contractors would implement standard housekeeping best management practices (BMPs) to protect wildlife in the project area from being injured or otherwise harmed during construction and operation of the Proposed Project. These BMPs, described in more detail in Section 2.9, would be implemented during all phases of project construction and during operation of the recharge facilities.

BMP-1: Remove Trash

BMP-2: Prohibit Firearms and Pets

BMP-3: Limit Vehicle Use to Existing Roads and Minimize Vehicle Speed

BMP-4: Check for Wildlife Under Vehicles and Equipment The potential direct and indirect effects of the Proposed Project are described and evaluated according to significance criteria from Appendix G of the CEQA Guidelines. Direct impacts are those that would be caused by Proposed Project activities and occur at the same time and place as those activities, whereas indirect impacts are those that are reasonably foreseeable and caused by Proposed Project activities, but would occur at a different time or place. For Proposed Project impacts that would be significant, feasible mitigation measures are identified, and any residual impact is evaluated to determine whether mitigation measures would reduce the impact to a less-than-significant level or whether the impact would remain significant and unavoidable.

5.4.2 Criteria for Determining Significance

Guidance for determining CEQA significance thresholds is based on Appendix G of the State CEQA Guidelines. Using these guidelines, the Proposed Project would have a significant impact on biological resources if it would:

- 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 CDFW or the USFWS;
- 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 CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by CWA Section 404;
- Interfere substantially with the movement of any resident or migratory species of wildlife, wildlife corridors, or wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources; or
- Conflict with the provisions of an adopted HCP, NCCP, or other approved state, regional, or local HCP.

5.4.3 Environmental Impacts

Impact BIO-1. 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 CDFW or USFWS — Less than Significant with Mitigation

Special-Status Plants

Surveys for special-status plant species in the chenopod scrub and disturbed annual grassland areas detected Kern mallow (federally endangered) and Hoover's eriastrum (CNPS List 4.2). Although Kern mallow was not observed during previous surveys (Live Oak Associates 2013), approximately 200 individuals of Kern mallow were observed during 2020 botanical surveys in the chenopod scrub habitat in the southwestern corner of the BSA; Hoover's eriastrum was observed during previous surveys (Live Oak Associates 2013) and approximately 2,000 individuals of Hoover's eriastrum were observed during 2020 botanical surveys (see Figure 5-3). If percolation pond #24 remains within the Proposed Project footprint, the entire populations of these species on-site could be impacted, as the area would be converted to percolation pond #24. Impacts could physically remove individuals of these species due to trampling or vehicle access and removal of their habitat. The MBHCP encourages the salvage and relocation of plants (MBHCP Steering Committee 1984:60–61), but no specific methods/plans are provided for reference.

The USFWS delisted Hoover's eriastrum in 2003 and it is considered a CNPS List 4.2 species (Watch List; moderately threatened in California). This species is known to be relatively abundant in the region with populations surrounding the Proposed Project site in all directions; the population formerly documented on the site by Live Oak Associates (2013) and again confirmed in 2020 does not extend the range of the species. Potential impacts to individuals of Hoover's eriastrum are considered less than significant due to the abundance of this species regionally. No mitigation is proposed for this species.

Impacts to individual Kern mallow described above would be significant. Implementation of **Mitigation Measures BIO-1 through BIO-5**, as described below, would avoid, reduce, or compensate for direct impacts to Kern mallow. Therefore, impacts to individuals of Kern mallow would be **less than significant with mitigation**.

> **Mitigation Measure BIO-1: Conduct a Preconstruction Survey for Kern Mallow**
>
> If the 160-acre area of chenopod scrub habitat onsite will be impacted by project-related activities, an appropriately timed preconstruction survey for Kern mallow shall be conducted by a qualified biologist during the spring season (or when reference populations are flowering) that precedes construction. The distribution of the Kern mallow population shall be marked in the field with flagging and mapped with GPS, and population size/number of individual Kern mallow plants will be estimated. Within 30 days prior to construction, a qualified biologist will ensure that all flagging is still intact and replace flagging as necessary.

Mitigation Measure BIO-2: Implement Kern Mallow Avoidance Buffers

A minimum 50-foot avoidance buffer measured outward from the individual plant, cluster of plants, or mapped population boundaries shall be maintained around populations of Kern mallow in perpetuity. If avoidance buffers are encroached upon, Mitigation Measure BIO-3 would be implemented.

Mitigation Measure BIO-3: Compliance with USFWS ITP/HCP Requirements, if Applicable

If project activities result in encroachment on Kern mallow avoidance buffers, a qualified biologist shall evaluate and quantify the impact to Kern mallow including identifying the impacted number of plants and the impacted acreage. BVWSD and its contractors shall comply with MBHCP requirements including notification requirements, and, if applicable, coordinate with USFWS to develop a Salvage/Relocation Plan for Kern mallow. For example, a Relocation Plan strategy may include:

a. Collection of seed by a biologist with proper plant collecting permits, with reseeding undertaken at the site following the activity during appropriate seasonal timeframes and weather conditions favorable for germination and growth.

b. In areas where mapped Kern mallow will be impacted, stockpiling the top 6 inches of topsoil collected to preserve the seed banks. The soil may be redistributed in other areas of the project site that are to be left undisturbed (if available) or at a protected offsite location (e.g., Kern Water Bank land, other lands owned by BVWSD or RRBWSD).

Mitigation Measure BIO-4: Prepare and Implement Environmental Training Program

A qualified and approved Project Biologist shall be assigned to the project who shall be responsible for overseeing environmental compliance and protections for special-status/sensitive plants, animals, and habitats during construction. The Project Biologist shall be the main point of contact between BVWSD and RRBWSD and regulatory agencies for matters involving regulatory compliance for biological resources.

The Project Biologist shall prepare a project Environmental Training Program. Employees and supervising staff working on the project shall participate in an initial program session provided by the Project Biologist prior to initiation of construction activity. At a minimum, the program shall cover the general behavior and ecology of the pertinent special-status species, legal protection, penalties for federal and state law violations, and protective measures. A fact sheet/brochure or PowerPoint presentation conveying this information shall be made available to on-site personnel, construction workers, staff involved in operations, and other individuals who may enter the project site.

New employees shall receive the training prior to working on the active site, with training provided by the Project Biologist or a qualified biologist/biological monitor, or by viewing a PowerPoint presentation. Upon receiving the training, each trainee shall

sign a record sheet verifying their participation in the training and acknowledging their environmental compliance responsibilities while working within the project site.

Mitigation Measure BIO-5: Biological Construction Monitoring

A qualified biological monitor shall be on-site during all earthwork activities to monitor construction activities, monitor avoidance of buffer areas, and ensure compliance with all environmental requirements pertaining to biological resources. The qualified biological monitor will clearly understand the Project construction and operational activities, understand the project design plan set, and maintain a clear and open communication line to the Project's construction manager to understand the Project implementation schedule. If there are any questions or uncertainties regarding how the Project will be constructed, then the biological monitor will ask the Project construction manager for details and status updates.

The monitoring biologist shall be contacted as soon as possible following the release of potentially hazardous materials into habitat. If a release of potentially hazardous materials occurs within special-status species habitat, the Project Biologist and/or biological monitor will monitor cleanup and containment. The involved regulatory agencies (e.g., USFWS, CDFW, the City) will be notified of the release of potentially hazardous materials and the remedial action taken by the contractor as soon as possible, but not later than 24 hours after the release occurs or is discovered. Within 30 days of completing cleanup activities, a compliance report will be submitted by the Project Biologist/biological monitor to the involved regulatory agencies.

Agency-approved biologists may be required to conduct or supervise particular activities (e.g., burrow/den excavation, species relocation) for federally and/or state-listed species. The monitoring biologist shall have the authority to halt any activities that could result in take or injury/mortality of special-status species. Any contractor, employee, or third party responsible for incidentally taking a federally and/or state-listed wildlife species shall immediately report the incident to the Project Biologist who will then notify the involved regulatory agencies (e.g., USFWS, CDFW, the City) within 24 hours by phone and email. All non-emergency actions will cease immediately until guidance is received from the regulatory agencies. Notification must include the date, time, location, and other pertinent information of the incident or of the finding of a dead or injured animal. Written notification will be provided to the regulatory agencies within 3 working days of the incidental take and will include the same notification information listed above. Work shall proceed only after the imminent threat of take has been resolved.

At minimum, weekly monitoring reports and an Annual Compliance Report shall be prepared by the Project Biologist and/or biological monitor(s) documenting compliance during construction and operations (i.e., if the activities during operations require coverage under a federal ITP and/or state ITP). Monitoring/compliance reports will include documentation of project compliance/non-compliance, special-status species observations, protective/corrective actions taken, project site photographs, copies of Environmental Training Program sign-in sheets, and any other information considered useful or relevant.

Special-Status Reptiles

BNLL is a federally listed and state-listed endangered species protected under the FESA and CESA and is also Fully Protected by the State of California. No incidental take can be authorized by the State of California for Fully Protected species. Potential BNLL habitat was identified in the 160-acre area of chenopod scrub in the southwestern corner of the BSA; there is a CNDDB occurrence record of a BNLL observation in 1991 at this location (CNDDB 2021). The 12-acre triangular area of annual grassland in the northwestern corner of the BSA may also support marginal BNLL habitat. No BNLL were observed in suitable habitat onsite as reported by Live Oak Associates (2013) or during recent protocol surveys conducted in 2020. Based on the results of protocol surveys, BNLL are not anticipated to occur onsite.

Coast horned lizard, Bakersfield legless lizard, California legless lizard, California glossy snake, and San Joaquin coachwhip are California Species of Special Concern. Potential habitat for coast horned lizard, Bakersfield legless lizard, California legless lizard, California glossy snake, and San Joaquin coachwhip occurs in the 160-acre area of chenopod scrub in the southwestern corner of the BSA and in the 12-acre triangular area of annual grassland in the northwestern corner of the BSA. None of these species were observed in suitable habitat onsite as reported by Live Oak Associates (2013), and none of these species were observed in suitable habitat onsite during protocol BNLL surveys and reconnaissance surveys conducted in 2020 and 2021.

Construction and operation within these areas could impact these species through direct injury or mortality and/or entombment in burrows from construction equipment conducting earthwork if these species are found to be present onsite. Injury or mortality could also be caused by vehicle traffic and worker foot traffic or exposure to chemicals from equipment leaks. Injury or mortality of these species would be a significant impact.

Operation of percolation ponds #17 and #24 would permanently alter/eliminate potential habitat for these species. Trash left on site could also increase predation of these species. These impacts would be significant.

As described in Section 2.9, BVWSD would implement BMPs 1 through 4 during construction and operations at the project site. These standard housekeeping measures would protect wildlife in the project area from being injured or otherwise harmed during construction and operation of the Proposed Project; however, they would not fully reduce impacts on these species to a less-than-significant level.

Implementation of the following mitigation measures would reduce impacts to BNLL, coast horned lizard, Bakersfield legless lizard, California legless lizard, California glossy snake, and San Joaquin coachwhip, if they are present onsite. As discussed above for special-status plants, implementation of **Mitigation Measures BIO-4 and BIO-5** would reduce impacts on special-status reptiles through preconstruction training and construction monitoring. Implementation of **Mitigation Measures BIO-6 through BIO-9**, as described below, would require pre-construction surveys, avoidance if possible, and relocation (if necessary). Implementation of these mitigation measures would reduce impacts to Blunt-nosed Leopard Lizard, Coast horned lizard, Bakersfield legless lizard, California legless lizard, California glossy snake, and San Joaquin coachwhip to **less than significant with mitigation**.

Mitigation Measure BIO-6: Conduct Pre-construction Biological Surveys

Within 30 days prior to initiation of construction, qualified biologists shall conduct preconstruction surveys for special-status species in all areas that will be permanently or temporarily impacted, plus a 200-meter buffer in areas subject to legal access. Potential dens, burrows, and nests of special-status species shall be marked with flagging, mapped with GPS, and reported to the CNDDB. Work area boundaries shall be delineated with flagging, temporary fencing, or other markers deemed warranted by the Project Biologist to minimize the potential for offsite impacts associated with potential vehicle straying.

Avoidance buffers shall be implemented around the areas that cannot be avoided, similar to those described in Mitigation Measures BIO-1 and BIO-2 ; the appropriate size/radius of avoidance buffers shall be determined by the Project Biologist based on the species/resource and in compliance with any agency-required standards. Dens, burrows, and nests that cannot be avoided shall be addressed with species-specific mitigation measures (detailed in various mitigation measures below). A preconstruction survey report shall be prepared by the Project Biologist and provided to BVWSD. If required, the survey report shall also be submitted to USFWS and CDFW.

Mitigation Measure BIO-7: Develop and Implement Measures to Avoid Take of BNLL

In the unlikely event that BNLL are observed during preconstruction surveys or construction, BVWSD and RRBWSD shall coordinate with the USFWS and CDFW to develop and implement measures to avoid take of BNLL. Such measures may include but may not be limited to:

a. Implementation of a BNLL Avoidance measures and/or Relocation Plan.

b. Avoidance of burrows that could provide suitable refugia for BNLL.

c. Implementation of avoidance buffers.

d. An exclusion barrier, such as flashing or other approved fencing material, may be installed around the burrow disturbance area. Protocol-level surveys would be conducted within the exclusion barrier and all BNLL would be allowed to egress or would be removed/relocated (i.e., by a biologist with all necessary federal and state permits) until a negative survey result is achieved within the burrow disturbance area. The negative survey result would remain valid until removal of the exclusion barrier.

e. Excavation of burrows that will be impacted to verify they lack BNLL or in a manner that allows BNLL egress away from the disturbance area.

f. When possible, seasonal restrictions of project activities in suitable habitat to occur during BNLL inactivity periods.

Mitigation Measure BIO-8: Avoid or Relocate Special-Status Reptiles

If coast horned lizard, Bakersfield legless lizard, California legless lizard, California glossy snake, and/or San Joaquin coachwhip are observed during preconstruction surveys or

construction, the location(s) where they are observed shall be marked with flagging and mapped with GPS. To avoid the potential for injury/mortality to these species resulting from project-related activities:

a. Minimum 50-foot avoidance buffers shall be implemented at the point(s) of observation; or

b. A qualified biologist shall capture and relocate individuals of these species to suitable habitat outside of the area of impact per the approved Relocation Plan as discussed in Mitigation Measure BIO-9.

Mitigation Measure BIO-9: Prepare a Special-Status Species Relocation Plan

Prior to construction, the Project Biologist shall prepare a special-status species Relocation Plan that allows for relocation of special-status species encountered prior to or during construction and operations. The Relocation Plan shall be submitted to the involved regulatory agencies for review/approval prior to implementation.

Special-Status Birds

Swainson's Hawk

There are past CNDDB records for SWHA in areas along the Kern River, and Live Oak Associates reported SWHA nest observations in 2013 (Live Oak Associates 2013), but no SWHA were observed during protocol surveys conducted in 2020.

If SWHA nest within 0.5 mile of the Proposed Project site during construction, SWHA could be impacted by the loss of foraging habitat or disturbances leading to nest abandonment. Construction in the vicinity of nest sites could disturb breeding through generation of noise and visual distraction. Impacts on raptor nesting sites that result in nest abandonment, nest failure, or reduced health or vigor of nestlings would be significant.

Implementation of **Mitigation Measures BIO-10 through BIO-12** would require pre-construction surveys, avoidance buffers, and take authorization (if necessary). Implementation of these mitigation measures would ensure that potential impacts to SWHA would be **less than significant with mitigation**.

Mitigation Measure BIO-10: Conduct Pre-construction Surveys for Swainson's Hawk

If construction occurs between February 1 and August 31, a qualified biologist shall conduct a preconstruction survey of suitable nesting habitat (e.g., potential nest trees, power line towers, etc.) within 0.5 mile of the project site no more than 10 days prior to initiation of construction to ensure that no Swainson's hawks have begun nesting activities near the site. If SWHA absence is reverified, project activities can proceed providing acceptance by CDFW of the survey results. If nesting Swainson's hawks are detected, buffers shall be established around active nests in accordance with Mitigation Measure BIO-11.

Mitigation Measure BIO-11: Establish Buffers to Avoid or Minimize Impacts on Swainson's Hawk

Buffers around active nests will be 0.5 mile unless a qualified biologist determines, based on site-specific evaluation, that a smaller buffer is sufficient to avoid impacts on nesting Swainson's hawks. Factors to be considered when determining buffer size include the presence of natural buffers provided by vegetation or topography, nest height, locations of foraging territory, and baseline levels of noise and human activity. Buffers shall be maintained until a qualified biologist has determined that the young have fledged and are no longer reliant on the nest or parental care for survival.

In the event that an active SWHA nest is detected during surveys and a 0.5-mile no-disturbance buffer is not feasible, Mitigation Measure BIO-12 shall be implemented.

Mitigation Measure BIO-12. Swainson's Hawk Take Authorization

If SWHA are observed within 0.5 mile of the project site during pre-construction surveys or during construction, the applicant shall coordinate with CDFW to determine if a State Incidental Take Permit, in accordance with F&G Code Section 2081 (b), is required to comply with CESA.

Burrowing Owl

BUOW is a California Species of Special Concern. Based on the results of protocol surveys, BUOW are not anticipated to occur within the Proposed Project site. However, suitable burrowing and wintering habitat for this species occurs in chenopod scrub habitat within the southwestern corner of the BSA; marginal habitat occurs in other areas of the BSA. There are several regional CNDDB records for BUOW, including on the south side of Panama Lane opposite south of the Proposed Project site. BUOW were detected onsite during previous protocol surveys conducted by Live Oak Associates (Live Oak Associates 2013), but no BUOW were observed during protocol surveys conducted in 2020. If BUOW are found to occupy the Proposed Project site, construction and operation within potential habitat could impact BUOW through direct injury or mortality, entombment in burrows, abandonment of nest and/or wintering sites, and/or loss of foraging habitat. Such impacts could affect reproduction or fitness of individuals and would be significant.

Implementation of **Mitigation Measures BIO-13 through BIO-15** would require pre-construction surveys, avoidance buffers, and exclusion/mitigation. Implementation of these mitigation measures would ensure that impacts on BUOW would be **less than significant with mitigation**.

Mitigation Measure BIO-13: Conduct Pre-construction Surveys for Burrowing Owl

A qualified biologist shall conduct preconstruction surveys of all areas of potential habitat that will be permanently or temporarily impacted, plus a 200-meter buffer in areas subject to legal access, to locate active breeding or wintering BUOW burrows. The survey(s) shall occur no more than 14 days prior to ground-disturbing activities (i.e., vegetation clearance, grading) or decommissioning. The survey methodology shall be consistent with the take avoidance survey methods outlined in CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). Because BUOW may re-colonize a site after only a few days, time lapses between project activities may trigger subsequent surveys,

including, but not limited to, a final survey conducted within 24 hours prior to ground disturbance to identify any additional BUOW or burrows necessitating avoidance, minimization, or mitigation measures. The need for additional surveys will be at the final discretion of the Project Biologist. If BUOW absence is reverified, project activities can proceed providing acceptance by CDFW of the survey results. If burrowing owls are present, avoidance buffers will be established as specified in Mitigation Measure BIO-14.

Mitigation Measure BIO-14: Establish Avoidance Buffers for Burrowing Owl

If BUOW are detected onsite during preconstruction surveys or during construction, no ground-disturbing activities within a minimum 200-meter avoidance buffer shall occur around occupied burrows during the breeding season (February 1 to August 31), unless authorized by CDFW. During the non-breeding season (September 1 to January 31), no ground-disturbing activities within a minimum 50-meter avoidance buffer shall occur around occupied burrows, unless authorized by CDFW.

Mitigation Measure BIO-15: Develop a Burrowing Owl Exclusion and Mitigation Plan

If burrow avoidance is infeasible during the non-breeding season or during the breeding season where resident owls have not yet begun egg laying or incubation, or where the juveniles are foraging independently and capable of independent survival, the qualified biologist shall coordinate with CDFW to develop a BUOW Exclusion and Mitigation Plan. An Exclusion and Mitigation Plan strategy may include:

a. Passive exclusion of BUOW from burrows within the project site using one-way doors.

b. Excavation of potential BUOW burrows that are confirmed to be empty of BUOW adults and/or young.

c. Creation of artificial BUOW burrows to offset the loss of known occupied BUOW burrows.

d. Acquisition of BUOW conservation lands and/or bank credits.

California Horned Lark, LeConte's Thrasher, and Other Nesting Birds

California horned lark, LeConte's thrasher, and other nesting birds have been addressed as a group because they are special-status birds with similar potential impacts and mitigation. Suitable nesting habitat for California horned lark, LeConte's thrasher, and other nesting birds occurs in chenopod scrub habitat within the southwestern corner of the BSA; marginal habitat occurs for various nesting birds in other areas of the BSA that support ornamental trees. California horned lark is typically a ground nester, and individuals were observed flying through the BSA during SWHA and BUOW protocol surveys (see Appendix E). LeConte's thrasher typically nests in shrubby habitat, such as chenopod scrub. Power line towers that traverse the BSA were shown to support common raven *(Corvus corax)* nests. No other nesting birds were observed during the various protocol surveys conducted in 2020 or reconnaissance surveys conducted in 2021. If nesting birds are found to be occupying the Proposed Project site, construction and

operation within potential habitat could impact nesting birds by altering foraging and nest behaviors and could potentially cause nest abandonment. These impacts would be significant.

Implementation of **Mitigation Measures BIO-16 through BIO-18** would require removal of trees and shrubs outside the nesting season, pre-construction surveys, and avoidance buffers. Implementation of these mitigation measures would reduce impacts on California horned lark, LeConte's thrasher, and other nesting birds to **less than significant with mitigation**.

Mitigation Measure BIO-16: Remove Trees or Shrubs Outside of the Nesting Season

Removal of trees or shrubs shall be scheduled to occur in the fall and winter (between September 1 and January 31), outside of the typical nesting season.

Mitigation Measure BIO-17: Conduct Pre-construction Nesting Bird Surveys

If any construction activities are proposed to occur during the typical nesting season (February 1 to August 31), a nesting bird survey in areas of suitable nesting habitat (as determined by the Project Biologist) shall be conducted by qualified biologists no more than 2 weeks prior to construction to determine presence/absence of nesting birds. If absence of nesting birds is verified, construction can proceed.

Mitigation Measure BIO-18: Establish Avoidance Buffers Around Active Nests

If an active bird nest is observed during preconstruction surveys or during construction, at a minimum, a 500-foot avoidance buffer surrounding the nest shall implemented for nesting raptors and a 250-foot avoidance buffer shall be implemented for other nesting avian species, unless USFWS or CDFW authorize a reduction of these buffers. Nests, eggs, or young of birds covered by the MBTA and F&G Code shall not be moved or disturbed until a qualified biologist has determined that the nest has become inactive or young have fledged and become independent of the nest.

Special-status Mammals

Giant Kangaroo Rat, Tipton Kangaroo Rat, San Joaquin Pocket Mouse, and Tulare Grasshopper Mouse

Giant kangaroo rat (GKR), TKR, San Joaquin pocket mouse (*Perognathus inornatus*), and Tulare grasshopper mouse (*Onychomys torridus tularensis*) have been addressed together as a group because they are special-status small mammals with similar potential impacts and mitigation. GKR and TKR are each federally listed and state listed as endangered species, and San Joaquin pocket mouse and Tulare grasshopper mouse are California Species of Special Concern and considered rare species under CEQA.

The previous trapping effort by Live Oak Associates in 2012 resulted in 31 small mammal captures including one deer mouse (*Peromyscus maniculatus*), one Southern grasshopper mouse (*Onychomys torridus*), 27 Heermann's kangaroo rats (*Dipodomys heermanni*), and one TKR (Live Oak Associates 2013). Once TKR presence was determined, the trapping effort ceased. No additional trapping effort was conducted for the 2021 BER. Based on the results of a site-wide reconnaissance survey in 2021, the only area within the Proposed Project site with suitable

habitat for GKR, TKR, San Joaquin pocket mouse, and Tulare grasshopper mouse occurs in chenopod scrub habitat within the southwestern corner of the BSA (see Appendix E).

Construction and operation within chenopod scrub habitat could impact special-status small mammal species through direct injury or mortality and/or entombment in burrows from construction equipment conducting earthwork. Injury or mortality could also be caused by vehicle traffic and worker foot traffic or exposure to chemicals from equipment leaks. Injury or mortality of these species would be a significant impact. Operation of percolation pond #24 would permanently alter/eliminate potential habitat for special-status small mammal species. These impacts would be significant.

As described in Section 2.9, BVWSD would implement BMPs 1 through 4 during construction and operations at the project site. These standard housekeeping measures would protect wildlife in the project area from being injured or otherwise harmed during construction and operation of the Proposed Project; however, they would not fully reduce impacts on these species to a less-than-significant level. Implementation of the following mitigation measures would reduce impacts to special-status small mammal species, if they are present onsite. As described above for special-status reptiles, implementation of **Mitigation Measures BIO-4 through BIO-9** would require an environmental training program, biological monitoring, pre-construction surveys and avoidance buffers, and preparation of a relocation plan.

Implementation of **Mitigation Measure BIO-19 through BIO-21**, as described below, would require habitat avoidance, pre-construction surveys and trapping (if needed), and preparation of a relocation plan. Implementation of these mitigation measures would reduce impacts on special-status small mammal species to **less than significant with mitigation**.

Mitigation Measure BIO-19: Avoid and Minimize Impacts to Chenopod Scrub

If impacts to the 160-acre area of chenopod scrub habitat onsite can be avoided, then the project can proceed and no small mammal trapping, agency coordination, or other mitigation will be required for GKR, TKR, San Joaquin pocket mouse, and Tulare grasshopper mouse other than any applicable MBHCP Habitat Mitigation Fees. The boundary of the chenopod scrub habitat shall be deemed an ESA and marked with brightly colored flagging or equivalent to be avoided. No construction activities or construction-related access or staging will be authorized within the ESA. If impacts to chenopod scrub cannot be avoided, permanent and temporary construction disturbances to chenopod scrub shall be minimized to the extent feasible. Areas that do not require earthwork shall be marked with flagging and avoided as specified above, and a preconstruction Biological Clearance survey will be conducted in accordance with MBHCP requirements and as specified below in Mitigation Measure BIO-20.

Mitigation Measure BIO-20: Conduct Pre-construction Surveys in Chenopod Scrub Habitat

If the project will impact chenopod scrub habitat onsite, within 30 days prior to grading or other ground-disturbing activities, a qualified biologist shall conduct a preconstruction Biological Clearance Survey. The survey shall include all areas of potential habitat to be permanently and/or temporarily impacted, as well as a 50-foot buffer of impacted areas. If the Biological Clearance Survey identifies potential small

mammal burrows within the proposed area disturbance, a qualified biologist shall conduct a minimum of 5 consecutive nights of live small mammal trapping following the USFWS Sacramento Field Office Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats (USFWS 2013). The qualified biologist shall email a Biological Clearance Survey Report to the proper agencies (e.g., USFWS, CDFW, City). If no special-status small mammals are detected during a minimum of 5 consecutive nights of live small mammal trapping, then the project can proceed no additional agency coordination or other mitigation will be required for GKR, TKR, San Joaquin pocket mouse, and Tulare grasshopper mouse.

Mitigation Measure BIO-21: Develop a Small Mammal Relocation Plan

If special-status small mammal species are detected during live trapping, the applicant shall coordinate with the USFWS and/or CDFW to obtain all necessary regulatory authorizations and develop a Small Mammal Relocation Plan to facilitate FESA and/or CESA compliance, if required. This coordination may include, but may not be limited to:

a. Acquisition of a State ITP if GKR and/or TKR are found to occur onsite, including any additional State ITP measures required by CDFW.

b. Acquisition of GKR and/or TKR conservation lands and/or bank credits if required by CDFW.

c. Additional live trapping to capture and relocate small mammals prior to ground disturbance.

d. Excavation of potential small mammal burrows and additional relocation of small mammals encountered during excavation.

San Joaquin Kit Fox and American Badger

SJKF and American badger (*Taxidea taxus*) have been addressed together because they are special-status mammals with similar potential impacts and mitigation. The SJKF is federally listed as endangered and state listed as threatened; the species is protected under the FESA and CESA; the American badger is a California Species of Special Concern and considered a rare species under CEQA. Both the SJKF and American badger are highly mobile species with large home ranges.

Potential SJKF and badger habitat was identified in the 160-acre area of chenopod scrub in the southwestern corner of the BSA; there is a CNDDB occurrence record of an SJKF observation in 1991 at this location (CNDDB 2021). Other areas within the BSA may support marginal habitat for these species. No SJKF or badgers were observed in suitable habitat onsite as reported by Live Oak Associates (2013) or during recent protocol surveys conducted in 2020. Construction and operation within these areas could impact SJKF or badgers through direct injury or mortality and/or entombment in dens from construction equipment conducting earthwork if SJKF or badgers are found to be present onsite. Construction activities could also disrupt SJKF and badger foraging behaviors. These impacts would be significant.

As described in Section 2.9, BVWSD would implement BMPs 1 through 4 during construction and operations at the project site. These standard housekeeping measures would protect wildlife in the project area from being injured or otherwise harmed during construction and operation of the Proposed Project; however, they would not fully reduce impacts on these species to a less-than-significant level.

Implementation of the following mitigation measures would reduce impacts to SJKF and American badger, if they are present onsite. As described above for special-status mammals, implementation of **Mitigation Measures BIO-4 through BIO-6** would require an environmental training program, biological monitoring, and pre-construction surveys and avoidance buffers.

If preconstruction biological clearance survey results determine that SJKF or badger dens would be impacted, then avoidance measures for these species would be implemented. **Mitigation Measures BIO-22 through BIO-24** would require avoidance measures, coordination with USFWS and CDFW, and protection measures as included in the *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011). Implementation of these mitigation measures would ensure that impacts to SJKF and American badger would be **less than significant with mitigation**.

Mitigation Measure BIO-22: Implement Avoidance Measures for Natal San Joaquin Kit Fox or American Badger Dens

If the Biological Clearance Survey results determine that known, active, or natal SJKF or badger dens will be impacted, then the following mitigation measures shall be implemented upon approval from USFWS and CDFW:

a. A permanent minimum avoidance buffer using fencing or flagging shall be maintained as follows:

    i. At least 100 feet around den(s);

    ii. At least 200 feet around natal dens (in which young are reared); and

    iii. At least 500 feet around any natal dens with observed young (i.e., SJKF pups or badger kits) (except for any portions of the buffer zone that are already fully developed).

b. Avoidance buffer zones shall be considered Environmentally Sensitive Areas (ESAs), and no construction activities are allowed within a buffer except as follows: If the work within the buffer area will not result in the destruction of the den, the den should be conserved. If the den is unoccupied (based on the required 4 consecutive days of monitoring), then the den can be covered in a secure manner to prevent access by SJKF or badgers while the work is being conducted. After the work is done, the den can be uncovered to allow use by SJKF or badgers. If the den is occupied and the SJKF/badger does not vacate the den, then a smaller buffer could be established, including a barricade to prevent the SJKF/badger from exiting the den and entering the work site. A qualified biologist shall monitor the den while the work is being conducted. The City shall be notified immediately via telephone or e-mail if any SJKF active dens, natal dens, or occupied atypical dens are discovered

within or immediately adjacent to any proposed development footprint. The applicant shall coordinate with CDFW if any badger active dens, natal dens, or occupied atypical dens are discovered within or immediately adjacent to any proposed development footprint, and no City notice is required. BVWSD and RRBWSD shall bear the costs of implementing the SJKF/badger den avoidance requirements. A reduced avoidance buffer may be authorized with regulatory agency approval.

c. For active dens and potential dens that exhibit signs of SJKF use or characteristics suggestive of SJKF dens (including dens in natural substrate and in/under manmade structures) that cannot be avoided, and if, after 4 consecutive days of monitoring with tracking medium or infrared camera, a qualified biologist has determined that SJKF is not currently present, the den may be excavated. Natal dens shall not be excavated until the pups and adults have vacated and then only after consultation with the USFWS and CDFW. If the excavation process reveals evidence of current use by SJKF, then den excavation shall cease immediately and tracking or camera monitoring, as described above, shall be conducted/resumed. Excavation of the den may be completed when, in the judgment of a qualified biologist, the SJKF has escaped from the partially excavated den. SJKF dens shall be carefully excavated until it is certain no SJKF individuals are inside. Dens shall be fully excavated, filled with dirt, and compacted to ensure that SJKF cannot reenter or use the den during construction activities. If an individual SJKF does not vacate a den within the proposed construction footprint within a reasonable timeframe, BVWSD and RRBWSD shall coordinate with USFWS and CDFW and obtain written/email guidance from both agencies prior to proceeding with den excavation. BVWSD and RRBWSD shall bear the costs of implementing the SJKF den excavation requirements.

d. For active dens and potential dens that exhibit signs of American badger use or characteristics suggestive of American badger dens, the same approach shall be used as outlined above, except BVWSD and RRBWSD shall coordinate with CDFW and obtain written/email guidance from CDFW prior to proceeding with den excavation; no USFWS coordination is required for American badger since it is not a federally protected species.

Mitigation Measure BIO-23: If Active San Joaquin Kit Fox Dens are Present, Coordinate with USFWS and/or CDFW

If active SJKF dens are detected onsite, BVWSD and RRBWSD shall coordinate with the USFWS and/or CDFW to obtain all necessary regulatory authorizations to facilitate FESA and/or CESA compliance, if required. This coordination may include, but may not be limited to:

a. Acquisition of a State ITP for SJKF.

b. Acquisition of SJKF conservation lands and/or bank credits if required by CDFW.

Mitigation Measure BIO-24: Implement Measures During Construction and Operation to Protect San Joaquin Kit Fox

The following construction and ongoing operational requirements as included in the *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011) will be implemented:

a. Project-related vehicles should observe a daytime speed limit of 20 mph throughout the site in all project areas, except on county roads and federal and state highways; this is particularly important at night when SJKF are most active. Nighttime construction should be minimized to the extent possible. However, if it does occur, then the speed limit should be reduced to 10 mph. Off-road traffic outside of designated project areas should be prohibited.

b. To prevent inadvertent entrapment of SJKF or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured SJKF is discovered, the USFWS and CDFW shall be contacted as noted under items (k) through (n) below.

c. SJKF are attracted to den-like structures, such as pipes, and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for SJKF before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If SJKF are discovered inside a pipe, that section of pipe should not be moved until USFWS has been consulted. If necessary, and under the direct supervision of the biological monitor, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.

d. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or project site.

e. No firearms shall be allowed on the project site.

f. No pets, such as dogs or cats, should be permitted on the project site to prevent harassment, mortality of SJKF, or destruction of dens.

g. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of SJKF and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by USEPA, California Department of Food and Agriculture, and other federal and state legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to SJKF.

h. A representative shall be appointed by BVWSD and RRBWSD who will be the contact source for any employee or contractor who might inadvertently kill or injure a SJKF or who finds a dead, injured, or entrapped SJKF. The representative will be identified during the employee education program and their name and telephone number shall be provided to the USFWS.

i. An employee education program should be conducted for any project that has anticipated impacts to SJKF or other endangered species. The program should consist of a brief presentation by persons knowledgeable in SJKF biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the project. The program should include the following: A description of the SJKF and its habitat needs; a report of the occurrence of SJKF in the project area; an explanation of the status of the species and its protection under the FESA and CESA; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the project site.

j. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc., should be re-contoured, if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to “temporary” disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with USFWS, CDFW, and revegetation experts.

k. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for guidance.

l. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring an SJKF shall immediately report the incident to their representative. This representative shall contact CDFW immediately in the case of a dead, injured, or entrapped SJKF.

m. USFWS and CDFW shall be notified in writing within 3 working days of the accidental death or injury to an SJKF during project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information.

n. New sightings of SJKF shall be reported to the CNDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the SJKF was observed should also be provided to the USFWS.

Impact BIO-2. Impacts on Riparian Habitat or Other Sensitive Natural Communities — Less than Significant with Mitigation

There will be no Proposed Project-related impacts to riparian habitat considered jurisdictional by CDFW, as no riparian habitat is present within the Project area. Chenopod scrub occurs in the southwestern corner of the BSA. This habitat is most closely aligned with Valley Saltbush Scrub and is dominated by allscale saltbush and big saltbush. Chenopod scrub with big saltbush and its alliances are included on CDFW California Natural Community List (CDFW 2020b), are considered sensitive under CEQA.

Approximately 160 acres of chenopod scrub habitat could be impacted or otherwise permanently altered if percolation pond #24 remains a part of the Proposed Project footprint. This vegetation supports suitable shelter and foraging habitat for a variety of regional special-status species. Impacts to chenopod scrub would be significant.

Implementation of the following mitigation measures would reduce impacts to chenopod scrub habitat. As discussed above for special-status plant and wildlife species, implementation of **Mitigation Measures BIO-4 and BIO-5** would require an environmental training program biological monitoring. Implementation of **Mitigation Measures BIO-19 through BIO-20** would require habitat avoidance and pre-construction surveys and trapping (if needed). Therefore, impacts to chenopod scrub habitat would be **less than significant with mitigation**.

Impact BIO-3. Impact on State or Federally Protected Wetlands or Waters of the U.S. — No Impact

The James Canal is an old irrigation ditch/canal feature that borders a portion of the northern area of the Proposed Project site and then proceeds south through the western area of the Proposed Project site toward Panama Lane. However, based on the recent (i.e., 2020 and 2021) observations of SWCA field biologists, there are no potentially jurisdictional drainage features or wetlands currently onsite. Therefore, there would be no Proposed Project-related impacts to wetlands considered jurisdictional by USACE under CWA Section 404 or the State under the Porter-Cologne Act or Section 1602 of the F&G Code. No mitigation is required.

Impact BIO-4. Impact on Movement of Resident or Migratory Fish or Wildlife Species, Established Native Resident or Migratory Wildlife Corridors, or Native Wildlife Nursery Sites — No Impact

Many terrestrial wildlife species require various habitats to accommodate all of their biological activities. With increasing encroachment of humans on wildlife habitats, it is important to establish and maintain linkages for animals to be able to access locations containing different biotic resources that are essential to maintaining their life cycles. Terrestrial animals use ridges, canyons, riparian areas, and open spaces for movement between their required habitats. Formal studies of wildlife movement in the area were not conducted; however, because water recovery and inundation are seasonal in Kern County, animal movement would occur unimpeded for most of each year of operation. Potential movement corridors for terrestrial wildlife would be limited when the ponds receive water, but also at the benefit of waterfowl that could use inundated ponds for foraging and migration.

The project site is not identified in the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1998) as being located in the vicinity of an area identified where linkages should be pursued. According to *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California* (Spencer et al. 2010) and *Missing Linkages: Restoring Connectivity to the California Landscape* (Penrod et al. 2001), the BSA is not located in an essential habitat connectivity or linkage area. The Proposed Project would include development of a groundwater banking project in a semi-rural setting and would not be anticipated to create any new barriers to habitat connectivity in the region.

There would be no Proposed Project-related impacts to resident or migratory fish species or native wildlife nursery sites. No wildlife migration/connectivity impacts are anticipated.

Impact BIO-5. Conflicts with Local Policies or Ordinances Protecting Biological Resources — No Impact

The Conservation Element of the MBGP emphasizes the conservation and preservation of sensitive biological resources in the City of Bakersfield. The Proposed Project is not expected to conflict with the goals or policies of the MBGP or any other local policies or ordinances. No mitigation is required.

Impact BIO-6. Conflicts with Habitat Conservation Plans, Natural Community Conservation Plans, or Other Approved Conservation Plans — No Impact

As described above, the Proposed Project incorporates many of the MBHCP measures and is not expected to conflict with any of the MBHCP provisions. There are no other known conflicts with any other approved conservation plans. No mitigation is required.

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Chapter 6
CULTURAL RESOURCES

6.1 Overview

This chapter describes potential impacts of the Proposed Project related to cultural resources. Cultural resources include Native American pre-contact archaeological sites; historic-era archaeological sites; tribal cultural resources (TCRs); and historic buildings, structures, landscapes, districts, and linear features. Native American pre-contact archaeological sites are places where Native Americans lived or carried out activities during the prehistoric period. Historic-era archaeological sites reflect activities conducted after the arrival of colonists, which, for Kern County, was in the late 1700s. Native American pre-contact and historic-era sites contain artifacts, cultural features, subsistence remains, and human remains.

The purpose of this chapter is to describe the regulatory setting associated with cultural resources, the environmental setting for these resources, project impacts on cultural resources, and mitigation measures that would reduce these impacts. TCRs are discussed in Chapter 17, *Tribal Cultural Resources*.

The following key data sources support this chapter:

- Records search from the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System at California State University, Bakersfield (Records Search File: 20-235);
- Files search from the California Native American Heritage Commission (NAHC); and
- A cultural resources review of the Proposed Project area conducted by ASM Affiliates (ASM) in 2020, provided in Appendix F of this DEIR.

6.2 Regulatory Setting

6.2.1 Federal Laws, Regulations, and Policies

National Historic Preservation Act

Projects that require federal permits, receive federal funding, or are located on federal lands must comply with 54 U.S. Code (USC) 306108, formally and more commonly known as Section 106 of the National Historic Preservation Act (NHPA). To comply with Section 106, a federal agency must "take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places." The implementing regulations for Section 106 are found in Title 36 Code of Federal Regulations (CFR), Part 800, as amended (2004).

The implementing regulations of the NHPA require that cultural resources be evaluated for National Register of Historic Places (NRHP) eligibility if they cannot be avoided by an undertaking or project. Resources listed or eligible for NRHP listing are called historic properties. To determine if a site, district, structure, object, and/or building is significant, the NRHP Criteria for Evaluation are applied. A resource is significant and considered a historic property when it:

A. Is associated with events that have made a significant contribution to the broad patterns of our history; or

B. Is associated with the lives of persons significant in our past; or

C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction; or

D. Yields, or may be likely to yield, information important in prehistory or history.

In addition, 36 CFR Section 60.4 requires that, to be considered significant and historic, resources must also exhibit the quality of significance in American history, architecture, archaeology, engineering, or culture and must possess integrity of location, design, setting, materials, workmanship, feeling, and association.

6.2.2 State Laws, Regulations, and Policies

Historical Resources

Under the California Environmental Quality Act (CEQA), a project will have a significant effect if it causes a "substantial adverse change" in the significance of an "historical resource." An "historical resource" is defined as a resource that is (CEQA Guidelines Section 15064.5(a)):

- Listed in or determined by the State Historical Resources Commission (SHRC) to be eligible for listing in the California Register of Historic Resources;
- Listed in a local register of historic resources;
- Determined to be eligible for California Register listing based on an historical resource survey meeting defined requirements; or
- Determined by the Lead Agency's exercise of discretion, based on substantial evidence in the record, to be an historical resource.

The CEQA Guidelines also provide guidance on how to mitigate significant impacts on historical resources. CEQA Guidelines Section 15126.4(b)

Unique Archaeological Resources

In addition, Public Resources Code Section 21083.2 requires that the lead agency determine whether a project or program may have a significant effect on "unique archaeological

resources". A unique archaeological resource is defined in CEQA as an archaeological artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it:

- Contains information needed to answer important scientific research questions, and there is demonstrable public interest in that information;
- Has a special or particular quality, such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Measures to avoid, conserve, preserve, or mitigate significant effects on these resources are also provided in Pub. Res. Code Section 21083.2. The CEQA Guidelines also provide criteria and processes/procedures for minimizing harm to historical resources.

California Health and Safety Code Section 7050.5 and Public Resources Code 5097.98

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the county coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the Coroner must then contact the NAHC, which has jurisdiction pursuant to Section 5097 of the Pub. Res. Code. When human remains are discovered or recognized in any location other than a dedicated cemetery, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains may take place until the county coroner has been informed and has determined that no investigation of the cause of death is required. If the remains are of Native American origin, the descendants of the deceased Native American(s) may make a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Pub. Res. Code Section 5097.98. This excludes instances where the NAHC is unable to identify a descendant, or the descendant failed to make a recommendation within 24 hours after being notified by the commission.

Similar procedures are required by CEQA Guidelines Section 15064.5(e).

California Register of Historical Resources

The California Register of Historic Resources (CRHR) is established in Pub. Res. Code Section 5024.1. The register lists all California properties considered to be significant historical resources, including all properties listed in, or determined to be eligible for listing in, the NRHP, including properties evaluated under Section 106 of the NHPA. Resources listed in, or eligible for listing in, the CRHR are referred to as historical resources. The criteria for listing are similar to those of the NRHP. Criteria for listing in the CRHR include resources that:

A. Are associated with the events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

B. Are associated with the lives of persons important in our past;

C. Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

The regulations set forth the criteria for eligibility as well as guidelines for assessing historical integrity and resources that have special considerations.

6.2.3 Local Laws, Regulations, and Policies

City of Bakersfield

The current *Metropolitan Bakersfield General Plan* (MBGP) (City of Bakersfield 2007) has a place holder for a future Historical Resources Element chapter. Until the chapter is developed and adopted, the General Plan addresses historical resources under the Land Use Element. Six of the seven policies under this element that pertain to historic preservation focus on historic neighborhoods and built environment resources and are not directly applicable to the Proposed Project. The one exception is Policy 104, as follows:

> As part of the environmental review procedure, an evaluation of the significance of paleontological, archaeological, and historical resources and the impact of proposed development on those resources shall be conducted and appropriate mitigation and monitoring included for development projects.

6.3 Environmental Setting

This section includes information on the Native American pre-contact period, the Native American ethnohistoric period, and the historic period within the Project vicinity, and identifies known recorded cultural resources. Information provided in this section is derived or taken directly from the following sources:

- *Cultural Resources Review, James Groundwater Storage and Recovery Project, Bakersfield* (ASM 2020, provided as Appendix F of this DEIR);
- *Phase II Archaeological Test Excavations at Nine Sites within the McAllister Ranch Project Area, Bakersfield, Kern County, California* (W & S Consultants 2006); and
- *McAllister Ranch Archaeological Investigation* (Schiffman 1991).

6.3.1 Native American Pre-Contact Context

Little archaeological work has been conducted in the San Joaquin Valley in general; therefore, the archaeology of the Proposed Project area is understood within the prehistoric context developed for the Central Valley as a whole. Since the early 1930s, various schemes have been set forth by researchers to organize the archaeological data of California into a chronological framework. The Central Valley sequence established by Lillard, Heizer, and Fenenga in 1939 is particularly notable. Based on archaeological investigations in the lower Sacramento Valley, Lillard and colleagues divided human prehistory into three broad cultural horizons: Early, Middle, and Late. This chronology was first known as the Delta sequence and later became the basis of Richard Beardsley's Central California Taxonomic System (Moratto 1984:181). The system relies on the identification of characteristics such as burial patterns, shell bead types, stone tools, and the types of locations where the sites tend to occur. These traits and characteristics are used to identify an archaeological resource as belonging to a specific time period.

The Central California Taxonomic System has continued to undergo significant refinement but remains the framework within which California archaeologists explain cultural change. The general system is still widely used by archaeologists, but it has been expanded and revised to include economic and technological strategies, socio-politics, trade networks, population density, and variations of artifact types to differentiate between cultural periods. The current chronology (Rosenthal et al. 2010:150) for central California archaeology includes:

- Paleo-Indian: 11,550 to 8550 B.C.
- Lower Archaic: 8550 to 5550 B.C.
- Middle Archaic: 5550 to 550 B.C.
- Upper Archaic: 550 B.C to 1100 A.D.
- Emergent: 1100 A.D. to Historic

The Paleo-Indian Period (11,550 to 8,550 B.C.) is generally characterized by big-game hunters occupying broad geographic areas. Archaeological deposits from the Paleo-Indian period are rarely found in the Central Valley, however, and those that have been identified have largely been discovered at the south end of the San Joaquin Valley near Tulare Lake. Post-depositional processes, mainly glacial outwash occurring at the end of the Pleistocene Epoch, either destroyed or deeply buried much of the existing evidence of human activity in the region from this period. As result, little is known about Paleo-Indian lifeways in the region (Moratto 1984:214).

Similar to the preceding period, the Lower Archaic Period (8550 to 5550 B.C.) is presumed to reflect a mobile population that continued to hunt big game. Few localities in the Central Valley are associated with this period, and those that have been found are largely isolated artifacts consisting of large wide-stemmed and leaf-shaped projectile points, along with flaked stone crescents. Only two sites with associated deposits of faunal and shell remains have been identified for the Lower Archaic Period, one at Buena Vista Lake in the southern San Joaquin Valley (Rosenthal et al. 2010:151-152) and one in Sacramento (Tremaine 2008). Some sites in

the Sierra Nevada foothills from this period, however, indicate the use of milling equipment (hand stones and milling stones) to process seeds and nuts.

The Middle Archaic Period (5550 to 550 B.C.) indicates a shift to a more settled way of life that is reflected by substantial, though often deeply buried, archaeological sites with artifacts that are more elaborate in design, imply a more diverse subsistence regime, and indicate interregional trade. Sites are often situated along the major rivers and streams within the Central Valley, emphasizing a focus on riverine and marsh habitats. The Windmiller Tradition or Pattern, which was first identified in sites around the Sacramento–San Joaquin River Delta, is often considered representative of this period. Characteristic artifacts from this period include a variety of fish hooks and spears; large stemmed and leaf-shaped projectile points of obsidian and chert; shaped charmstones of alabaster, steatite, or marble; and a variety of Haliotis and Olivella shell ornaments and beads, respectively. Mortars and pestles, associated with acorn preparation, became commonplace by the middle of the period. The presence of ventrally and dorsally extended burials with a western orientation is particularly indicative of the Windmiller Pattern.

Increased sedentism and technological specialization are evidenced during the Upper Archaic Period (550 B.C to 1100 A.D.), as populations exploited more diverse resources and established trade relationships. Mortars and pestles became the primary ground stone implements, suggesting that acorns had become a more important dietary staple. Regional diversity in artifact styles, such as Haliotis shell ornaments, bone tools, and ground charmstones or plummets, became more pronounced; burial postures also varied.

Archaeological sites from the Emergent Period (A.D. 1100 to the historic period) indicate increased social complexity and the development of large, central villages with resident political leaders and specialized activity sites. Enhanced regional diversity in terms of artifact styles, housing, and interment methods is evident in the archeological record. Artifacts associated with the period include the bow and arrow, small corner-notched projectile points, and a variety of shell and stone beads and ornaments.

6.3.2 Ethnohistoric Context

The Proposed Project area lies within the ancestral territory of the Southern Valley Yokuts. The term “Yokuts” is applied to a large and diverse group of people inhabiting the San Joaquin Valley and Sierra Nevada foothills of central California. The Northern Valley Yokuts inhabited a 40- to 60-mile-wide area straddling the San Joaquin River, south of the Mokelumne River, east of the Diablo Range, and north of the sharp bend that the San Joaquin River takes to the east-northeast near Mendota in Fresno County. The Southern Valley Yokuts occupied the San Joaquin Valley south of the bend in the river. Although they were divided geographically and ecologically, the two Yokuts divisions have a common linguistic heritage (Wallace 1978).

More specifically, the Southern Valley Yokuts occupied the region surrounding Tulare, Buena Vista, and Kern lakes and their connecting sloughs, as well as the lower reaches of the Kings, Kaweah, Tule and Kern rivers, whose waters made their way through extensive seasonal swamplands to eventually drain into the lake basins. More broadly, their territory stretched from just south of Fresno to the base of the Tehachapi Mountains at the southern end of their range. To the west, they occupied lands that included the first low hills of the Coast Range and

the Elk Hills; on the northeast, their territory abutted the foothills of the Sierra Nevada while, further south it extended into the low hills south of present-day Bakersfield (Wallace 1978).

In an area that otherwise ecologically resembled a desert, the rivers and lakes were the life blood of the Southern Valley Yokuts. The lakes and rivers supplied fish and waterfowl, and drew vast herds of pronghorn antelope and tule elk that roamed the plain. The water sources also seasonally attracted deer from the mountains. Tule harvested from the extensive marshes were used for constructing balsas (rafts) to traverse the swamps and lakes, as well as for housing and basketry. The surrounding plains provided other essential plants and animals for subsistence.

In contrast to the typical California cultural grouping known as the tribelet, the Yokuts were organized into "true tribes," in that each had "a name, a dialect, and a territory." Kroeber (1925:474) estimated that as many as 50 Yokuts tribes may have originally existed, but that only 40 were "sufficiently known to be locatable." Each tribe inhabited an area averaging "perhaps 300 square miles," or about the distance one could walk in any direction in half a day from the center of the territory. Some Yokuts tribes only inhabited a single village, while others occupied several (Kroeber 1925). Villages were generally placed on top of low mounds near major watercourses. Native American pre-contact sites in the Project area appear to be associated with the historical Hometwole Yokuts village locality known as *Homochu* (ASM 2020).

Although the southern end of the San Joaquin Valley was visited by the Spanish in the late 1700s and early 1800s, they appear to have not conscripted large numbers of Yokuts to the missions that were being established to the south and west. However, under Mexican rule, "campaigns for the purpose of recovering stolen livestock, punishing the thieves, and capturing slaves" were organized by ranchers (Wallace 1978). Yokuts communities suffered tremendously as traders started to infiltrate the region in the 1830s, causing disease to sweep through the population and decimate villages by an estimated 75 percent (Wallace 1978).

Today the Southern Valley Yokuts people occupy many San Joaquin Valley communities and other cities throughout California and the United States. They are represented by individuals, the Santa Rosa Indian Community created in 1921, and the Tule River Indian Tribe established in 1873. After a century of extreme hardship, Southern Valley Yokuts are now experiencing a time of increasing prosperity, as the Tachi Yokuts of the Santa Rosa Rancheria and the Tule River Indian Tribe have established gaming venues that have allowed them to expand into a more broad-based economic platform and support tribal members and a revitalization of their culture.

6.3.3 Historic Period Context

The Spanish arrived in present-day California in 1769 and quickly established missions near the coast in the ensuing years. Pedro Fages led the first company over Tejon Pass and into the southwestern margins of the San Joaquin Valley to the Buena Vista Hills and Lake, while pursuing Spanish army deserters, in 1772. Fages spent little time in the future Kern County, and crossed over the Coast Range to the vicinity of San Luis Obispo before returning to San Diego. The Spanish focused populating the coastal plain and didn't return to the San Joaquin Valley until 1776 when Padre Francisco Garces entered into the valley 15 miles east of the Fages route. Passing through the area of present-day Arvin, he travelled north and westerly to the White River 16 miles west of Delano before turning east and south. He eventually visited the area of

Bakersfield before once again passing through Arvin and heading toward the Mojave Desert (Kyle, et al. 2002:126-127).

The southern end of the San Joaquin Valley was largely ignored by the Spanish, who focused their settlements along the Pacific coast. The area continued to be a hinterland for colonists after the Mexican revolution in 1822. American and European fur traders began to venture through the region on occasion in the 1830s, but it wasn't until the mid-century and the discovery of gold in the Sierra Nevada, that colonizers began to arrive in significant numbers (Kyle et al. 2002).

City of Bakersfield

In February 1860, a German blacksmith named Christian Bohna arrived from Arkansas and installed his family in an abandoned hunting hut on the Kern delta. Other settlers soon followed, and the little community of Kern Island thrived until 1861 when a flood diverted the river and caused Bohna and some of the other settlers to pack up. Bohna sold his land to a Colonel Thomas Baker from Ohio for $200. Colonel Thomas Baker acquired a large tract of State-owned swamp land under the condition that he drain and reclaim it. He was unsuccessful in obtaining loans to complete the project, but in 1867 a flood again diverted the river and drained the swamp land for him. He then built a system of dams and levees to control the waters in the future. For this purpose, Baker fenced off ten acres of alfalfa, which became known as "Baker's field" (Kern County Planning Department 2004).

A loose community of settlers who had come to mine gold or farm had accumulated in the area by the late 1860s in the area, and Colonel Baker was named surveyor by the first Board of Supervisors. As surveyor, Baker set about redirecting river water to the drained swamps as well as the surrounding alkali desert to create arable farmland. He also set about surveying formal townsite in 1869, and the community agreed on the name "Bakersfield." In 1872, Colonel Baker died during a typhoid epidemic, a year too soon to see Bakersfield incorporate and become the new County seat (Kern County Planning Department 2004; Kyle et al. 2002).

The city continued to grow throughout the last decades of the nineteenth century as it became an important railroad hub by 1874, allowing for the transfer and distribution of goods throughout the region. At this same time, local farmers constructed the Kern River irrigation system, which led to a major increase in the farming of grain and alfalfa, and expanded the ability to support herds of livestock (Online Highways 2021).

The discovery of oil in the region was an instant transformation for Bakersfield, causing a major growth spurt around the new-found industry. The boom propelled the City into the twentieth century (Kyle et al. 2002; Online Highways 2021) and it has continued to grow and develop since that time. In addition to oil and agriculture, today the City is known as the home of country music in the San Joaquin Valley, as well as California State University, Bakersfield (Onlone Highways 2021).

Water Management in the Region

Large numbers of Americans began settling in California's Central Valley during and after the Gold Rush, at first to mine gold and then to farm the fertile valley floor. Hydraulic mining, the practice of using giant water hoses to wash away hillsides and expose valuable minerals, was practiced in California's Gold Country by the 1850s. Use of the technology increased dramatically in the 1860s and 1870s, and enormous volumes of tailings washed into the Sacramento and San Joaquin Rivers and their tributaries. The addition of huge amounts of debris to the river system exacerbated the naturally occurring propensity for flooding in the Central Valley, resulting in repeated disastrous inundation and damage to farmland and property. Individual landowners and levee districts began constructing levees to protect localities. These piecemeal local projects led to "levee wars" in the 1860s and 1870s, an unstable situation in which levees protecting certain locales forced water back into the main channel and worsened overall flooding.

In 1884, Judge Lorenzo Sawyer effectively ended hydraulic mining in California in a landmark decision that prohibited the discharge of debris into the state's waterways. The problems caused by the debris, however, remained. In 1893, the federal Caminetti Act allowed the resumption of hydraulic mining, but created the California Debris Commission to regulate it. U.S. President Grover Cleveland appointed three officers of the U.S. Army Corps of Engineers (USACE) to the California Debris Commission. In addition to flood protection, the government charged the commission with improving navigation in California's Rivers for the benefit of commerce, and the body was given the power to build levees, dams, and other works. The California Debris Commission's power, which included authority over private hydraulic mining operations, was virtually unprecedented (Hagwood 1981; James and Singer 2003).

As noted above, settlement in the Bakersfield area began in the 1860s on Kern River marshlands. Early settlers drained swamps and built canals and levees as agriculture and sheep and cattle ranching became widespread. By 1873, 7,000 acres of farmland were irrigated with Kern River water; irrigated land increased to 40,000 acres by 1880. In the 1870s, James B. Haggin, Lloyd Tevis, and Billy "Boss" Carr purchased 59,000 acres of land on the Kern Delta and built a canal and water system, selling water to local farmers. Water rights were unregulated and led to controversy following a drought in 1877 and the 1879 construction by Haggin, Tevis, and Carr of a canal that diverted the entirety of the Kern River's flow.

Cattle ranchers Henry Miller and Charles Lux, who operated a large land interest that competed with Haggin, Tevis, and Carr, took on a nine-year legal battle that eventually made its way to the Supreme Court. In 1888, the Kern County Water Agreement (also known as the Miller-Haggin Agreement), which compromised by establishing a reservoir and allocating portions of the river's water to different parties, was signed. Haggin and Tevis partnered with Miller to impound the Kern River at Buena Vista Lake southwest of Bakersfield (who had been working on the reservoir for years prior to the agreement). The massive project, which required construction of a railroad in order to move the volumes of riprap required, was completed in the 1890s and provided irrigation water for the next six decades.

The Kern County Water Agreement established the First Point stream gauge station at Gordon's Ferry roughly 4 miles northeast of downtown Bakersfield and the Second Point stream gauge station at Enos Lane about 15 miles to the southwest. Haggin, Tevis, and Carr formed the Kern

County Land Company in 1890. The Shaw Decree adjudicated the allocation of First Point water in 1900 and formalized the Kern County Water Agreement into law (City of Bakersfield Water Resources Department 2003; Kern River Groundwater Sustainability Agency [KRGSA] 2019; Lynch 2009).

In 1944 the congressional Flood Control Act led to the construction of Isabella Dam and Lake Isabella in the southern Sierra Nevada mountains 40 miles east of Bakersfield. The dam, which impounded the north and south forks of Kern River, was completed in 1953 by the U.S. Army Corps of Engineers. It replaced the Buena Vista Lake Reservoir Complex, which was later drained and converted into farmland. Tenneco West, Inc., acquired the Kern County Land Company in 1967 and therefore control over Kern River water rights. However, by this time the City of Bakersfield was having trouble with access to water supply, and soon initiated litigation in an attempt to gain control of the resource. After a period of negotiation, the city purchased the Kern River water rights and facilities from Tenneco in 1976. In 1977, an intertie (an interconnection permitting water to pass) was built connecting the Kern River and California Aqueduct to prevent flooding in the Tulare Lake Basin area about 50 miles northwest of Bakersfield.

The California Department of Water Resources acquired 20,000 acres of farmland in 1988 for the construction of the Kern Water Bank. The water bank stores flood waters in wet years in groundwater aquifers to make it available during droughts. Initially the responsibility of the State Water Project, the agency found management of the water bank infeasible and, in 1994, turned over the property to the Kern County Water Agency (City of Bakersfield 2003; KRGSA 2019; Kern Water Bank Authority 2021).

The Project applicant, the Buena Vista Water Storage District (BVWSD), was originally organized in July 1924 to manage the irrigation and drainage systems and water rights held by Henry Miller and Charles Lux of the Lux Land Company (BVWSD 2021). The BVWSD delivers water to clients as well as operating groundwater storage systems.

The Rosedale-Rio Bravo Water Storage District (RRBWSD) was formed in 1959 specifically to construct and operate a groundwater recharge project. The district makes few deliveries to customers and, instead, relies on the recharge system to provide groundwater to local wells (RRBWSD 2021).

6.4 Impact Analysis

Cultural resources include Native American pre-contact archaeological sites; historic-era archaeological sites; and historic buildings, structures, landscapes, districts, and linear features. Tribal Cultural Resources are addressed in Chapter 17, *Tribal Cultural Resources*.

6.4.1 Methodology

This section describes the methods and results of the cultural resources records search and literature review, and pedestrian survey used to gather data about the cultural resources identified within the study area. These data, which are fundamental to the analyses undertaken to evaluate the Project's potential to impact significant cultural resources, were derived by the cultural resources study conducted for the project by ASM (2020).

Project Study Area

The Project study area consists of the entire 2,070 acres of the McAllister Ranch property. The study area also includes all offsite elements of the projects, and a 300-foot diameter buffer to account for access, laydown, and work areas.

Archival Research and Previous Studies

A records search was conducted by the SSJVIC of the California Historical Resources Information System at California State University, Bakersfield (Records Search File: 2-235) for the Proposed Project prior to initiating the field review. The purpose of the records search was to determine if the study area had previously been surveyed for cultural resources, and to identify any previously recorded cultural resources in or within ½ mile of the Proposed Project site. The archival research included review of the California Inventory of Historic Resources, local historical inventories, historical literature, and historical maps, including USGS topographic maps, General Land Office maps, and Rancho Plat Maps.

The records search indicated that the Project site has an extensive history of cultural resources studies, including survey and excavations for the evaluation of archaeological resources for significance, such that the entire Project site had been previously covered. These studies were largely conducted in support of the McAllister Ranch Development, which had originally been proposed for the Project site in the 1990s. Several other studies overlapped with the Project area. Altogether, eight previous studies had been conducted within the Project boundaries, as listed in **Table 6-1**, and another 27 were conducted immediately adjacent and within the 0.5-mile study radius. In addition to the SSJVIC data, the City provided an early archaeological study report for the McAllister Ranch project, and ASM uncovered a report about archaeological test excavations at the Project site; both of the reports are included in Table 6-1.

Table 6-1. Cultural Resources Studies Previously Conducted Within or Overlapping the Proposed Project APE

SSJVIC Report No.	Author	Date	Title
0251	C. King and S. Craig	1979	Archaeological Resource Assessment of the Proposed 8.8 Mile Gosford Intertie Pipeline, Kern County, California
0252	S. Craig and C. King	1979	An Archaeological Resource Assessment of the Proposed Alternate Routes for the Gosford Intertie Pipeline, Kern County, California
01139	R. A. Schiffman	1991	Archaeological Test Excavation for the McAllister Ranch Development: A 2070 Acre Development
01190	R. A. Schiffman	1993	Archaeological Test Excavation for the McAllister Ranch Development:
01835	Ancient Enterprises, Inc.	1979	Archaeological Investigations at KER-1051, Kern County, California

SSJVIC Report No.	Author	Date	Title
01916	C. Singer	1993	Results of Archaeological Investigation at KER-668, McAllister Ranch
02278	M. Aviña	1999	Cultural Resources Inventory Report for Williams Communications, Inc. Fiber Optic Cable System Installation Project, San Luis Obispo to Bakersfield, Volume I
04253	C. L. Pruett	2012	Location of Three Previously Recorded Archaeological sites and Five Previously Recorded Isolated Artifacts for the James Groundwater Proposal
--	R. A. Schiffman	1991	McAllister Ranch Archaeological Investigation
--	W&S Consultants	2006	Phase II Archaeological Test Excavations at Nine Sites within the McAllister Ranch Project Area, Bakersfield, Kern County, California

Information from the SSJVIC indicated that 10 Native American pre-contact archaeological sites had been recorded within the Project area, along with seven isolated artifacts (all flakes from Native American tool manufacture). An additional 15 archaeological sites or built environment resources and three isolated artifacts (flakes from Native American tool manufacture) had been recorded within a 0.5-mile radius of the Project area. Two of the built environment resources, the Southern Pacific Railroad and the remains of Stevens Railroad Siding, are immediately adjacent to but outside of the Project boundary.

As summarized by ASM (2020), test excavations have been conducted at all the sites, at least twice, to determine their significance. The most recent testing of each of the recorded archaeological resources was in 2006 in preparation for construction of the McAllister Ranch subdivision. These excavations were conducted in consultation with local Native American tribes. **Table 6-2** lists the previously recorded Native American pre-contact archaeological sites within the Project limits and their recommended significance as the result of the testing activities.

Table 6-2. Previously Recorded Archaeological Sites[1] within the Proposed Project Area

Site Number	Description	Significant?
P-15-000668/CA-KER-668	Habitation debris, burials	Yes
P-15-000669/CA-KER-669	Lithic and shell scatter	No
P-15-001050/CA-KER-1050	Scatter of animal bone, non-human	No
P-15-001051/CA-KER-1051	Lithic and shell scatter	Yes
P-15-001052/CA-KER-1052	Lithic scatter	No
P-15-002282/CA-KER-2282	Lithic scatter with mano fragment	Yes
P-15-003153/CA-KER-3153	Lithic scatter	No
P-15-003154/CA-KER-3154	Lithic scatter	No
P-15-003156/CA-KER-3156	Lithic scatter	Yes
P-15-004363/CA-KER-4167	Lithic scatter[2]	--

1. Isolated artifacts, with rare exceptions, have limited research value and are not considered potentially significant resources. Therefore, they are not included in this table

2. This site could not be relocated after initial recordation in 1994; it is likely outside of project area

Source: ASM 2020 (Appendix F of this DEIR)

Archival documents note that, following completion of the 2006 test excavations, the McCallister Ranch housing development was approved by Kern County with preservation of sites CA-KER-668, -1051, -2282 and -3156 in place as a Condition of Approval. Subsequently the Project area was annexed by the City of Bakersfield and the construction of roads and infrastructure as well as a country club, all located to the east of the archaeologically sensitive areas, began. The economic recession of 2008 resulted in the abandonment of the development project after approximately half of the Project area (the eastern half) had been graded with roads and infrastructure placed. The record search reports indicate that the Project area was again subject to archaeological review in 2012 to verify and update the status of the significant sites and to determine if any of the other sites remained intact. That study found that site CA-KER-3156 is fenced in a biologically sensitive area and is outside of the current Project limits; it also determined that all the sites, other than CA-KER-668, -1051, and -2282, within the Proposed Project boundary had been destroyed by the initial construction for the subdivision (ASM 2020).

Citing the earlier studies, ASM (2020) summarized the geoarchaeological sensitivity of the Proposed Project area for the potential to contain buried archaeological sites. Geoarchaeological studies included an intensive examination of information derived primarily from the Soil Survey Geographic Database and the State Soils Geographic database. A series of maps were created from this information that ranked locations in seven ordinal classes for sensitivity for buried soils, from Very Low to Very High. This analysis classified the Kern River Delta, including the Proposed Project location, as having Very High sensitivity for subsurface sites. It is therefore likely that the Project area could contain additional subsurface archaeological deposits.

Native American Consultation

An email request was made to the NAHC on May 27, 2020, to review its files for the presence of recorded sacred sites on the Project site. The NAHC responded on the following day, stating that no significant resources were identified in the Project area as a result of a search of their files. The NAHC also provided a list of 17 tribes and tribal contacts with a traditional and cultural affiliation with the Project area for notification pursuant to Pub. Res. Code Section 21080.3.1 (codified by Assembly Bill [AB] 52). Consultation with tribes is described in Chapter 17, *Tribal Cultural Resources*.

Pedestrian Survey and Results

A cultural resources study was conducted in support of this environmental impact report (EIR) by ASM (2020). The study involved a detailed review of past work conducted at the Project site, as well as pedestrian survey to update the status of CA-KER-668, -1051, -2282 and -3156, confirm that the other previously recorded sites in the Project area are no longer extant, and to examine the locations of the Project's off-site components. A pedestrian survey was also conducted of all offsite portions of the Project.

The pedestrian survey confirmed the presence of sites CA-KER-668, -1051, -2282 and -3156 and resulted in the recordation of the Buena Vista Canal/Canfield Lateral and the Kern River Canal, both of which will be modified by the Proposed Project. The current James Canal, which crosses through the Project area, was constructed between 2006 and 2009, replacing an earlier version of the canal that had been abandoned by 1954. Because the canal is modern in age and origin, it was not recorded as a cultural resource. **Table 6-3** lists the cultural resources identified and recorded within the Proposed Project areas and their recommended eligibility status for listing in the CRHR. A description of ach of the resources follows.

Table 6-3. Cultural Resources within the Proposed Project Area

Site Number	CRHR Eligibility	Significant?
P-15-000668/CA-KER-668	Eligible	Yes
P-15-001051/CA-KER-1051	Eligible	Yes
P-15-002282/CA-KER-2282	Eligible	Yes
P-15-003156/CA-KER-3156	Eligible	Yes
Buena Vista Canal/Canfield Lateral	Not Eligible	--
Kern River Canal	Not Eligible	--

Source: ASM 2020 (Appendix F of this DEIR)

CA-KER-668

Situated on a low, sandy rise, CA-KER-668 covers an area that measures approximately 886 feet (northwest to southeast) by 2575 feet (northeast to southwest). It is characterized as a village site that contains a large house floor and human remains. The deposit is at least 4 feet deep. A wide range of materials that reflect subsistence, social, and perhaps spiritual elements of culture were recovered from the site, including shell beads, arrow points, baked clay, and pieces

of turtle carapace. Although the site has been damaged by off-road vehicle use it recent years, it largely remains intact. The site contains information important to the prehistory of California, meeting the requirements of Criterion 4 pursuant to Pub. Res. Code 5024.1(c). The site is also important to consulting Native American tribes and may also be eligible under Criterion 1. Although the site has not formally been evaluated for CRHR eligibility, CA-KER-668 was determined to be a significant historical resource by Kern County in the 2007 McAllister Ranch Project EIR and is, thus, considered eligible for listing in the CRHR under Criterion 4. [

CA-KER-1051

CA-KER-1051 covers an area that measures approximately 459 feet (east to west) by 213 feet (north to south). Although there is little evidence of the site on the surface, excavations have shown that it has a depth of nearly 3 feet. Furthermore, relative to the other sites in the Project area, this site contained an abundance of artifactual material in the buried soil matrix. Items recovered included ground stone, flaked stone tools, utilized and unutilized lithic debitage (flakes of stone), faunal remains (shellfish, fish, reptile, and mammal bones), a single stone bead, and two shell ornaments. Overall, CA-KER-1051 appears to represent a small habitation site whose inhabitants followed a generalized subsistence pattern that likely exploited all possible local resources. Although the age of this site is indeterminant, though obsidian was present, the existing evidence suggests a Middle – Late Horizons Transition age. Thus CA-KER-1051 contains information important to the prehistory of California, meeting the requirements of Criterion 4 pursuant to Pub. Res. Code 5024.1(c). The site is also important to consulting Native American tribes and may also be eligible under Criterion 1. CA-KER-1051 was determined to be a significant historical resource by Kern County in the 2007 McAllister Ranch Project EIR and is, thus, eligible for listing in the CRHR by meeting the eligibility.

CA-KER-2282

A-KER-2282 covers an area that measures approximately 1181 feet (northeast-southwest) by 623 feet (northwest-southeast), of which approximately the eastern quarter of the site is within the Project boundary; the remainder of the site is outside the Project limits. The site surface has been plowed and surface artifacts are sparse; however, there is a low density but locally deep deposit with at least two strata of occupation that reaches a depth about of nearly 6 feet. The 2006 excavation yielded approximately equal amounts of faunal and flaked stone debris, suggesting that the site was used for habitation. The presence of obsidian suggests a pre-A.D. 1200 date for the site. The site contains information important to the prehistory of California, meeting the requirements of Criterion 4 pursuant to Pub. Res. Code 5024.1(c). The site is also important to consulting Native American tribes and may also be eligible under Criterion 1. CA-KER-2282 was determined to be a significant historical resource based on test excavations by W & S Consultants in 2006 and is, thus, eligible for listing in the CRHR by meeting the eligibility.

CA-KER-3156

This small site covers an area that measures approximately 295 feet (northeast to southwest) by 114 feet (northwest to southeast) and has a depth of nearly 3 feet. CA-KER-3156 appears to be a village or camp site and may contain human remains. Excavations yielded large amounts of both flaked stone debris and faunal remains, and 12 pendants of abalone shell. The site contains information important to the prehistory of California, meeting the requirements of Criterion 4 pursuant to Pub. Res. Code 5024.1(c). The site is also important to consulting Native American

tribes and may also be eligible under Criterion 1. CA-KER-3156 was determined to be a significant historical resource by Kern County in the 2007 McAllister Ranch Project EIR and is, thus, eligible for listing in the CRHR by meeting the eligibility.

Buena Vista Canal/Canfield Lateral

The Buena Vista Canal was constructed by the Buena Vista Canal Company in 1875. However, research found that the Buena Vista Canal, immediately northeast of the offsite Project component where it intersects the Canfield Lateral Ditch, was regularized circa 2006 and no longer follows the original canal route.

The Canfield Lateral Ditch, which parallels Panama Lane on its south side, is a minor lateral off of the Buena Vista Canal, and is thus a component of the larger water conveyance system. The ditch was constructed between 1898 and 1929 to connect the original Buena Vista and James canals. Based on topographical quadrangles, a levee was constructed on the south side of the Canfield Lateral Ditch between 1950 and 1955.

This Buena Vista Canal water conveyance system dates from the 1870s, while the Canfield Lateral Ditch was constructed before 1929. The system thus meets the age criterion for CRHR historical resources. The construction of this system was also an important event in the development of irrigated agriculture in the southern San Joaquin Valley. Since that time, however, the Buena Vista Canal has lost its integrity of setting and feeling, due to the suburbanization of surrounding southwestern Bakersfield and the creation of the Canfield Ranch Oil Field; its materials and workmanship, as a result of improvements to the original dirt canal and wooden structures, replaced by concrete beds and banks and concrete and metal water control structures; and location, stemming from changes in its route immediately adjacent to the James Project components. Although the Canfield Lateral Ditch retains its integrity of location, it has been altered over time with the creation of a levee in the mid-twentieth century, and is a minor lateral, representing a common property type without distinction with respect to workmanship, materials, or engineering. The recorded segment of the Buena Vista Canal/ Canfield Lateral is therefore recommended as not CRHR eligible under any criteria.

Kern River Canal

Although the name “Kern River Canal” has been applied to a variety of different canals, ditches and irrigation companies extending back to the 1870s, the Kern River Canal adjacent to the James Project area was constructed by the Kern County Land Company (KCL) in 1962, and was placed in operation in 1963. Its purpose as a concrete-lined canal was to transport water more efficiently than the unlined Kern River channel to the north, moving it from upstream on the river to farming lands west of Bakersfield.

This canal meets the age criterion for CRHR listing, but its construction was not tied to an important event in the recent history of San Joaquin Valley irrigated agriculture such as the development of the Central Valley Project. It was instead built as a stand-alone project by the KCL. The canal is a common property type that is not notable in terms of engineering, workmanship, and construction materials; it has no ties to important historical individuals; and historical records about it would provide more information than the resource itself. Therefore, the Kern River Canal does not appear CRHR eligible under any criteria.

6.4.2 Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact on cultural resources if it would:

- Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5; or
- Disturb any human remains, including those interred outside of formal cemeteries.

6.4.3 Environmental Impacts

Impact CR-1: Adverse change in the significance of a historical resource – No Impact

Four Native American pre-contact archaeological sites are located within the Proposed Project boundaries: CA-KER-668, CA-KER-1051, CA-KER-2282, and CA-KER-3156. Studies have determined that each of the sites are historic properties (i.e., eligible for listing in the NRHP) and, therefore, they are historical resources under CEQA (i.e., eligible for listing in the CRHR), pursuant to Pub. Res. Code 5024.1(1).

The project description, as presented in Section 2.6, "Native American Tribal Input to Project Design," provides for the mapping of the four known significant resources, along with a sufficient buffer to avoid buried elements of the sites not visible on the ground surface, and designing the project features around these sites to avoid direct impacts. Consulting Native American tribes would review the project plans at design stages of 60 percent and 90 percent completion and provide input about the level of protection provided to each resource. The City's and BVWSD's commitment to avoiding these resources would result in **no impact** to known historical resources within the project area.

However, as previously discussed, not all archaeological deposits are visible on the ground surface and the project area has a high potential for yielding buried resources that may be eligible to the NRHP/CRHR during project construction. Treatment of buried archaeological resources discovered during project implementation is discussed under Impact CR-2, Adverse change in the significance of an archaeological resource.

Impact CR-2: Adverse change in the significance of an archaeological resource – Less than Significant with Mitigation

The presence of known archaeological sites within the Proposed Project boundaries, coupled with the geoarchaeological information provided under the *Archival Research and Previous Studies,* underscores the sensitivity of the area to contain buried Native American pre-contact archaeological remains. Even though the project will be designed to avoid known resources and include a buffer around those areas, ground disturbing activities have the potential to uncover buried archaeological resources. Such activities include, but are not limited to, grading to create pond levees up to 6 feet high and to contour the floors of recharge ponds to a maximum depth

of 1 foot above current ground surface; and construction of interbasin flow control structures; installation of pumping plants, gravity turnouts, and groundwater monitoring wells; and demolition of features (e.g., street pavement, curbs, sidewalks, golfcart paths, block walls footings, etc.) previously constructed for the McAllister Ranch development. In addition, offsite construction of a new 8-foot-deep conveyance channel, along with an associated new intake and numerous syphons, which would carry water from Basin 1 of the City's 2800 Acre Groundwater Recharge Facility to the Proposed Project location, would have the potential to uncover buried archaeological materials. All of these activities, and any other actions that include ground disturbance, have the potential to uncover archaeological remains, both Pre-contact Native American and historic era, that are eligible for the NRHP/CRHR. As a result, implementation of the Project could have a **significant impact** on archaeological resources.

Implementation of **Mitigation Measures CR-1** and **CR-2** would require worker awareness training, monitoring of all ground disturbance, an Unanticipated Discovery Plan, and stopping work to evaluate unanticipated finds for CRHR/NRHP eligibility. Implementation of Mitigation Measures CR-1 and CR-2 would reduce impacts related to currently unknown archaeological resources to a level that would be **less than significant with mitigation.**

Mitigation Measure CR-1: Conduct Preconstruction Cultural Resources Awareness Training and Construction Monitoring.

A cultural resources awareness training program will be provided to all construction personnel active on the Project site during earth moving activities. The training will be provided prior to the initiation of ground disturbing activities, and as needed throughout the duration of project construction to ensure that all construction personnel receive the training. The training will be developed and conducted in coordination with a qualified archaeologist meeting the U.S. Secretary of Interior guidelines for professional archaeologists and a representative or representatives from culturally affiliated Native American tribe(s) who have participated in consultations with the City. The program will include relevant information regarding sensitive cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The worker cultural resources awareness program will also describe appropriate avoidance and minimization measures for resources that have the potential to be located on the Project site and will outline what to do and whom to contact if any potential archaeological resources or artifacts are encountered. Furthermore, the program will underscore the requirement for confidentiality and culturally appropriate treatment of any finds of significance to Native Americans, consistent with Native American tribal values.

All ground disturbing activities will be monitored by a qualified archaeologist meeting the U.S. Secretary of Interior guidelines for professional archaeologists and a representative from a culturally affiliated Native American tribe who has participated in consultations with the City on the Project. The Native American tribe will be provided at least seven days' notice prior to the initiation of ground disturbing activities. The archaeological monitor will record activities daily and provide a weekly summary to BVWSD. A monitoring report will be prepared archaeological monitor at the end of excavation activities and submitted to BVWSD, who, in turn, shall provide a copy to the

City. The Native American monitor will follow the documentation protocols defined by their tribe.

If any cultural resources, including but not limited to structural features, bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains, are encountered during any project construction activities, the archaeological monitor, in consultation with the Native American monitor, as appropriate, shall have the authority to stop work in the vicinity of the finds and implement the Unanticipated Discovery Plan and other actions identified in Mitigation Measure CR-2.

Mitigation Measure CR-2: Prepare an Unanticipated Discovery Plan, Immediately Halt Construction if Cultural Resources Are Discovered, Evaluate All Identified Cultural Resources for Eligibility for Inclusion in the NRHP/CRHR, and Implement Appropriate Mitigation Measures for Eligible Resources.

Prior to initiating construction, an Unanticipated Discovery Plan shall be developed by BVWSD and approved by the City in consultation with consulting tribes. The Unanticipated Discovery Plan will detail the protocols for monitoring, as well as for stopping work if buried resources are discovered during construction; the evaluation of discovered resources for NRHP/CRHR eligibility, as warranted; and the implementation of mitigation measures for eligible resources. Protocols for addressing the discovery of Native American archaeological resources and tribal cultural resources shall be prepared by BVWSD and approved by the City in consultation with culturally affiliated Native American tribes who have participated in consultations with the City on the Project.

If any cultural resources, such as structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains, are encountered during any project construction activities, work shall be suspended immediately at the location of the find and within a radius of at least 100 feet and the City will be contacted. Tribal cultural resources will be treated in accordance with Mitigation Measure TCR-1.

All cultural resources accidentally uncovered during construction within the project site shall be evaluated for eligibility for inclusion in the NRHP/CRHR. Resource evaluations will be conducted by individuals who meet the U.S. Secretary of the Interior's professional standards in archaeology, history, or architectural history, as appropriate. For finds that are of Native American concerns, local Native American tribes will be notified, if they have requested notification. If any of the resources meet the eligibility criteria identified in Pub. Res. Code Section 5024.1 or CEQA Section 21083.2(g), mitigation measures will be developed and implemented in accordance with CEQA Guidelines Section 15126.4(b) or 21083.2(b), respectively, before construction resumes.

The disposition of materials related to tribal cultural resources and Native American burials will be determined according to Mitigation Measure TCR-1. The disposition of historic era artifacts will be outlined in the Unanticipated Discovery Plan.

Impact CR-3: Disturbance of any human remains, including those interred outside of formal cemeteries — Less than Significant with Mitigation

Human remains are known to exist within the Proposed Project area; thus, the area is considered sensitive for the presence of human remains at unknown locations within the Project boundaries. Native American human remains are significant tribal cultural resources and are, therefore, significant resources under CEQA. As noted under Impact CR-2, there are many ground-disturbing elements to the Project that have the potential to uncover significant archaeological resources. These same actions would also have the potential to uncover human remains. As a result, the Project could have a **significant impact** on human remains.

As with Impact CR-2, Mitigation Measures CR-1 and CR-2 would reduce impacts to human remains during Project construction activities by providing worker awareness training for construction personnel, monitoring all ground disturbance, preparing an Unanticipated Discovery Plan, and stopping work when sites are discovered during construction. **Mitigation Measure CR-3** would further reduce impacts by following the specific requirements of Health and Safety Code Section 7050 that are required to address the discovery of Native American human remains. Therefore, the impacts to human remains would be **less than significant with mitigation.**

Mitigation Measure CR-3: Comply with Required Response Protocol for the Unanticipated Discovery of Human Remains.

Consistent with the California Health and Safety Code and the California Native American Historical, Cultural, and Sacred Sites Act, if suspected human remains are found during project construction, all work shall be halted within 100 feet of the finds, and the Kern County coroner shall be notified to determine the nature of the remains. The coroner shall examine all discoveries of suspected human remains within 48 hours of receiving notice of a discovery on private or State lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, they shall contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The NAHC shall then assign a most likely descendant (MLD) to serve as the main point of Native American contact and consultation. Following the coroner's findings, the MLD, in consultation with the City, shall determine the ultimate treatment and disposition of the remains.

Native American human remains and associated grave items shall be reinterred at the location designated for reburial that will be determined through Project design, as described in Chapter 2, *Project Description*.

Chapter 7
ENERGY

7.1 Overview

This chapter presents the environmental setting and potential impacts of the Proposed Project related to energy. This may include fuel and electricity consumption during construction and operation, as well as consistency with state and local plans for renewable energy or energy efficiency. Impacts related to greenhouse gas (GHG) emissions are evaluated in Chapter 9. Energy calculations and CalEEMod modeling results are provided in Appendix D.

7.2 Regulatory Setting

7.2.1 Federal Laws, Regulations, and Policies

Energy Policy Act

The Energy Policy Act of 2005 seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. This act included establishing energy-related tax incentives for energy efficiency and conservation; renewable energy; oil and gas production; and electricity generation and transmission. The act also established increased amounts of renewable fuel (e.g., ethanol or biodiesel) to be used in gasoline sold in the U.S.; provisions to increase oil and natural gas production on federally-owned lands, and federal reliability standards regulating the electrical grid.

Corporate Average Fuel Economy and Greenhouse Gas Emissions Standards

The federal government is responsible for establishing regulations to improve the efficiency of motor vehicles. The National Highway Traffic Safety Administration's (NHTSA) Corporate Average Fuel Economy (CAFE) standards regulate how far vehicles must travel on a gallon of fuel. NHTSA sets CAFE standards for passenger cars and for light trucks (collectively, light-duty vehicles), and separately sets fuel consumption standards for medium- and heavy-duty trucks and engines (NHTSA 2021). Jointly with CAFE, NHTSA also regulates GHG emissions from vehicles of various weight classes.

The CAFE and GHG emissions standards have been rolled out in multiple phases. In August 2011, U.S. Environmental Protection Agency (USEPA) and the NHTSA announced standards to reduce GHG emissions and improve fuel efficiency for heavy-duty trucks and buses. In August 2016, USEPA and the NHTSA jointly finalized Phase 2 Heavy-Duty National Program standards to reduce GHG emissions and improve fuel efficiency of medium- and heavy-duty vehicles for model year 2018 and beyond (USEPA 2020a). In April 2020, NHTSA and USEPA amended the CAFE and GHG emissions standards for passenger cars and light trucks and established new less

stringent standards, covering model years 2021 through 2026 known as the SAFE I Rule (USEPA 2020b). The NHTSA and USEPA are currently considering repealing the SAFE I Rule as it may have overstepped the agency's authority by issuing regulations in preemption of state and local laws related to fuel economy standards (NHTSA 2021).

7.2.2 State Laws, Regulations, and Policies

California Integrated Energy Policy

Senate Bill (SB) 1389, passed in 2002, requires the California Energy Commission (CEC) to prepare an Integrated Energy Policy Report for the governor and legislature every 2 years (CEC 2021a). The report contains an integrated assessment of major energy trends and issues facing California's electricity, natural gas, and transportation fuel sectors. The report provides policy recommendations to conserve resources, protect the environment, ensure reliable, secure, and diverse energy supplies, enhance the state's economy, and protect public health and safety (CEC 2021a). The 2020 Integrated Energy Policy Report Update identifies actions the state and others can take to ensure a clean, affordable, and reliable energy system; focusing on microgrids and transitioning to zero-emission vehicles (CEC 2021b).

Renewables Portfolio Standard

California has established a Renewables Portfolio Standard (RPS) program, through multiple senate bills (SB 1078, SB 107, SB X1-2, SB 350, SB 100) and executive orders (S-14-08, B-55-18), that requires increasingly higher targets of electricity retail sales be served by eligible renewable resources. The established eligible renewable source targets include 20 percent of electricity retail sales by 2010, 33 percent of electricity retail sales by 2020, 50 percent by 2030, and 100 percent zero-carbon electricity for the state and statewide carbon neutrality by 2045 (CEC 2020a, CEC 2017).

Climate Change Scoping Plan

The California Air Resources Board's (CARB's) Climate Change Scoping Plan details the State's strategy for achieving its GHG reduction targets and is discussed in greater detail in Chapter 9, *Greenhouse Gas Emissions*. The water sector is one of the key sectors targeted in the Plan, which has the following goals and actions related to water and energy that may apply to the Proposed Project (CARB 2017):

- Develop and support more reliable water supplies for people, agriculture, and the environment, provided by a more resilient, diversified, sustainably managed water resources system with a focus on actions that provide direct GHG reductions.
- Make conservation a California way of life by using and reusing water more efficiently through greater water conservation, drought tolerant landscaping, stormwater capture, water recycling, and reuse to help meet future water demands and adapt to climate change.
- Develop and support programs and projects that increase water sector energy efficiency and reduce GHG emissions through reduced water and energy use.
- Increase the use of renewable energy to pump, convey, treat, and utilize water.

- Reduce the carbon footprint of water systems and water uses for both surface and groundwater supplies through integrated strategies that reduce GHG emissions while meeting the needs of a growing population, improving public safety, fostering environmental stewardship, aiding in adaptation to climate change, and supporting a stable economy.

7.2.3 Local Laws, Regulations, and Policies

Chapter V, "Conservation/Air Quality Element," of the *Metropolitan Bakersfield General Plan* (MBGP) (City of Bakersfield 2002) contains the following energy-related policies that may apply to the Proposed Project:

Policy 6. Participate in alternative fuel programs.

Policy 29. Encourage the use of alternative fuel and low or zero emission vehicles.

7.3 Environmental Setting

Energy Resources and Consumption

California has extensive energy resources, including an abundant supply of crude oil, high production of conventional hydroelectric power, and leads the nation in electricity generation from renewable resources (solar, geothermal, and biomass resources) (U.S. Energy Information Administration [EIA] 2021). California has the second highest total energy consumption in the United States but the fourth lowest energy consumption rate per capita due to its mild climate and energy efficiency programs (EIA 2021). A comparison of California's energy consuming end-use sectors indicates that the transportation sector is the greatest energy consumer, by approximately two times compared to the other end-use sectors (Industrial, Commercial, and Residential, which are listed in order of greatest to least consumption) (EIA 2021). California is the largest consumer of motor gasoline and jet fuel in the United States (EIA 2021).

Electric Service Providers

The Proposed Project area is served by the Pacific Gas and Electric Company (PG&E). Error! Reference source not found. provides breakdown of PG&E's energy sources as well as the breakdown for California as a whole.

Table 7-1. PG&E's 2019 Energy Mix Percentage

Energy Sources	Base Plan	50% Solar Choice	100% Solar Choice	California Power Mix
Eligible Renewable	28.5	64.3	100	31.7
Coal	0	0	0	3
Large Hydroelectric	27.2	13.6	0	14.6
Natural Gas	0	0	0	34.2
Nuclear	44.3	22.1	0	9
Unspecified Power[1]	0	0	0	7.3
Total	**100**	**100**	**100**	**100**

Notes:

1. "Unspecified Power" is defined as electricity from transactions that are not traceable to specific generation sources.

Sources: CEC 2020b

As shown in Table 7-1, PG&E obtains electricity from a variety of sources, including a significant percentage (over 29 percent) from renewables and a significant portion (over 27 percent) from large hydroelectric projects and no sources that combust fossil fuel as the primary source material.

7.4 Impact Analysis

7.4.1 Methodology

The impact analysis used basic assumptions regarding construction-related fossil fuel use and operational energy requirements. Construction-related fossil fuel use was estimated based on the anticipated construction equipment use and vehicle trips. CARB's In-Use Off-Road Diesel Emission Factors (EMFAC) model was used to estimate the total amount of diesel fuel use, assuming the following:

- construction equipment less than 100 horsepower consumed 0.408 pound of fuel per horsepower-hour, and
- construction equipment greater than 100 horsepower consumed 0.367 pound of fuel per horsepower-hour.

EMFAC was used to estimate the gasoline and diesel fuel used by on-road vehicles.

Operation of the Proposed Project would involve infrequent fossil fuel use associated with maintenance and inspection trips. Some of the equipment associated with the Proposed Project, such as pumps, would use electricity to operate.

7.4.2 Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact related to energy if it would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

7.4.3 Environmental Impacts

Impact ENR-1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation — Less than Significant

During construction of the Proposed Project, direct energy use would include the consumption of petroleum (e.g., diesel and gasoline) for operation of construction vehicles and equipment, as well as consumption of electricity for alternatively-powered equipment. Error! Reference source not found. shows the estimated fuel consumption associated with Proposed Project construction based on the proposed construction schedule and equipment use.

Table 7-2. Proposed Project Estimated Construction Fuel Consumption

Activity Fuel Consumption	Gasoline (gallons)	Diesel (gallons)
Construction Activity On-Road Vehicles	7,900	44,905
Construction Activity Off-Road Equipment		217,215
Total for Construction	**7,900**	**262,120**

Source: Modeling results provided in Appendix D

Operational equipment would primarily use electricity to power the pumps to convey water. The electricity use of the pumps was estimated based on the anticipated electricity use to pump 200,000 acre-feet per year (AFY) of water for recharge and 56,000 AFY pumped at recovery wells. This was estimated to be a total of 34,752,101 kilowatt-hours per year. The amount of fossil fuel used by vehicles to conduct maintenance and routine operations is negligible since there are only eight trips per day that are estimated at under 1,000 gallons of gasoline and diesel each.

Proposed Project construction would use equipment similar to other water bank and water related infrastructure projects; therefore, construction-related energy use would not be excessive or wasteful. For this reason, construction-related impacts on energy use would be considered less than significant. As described in Chapter 4, *Air Quality,* compliance with air quality-related regulations would further reduce energy impacts by requiring proper maintenance of equipment and vehicles, utilization of newer equipment and vehicles where feasible, and shutting off engines when not in use. Compliance with these requirements would

further ensure that the Proposed Project would not result in wasteful use of fossil fuels during construction. The electricity used by pumps is necessary to convey the water and serve as a critical water infrastructure component as a water bank. As a result, this impact would be **less than significant**.

Impact ENR-2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency — Less than Significant

The Proposed Project would not conflict with or obstruct any state or local goals, policies, or implementation action identified in the applicable energy plans such as the Integrated Energy Policy Report because the Districts and their contractors would construct and operate the Proposed Project in accordance with standard construction and operational practices for water banking facilities. Thus, the Proposed Project would not conflict with any plans relating to renewable energy or energy efficiency. Therefore, this impact is considered less than significant.

Chapter 8
GEOLOGY, SOILS, AND SEISMICITY

8.1 Overview

This section summarizes the environmental and regulatory setting related to geology, soils, and paleontological resources in the context of the Proposed Project. This section also presents the impact methodology and evaluates the potential geology, soils, and paleontological resources impacts associated with the Proposed Project.

8.2 Regulatory Setting

8.2.1 Federal Laws, Regulations, and Policies

Section 402 of the Clean Water Act/National Pollutant Discharge Elimination System

The Clean Water Act (CWA) is discussed in detail in Chapter 12, *Hydrology and Water Quality*. However, because Section 402 of CWA is also directly relevant to earthwork, additional information is provided here.

The 1987 amendments to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) program. As described in Chapter 12, the U.S. Environmental Protection Agency (USEPA) has delegated to the State Water Resources Control Board (SWRCB) the authority for the NPDES program in California, where it is implemented by the state's nine regional water quality control boards (RWQCBs). Under the NPDES Phase II Rule, any construction activity disturbing 1 acre or more must obtain coverage under the state's General Permit for Storm Water Discharges Associated with Construction Activity (Construction General Permit). General Permit applicants are required to prepare a Notice of Intent stating that stormwater will be discharged from a construction site, and that a Stormwater Pollution Prevention Plan (SWPPP) describes the best management practices (BMPs) that will be implemented to avoid adverse effects on receiving water quality as a result of construction activities, including earthwork.

National Earthquake Hazards Reduction Act

The National Earthquake Hazards Reduction Act of 1977 (Public Law 95-124) and creation of the National Earthquake Hazards Reduction Program (NEHRP) established a long-term earthquake risk reduction program to better understand, predict, and mitigate risks associated with seismic events. The following four federal agencies are responsible for coordinating activities under NEHRP: United States Geological Survey (USGS); National Science Foundation; Federal Emergency Management Agency; and the National Institute of Standards and Technology. While

changes have occurred in program details in some of the reauthorizations, the four basic NEHRP goals remain unchanged (NEHRP 2021):

(1) Develop effective practices and policies for earthquake loss reduction and accelerate their implementation.

(2) Improve techniques for reducing earthquake vulnerabilities of facilities and systems.

(3) Improve earthquake hazards identification and risk assessment methods, and their use.

(4) Improve the understanding of earthquakes and their effects.

Implementation of NEHRP objectives is accomplished primarily through original research, publications, and recommendations and guidelines for state, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

8.2.2 State Laws, Regulations, and Policies

California Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (Pub. Res. Code Section 2621 et seq.) was enacted in 1972 to reduce the risk to life and property from surface fault rupture in California. The intent of the act is to prohibit construction of most types of structures intended for human occupancy on the surface traces of active faults and strictly regulate construction in the corridors along active faults (earthquake fault zones).

The Alquist-Priolo Act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. It also defines criteria for identifying active faults, which is defined if one or more of its segments or strands shows evidence of surface displacement in the last 11,000 years (California Department of Conservation [CDOC] 2019a). The act states that its intent is to "provide policies and criteria to assist cities, counties, and state agencies in the exercise of their responsibility to prohibit the location of developments and structures for human occupancy across the trace of active faults." The act also requires the State Geologist to compile maps delineating earthquake fault zones and to submit maps to all affected cities, counties and state agencies for review and comment (California Geological Survey [CGS] 2018).

Seismic Hazards Mapping Act

As with the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (SHMA) (Pub. Res. Code Sections 2690–2699.6) is intended to reduce damage resulting from earthquakes. The Alquist-Priolo Act addresses surface fault rupture, while the SHMA addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. The SHMA highlights the need to identify and map seismic hazard zones in order for cities and counties to adequately prepare the safety element of their general plans and to encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety. Cities and counties are required to regulate development within mapped Seismic Hazard Zones (CDOC 2019b).

Under the SHMA, permit review is the primary mechanism by which development can be locally regulated. Specifically, cities and counties are prohibited from issuing development permits for sites within Seismic Hazard Zones until appropriate site-specific geologic and/or geotechnical investigations have been performed and measures to reduce potential damage have been incorporated into the development plans.

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act of 1975 (SMARA) (Pub. Res. Code Sections 2710–2719), was enacted to provide a comprehensive surface mining and reclamation policy to ensure that adverse environmental impacts of mining are minimized and that mined lands are reclaimed to a usable condition. Certain land use activities, such as public or private engineering projects, including dams, do not require a permit, based on the Economic Exclusion category presented in the Guidelines for Classification and Designation of Mineral Lands (CDOC 2019c).

California Building Code and International Building Code

The State of California mandates minimum standards for building design through the California Building Code (CBC) (Code of Federal Regulations [CFR] Title 24). The CBC also specifies standards for geologic and seismic hazards, other than surface faulting to address seismic safety, earthquake-resistant design and construction (California Building Standards Commission 2021b). These codes are administered and updated by the California Building Standards Commission. CBC specifies criteria for open excavation, seismic design, and load-bearing capacity directly related to construction in California. CBC standards determine building strength based on regional seismic risks and recommended construction specifications to provide building strength above that risk. The 2019 CBC was published in July 2019 with an effective date of January 1, 2020 (California Building Standards Commission 2021a).

8.2.3 Local Laws, Regulations, and Policies

Metropolitan Bakersfield General Plan

Chapter VIII, Safety/Public Safety, of the *Metropolitan Bakersfield General Plan* (MBGP) (City of Bakersfield 2002) contains the following goals, policies, and implementation measures for seismic safety that are relevant to the Proposed Project's environmental analysis.

Goal 6: Provide a continuously improving data base and reference source for evaluation of seismic and geologic hazards.

Policy 7: Continue to address seismically hazardous building pursuant to Chapter 12.2 (SS 8875 et seq.), Division 1 of Title 2 of the Government Code (I-5 through I-8).

Policy 8: Require seismic review of other potentially hazardous buildings upon any change in their use or occupancy status.

Policy 9: Adopt and maintain high standards for seismic performance of buildings, through prompt adoption and careful enforcement of the most currents seismic standards of the Uniform Building Code.

Policy 10: Prohibit development designed for human occupancy within 50 feet of a known active fault and prohibit any building from being placed astride an active fault.

Policy 11: Require site-specific studies to locate and characterize specific fault traces within an Alquist-Priolo Earthquake Fault Zone for all construction designed for human occupancy.

Policy 12: Design significant lifeline installations such as highways, utilities and petrochemical pipelines which cross an active fault, to accommodate potential fault movement without prolonged disruption of an essential service or creating threat to health and safety.

Policy 13: Determine the liquefaction potential as sites in areas of high groundwater prior to development and determine specific mitigation to be incorporated into the foundation design, as necessary to prevent or reduce damage from liquefaction in an earthquake.

Policy 15: Compile information on areas of potential hazards and field information developed as part of CEQA investigations and geologic reports and keep geologic reviews and policy development current and accessible for use in report preparation.

Implementation Measure 3: Require structures that are within the plan area and are subject to Building Department review to adhere to the most current seismic standards adopted as a part of the Uniform Building Code.

Implementation Measure 17: Require liquefaction investigations in all areas of high groundwater potential and appropriate foundation designs to mitigate potential damage to building on sites with liquefaction potential.

Implementation Measure 18: Develop specific guidelines for the collection of data for determination of liquefaction potential at a site.

8.3 Environmental Setting

The Proposed Project area is located in the Great Valley of the California Geomorphic Provinces. This geomorphic province is characterized as an alluvial plain approximately 50 miles wide and 400 miles long. The Proposed Project area is within the southern end of the San Joaquin Valley. The San Joaquin Valley is bounded by the Sierra Nevada to the east, the Tehachapi Mountains to the south, and the Coast Range to the west.

Published geologic mapping depicts the Proposed Project area underlain by Quaternary age alluvial fan deposits (map symbol Qsc, Qf, and Qb) containing stream channel, fan, and basin deposits. These deposits are characterized by a sequence of sediments resulting from river, stream, and flood events. (California Division of Mines and Geology [CDMG] 1966).

The Proposed Project area slopes gently towards southwest and is at an elevation of 350 feet (approximate). Surface water runoff follows the topographic gradient which discharges to multiple locations surrounding the project site. The Kern River is located approximately 0.7 mile northwest of the Proposed Project area at its northwestern point.

8.3.1 Soils

Four soil map units have been identified in the proposed project area (**Figure 8-1**): Map Unit 127 – Granoso sandy loam, 0 to 2 percent slopes, overwash; Map Unit 152 – Excelsior sandy loam; Map Unit 174 – Kimberlina fine sandy loam, 0 to 2 percent slopes; and Map Unit 179 – Kimberlina fine sandy loam, saline-sodic, 0 to 2 percent slopes (U.S. Department of Agriculture Natural Resources Conservation Service [NRCS] 2021).

Soil Erosion

Soil erosion is the process of removing soil particles from a land surface by wind, water, or gravity. Factors influencing the rate of erosion may include climatic conditions, soil composition and roughness, soil moisture, ground cover, and topography and slope. Most natural erosion occurs slowly. However, ground-disturbing construction activities may increase the rate of erosion by exposing bare soils to the effects of wind and/or water. The underlying soils on the project site are sandy loams, which are medium textured soil and have moderate erosion potential because they are moderately susceptible to detachment and runoff.

Expansive Soils

Expansive soils are predominantly composed of clays and can undergo substantial volume change in response to changes in moisture content. During wetting and drying cycles, expansive soils may shrink and swell, creating differential ground movements. The soils in the Proposed Project are composed of less than 12% of clay and therefore have a low shrink/swell potential (NRCS 2021).

8.3.2 Seismicity

California is subjected to enormous tectonic forces stemming from the lateral motion of the Pacific (west) and North American (east) plates moving against each other. The shearing forces of the plate movement results in an extremely fractured boundary referred to as the San Andreas Fault Zone. Many smaller active and historic fault zones are associated with the Pacific/North American tectonic movement as well.

The Proposed Project area is at the south end of the San Joaquin Valley, which is bordered by major, active fault systems, making Bakersfield a historically active seismic area of California. Most notably is the San Andreas fault line; however, due to continual and historical convergence of the continental plates, other fault lines exist in the area including the Breckenridge-Kern Canyon, Garlock, and White Wolf faults (refer to **Figure 8-2)**. Potential seismic hazards in the Bakersfield region include strong ground shaking, fault rupture, liquefaction, earthquake induced landslides, and potential inundation from the failure of Lake Isabella dam (City of Bakersfield 2002; CGS 2022).

Ground Shaking

Ground movement during an earthquake can vary depending on the overall event magnitude, distance to the fault, and underlying geological units. The greatest seismic hazard in Bakersfield would be ground shaking from earthquakes originating from one of the four major fault lines in the area (City of Bakersfield 2002). According to the 2016 Earthquake Shaking Potential for

California Map, in Kern County, the level of seismic ground shaking decreases from "High" risk along the western border of the County, to "Moderate" risk in the central part of the County, to "Low" risk in the eastern portion (CGS 2016). The Proposed Project area lies within the central portion of the County and is considered "Moderate" risk for earthquake shaking potential.

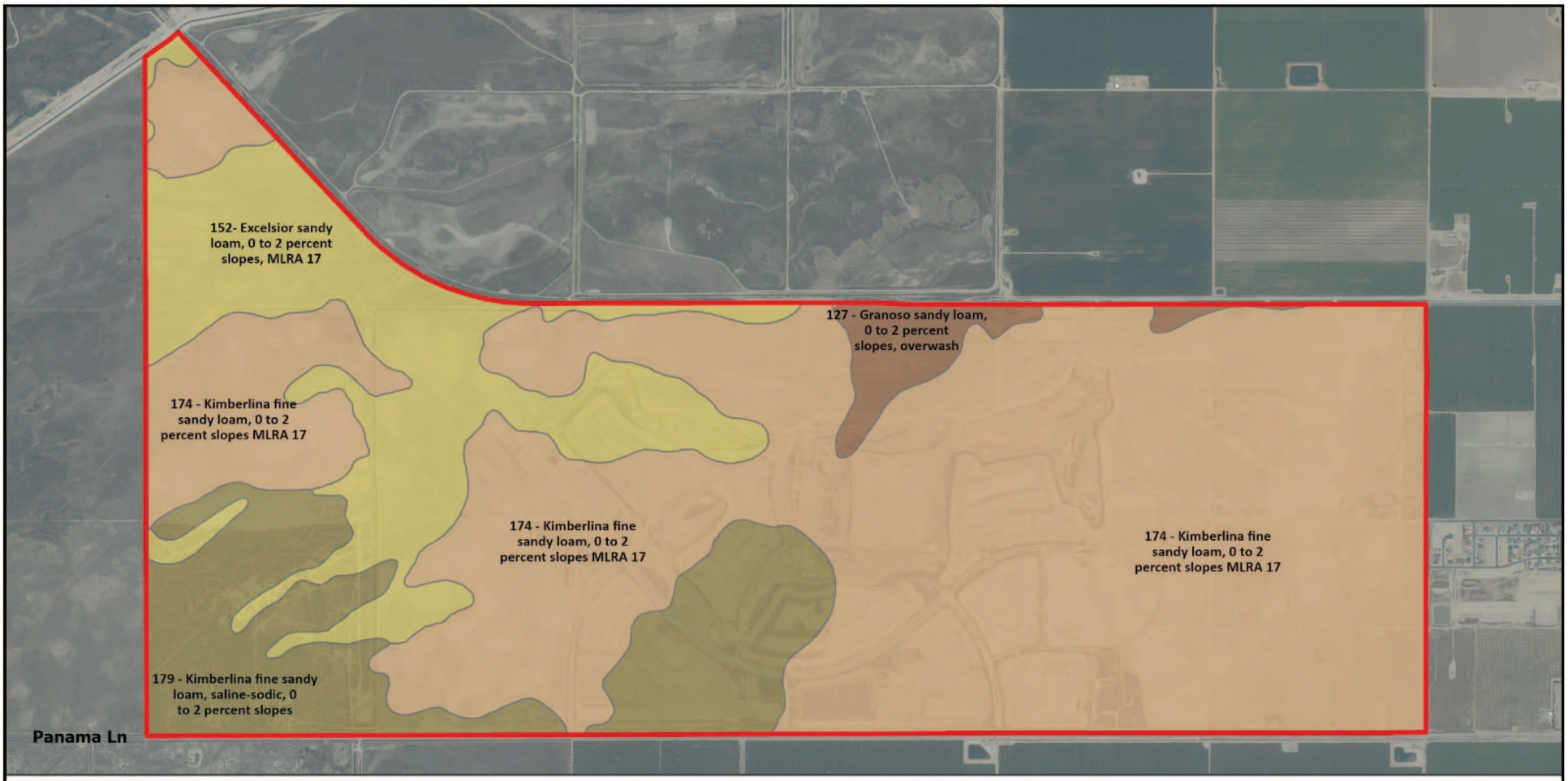
Alquist-Priolo Fault Zones and Ground Rupture

Horizontal and/or vertical surface or ground ruptures can occur during seismic events, typically along existing fault lines. Ground rupture that occurs along a fault trace (mapped location of the intersection(s) of a fault with the ground surface) is referred to as "fault rupture." Some seismogenic faults (e.g., blind thrusts) do not extend to the ground surface and may not generate fault rupture even during major earthquakes. Other rupturing of the ground surface can occur as the result of slope failure or settlement caused by seismic shaking. Ground ruptures can result in damage to buildings, roads, and underground utilities. The potential for ground rupture depends on the proximity of faults, shaking severity, and local geologic conditions. Fault areas considered to be of greatest risk are identified as Alquist-Priolo fault zones. No Alquist-Priolo designated fault zones or potentially active faults exist within the Proposed Project area.

Differential Settling, Subsidence, and Liquefaction

Settlement of the ground surface can be caused by a number of geologic processes. Settlement is the lowering of the land surface elevation as a result of the compression, compaction, or consolidation of underlying soils, sediment, or rock. These processes are exasperated under increased loading (e.g., additional sediment deposition or construction of structures, including fills) or the withdrawal of groundwater. The processes cause a reduction in the volume of the materials. Compaction and compression generally occur within unconsolidated granular soils or sediment over a relatively short timeframe. Consolidation usually occurs over a longer period (sometimes many years) in saturated finer grained material as pore water (i.e., water within the spaces between sediment grains) is forced out of the sediment structure under loading or groundwater pumping. The potential for differential settlement is dependent upon local geologic conditions, soil properties, and land usage.

Surface settlement can be referred to as subsidence, a term generally used for settlement of large magnitude or affecting a large area. Subsidence can also occur following oxidation of buried organic material. Areas consisting of fine-grained sediments (i.e., clays and silts) are more susceptible to ground subsidence. Although mining and extraction activities may also lead to subsidence, excessive pumping of groundwater is the predominant cause for this phenomenon. Bakersfield has seen subsidence occur in the southern part of the city over the last 40 years (City of Bakersfield 2002).



Base Map: Kern County, 2020

Biological Study Area (BSA)

NRCS Soils

- 127 - Granoso sandy loam, 0 to 2 percent slopes, overwash
- 152 - Excelsior sandy loam, 0 to 2 percent slopes, MLRA 17
- 174 - Kimberlina fine sandy loam, 0 to 2 percent slopes MLRA 17
- 179 - Kimberlina fine sandy loam, saline-sodic, 0 to 2 percent slopes

Kern County, Ca
WGS 1984 Web Mercator
119.1724°W 35.3079°N

0 1,000 2,000 Feet
0 340 680 Meters

1:32,000

N

Source: SWCA 2021

Figure 8-1. Soils Map

Prepared by:
Horizon WATER and ENVIRONMENT

McAllister Ranch Groundwater Banking Project

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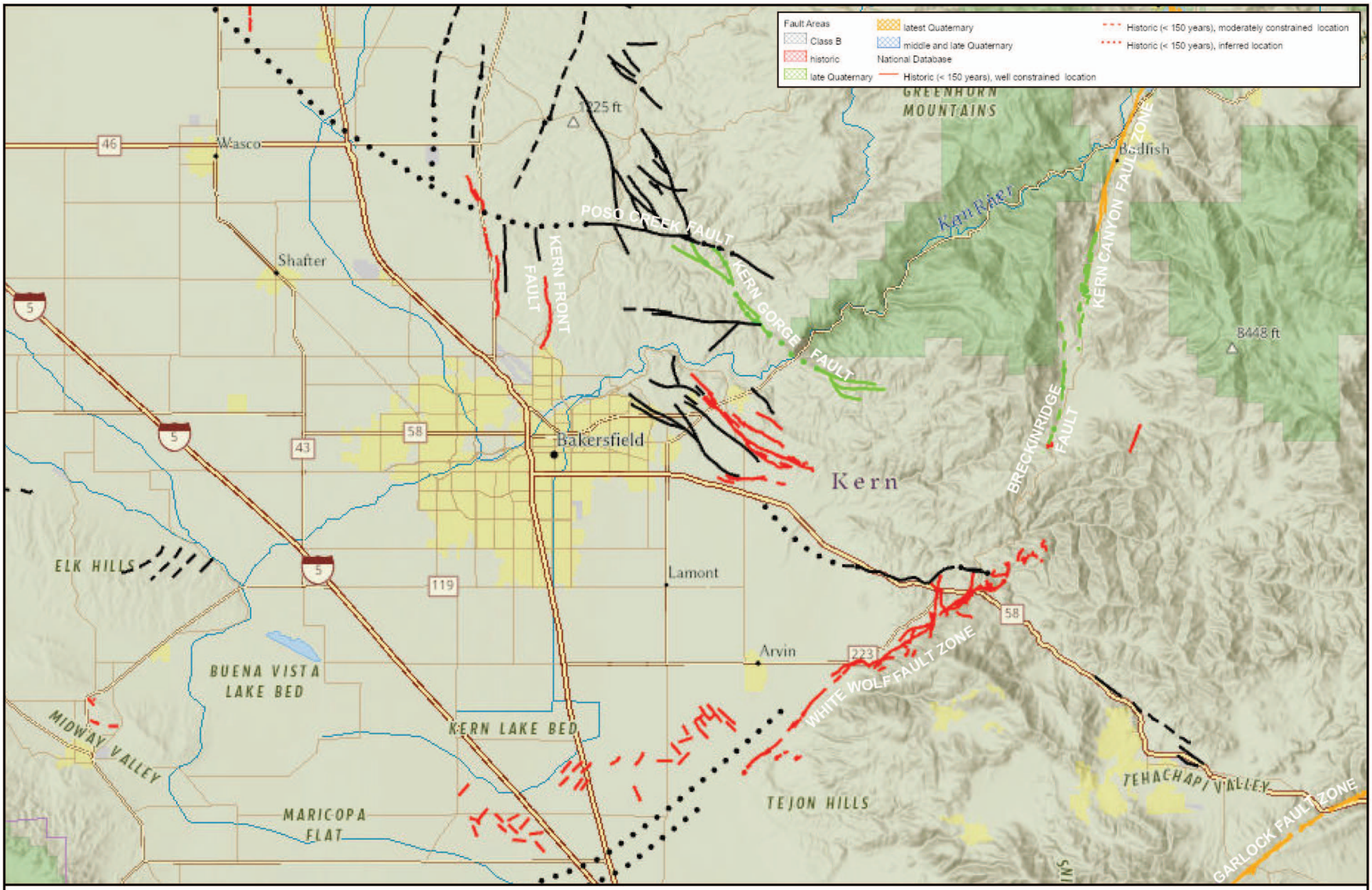

Source: CGS 2022

0 4 8 16 mi

0 5 10 20 km

Prepared by:

Horizon WATER and ENVIRONMENT

Figure 8-2.
Fault Line Map

McAllister Ranch Groundwater Banking Project

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Liquefaction can occur when water-saturated, loose sandy soils suddenly lose strength during seismic shaking. The primary factor that triggers liquefaction is moderate to strong ground shaking. The probability of liquefaction correlates directly with the intensity and duration of ground shaking (i.e., the stronger and/or longer the earthquake, the greater the chance of liquefaction). Additionally, physical properties may increase the susceptibility of soil to liquefaction. Saturated relatively clean/loose granular soils have a relatively high susceptibility for liquefaction while cohesive soils (even if saturated) have a low susceptibility. Areas of high groundwater are at a greater risk for liquefaction during major earthquake shaking. Lamont quadrangle in south portion of Bakersfield is the only identified area in Bakersfield that has a heightened risk of liquefication due to its high groundwater availability. The rest of Bakersfield, including the project site have a history of low groundwater availability and therefore low risk for liquefaction (City of Bakersfield 2002).

Landslide, Slope Failure, and Lateral Spreading

Landslides or slope failure may occur in steeply sloped areas (15 percent slope or greater) following heavy rains, seismic events, or human activities (e.g., grading or excavation activities). Similarly, horizontal displacement of gently sloping ground (5 percent slope or less) may occur along riverbanks or exposed embankments, a phenomenon known as lateral spreading. Saturated, loosely consolidated soils and precipitation events increase the likelihood that an earthquake will trigger landslides, slope failure, or lateral spreading.

8.3.3 Paleontological Resources

The paleontological sensitivity of a project area can be assessed by identifying the paleontological importance of rock units that are exposed there. The paleontological sensitivity of a rock formation considers the type of rock (i.e., sedimentary, igneous, or metamorphic), the recorded abundance and types of fossil specimens, and the number of previously recorded fossil sites. Exposures of a specific rock formation at any given project site are most likely to yield fossil remains representing particular species similar to those previously recorded from the rock formation in other locations.

An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it meets one of the following criteria:

- a type specimen (i.e., the individual from which a species or subspecies has been described);
- a member of a rare species;
- a species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn;
- a skeletal element different from, or a specimen more complete than, those now available for its species; or
- a complete specimen (i.e., all or substantially all of the entire skeleton is present).

The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions (such as for a research project). Marine invertebrates are generally common; the fossil record is well developed and well documented, and they would generally not be considered a unique paleontological resource. Identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare.

The standard guidelines for assessment and mitigation of adverse impacts on paleontological resources set forth by the Society of Vertebrate Paleontology (2010) have been used to establish four categories of sensitivity for paleontological resources – High, Low, No, and Undetermined. Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. Areas that consist of rock that is not of sedimentary origin and that have not been known to produce fossils are considered low sensitivity areas and monitoring is not required during project construction or operation. Additionally, when it can be demonstrated that the conditions of the unconsolidated sediments are such that fossils could not form in these sediments, and that any fossils found in the sediments could not be considered in situ, they would have minimal scientific value, and the area would be considered low sensitivity. Areas consisting of high-grade metamorphic rocks (e.g., gneisses and schists) and plutonic igneous rocks (e.g., granites and diorites) are considered to have no sensitivity. Areas that have not had any previous paleontological resource surveys or fossil finds are considered to be of undetermined sensitivity until surveys are performed.

A records search was performed through the University of California, Berkeley Museum of Paleontology (UCMP) on December 8, 2021. No fossil localities have been recorded within the Proposed Project site. However, several world-class paleontological localities such as the Maricopa and McKittrick brea pits, Shark Tooth Hill, Bena Road petrified forest, Chico Martinez Creek and the Bopesta Formation-Horse Canyon fossil beds are located in the Bakersfield region (Bureau of Land Management [BLM] 2021).

8.4 Impact Analysis

8.4.1 Methodology

The information provided in this chapter is based on the Phase I Environmental Site Assessment for the Proposed Project prepared by Haro Environmental in 2021 (included as **Appendix G** of this EIR). The methods used to evaluate the environmental impacts of the Proposed Project on geology, soils, seismicity, and paleontological resources involved review and assessment of published maps, professional publications, and reports pertaining to the geology, soils, and seismicity within the Proposed Project area vicinity. Information reviewed included USGS and CGS geologic maps (CDGM 1966), NRCS soils maps (NRCS 2021), California seismic hazard zone mapping (Bryant and Hart 2007; CGS 2008, 2010), California Department of Water Resources (DWR) California Statewide Groundwater Elevation Monitoring (CASGEM) groundwater information (DWR 2020a, 2020b), and USGS historic earthquake data. In addition, Rutherford & Chekene conducted a site-specific geotechnical investigation (2021). A records search at the UCMP was conducted on December 8, 2021, for paleontological resources.

8.4.2 Criteria for Determining Significance

The Proposed Project would result in a significant impact on geology, soils, seismicity, and paleontological resources if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - 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;
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction; or
  - Landslides;
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater; or
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

8.4.3 Topics Dismissed from Further Evaluation

The Initial Study for the Proposed Project identified the following topics that do not require further evaluation, for the following reasons:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: 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.

  The Project site is not included within the boundaries of an “Earthquake Fault Zone” as defined in the Alquist-Priolo Earthquake Fault Zoning Act (CDOC 2019). Since the Project is not within a delineated fault zone, no impacts would occur and this topic is not discussed further in this DEIR.

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic events, including ground shaking.

  The City is within a seismically active area. Future structures proposed on the project site are required by state law and City ordinance to be constructed in accordance with the Uniform Building Code (specifically Seismic Zone 4, which has the most stringent seismic construction requirements in the United States), and to adhere to all modern earthquake construction standards. Given that the Project would be required to comply with all building code requirements, impacts would be less than significant. Therefore, the Project would not expose people or structures to substantial adverse effects involving strong seismic ground shaking, and is not discussed further in this DEIR**.**

- 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.

  The Project would not require the use of septic tanks or alternative wastewater disposal systems because the Project would connect to existing City sewer services in the area. Therefore, there would be no impacts related to soils incapable of adequately supporting septic tanks or alternative wastewater disposal systems and is not discussed further in this DEIR.

8.4.4 Environmental Impacts

Impact GEO-1: Directly or Indirectly Cause Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Seismic-Related Ground Failure, Including Liquefaction — Less than Significant

Liquefaction is a concern when you have relatively loose, granular soils that are saturated by having a groundwater level 15 feet below the surface. This scenario exists in the southeastern portion of Bakersfield, but it is unlikely elsewhere in the city due to historic low groundwater levels. The Proposed Project site consists of primarily sandy soils; however, groundwater is assumed to be 200 to 700 feet below ground surface (Thomas Harder & Company [TH & Co.]), making liquefaction an unlikely event at the project site. However, the intent of the Proposed Project is to recharge groundwater levels, which could have the effect of increasing the risk of liquefaction in the area.

BVWSD's consultant compared baseline groundwater level conditions within the project area against the Property operation scenario (TH & Co. 2013). The purpose of this exercise was to identify the maximum amount of recharge the Proposed Project can accommodate while maintaining groundwater levels below the levels that could cause liquefaction. This analysis showed that a cumulative amount of 341,123 acre-feet of water could be recharged by the Project across the five relatively high groundwater years (2005 through 2017 time period) without raising groundwater levels to within 15 feet of the land surface (the groundwater depth considered protective of liquefaction potential). Furthermore, the study found that when groundwater levels are the highest, as in 2005, the Proposed Project could recharge 48,500 acre-feet of water without increasing the risk of liquefaction, while in 2017 (a low water level year) the Proposed Project could recharge 182,066 acre-feet. The Proposed Project would be

managed, in how much recharge would occur, according to the groundwater conditions and elevations during the given period. The Proposed Project would be managed in such a way to avoid increasing the risk of liquefaction by avoiding saturation in the 15 feet of soil beneath the surface.

As described in Chapter 2, *Project Description,* the Proposed Project would include up to eight groundwater monitoring wells. These wells would allow BVWSD and RRBWSD to monitor groundwater levels to ensure that they do not reach 15 feet from the ground surface. Therefore, the Proposed Project would not indirectly increase the risk for liquefaction in the surrounding area. The Proposed Project would have a **less than significant impact**.

Impact GEO-2: Directly or Indirectly Cause Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Landslides— Less than Significant

The Proposed Project area topography is generally flat with slopes ranging from zero to less than 2% grade; therefore, the possibility of landslides on the project site is highly unlikely. However, construction of the Project would involve grading, trenching, and eventual placement of levees 3 feet to 6 feet high. Surficial slumps and failure of inadequately shored trenches are types of land sliding that could occur during construction. The U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) outlines specific excavation and trenching standards for building (29 CFR Section 1926.650) and utility trenching operations (29 CFR Section 1926.652). In addition, these risks are further minimized through compliance with State regulations and the CBC and implementation of standard construction practices. Furthermore, adherence to/compliance with the Bakersfield Safety Element, as well as compliance with the City and County Development Codes and the California Building Code, would ensure that impacts associated with landslides would occur during construction would be **less than significant**.

If saturated, loosely consolidated soils were present together with significant precipitation (not very common in the Proposed Project area) and occurring during an earthquake, this site condition could increase the risk that such an earthquake could trigger slope failure of the Proposed Project's levee structures. However, as described in Impact GEO-1 above, the Proposed Project, once constructed, would be managed to avoid saturation of the top 15 feet of soil beneath the surface. Therefore, the impact related to landslides during Proposed Project operation would be less than significant.

Overall, the impact of the Proposed Project related to landslide potential would be **less than significant**.

Impact GEO-3: Result in Substantial Soil Erosion or Loss of Topsoil — Less than Significant

Construction of the Proposed Project would have potential to contribute to accelerated erosion. Construction activities would involve ground-disturbing activities, such as demolition and removal of existing on-site improvements (e.g., partially built roads and utilities), earth-moving for construction of levee structures, and recovery well drilling and construction. Off-site improvements would include construction of the head gate and gravity turnout at the southeast

corner of Basin 1 of the City's 2800 Acre Groundwater Recharge Facility and the unlined canal from Basin 1 to the project site (siphon crossings would be required at several locations).

During construction, clearing, grubbing, and grading activities would remove ground cover and expose and disturb soils. Exposed and disturbed soil would be vulnerable to erosion from wind and precipitation events, with soil particles becoming entrained in the runoff. Altered drainage patterns on site as a result of construction could also cause redirection and concentration of runoff, potentially further exacerbating the erosion problem.

The Proposed Project would be subject to the Construction General Permit (refer to Section 8.2.1). In accordance with the Construction General Permit, BVWSD or its contractor would be required to prepare and implement a SWPPP. Among other things, the SWPPP would include a list of BMPs that would be implemented during project construction to prevent soil erosion and protect the topsoil. These BMPs would be implemented to ensure effective erosion control during construction. Exposed soils within the work area would be stabilized or landscaped following completion of construction activities; topsoil materials would be stripped from the ground surface and used for construction of the earthen berms surrounding the recharge ponds. With erosion control BMPs and SWPPP compliance, impacts related to accelerated erosion during construction would be **less than significant**.

Impact GEO-4: 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 — Less than Significant

The Proposed Project is not located on a geologic unit or soil that is unstable. Impacts related to landslides, lateral spreading, liquefaction are discussed above. Alterations to the topography and subsurface conditions would be limited to the temporary construction and excavation for building foundations, wells, and levels. Land subsidence occurs when large amounts of groundwater have been withdrawn from certain types of rocks, such as fine-grained sediments. San Joaquin Valley has high levels of subsidence, due to intensive groundwater pumping. (USGS 2018). The proposed project objective is to recharge groundwater basins in the San Joaquin Valley, which could reduce the level or slow down the rate of subsidence in the area. Therefore, potential impacts from the Proposed Project that could result in onsite or offsite subsidence or collapse would be considered **less than significant** and, in the case of subsidence, possibly beneficial as one of the key objectives of the Proposed Project involves recharging groundwater.

Impact GEO-5: Result in Risk to Property and Life from Expansive Soils — Less than Significant

Soils that contain a relatively high percentage of clay minerals have the potential to shrink and swell with changing moisture conditions. The main soil types found in the vicinity of the Proposed Project site include Granoso sandy loam, Excelsior sandy loam, Kimberlina fine sandy loam, and Kimberlina fine sandy loam, saline sodic (NRCS 2021). These soils are characterized as sandy loams with low clay composition and low degree of plasticity. As such, these soils are not considered expansive. Therefore, this impact would be **less than significant.**

Impact GEO-6: Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature — Less than Significant with Mitigation

No paleontological resources are known at the Proposed Project site (UCMP 2021). The project site was also highly disturbed previously when developing the McAllister Ranch Residential Development, which included street pavement, curbs, sidewalks, golfcart paths, block walls footings, and underground utilities. No paleontological resources were discovered during this extensive earthwork. Most construction-related earthmoving activities for the Proposed Project would occur within the footprint of the previous development. However, given the proximity of important fossil discoveries near the project area, the potential exists for fossils to occur in soils underlying the Proposed Project site or for construction-related activities to encounter geological rock units; this would be a significant impact. Implementation of **Mitigation Measure GEO-1** would require BVWSD and RRBWSD or their contractors to stop construction and appropriately investigate any inadvertent paleontological discoveries. Therefore, the potential for the Proposed Project to directly or indirectly destroy a unique paleontological resource would be reduced to a **less-than-significant level with mitigation.**

Mitigation Measure GEO-1: Halt Construction if Paleontological Resources Are Discovered, Evaluate Discoveries for Uniqueness, and Implement Appropriate Mitigation Measures for Unique Resources.

BVWSD and RRBWSD and their contractors shall implement the following procedures if paleontological resources are discovered during construction activities:

- Stop work immediately within 50 feet.
- Contact BVWSD and the City immediately.
- Protect the site from further impacts, including looting, erosion, or other human or natural damage.
- A paleontological resources principal investigator who meets the standards set forth by the Society of Vertebrate Paleontology will be retained to evaluate the discovery and make a recommendation to BVWSD and the City as to whether or not it is a unique paleontological resource.
- If the resource is not a unique paleontological resource, then it will be documented appropriately, and no further measures will be required.
- If the resource is a unique paleontological resource, the principal investigator, in consultation with BVWSD, will recommend resource-specific measures to protect and document the paleontological resource, such as photo documentation and avoidance or collection.
- If collection is necessary, the fossil material will be properly prepared in accordance with Society of Vertebrate Paleontology guidelines and/or curation at a recognized museum repository. Appropriate documentation will be included with all curated materials.

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Chapter 9
GREENHOUSE GAS EMISSIONS

9.1 Overview

This section presents the environmental setting and potential impacts of the Proposed Project related to greenhouse gas (GHG) emissions. For information on the effects of the Proposed Project related to energy, please refer to Chapter 7. Air quality impacts of the Proposed Project are addressed in Chapter 4.

9.2 Regulatory Setting

9.2.1 Federal Laws, Regulations, and Policies

At the federal level, the U.S. Environmental Protection Agency (USEPA) has developed regulations to reduce GHG emissions from motor vehicles and has developed permitting requirements for large stationary emitters of GHGs. In April 2010, USEPA and the National Highway Traffic Safety Administration (NHTSA) established a program to reduce GHG emissions and improve fuel economy standards for new model year 2012-2016 cars and light trucks. In August 2011, USEPA and the NHTSA announced standards to reduce GHG emissions and improve fuel efficiency for heavy-duty trucks and buses. In August 2016, USEPA and the NHTSA jointly finalized Phase 2 Heavy-Duty National Program standards to reduce GHG emissions and improve fuel efficiency of medium- and heavy-duty vehicles for model year 2018 and beyond (USEPA 2021, NHTSA 2021). However, some of these standards have been stayed by a court order and USEPA has proposed repealing certain Phase 2 emissions standards (Center for Climate and Energy Solutions 2021). In August 2021, President Biden's Executive Order 14037, *Strengthening American Leadership in Clean Cars and Trucks*, directed USEPA to begin work on establishing new emissions standards for heavy-duty vehicles for model years 2027-2030 or later. The order calls for USEPA to finalize this rulemaking by December 2022 (Center for Climate and Energy Solutions 2021).

9.2.2 State Laws, Regulations, and Policies

In recent years, California has enacted various policies and plans to address GHG emissions and climate change. Efforts on a statewide level to regulate and reduce GHG emissions include establishing GHG emission goals, developing vehicle emission standards, and promoting sustainable land use and transportation planning, as detailed below.

Statewide Greenhouse Gas Emission Targets

In recent years, California has enacted several policies and plans to address GHG emissions, energy, and climate change. In 2006, the California State Legislature enacted Assembly Bill (AB) 32, the Global Warming Solutions Act, which set the overall goals for reducing California's GHG emissions to 1990 levels by 2020. Senate Bill (SB) 32 codified an overall goal for reducing

California's GHG emissions to 40 percent below 1990 levels by 2030. Executive Orders (EOs) S-3-05 and B-16-2012 further extended this goal to 80 percent below 1990 levels by 2050.

The California Air Resources Board (CARB) has completed rulemaking to implement several GHG emission reduction regulations and continues to investigate the feasibility of implementing additional GHG emission reduction regulations. These include the Low Carbon Fuel Standard, which reduces GHG emissions associated with fuel usage, and the Renewables Portfolio Standard, which requires electricity suppliers to increase the amount of electricity generated from renewable sources to certain thresholds by various deadlines.

In 2018, SB 100 updated the Renewables Portfolio Standard to require 50 percent renewable resources by the end of 2026, 60 percent by the end of 2030, and 100 percent renewable energy and zero carbon resources by 2045. EO B-55-18, signed by Governor Brown, set a goal of statewide carbon neutrality by 2045 and net negative emissions thereafter. Governor Newsom signed EO-N-79-20 directing CARB to develop regulations to mandate that 100 percent of in-state cars and trucks are zero-emission by 2035 and all medium- and heavy-duty trucks shall be 100 percent zero emission by 2045 where feasible.

The First Update to the AB 32 Scoping Plan (approved in 2014) defined climate change priorities for the next 5 years from its adoption and set the groundwork for reaching the state's long-term GHG emissions reduction goals, including aligning those goals with other state policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

The 2017 Scoping Plan Update was released to reflect the updated emissions reductions targets (CARB 2017). The 2017 Scoping Plan Update developed statewide inventory projection data for 2030, as well as identified reduction strategies capable of securing emissions reductions that allow for achievement of the EO's new interim goal (CARB 2017). Emission reduction strategies in the 2017 Scoping Plan Update include continuation of the cap-and-trade program through 2030, a Mobile Source Strategy to increase zero-emission vehicle fleet penetration, and a more stringent target for the Low Carbon Fuel Standard by 2030. The 2017 update also incorporates approaches to cutting short-lived climate pollutants under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that was adopted by CARB in March 2017) and acknowledges the need to coordinate management of groundwater and deploying new technologies in groundwater recharge.

CARB has implemented a mandatory reporting regulation for GHG emissions for several industries. Groundwater banking is not identified as a mandatory reporting industry.

9.2.3 Local Laws, Regulations, and Policies

SJVAPCD Climate Action Plan and GHG Emission Impact Guidance

In August 2008, the San Joaquin Valley Air Pollution Control District's (SJVAPCD's) Governing Board adopted the Climate Change Action Plan (CCAP), which directed the district's Air Pollution Control Officer to develop guidance to assist CEQA lead agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project-specific GHG emissions on global climate change. In December 2009, SJVAPCD adopted the *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*,

which relies on the use of performance-based standards, otherwise known as Best Performance Standards (BPS), to assess significance of project-specific GHG emissions (SJVAPCD 2021a).

Metropolitan Bakersfield General Plan

Chapter V, "Conservation Element," of the *Metropolitan Bakersfield General Plan* (MBGP) (City of Bakersfield 2002) contains the following air quality goals and policies that may be relevant to the Proposed Project:

Goal 3: Reduce the amount of vehicular emissions in the planning area.

Policy 29: Expand the use of alternative fuel and low or zero emission vehicles.

9.3 Environmental Setting

Climate change results from the accumulation in the atmosphere of GHGs, which are produced primarily by the burning of fossil fuels for energy. Because GHGs (carbon dioxide [CO_2], methane (CH_4), and nitrogen dioxide [NO_2]) persist and mix in the atmosphere, emissions anywhere in the world affect the climate everywhere in the world. GHG emissions are typically reported in terms of carbon dioxide equivalents (CO_2e), which convert all GHGs to an equivalent basis taking into account their global warming potential (GWP) compared to CO_2. **Table 9-1** shows the six GHGs and their respective GWP.

Table 9-1. Greenhouse Gas Overview and Global Warming Potential

Greenhouse Gas	GWP over 100 years (in IPCC 2013/SAR)[1]	Description
Carbon Dioxide (CO_2)	1/1	Released into the atmosphere through burning of fossil fuels (coal, natural gas, and oil), solid waste, trees, and wood products, and also because of certain chemical reactions; removed from the atmosphere when it is absorbed by plants and oceans; remains in the atmosphere for 50 to more than 100,000 years.
Methane (CH_4)	28/21	Emitted during the production and transport of coal, natural gas, and oil; methane emissions also result from livestock and other agricultural practices and from the decay of organic waste, notably in municipal solid waste landfills; remains in the atmosphere for about 10 years.
Nitrous Oxide (N_2O)	265/310	Emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste; remains in the atmosphere for about 100 years.

Greenhouse Gas	GWP over 100 years (in IPCC 2013/SAR)[1]	Description
Hydrofluoro-carbons (HFCs)	4-12,400/ 650-11,700	Typically used in refrigeration and air conditioning equipment, as well as in solvents; emissions are generated primarily from use in air conditioning systems in buildings and vehicles; remains in the atmosphere from 10 to 270 years.
Perfluoro-carbons (PFCs)	6,630-11,100/ 6,500-9,200	Emitted as by-products of industrial and manufacturing sources; remains in the atmosphere from 800 to 50,000 years.
Sulfur Hexa-fluoride (SF_6)	23,500/23,900	Used in electrical transmission and distribution; remains in the atmosphere approximately 3,200 years.

Notes: CH_4 = methane; CO_2 = carbon dioxide; GHG = greenhouse gas; GWP = global warming potential; HFC = hydrofluorocarbon; IPCC = Intergovernmental Panel on Climate Change; N_2O = nitrous oxide; PFC = perfluorocarbon; SAR = Second Assessment Report; SF_6 = sulfur hexafluoride;

1. As scientific understanding of the GWP of various GHGs improves over time, GWP values are updated in the IPCC scientific assessment reports. For regulatory consistency, however, the United Nations Framework Convention on Climate Change reporting guidelines (and international treaties) for national inventories continue to the use of GWP values to those published in the IPCC's 1996 SAR. The table shows GWP values for 100 years from IPCC 2013 and SAR.

Sources: USEPA 2021b; IPCC 1996, 2013

These six gases are the major GHGs that were recognized by the United Nations Framework Convention on Climate Change in 1992 and other later international climate change treaties, including the Kyoto Accords, which was the first international treaty to establish GHG emission reduction goals. Other GHGs were not recognized by the international treaties, chiefly because of the smaller role that they play in global climate change or the uncertainties surrounding their effects. One GHG not recognized by the international treaties is atmospheric water because no obvious correlation exists between water and specific human activities. Water acts in a feedback manner; higher temperatures lead to higher water vapor concentrations, which in turn cause more global warming (Intergovernmental Panel on Climate Change [IPCC] 2013). Nitrogen trifluoride was not recognized in the initial Kyoto Accords but was subsequently included by the United Nations Framework Convention on Climate Change and is recognized in California as a GHG.

The most important GHG in human-induced global warming is CO_2. Although many gases have much higher GWP than the naturally occurring GHGs, CO_2 is emitted in such vastly higher quantities that it accounts for about 80 percent of the GWP of all GHGs emitted by the United States (USEPA 2021c). Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in CO_2 emissions over time and, thus, substantial increases in atmospheric CO_2 concentrations. In 2019, atmospheric CO_2 concentrations were about 410 parts per million (ppm), roughly 46 percent higher than the pre-industrial concentrations of about 280 ppm (USEPA 2021d). In addition to the sheer increase in

the volume of its emissions, CO_2 is a major factor in human-induced global warming because of its long lifespan in the atmosphere.

In 2019, emissions from statewide emitting activities were 418.2 million metric tons of CO_2 equivalent ($MMTCO_2e$). This is 7.2 $MMTCO_2e$ lower than 2018 levels and almost 13 $MMTCO_2e$ below the 2020 GHG limit of 431 $MMTCO_2e$. Per capita GHG emissions in California have dropped from a 2001 peak of 14.0 tons per person to 10.5 tons per person in 2019, a 25-percent decrease. In 2019, the transportation sector of the California economy was the largest source of emissions, accounting for approximately 40 percent of total emissions. Emissions from the electricity sector account for 14 percent of the inventory and showed a substantial decrease in 2019 due to increases in renewables. Emissions from high-GWP gases have continued to increase as they replace ozone-depleting substances that are being phased out (CARB 2021).

A baseline inventory was conducted of GHG emissions in Kern County. Total 2005 GHG emissions from the Kern County region were approximately 27 $MMTCO_2e$ of which fossil fuel industry sector represents 40 percent followed by electricity consumption sector at 22 percent (SJVAPCD 2012).

9.4 Impact Analysis

9.4.1 Methodology

Construction-related and operation-related GHG impacts of the Proposed Project were modeled and evaluated qualitatively by considering the Proposed Project's sources of GHG emissions. The California Emissions Estimator Model (CalEEMod), Version 2020.4.0, was used to quantify GHG emissions from the Proposed Project's construction and operation activities. These emissions were then compared to appropriate thresholds to determine the significance of impacts on GHG emissions and climate change.

Project-specific construction parameters (e.g., construction schedule, total acres disturbed, quantity of import material, amount of development per land use) were used as inputs in the GHG modeling. Construction was modeled to last approximately 60 months, with construction typically occurring 5 days per week. Construction equipment type and number of pieces were based on estimates specific to the project, where provided by BVWSD and RRBWSD and project engineers. CalEEMod default horsepower and load factors were used otherwise.

As described in Chapter 2, *Project Description,* the Proposed Project is estimated to require import of 4,500 cubic yards of material and/or soil over all construction phases. Worker and truck trips for construction activities assumed 39 one-way worker trips and 18 round trips for vendors and hauling combined. The vendor and hauling trip estimates assumed the use of heavy-duty trucks and a trip distance of 20 miles. The CalEEMod default value was used for worker trip length.

Operational emissions were estimated based on eight trips per day and assumed that these were all primary trips. No generators or other fossil-fueled equipment were modeled during operation as the pumps are electric. The indirect GHG emissions associated with electricity use for the pumps were estimated based on the anticipated electricity use to pump 200,000 acre-feet of water per year for recharge and 56,000 acre-feet of water per year pumped at recovery

wells. This usage was estimated to be 34,752,101 kilowatt-hours per year. The carbon intensity defaults in CalEEMod for Pacific Gas and Electric Company (PG&E) were used. Where project-specific information was not otherwise available, default parameters provided by each model were used. It should be noted that default assumptions in the models are typically conservative to avoid underestimating emissions.

9.4.2 Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines and professional expertise, the Proposed Project would result in a significant impact related to GHG emissions if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs.

The SJVAPCD recommends evaluating the significance of operational project-specific GHG emission impacts on global climate change based on the use of BPS. The SJVAPCD defines BPS as "the most effective achieved-in-practice means of reducing or limiting GHG emissions from a GHG emissions source." Types of BPS include equipment type, equipment design, operational and maintenance practices, measures that improve energy efficiency, and measures that reduce vehicle miles traveled (VMT). No clear BPS or thresholds have been provided for the evaluation of construction-related or short-term, one-time effects under CEQA.

The SJVAPCD threshold has not been updated to reflect the SB 32 2030 goal, which would be the appropriate goal given the timeline of the project construction activities. Therefore, the published mass emissions thresholds of other California air districts were reviewed and considered in developing an appropriate threshold. The applicable threshold for the Proposed Project's construction and operational emissions was determined to be 10,000 metric tonnes of carbon dioxide equivalents ($MTCO_2e$) per year, which is the threshold for industrial sources used by the Santa Barbara County Air Pollution Control District (SBCAPCD) (SBCAPCD 2015) and the South Coast Air Quality Management District (SCAQMD) (SCAQMD 2008). Although quantitative construction-specific thresholds have not been determined by the SCAQMD, the SBCAPCD recommends amortizing construction emissions over the life of the project (defined as 30 years) and adding it to the operational emissions (SCAQMD 2008). Typically, where construction-specific quantitative significance thresholds have not been defined, either operational significance thresholds are applied or construction emissions are amortized and considered along with operational emissions to determine an impact's overall significance. Therefore, for the Proposed Project, GHG emissions have been considered less than significant if the generated GHG emissions are less than the operational threshold of 10,000 $MTCO_2e$ per year.

With regard to the second criterion of consistency with applicable plans and policies, the following impact analysis evaluates the project's operation-related emissions for consistency with CARB's Scoping Plan and updates, which outline the strategies that will need to be implemented for the state to meet the goals of AB 32, SB 32, and Executive Order EO S-3-05. Specifically, if a proposed component would not conflict with CARB's GHG emission reduction policies, it would have a less-than-significant impact.

9.4.3 Environmental Impacts

Impact GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment — Less than Significant

Construction-related GHG emissions would result from the combustion of fossil-fueled construction equipment, material hauling, and worker trips. These emissions were estimated using CalEEMod version 2020.4.0, with site-specific and default assumptions as described in Section 9.4.1, "Methodology." The Proposed Project's construction-related GHG emissions are estimated at 2,561 MT CO_2e. Further details are available in **Appendix D**.

Operation-related GHG emissions would result from the combustion of fossil-fueled vehicle trips and the indirect use of electricity by the pumps. These emissions were estimated using CalEEMod version 2020.4.0, with site-specific and default assumptions as described in Section 9.4.1, "Methodology." The Proposed Project's operation-related GHG emissions are estimated at 9 MT CO_2e. Further details are available in Appendix D.

When construction emissions are amortized over 30 years and combined with operational emissions, the annual amortized GHG emissions are 95 $MTCO_2e$ per year. Because the Proposed Project's GHG emissions would be substantially less than 10,000 $MTCO_2e$ per year, the impact from GHG emissions would be **less than significant.**

Impact GHG-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs — Less than Significant

Consistency with strategies outlined in CARB's Scoping Plan and future updates are used to ensure that the state goals of AB 32, SB 32, and EO S-3-05 will be met. The Renewables Portfolio Standard would reduce GHG emissions compared to the existing mix of energy sources and would likely result in the components having a considerable percentage reduction by at least 2030. This is consistent with the emissions reductions goal of AB 32 and SB 32, as well as the policies and actions described in CARB's Scoping Plan. The Proposed Project is critical to improving access to water resources, a key element outlined in the current Scoping Plan. The construction emissions associated with the Proposed Project are consistent with CARB fleet regulations and the Low Carbon Fuel Standard, intended to minimize excess GHG emissions associated with construction of the Proposed Project. The Proposed Project would comply with all applicable plans, policies, and regulations, including AB 32 and SB 32, and as well as the policies and actions described in CARB's Scoping Plan. Therefore, this impact would be **less than significant**.

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Chapter 10
HAZARDS AND HAZARDOUS MATERIALS

10.1 Overview

This chapter presents the regulatory setting, environmental setting, and potential impacts related to hazards and hazardous materials that may result from the Proposed Project. Hazardous materials are chemical and non-chemical substances that can pose a threat to the environment or human health if misused or released. Hazardous materials can include explosives, flammable and combustible substances, poisons, radioactive materials, pesticides, petroleum products, and other materials defined as hazardous under the Resource Conservation and Recovery Act of 1976 (RCRA) in 40 Code of Federal Regulations (CFR) 261. Hazardous materials have the potential to cause death; serious injury; long-lasting health effects; and damage to buildings, homes, and other property.

Information included in this chapter has largely been taken from the *Phase I Environmental Site Assessment – Revised Draft* prepared by Haro Environmental, Inc. (Haro) (Haro 2021), provided as **Appendix G** of this EIR. Potential impacts of the Proposed Project are evaluated in light of existing laws and regulations governing hazards and hazardous materials and the existing physical environmental setting.

10.2 Regulatory Setting

Hazardous materials are regulated by numerous agencies, some of whose jurisdictions and responsibilities overlap. Federal agencies that regulate hazardous materials include the U.S. Environmental Protection Agency (USEPA) and the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA). At the state level, agencies such as the California Department of Industrial Relations, California Occupational Safety and Health Administration (Cal/OSHA) and the California Emergency Management Agency (Cal EMA) govern the use of hazardous materials. State and local agencies may have rules that are either parallel to or more stringent than those of federal agencies.

10.2.1 Federal Laws, Regulations, and Policies

Resource Conservation and Recovery Act

The RCRA (42 U.S. Code [USC] Section 6901 et seq.), as amended by the Hazardous and Solid Waste Amendments of 1984, is the primary federal law addressing the regulation of solid waste and hazardous waste in the United States. The RCRA provides “cradle-to-grave” regulation of hazardous wastes, including generation, transport, treatment, storage, and disposal. Any business, institution, or other entity that generates hazardous waste is required to identify and

track that hazardous waste from the point of generation until it is recycled, reused, or disposed of.

USEPA has primary responsibility for implementing the RCRA, but individual states are encouraged to seek authorization to implement some or all RCRA provisions. California received authority to implement the RCRA program in August 1992. The California Department of Toxic Substances Control (DTSC) is responsible for implementing the RCRA program in addition to California's own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as the Superfund Act; 42 USC Section 9601 et seq.) is intended to protect the public and the environment from the effects of past hazardous waste disposal activities and new hazardous material spills. Under CERCLA, USEPA has the authority to seek the parties responsible for hazardous material releases and to ensure their cooperation in site remediation. CERCLA also provides federal funding (through the "Superfund") for the remediation of hazardous materials contamination. The Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499) amended some provisions of CERCLA and provided for a Community Right-to-Know program.

Energy Policy Act of 2005

Subtitle I of the Solid Waste Disposal Act, enacted in 1965, created the Underground Storage Tank (UST) Program. The act was amended by Title XV, Subtitle B of the Energy Policy Act of 2005 (the Underground Storage Tank Compliance Act of 2005). As defined by law, a UST is "any one or combination of tanks, including pipes connected thereto, that is used for the storage of hazardous substances and that is substantially or totally beneath the surface of the ground." In cooperation with USEPA, the State Water Resources Control Board (SWRCB) oversees the UST Program. The intent of the program is to protect public health and safety and the environment from releases of petroleum and other hazardous substances from tanks. The four primary program elements are leak prevention (implemented by Certified Unified Program Agencies [CUPAs], described in more detail below), cleanup of leaking tanks, enforcement of UST requirements, and tank integrity testing.

Spill Prevention, Control, and Countermeasure Rule

USEPA's Spill Prevention, Control, and Countermeasure (SPCC) Rule (40 CFR Part 112) applies to facilities with a single above-ground storage tank (AST) with a storage capacity greater than 660 gallons or multiple tanks with a combined capacity greater than 1,320 gallons. The rule includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule requires specific facilities to prepare, amend, and implement SPCC Plans. The SPCC Rule applies to oil-filled equipment, including transformers that store in excess of the threshold quantities of oil described above.

Occupational Safety and Health Administration

OSHA is responsible for ensuring worker safety at the federal level. OSHA sets federal standards for implementation of workplace training, exposure limits, and safety procedures for the handling of hazardous substances (as well as other hazards). These standards, codified in 29 CFR Part 1910, address issues that range in scope from walking and working surfaces, to exit routes and emergency planning, to hazardous materials and personal protective equipment (PPE). They include exposure limits for a wide range of specific hazardous materials, as well as requirements that employers provide PPE to their employees wherever it is necessary (29 CFR Section 1910.132).

10.2.2 State Laws, Regulations, and Policies

Safe Drinking Water and Toxic Enforcement Act of 1986 – Proposition 65

The Safe Drinking Water and Toxic Enforcement Act of 1986, commonly known as Proposition 65, protects the State's drinking water sources from contamination with chemicals known to cause cancer, birth defects, or other reproductive harm. Proposition 65 also requires businesses to inform the public about exposure to such chemicals in the products they purchase, in their homes or workplaces, or that are released into the environment. In accordance with Proposition 65, the California Governor's Office publishes, at least annually, a list of such chemicals. The Office of Environmental Health Hazard Assessment (OEHHA), an agency under the California Environmental Protection Agency (CalEPA), is the lead agency for implementation of the Proposition 65 program. Proposition 65 is enforced through the California Attorney General's Office; however, district and city attorneys and any individual acting in the public interest may also file a lawsuit against a business alleged to be in violation of Proposition 65 regulations.

Hazardous Materials Business Plans

Hazardous materials business plans (HMBPs) are required for businesses that handle hazardous materials in quantities equal to or greater than 55 gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of compressed gas, or extremely hazardous substances above the threshold planning quantity (40 CFR Part 355, Appendix A) (California Governor's Office of Emergency Services [Cal OES] 2014). HMBPs are required to include an inventory of the hazardous materials used and/or stored by the business, a site map, an emergency plan, and a training program for employees. In addition, HMBP information is provided electronically to a statewide information management system, verified by the applicable CUPA, and transmitted to agencies responsible for the protection of public health and safety (i.e., local fire department, hazardous material response team, and local environmental regulatory groups).

California Occupational Safety and Health Administration

Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations in California. Cal/OSHA regulations pertaining to the use of hazardous materials in the workplace (CCR Title 8) include requirements for safety training, availability of safety equipment, accident and illness prevention programs, warnings about exposure to hazardous substances, and preparation of emergency action and fire prevention plans. Hazard communication program regulations that are enforced by Cal/OSHA require workplaces to maintain procedures for identifying and labeling hazardous substances; inform workers about

the hazards associated with hazardous substances and their handling; and prepare health and safety plans to protect workers at hazardous waste sites. Employers also must make material safety data sheets available to employees and document employee information and training programs.

California Accidental Release Prevention

The purpose of the California Accidental Release Prevention (CalARP) program is to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy community right-to-know laws. In accordance with this program, businesses that handle more than a threshold quantity of a regulated substance are required to develop a risk management plan. The risk management plan must provide a detailed analysis of potential risk factors and associated mitigation measures that can be implemented to reduce accident potential. CUPAs implement the CalARP program through review of risk management plans, facility inspections, and public access to information that is not confidential or trade secret.

Emergency Planning and Community Right-to-Know Act – Toxic Release Inventory

Section 313 of the Emergency Planning and Community Right-to-Know Act established the Toxic Release Inventory, a publicly available database containing information on disposal and other releases of toxic chemicals from industrial facilities. As stipulated in 40 CFR Part 372, owners or operators of facilities that release toxic chemicals above a certain threshold (25,000 pounds or more per year) are required to submit information about (1) on-site releases and other disposals of toxic chemicals; (2) on-site recycling, treatment, and energy recovery associated with chemicals included in the database; (3) off-site transfers of toxic chemicals from industrial facilities to other locations; and (4) pollution prevention activities at facilities.

Hazardous Waste Control Law

The Hazardous Waste Control Law (California Health and Safety Code Chapter 6.5, Section 25100 et seq.) authorizes CalEPA and DTSC, a department within CalEPA, to regulate the generation, transport, treatment, storage, and disposal of hazardous wastes. DTSC can also delegate enforcement responsibilities to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of the Hazardous Waste Control Law.

California Health and Safety Code, Management of Used Oil

Sections 25250-25250.30 of the California Health and Safety Code specify requirements related to management of used oil, which is typically considered a hazardous waste. The regulations prohibit the disposal of used oil by discharge to sewers, drainage systems, surface water or groundwater, or by deposit on land; and include reporting requirements for transport of used oil to recycling facilities. However, Section 25250.4 identifies an exemption for “dielectric fluid removed from oil-filled electrical equipment that is filtered and replaced, onsite, at a restricted access electrical equipment area, or that is removed and filtered at a maintenance facility for reuse in electrical equipment and is managed in accordance with the applicable requirements of Part 279 (commencing with Section 279.1) of Subchapter I of Chapter 1 of Title 40 of the Code of

Federal Regulations." This section clarifies that "oil-filled electrical equipment" includes, but is not limited to, transformers, circuit breakers, and capacitors.

The Unified Program

The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of six environmental and emergency response programs. CalEPA and other state agencies set the standards for their programs while local governments implement the standards. The local implementing agency, or CUPA, for each county regulates/oversees the following:

- HMBPs;
- CalARP plans or federal risk management plans;
- Operation of USTs and ASTs;
- Universal waste and hazardous waste generators and handlers;
- On-site hazardous waste treatment;
- Inspections, permitting, and enforcement;
- Proposition 65 reporting; and
- Emergency response.

The CUPA for Kern County is the Kern County Environmental Health Division.

California Emergency Services Act

The California Emergency Services Act (California Government Code [CA Govt Code], Chapter 7) established Cal EMA and created requirements for emergency response training and planning. Under this act, the State is required to develop a statewide toxic disaster contingency plan that can facilitate an effective, multi-agency response to a situation in which toxic substances are dispersed in the environment so as to cause, or potentially cause, injury or death to a substantial number of persons or substantial harm to the natural environment (7 CA Govt Code Section 8574.18). The California Emergency Services Act also requires the agency to develop and manage the California Hazardous Substances Incident Response Training and Education Program, which provides classes in hazardous substance response (7 CA Govt Code 8574.20). Under the California Emergency Services Act, Cal EMA would have the ability to provide an effective response to a catastrophic hazardous materials release.

Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations

CARB has established the airborne toxic control measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations to minimize the generation of asbestos from earth disturbance or construction activities. The Asbestos ATCM applies to any project that will include sites to be disturbed in a geographic ultramafic rock unit area or an area where naturally occurring asbestos, serpentine, or ultramafic rocks are determined to be present. Under the ATCM, prior to any grading activities at a development site, a geologic analysis is required to determine if serpentine rock is present. If naturally occurring asbestos is found at a development site, preparation of an Asbestos Health and Safety Program and an Asbestos Dust Mitigation Plan are required. These plans require approval by the San Joaquin Valley Air Pollution Control District before construction begins.

Porter-Cologne Water Quality Control Act

As discussed in more detail in Chapter 11, *Hydrology and Water Quality,* the Porter-Cologne Water Quality Control Act (California Water Code, Division 7), also known as the Porter-Cologne Act, is the provision of the California Water Code that regulates water quality in California and authorizes the SWRCB and RWQCBs to implement and enforce the regulations.

RWQCBs regulate discharges under the Porter-Cologne Act primarily through the issuance of waste discharge requirements (WDRs). Anyone discharging or proposing to discharge materials that could affect water quality must file a report of waste discharge. The SWRCB and applicable RWQCBs can make their own investigations or may require dischargers to carry out water quality investigations and report on water quality issues. The Proposed Project is within the jurisdiction of the Central Valley RWQCB (CVRWQCB).

10.2.3 Local Laws, Regulations, and Policies

Metropolitan Bakersfield General Plan

The *Metropolitan Bakersfield General Plan* (MBGP) (2002) contains the following goals and policies related to hazards and hazardous materials that are potentially applicable or relevant to the Proposed Project.

Conservation/Soils and Agriculture Element

Goal 3: Avoid conflicts between the productive use of mineral and energy resource lands and urban growth.

> **Policy 11:** Prohibit incompatible development in areas which have a significant potential for harm to public health, safety and welfare due to mineral and petroleum extraction and processing.

Safety Element

Goal 4: Assure that fire, hazardous substance regulation and emergency medical service problems are continuously identified and addressed in a proactive way, in order to optimize safety and efficiency.

> **Policy 2:** Require discretionary projects to assess impacts on police and fire services and facilities.

> **Policy 8:** The *Kern County and Incorporated Cities Hazardous Waste Management Plan* and Final Environmental Impact Report serves as the policy document guiding all facets of hazardous waste.

Kern County and Incorporated Cities Hazardous Waste Management Plan

The *Kern County and Incorporated Cities Hazardous Waste Management Plan* provides policy direction and action programs to address current and future hazardous waste management issues that require local responsibility and involvement in Kern County (County of Kern 2021). The purpose of the plan at the local level is to develop programs that equitably site needed

hazardous waste management facilities; to promote on-site source reduction, treatment and recycling; and to provide for the collection and treatment of small quantity hazardous waste generators (County of Kern 2021).

10.3 Environmental Setting

Regional Setting and Existing Land Uses

The Proposed Project is located in the western portion of the City of Bakersfield in Kern County, California. The Proposed Project site would be located on approximately 2,070 acres of land that was used as agricultural lands before it was graded for development. Several active and abandoned oil wells, reserved drill islands, pipelines, and other oil infrastructure features are also located within the Proposed Project boundaries. Figure 2-2 in Chapter 2, *Project Description*, shows aerial imagery depicting the existing land cover/land uses surrounding the Proposed Project site. Undeveloped land surrounds the site with portions used for residential and agricultural purposes (**Figure 10-1**).

Airports

The nearest public airport to the Proposed Project is the Bakersfield Municipal Airport, which is a one-runway airport located at 2000 S Union Avenue, Bakersfield. This airport is located approximately 8.5 miles northeast of the Proposed Project. The Project site is not located within the Kern County *Airport Land Use Compatibility Plan* area (County of Kern 2012).

Schools

There are no schools located within 0.25 mile of the Proposed Project site. The nearest school, Buena Vista Elementary School, is located at 6547 Buena Vista Road, Bakersfield, approximately 1 mile east of the Proposed Project site.

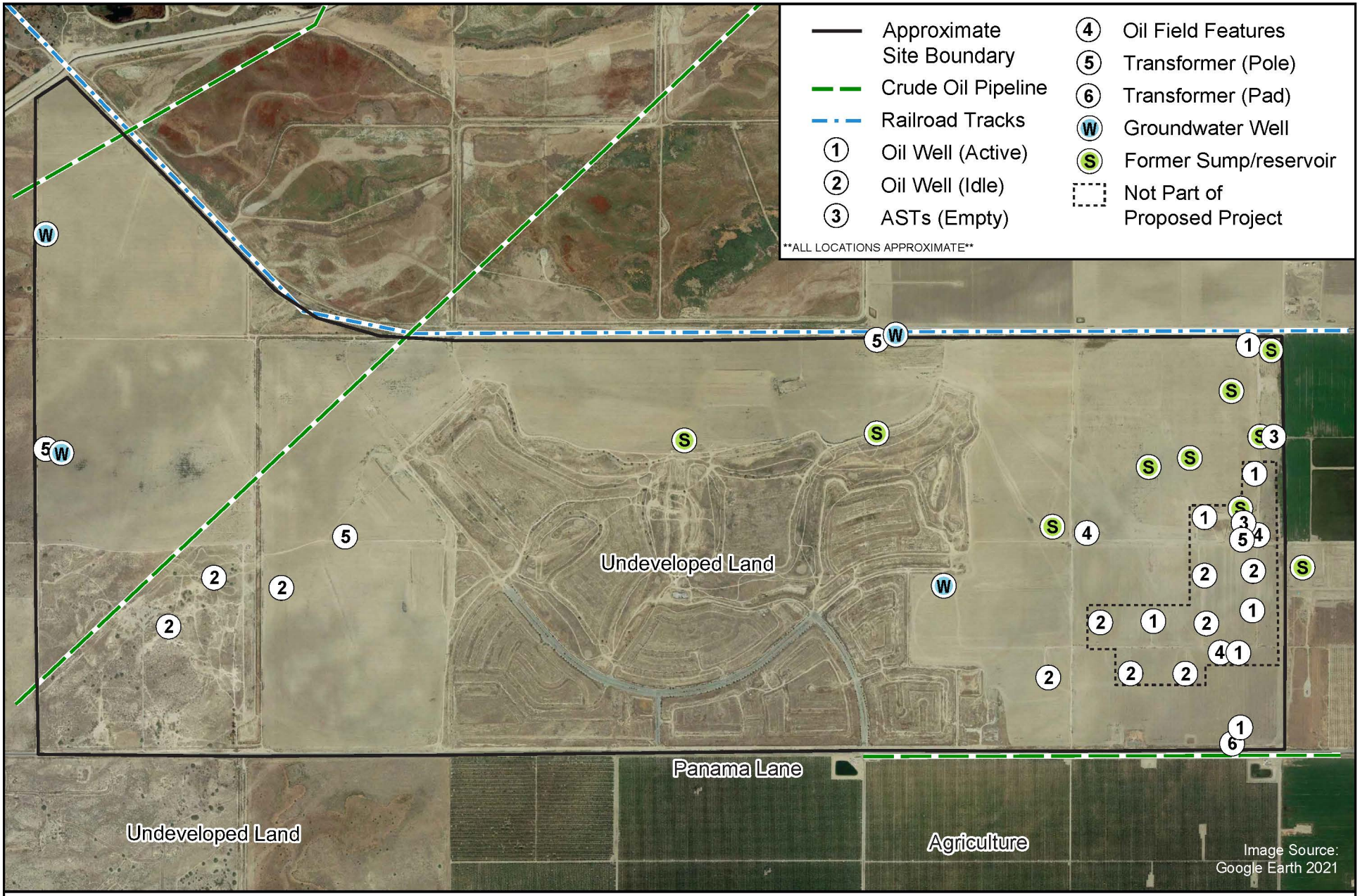
Existing Hazards and Hazardous Material Sites

Haro prepared a *Phase I Environmental Site Assessment – Revised Draft* (Phase I ESA) for the Proposed Project in 2021 (Appendix G) to identify any known, potential, or historic recognized environmental conditions (RECs)[1] that have occurred/are occurring due to historic and/or current uses of the site. Haro utilized the Envirosite database to generate a list of properties (including the Proposed Project site and nearby properties) that may have contributed to a release of hazardous substances or petroleum products to soil and/or groundwater. **Table 10-1** lists the properties that were identified within the approximate minimum search distance from the project site.

[1] The American Society for Testing and Materials (ASTM) Standard defines an REC as "[t]he presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment." The ASTM Standard defines a historical REC as "[a]n environmental condition which in the past would have been considered a recognized environmental condition, but which may or may not be considered a recognized environmental condition currently."

The Phase I ESA concludes that, based on the distance from the Proposed Project site or the topographic position relative to the site (i.e., at a lower elevation), none of the listed nearby properties would pose an environmental concern to the site. One property, Ten Section Oil Field, that was not listed in Envirosite but was listed in the CVRWQCB Site Cleanup Program (Geo Tracker website) may have the potential to affect the Proposed Project site. Detailed results on the record searches for each property discussed in Table 10-1 are provided in Appendix G.

The Phase I ESA indicated that multiple oil wells (both idle and active), ASTs associated with the oilfield at two locations, oilfield infrastructure (including pipes and tanks), four water wells, and a railroad were observed within or near the Proposed Project site. Data gathered and reviewed during preparation of the Phase I ESA identified RECs/other concerns (discussed below) that could have an adverse effect or pose a significant threat to subsurface soil, soil vapor, or groundwater beneath the site and/or potentially contribute to a release of hazardous substances.



Source: Adapted from Haro 2021

Prepared by: Horizon WATER and ENVIRONMENT

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Figure 10-1.
Recognized Environmental Concerns

McAllister Ranch Groundwater Banking Project

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Table 10-1. Envirosite Listing Summary of Selected Properties and Results

Site Name	Site Address	Distance/Direction from Subject Site	Relative Elevation	Database	Summary of Results
McAllister Ranch	Panama Lane	Proposed Project site	–	CIWQS, RFR	Listed under regulatory programs for storm water construction; no identified violations
Guinn Construction Corp	14430 Panama Lane	Proposed Project site	–	HAZNET-CA, HWG-CA	Temporary USEPA ID issued; no identified violations
McAllister Ranch Wastewater Treatment Facility	Panama Lane and Cornfield	Proposed Project site	–	CalEPA Sites, CIWQS, CIWQS 2, FRS	Regulated under WDR permit for sewerage systems; WDRs rescinded in 2007; no identified violations
Olam Farming Inc. Southern Star	14400 Panama Lane	Less than 1/8 mile south	Lower	ECHO, FRS, RCRA - NonGen	Listed as tree nut farm and transporter of hazardous waste; in compliance with RCRA; no identified violations
H.B. Agriculture, Inc.	12300 Panama Lane	Less than 1/8 mile southeast	Higher	AST, CalEPA Sites (CUPA), ECHO, FRS, HAZNET, Hist AST, RCRA - NonGen	Listed under regulatory programs for hazardous waste generation, chemical storage, and aboveground petroleum storage, waste transporter for disposal of organic waste; few violations mostly administrative in nature
Chandler Ranch	15120 Panama Lane	Less than 1/8 mile southwest	Lower	ECHO, FRS, RCRA-NonGen	Listed for growing orange groves; active RCRA listing; no identified violations
Vintage Petroleum Inc.	Light Oil Central Source	Less than 1/8 mile east	Lower	CalEPA Sites (CUPA), Docket, ECHO, FRS, Hist AFS, Hist AFS 2	Listed in air quality databases for crude petroleum and natural gas extraction; two high-priority violations noted in 2019 but pertain to air quality
Canfield Ranch, Edgar	NW 1.4 NW ¼ Sec 24 T3OS R26E	Less than 1/8 mile east	Higher	CalEPA Sites, CIWQS, CIWQS 2, Hist LDS, LDS, Oil & Gas	Listed in Oil & Gas Cleanup databases; WDR permit for land disposal of brine water in manmade ponds in effect from

Site Name	Site Address	Distance/Direction from Subject Site	Relative Elevation	Database	Summary of Results
				Cleanup	1958-2001; no identified violations. Cleanup case closed in 2001. Facility converted to agricultural use between 2011-2012.
Pensinger Road Development	11750 Pensinger Road	Less than 1/8 mile northwest	Lower	CalEPA Sites – CA, SLIC Region 5 – CA	Listed as open cleanup program site in preparation for residential development; Phase I ESA prepared for active and abandoned facilities; history of agricultural cultivation and was expected to have residual contamination from organochlorine pesticides; Phase II ESA prepared and Soil Sampling Report; Soil samples showed non-detect to low concentrations of TPH and VOCs expect for HA-4; Soils samples showing arsenic and organochlorine pesticide concentrations did not exceed hazard index of 1; site declared suitable for housing development and further investigation recommended for sampling point HA-4
Pioneer Well Expansion	Section 15 T30S R26E	Less than 1/8 mile east	Higher	CalEPA Sites, CIWQS, CIWQS 2, Hist LDS, LDS, Oil & Gas Cleanup	Under oversight by CVRWQCB for site assessment; no identified violations

Notes: RCRA = Resource Conservation and Recovery Act; THP = total petroleum hydrocarbons; WDR = waste discharge requirement; CVRWQCB = Central Valley Regional Water Quality Control Board; ESA = Environmental Site Assessment; USEPA = U.S. Environmental Protection Agency; VOC = volatile organic compounds

Source: Haro 2021, provided in Appendix G.

Hazardous Substances and Petroleum Products

The Phase I ESA states that small quantities of hazardous substances were observed during the site reconnaissance and included corrosive inhibitor chemicals near the active oil wells. Stained soil could contain total petroleum hydrocarbons in the gasoline (TPHg), diesel fuel (TPHd), and motor oil (TPHm). Figure 10-1 identifies the current and historic oil wells, oilfield infrastructure (features), ASTs, transformers, groundwater wells, and former sumps/reservoirs within the project site and in an area within the Proposed Project site boundaries but not included as part of the Proposed Project. **Figure 10-2** shows information obtained from CASGEM regarding the locations of current and historic oil wells at the project site.

The Phase I ESA did not identify any instances of significant groundwater contamination during previous investigation activities at nearby properties with oil production. The Phase I ESA indicates that volatile components of crude oil may be present in soil vapor beneath the Proposed Project site.

Ten Section Oil Field (Koch Oil Co.)

The Ten Section Oil Field was not listed in the databases searched by Envirosite but was listed in the Geo Tracker website (Haro 2021). A portion of the Ten Section Oil Field is located within the southwestern portion of the Proposed Project site and contains some idle and plugged wells; one active well is located within ¼ mile of the site. An area of the Ten Section Oil Field located southwest of the project site is listed in Geo Tracker's website as a closed cleanup operation. This area was historically used for petroleum-related operations and contained TPH waste contamination below the ground surface. Multiple monitoring wells were installed to detect TPH between 1995 and 2005. By 2005, levels of TPH were nondetectable at all wells except one. The wells were destroyed and the cleanup case was closed in June 2007.

Canfield Ranch Oil Field

A portion of the Canfield Ranch Oil Field is located within the eastern and central areas of the Proposed Project site. Two clusters of tanks; two pit/sumps (marked as "removed"); numerous active, canceled, idle, and plugged oil and gas wells; and a few active and inactive wells marked as pressure maintenance, steam flood, water disposal, and water flood wells are located within the Canfield Ranch Oil Field. The portion of the site within the Canfield Ranch Oil Field boundary does not contain any active wells.

Storage Tanks

During Haro's site reconnaissance, no evidence of underground storage tanks (USTs) was observed at the Proposed Project site. Six large ASTs were observed at the site and appeared to be empty (see Figure 10-1 for locations). Only two of these six ASTs are present within the active project area; the remaining four ASTs are located in the eastern portion of the site, which is intended to continue in oilfield operation and would not be affected by groundwater recharge or recovery operations. No significant staining of the soil surface surrounding the ASTs was observed.

Odors

During the site reconnaissance, Haro did not identify any strong, pungent, or noxious odors with exception of petroleum odors near the oil wells and ASTs.

Indications of Polychlorinated Biphenyls

During the site reconnaissance, Haro observed limited evidence of transformers onsite: four pole-mounted transformers near the water wells and near the center of the site, and one pad-mounted transformer near the southeast corner of the site (see Figure 10-1 for locations).

Pipelines

During preparation of the Phase I ESA, Haro reviewed the National Pipeline Mapping System maintained by the Pipeline and Hazardous Materials Safety Administration for the presence of gas and hazardous liquid transmission pipelines. The maps show that three pipelines cross northeast/southwest through the western area of the site; two pipelines border the site's southern edge; and two pipelines are located within 1 mile of the site.

The Taft-Bakersfield liquid pipeline crosses northeast/southwest through the site and is listed as permanently abandoned. The Plains West Coast crude oil pipeline, also crossing the site in this direction, is listed as active but unfilled. A natural gas transmission pipeline operated by Southern California Gas Company travels parallel to these pipelines and is listed as active.

Along Panama Lane on the site's southern border, a Kern Oil & Refining Company oil pipeline runs latitudinally and is listed as active and filled. In 2011, corrosion created a leak in this pipeline and two barrels of crude oil were released; 1.5 barrels were recovered. A PG&E natural gas pipeline also runs parallel to this pipeline and is listed as active and filled. Two other active natural gas pipelines are within one mile of the site.

Agricultural Pesticide Use

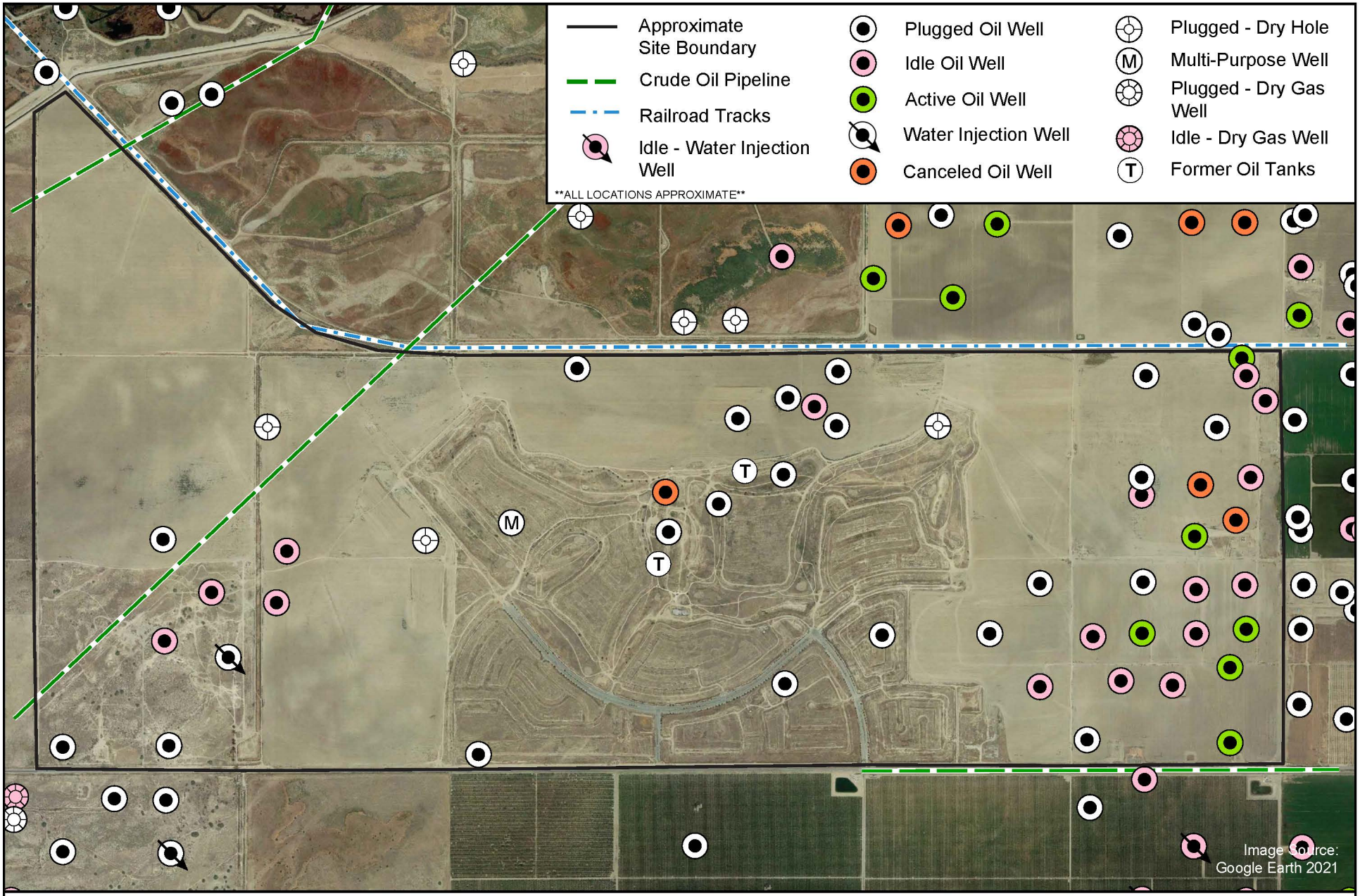
As discussed above, the Proposed Project site was previously used for agriculture. Agricultural farming practices often include the application of chemicals to control pests and weeds. Although no evidence of agricultural chemical usage at the Proposed Project site was found during preparation of the Phase I ESA, there is potential that residual concentrations of agricultural chemicals could persist in soils at the site (Haro 2021).

Asbestos-Containing Materials

A survey for asbestos-containing materials (ACM) was not conducted by a California Certified Asbestos Consultant as part of the Phase I ESA. Haro observed the Proposed Project site for potential presence of ACM and noted that the concrete pads, concrete pipe, and piping wrap/insulation could be potential ACM.

Methane

The Phase I ESA indicates that the potential to encounter methane at the Proposed Project site is increased by the use of the site for oil production. Methane hazards are related to explosion risks and not directly to human health.



Source: Adapted from Haro 2021

Prepared by: Horizon WATER and ENVIRONMENT

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Figure 10-2.
Oil Field Features Map

McAllister Ranch Groundwater Banking Project

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Wildfire Hazards

Fire occurrences within Kern County are most common in the mountainous areas in the central and eastern portion of Kern County (County of Kern 2021). The Proposed Project site is located well outside of these areas. The region surrounding the Proposed Project site is developed or agricultural land and is zoned as a Local Responsibility Area (LRA) (California Department of Forestry and Fire Protection [CAL FIRE] 2021a). LRAs include land in cities, cultivated agriculture lands, unincorporated non-flammable areas, and lands that do not meet the criteria for State Responsibility Areas (SRAs) or Federal Responsibility Areas (FRAs) (County of Kern 2021). CAL FIRE has determined that Kern County does not have any Very High Fire Hazard Severity Zones in the LRA (CAL FIRE 2021b). The Bakersfield Fire Department (BFD) and the Kern County Fire Department (KCFD) both serve the Proposed Project site. The BFD is approximately 1.5 miles east of the site, and the KCFD is approximately 3 miles southeast of the site.

10.4 Impact Analysis

10.4.1 Methodology

Potential impacts related to hazards and hazardous materials from the Proposed Project were evaluated with respect to the applicable CEQA Guidelines Appendix G significance criteria, described below. Potential impacts also were considered in light of existing federal, state, and local laws and regulations related to hazards and hazardous materials, as well as the existing physical environment in the area of the Proposed Project, including proximity to sensitive receptors (schools and airports).

Although often treated separately from hazardous materials, petroleum products (including crude oil and refined products, such as fuels and lubricants), and natural gas are considered in this analysis because they might pose a potential hazard to human health and safety if released into the environment.

10.4.2 Criteria for Determining Significance

According to Appendix G of the CEQA Guidelines, the Proposed Project, reasonably foreseeable distribution components, and alternatives would result in a significant effect related to hazards and hazardous materials if they would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes within 0.25 mile of an existing or proposed school.
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

10.4.3 Environmental Impacts

Impact HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials — Less than Significant with Mitigation

The Proposed Project includes construction and operation of a water banking project which would involve development of levees to create approximately 1,600 acres of percolation ponds, up to 14 groundwater extraction wells, water conveyance facilities, up to four pumping plants and two gravity turnouts, and up to eight groundwater monitoring wells. Offsite improvements would include a new gravity turnout from Basin 1 of the City's existing 2800 Acre Groundwater Recharge Facility; an unlined canal through the Pioneer Banking Project groundwater bank with two new siphon crossings at the Kern River Canal and the Union Pacific Railroad (UPRR) tracks.

Construction activities for the Proposed Project would require on-site handling of hazardous materials, such as fuels, lubricating fluids, and solvents for use with construction equipment. Accidental spills or improper use, storage, transport, or disposal of these hazardous materials could result in a public hazard or the transport of hazardous materials (particularly during storm events) to the underlying soils and groundwater.

Although these hazardous materials could pose a hazard as described above, Proposed Project activities would be required to comply with extensive regulations so that substantial risks would not result. All storage, handling, and disposal of these materials would be done in accordance with regulations established by DTSC, USEPA, OSHA, Cal OES, CUPA, and Cal/OSHA.

Additionally, as described in Chapter 11, *Hydrology and Water Quality*, a Stormwater Pollution Prevention Plan (SWPPP) would be prepared for the Proposed Project as part of its compliance with applicable National Pollutant Discharge Elimination System (NPDES) permits. The SWPPP would include appropriate spill prevention measures and other construction best management practices (BMPs) to prevent or minimize potential for releases of hazardous materials or risks to workers during routine activities.

As a result of compliance with the applicable regulations as described above, no significant risks would result to construction workers, the public, or the environment from the construction-related transport, use, storage, or disposal of hazardous materials. Therefore, this impact would be less than significant during construction.

Once in operation, the Proposed Project may require the use of insect control measures for mosquito abatement in the percolation basins. **Mitigation Measure HAZ-1 (Abatement of Airborne Insects)** would require implementation of measures to ensure that airborne insects do not pose a risk to human health and that abatement methods do not affect groundwater quality. Impacts during operation resulting from the use of airborne insect abatement methods would be **less than significant with mitigation**.

> **Mitigation Measure HAZ-1: Abatement of Airborne Insects.**
>
> BVWSD shall coordinate with Kern County Department of Public Health and the Kern Mosquito and Vector Control District to ensure application of appropriate insect control measures that utilize abatement methods appropriate for recharge basins, such that groundwater quality is also protected. Appropriate measures may include maintaining water quality in recharge ponds to avoid creating breeding habitat for airborne insects; adding mosquito fish or a USEPA-registered bacterial larvicide to eliminate mosquito larvae; and other integrated pest management measures. BVWSD and RRBWSD will implement such measures as required.

Impact HAZ-2: 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 — Less than Significant with Mitigation

As described in Impact HAZ-1, construction of the Proposed Project would involve use, transport, storage, and disposal of hazardous materials, including, but not limited to, fuels, lubricating fluids, and solvents. These materials would primarily be contained within construction equipment, but may also be stored on-site and/or transported to and from the site. Use of these materials could potentially result in accidental spills that could release hazardous materials into the environment. Such potential releases could harm plants, soil-dwelling microorganisms, or contaminate groundwater rendering it unfit for designated beneficial uses. Potential releases of hazardous materials due to upset or accident conditions would have the potential to affect the general public, as well as construction workers and the environment.

The Proposed Project would be required to obtain coverage under the Construction General Permit, which requires preparation and implementation of a SWPPP. The SWPPP would include good site housekeeping measures for proper storage and management of hazardous materials, as well as spill prevention, control, and counter-measures. Implementation of the SWPPP would greatly reduce the potential for Proposed Project construction activities to result in accidental releases of hazardous materials.

Given implementation of the above measures, accidental releases of hazardous materials during construction of the Proposed Project would be unlikely to occur. Should a release occur, potential impacts on the public, construction workers, or the environment would be minimized.

However, as described above in Section 10.3, the Phase I ESA stated that small quantities of hazardous substances were observed on the Proposed Project site during the site reconnaissance, including corrosive inhibitor chemicals near some of the active oil wells located within and near the site. The Phase I ESA also states that volatile components of crude oil may

be present in soil vapor beneath the project site. Additionally, although the Phase I ESA did not identify significant groundwater impacts during investigation at nearby properties with oil production and within the project site, contamination of groundwater in the areas of former sumps/reservoirs cannot be ruled out. Furthermore, because historic photographs indicate that the site may have been used as agricultural land, the potential exists that residual concentrations of agricultural chemicals could persist in the soils at the site.

Construction activities associated with the Proposed Project, including demolition, clearing, grubbing, grading, and soil excavation, have the potential to come into contact with existing sources of soil contamination (as described above) if any are present. If contamination is present, then soil excavation activities could have the potential to expose construction workers to existing on-site hazardous materials. The hazard risk would increase if contaminated excavated soil materials are spilled accidentally or otherwise placed or disposed in an erratic or unplanned manner that threatens workers. Such a situation would result in a significant impact. With implementation of **Mitigation Measures HAZ-2 (Collection of Soil Samples)** and **Mitigation Measure HAZ-3 (Management of Unknown Hazardous Materials)**, these impacts would be reduced to a less-than-significant level.

Mitigation Measure HAZ-2: Collection of Soil Samples.

Prior to commencement of Project construction, BVWSD, RRBWSD, and/or their contractors shall collect representative samples of soil from the project site. Soil samples should be collected every 1,000 cubic yards of excavated/moved earth from all areas where current and historic oil wells are located as well as all areas where ASTs, oilfield features, sump/reservoirs, and crude oil pipelines are mapped/depicted. Collected soil samples should be tested for total petroleum hydrocarbons in the gasoline (TPHg), diesel fuel (TPHd), and motor oil (TPHm) ranges, and if present, the extent of contamination should be defined both laterally and vertically. If concentrations of TPH are found exceeding regulatory thresholds, they should be removed from the site under regulatory oversight and disposed offsite in accordance with applicable rules and regulations.

Mitigation Measure HAZ-3: Management of Unknown Hazardous Materials.

If hazardous materials, wastes, or suspected soil contamination is encountered during construction of the Proposed Project, project activities in that area shall stop until appropriate health and safety procedures are implemented. BVWSD, RRBWSD, and/or their contractors shall be required to conduct an investigation to determine the composition of the encountered material, including sampling by an OSHA-trained individual and testing at a certified laboratory. In the event that soils to be excavated are found to be contaminated, the excavated soil shall be treated as hazardous materials and properly managed, removed, reported, and disposed of in compliance with state and federal regulations. Workers will be provided with adequate personal protective equipment to prevent unsafe exposure during handling and disposal. Effective dust suppression procedures will be used in the immediate construction area to reduce airborne emissions of contaminants and reduce the risk of exposure to workers and the public.

Impact HAZ-3: Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile or an existing or proposed school – No Impact

The Proposed Project is not within one-quarter mile of an existing or proposed school. The closest school to the project site is Buena Vista Elementary, which is approximately 1 mile southeast of the project site. Therefore, there would be **no impact**.

Impact HAZ-4: Located on a site that is included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment – No Impact

A search of government and state records conducted for the Proposed Project indicates that no listed hazardous or waste sites are located on the project site (Haro 2021). Therefore, the Proposed Project would not be located on a site included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5, and would not create a significant hazard to the public or environment associated with such sites. Therefore, there would be **no impact**.

Impact HAZ-5: Result in a safety hazard or excessive noise for people residing or working on the project area if the project is within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public-use airport – No Impact

No airports or airstrips are located within 2 miles of the Proposed Project site. The nearest airport is the Bakersfield Municipal Airport, which is located approximately 8.5 miles northeast of the Proposed Project. Therefore, there would be **no impact**.

Impact HAZ-6: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan – Less than Significant

Construction-related employee vehicle trips and truck trips for the Proposed Project could potentially increase traffic on Panama Lane or Buena Vista Road over the duration of the construction period, which could impair the ability of emergency responders to reach their destinations. However, construction-related traffic would be temporary and only a limited number of employee vehicles and trucks would travel to and from the project site on a daily basis. Access to the project site and surrounding properties would be maintained at all times for fire and emergency response vehicles. During operation of the project, the Proposed Project would not result in an increase in traffic any more than that during the construction phase. Therefore, the impact on emergency response from construction-related activities associated with the Proposed Project would be **less than significant**.

Impact HAZ-7: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires – No Impact

Since the Proposed Project is not within or near an SRA or FRA, or lands classified as very high fire hazards severity zones, the Proposed Project would not interfere with an adopted emergency response plan or emergency evacuation plan, nor would wildfire risks be exacerbated. As a result, there would be **no impact** related to wildfire.

Chapter 11
HYDROLOGY AND WATER QUALITY

11.1 Overview

This chapter analyzes potential impacts on hydrology and water quality that could result from implementation of the Proposed Project. The chapter first presents the regulatory and environmental settings relevant to the potential for significant impacts, followed by the impact analysis. The potential impacts on hydrology and water quality are evaluated in accordance with the significance criteria from Appendix G of the CEQA Guidelines.

11.2 Regulatory Setting

11.2.1 Federal Laws, Regulations, and Policies

Clean Water Act and Associated Programs

The Federal Water Pollution Control Act of 1972, also known as the Clean Water Act (CWA), is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." States, territories, and authorized Tribes establish water quality standards that describe the desired condition of a waterbody or the level of protection, which are then approved by the United States Environmental Protection Agency (USEPA); these standards form a legal basis for controlling pollution that enters the waters of the U.S. Water quality standards consist of the designated beneficial uses of the waterbody (i.e., the reasons that the waterbody is considered valuable), criteria to protect those designated uses, antidegradation requirements to protect existing uses and high-quality waters, and general policies regarding implementation.

USEPA is responsible for implementing the CWA, although some sections are implemented by other federal agencies under USEPA's oversight; for example, Section 404 deals with discharge of dredged and fill material into waters of the U.S. and is implemented by the United States Army Corps of Engineers ([USACE]). USEPA also has the option to delegate implementation of certain programs to state agencies. In California, the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs) administer various sections of the CWA.

The following discussion addresses provisions of the CWA that may be applicable to the Proposed Project. Of particular relevance are CWA Sections 401, 402, 404, and 303.

Section 401

CWA Section 401 requires an evaluation of water quality when a proposed activity requiring a federal license or permit could result in a discharge to waters of the U.S. In California, USEPA has

delegated the authority to issue water quality certifications to SWRCB and the RWQCBs. Each RWQCB is responsible for implementing Section 401 in compliance with the CWA and that region's water quality control plan (also known as a Basin Plan). Applicants seeking a federal license or permit to conduct activities that might result in a discharge to waters of the U.S. must also obtain a Section 401 water quality certification to ensure that any such discharge would comply with the applicable provisions of the CWA.

Section 404

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the U.S., which include all navigable waters, their tributaries, and some isolated waters, as well as some wetlands adjacent to the aforementioned waters (33 Code of Federal Regulations [CFR] Part 328.3). Areas typically not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial waterbodies such as swimming pools, and water-filled depressions (33 CFR Part 328). U.S. Construction activities involving placement of fill into jurisdictional waters of the U.S. are regulated by USACE through permit requirements. A USACE permit is not in effect until it is accompanied by a state water quality certification as required under Section 401 of the CWA.

Section 402

Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES). Under Section 402, a permit is required for point-source discharges of pollutants into navigable waters of the U.S. (other than dredge or fill material, which are addressed under Section 404). In California, the NPDES permit program is administered by the SWRCB and the RWQCBs. Permits contain specific water quality–based limits and establish pollutant monitoring and reporting requirements. Discharge limits in NPDES permits may be based on water quality objectives designed to protect designated beneficial uses of surface waters, such as recreation or supporting aquatic life.

General Permit for Construction Activities

Most construction projects that disturb 1 acre or more of land are required to obtain coverage under the SWRCB's NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ) (Construction General Permit). The Construction General Permit requires the applicant to file a notice of intent to discharge stormwater and prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must include a site map and a description of the proposed construction activities; demonstrate compliance with relevant local ordinances and regulations; and present a list of best management practices (BMPs) that will be implemented to prevent soil erosion and protect against discharge of sediment and other construction-related pollutants to surface waters.

Enrollees in the Construction General Permit are further required to conduct monitoring and reporting to ensure that BMPs are implemented correctly and are effective in controlling the discharge of construction-related pollutants. Additionally, if a project that receives coverage under the Construction General Permit is located in an area that is not subject to a municipal

stormwater permit, the project must implement post-construction stormwater controls in accordance with permit Section XIII, "Post-Construction Standards."

Generally, Section XIII of the Construction General Permit requires that the discharger replicate the pre-project balance (i.e., volume of rainfall that ends up as runoff) for the smallest storms up to the 85th percentile storm event (or the smallest storm event that generates runoff, whichever is larger). In replicating the pre-project balance, the discharger must use non-structural measures, or if such measures are infeasible or would produce lesser reduction in water quality impacts than structural measures, the discharger may use structural measures. For sites whose disturbed area exceeds two acres, the discharger must preserve the pre-construction drainage density (miles of stream length per square mile of drainage area) for all drainage areas within the area serving a first order stream or larger stream and ensure that post-project time of runoff concentration is equal or greater than pre-project time of concentration. Additionally, under Section XIII, all dischargers must implement BMPs to reduce pollutants in storm water discharges that are reasonably foreseeable after all construction phases have been completed at the site (post-construction BMPs).

Municipal Stormwater Permitting Program

The SWRCB and RWQCBs regulate stormwater discharges from municipal separate storm sewer systems (MS4s), in accordance with Section 402 of the CWA and federal MS4 permitting regulations. The MS4 permitting requirements were developed in two phases. MS4 permits continue to be issued under Phase I or Phase II depending on the size of the MS4 seeking authorization. Phase I permits for medium and large MS4s (i.e., serving 100,000 people or more) are issued by the RWQCBs and require the discharger to develop and implement a storm water management plan/program (SWMP) with the goal of reducing the discharge of pollutants to the maximum extent practicable, including identifying what BMPs will be used to address specific program areas. The SWRCB has adopted a general permit for Phase II MS4s that applies to small municipalities and other facilities (e.g., non-traditional MS4s such as community service districts, military bases, state parks, water agencies).

The City of Bakersfield is enrolled under the Phase I permit (Order R5-2016-0040) issued by the Central Valley RWQCB. The permit requires development of a SWMP. Together with the County of Kern, the City had previously developed a SWMP (City of Bakersfield and County of Kern 2014) to comply with the previous iteration of the Phase I permit. This SWMP includes construction site control measures and monitoring requirements. Note that the project site is not located within the Bakersfield Urbanized Area and, therefore, is not covered under the Phase I permit or SWMP; instead, the project area would be subject to permit Section XIII as described above.

Section 303

Section 303 of the federal CWA requires that states adopt water quality standards (see also "Porter-Cologne Water Quality Control Act" in Section 11.2.2, "State Laws, Regulations, and Policies" below). In addition, under CWA Section 303(d), states are required to identify a list of "impaired waterbodies" (i.e., those not meeting established water quality standards), identify the pollutants causing the impairment, establish priority rankings for waters on the list, and develop a schedule for preparation of control plans to improve water quality. USEPA then approves or modifies the state's recommended list of impaired waterbodies. States must update

their Section 303(d) list every 2 years. Waterbodies on the list are defined to have no further assimilative capacity for the identified pollutant, and the Section 303(d) list identifies priorities for development of pollution control plans for each listed waterbody and pollutant.

The pollution control plans mandated by the CWA Section 303(d) list are called Total Maximum Daily Loads (TMDLs). The TMDL is a "pollution budget," designed to restore the health of a polluted waterbody and provide protection for designated beneficial uses. The TMDL also contains the target reductions needed to meet water quality standards and allocates those reductions among the pollutant sources in the watershed (i.e., point sources, nonpoint sources, and natural sources) (40 CFR 130.2). A TMDL is unique to a specific waterbody and its surrounding pollutant sources and is not applicable to other waterbodies. The current effective USEPA-approved Section 303(d) list for waterbodies in California is the 2014/2016 list, which received final approval from USEPA on April 6, 2018 (USEPA 2018).

National Toxics Rule and California Toxics Rule

USEPA issued the National Toxics Rule (NTR) in 1992. The goal of the NTR is to establish numeric criteria for specific priority toxic pollutants to ensure that all states comply with the requirements in CWA Section 303.

In 2000, USEPA promulgated the California Toxics Rule (CTR), which contains additional numeric water quality criteria for priority toxic pollutants for waters in the state. The CTR fills a gap in California water quality standards that was created in 1994 when a state court overturned the state's water quality control plans containing water quality criteria for priority toxic pollutants. These federal criteria are legally applicable in California for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the CWA.

Federal Antidegradation Policy

The federal antidegradation policy includes minimum criteria to protect existing beneficial uses, ensure that the level of water quality is offset to maintain existing uses, and prevent degradation of water quality. This policy stipulates that states must adopt the following minimum provisions and allows states to adopt even more stringent rules (40 CFR Section 131.12):

(1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

(2) Where the quality of waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.…

(3) Where high quality waters constitute an outstanding National resource, such as waters of National and State parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.…

Permits issued by the SWRCB and RWQCBs for waste discharges into navigable waters must incorporate provisions to ensure this policy is met.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) is intended to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and groundwater wells that serve more than 25 individuals. The goal of the SDWA is to ensure that drinking water is safe for human consumption and will not have adverse health effects on the typical person who drinks water. Under the SDWA, USEPA has set drinking water standards for chemical, microbiological, radiological, and physical contaminants in its National Primary Drinking Water Regulations (40 CFR Part 141).

11.2.2 State Laws, Regulations, and Policies

Porter-Cologne Water Quality Control Act

Effective in January 1970, the Porter-Cologne Water Quality Control Act (California Water Code Division 7) created water quality regulations on the state level, establishing the SWRCB and dividing California into nine regions, each overseen by an RWQCB. The act established regulatory authority over waters of the state, defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." More specifically, the SWRCB and RWQCBs have jurisdiction over any surface water or groundwater to which a beneficial use may be assigned. Following enactment of the federal CWA in 1972, the Porter-Cologne Act assigned responsibility for implementing CWA Sections 303, 401, and 402 to the SWRCB and RWQCBs.

The Porter-Cologne Act requires the RWQCBs to adopt Basin Plans for the protection of surface water and groundwater quality. The act also authorizes the RWQCBs to issue waste discharge requirements (WDRs), including NPDES permits, for discharges of waste to waters of the state. Any actual or proposed activity or discharge from a property or business that could affect California's surface water, coastal waters, or groundwater will (in most cases) be subject to a WDR. The California Water Code authorizes the SWRCB and RWQCBs to conditionally waive WDRs if this is in the public interest.

Water Quality Control Plan for the Sacramento and San Joaquin River Basins

The Proposed Project would be located in the Central Valley Region, which is overseen by the Central Valley RWQCB (Region 5). The Central Valley RWQCB has prepared separate Basin Plans to cover the Sacramento and San Joaquin River Basins and the Tulare Lake Basin. The Proposed Project would be located within the San Joaquin Valley Groundwater Basin. The *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (Basin Plan) (Central Valley RWQCB 2019) identifies beneficial uses for surface waters and groundwater within the basins and establishes narrative and numerical water quality objectives (WQOs) to achieve the beneficial uses for those waters. Beneficial uses represent the services and qualities of a waterbody (i.e., the reasons that the waterbody is considered valuable), and WQOs reflect the standards necessary to protect and support those beneficial uses. Basin Plan standards are primarily implemented by regulating waste discharges so that WQOs are met.

State Drinking Water Standards

California Code of Regulations, Title 22, Division 4, Chapter 15, establishes parameters for safe drinking water throughout the state. These drinking water standards are similar to, but in many cases more stringent than, federal standards. Title 22 contains both primary standards (related to ensuring health and safety) and secondary standards (related to aesthetics, such as taste and odor).

California's Plan for Pesticide Water Quality Management

The California Department of Pesticide Regulation (CDPR) and SWRCB's 2019 Statewide Implementation Plan is a joint effort between the CDPR, county agricultural commissioners (CACs), SWRCB, and the RWQCBs to protect water quality from pesticide pollution. CDPR and the SWRCB also adopted a Management Agency Agreement (MAA) in 2019. A key goal of the MAA and implementation plan is for both agencies to respond to detections of pesticides in surface waters. To reduce the possibility of pesticides entering groundwater or surface water, a process for identifying and responding to general pesticide water quality issues and concerns was developed by CDPR and SWRCB (CDPR and SWRCB 2019). This process involves communication between the agencies at both a staff and management level. Communication includes planned projects, policies, and interagency requests related to pesticides and water quality.

Surface Water Protection Program

CDPR protects surface waters from pesticides through its Surface Water Protection Program. The Surface Water Protection Program is designed to characterize pesticide residues, identify contamination sources, determine flow of pesticides to surface water, and prepare site-specific mitigation measures. The program addresses both agricultural and nonagricultural sources of pesticide residues in surface waters. It has preventive and response components that reduce the presence of pesticides in surface waters. The preventive component includes local outreach to promote management practices that reduce pesticide runoff. Prevention also relies on CDPR's registration process, in which potential adverse effects on surface water quality, and particularly those in high-risk situations, are evaluated. The response component includes mitigation options to meet water quality goals, recognizing the value of self-regulating efforts to reduce pesticides in surface water as well as regulatory authorities of CDPR, SWRCB, and the RWQCBs (CDPR 2021).

Pesticide Contamination Prevention Act

The Pesticide Contamination Prevention Act, approved in 1985, was developed to prevent further pesticide contamination of groundwater from agricultural pesticide applications. The act defines pesticide pollution as "the introduction into the groundwaters of the state of an active ingredient, other specified product, or degradation product of an active ingredient of an economic poison above a level, with an adequate margin of safety that does not cause adverse health effects." CDPR has compiled a list of pesticide active ingredients on the Groundwater Protection List that have the potential to pollute groundwater. These various pesticides are reviewed and their use is modified when they are found in groundwater (CDPR and SWRCB 2019).

Groundwater Protection Program

CDPR implements the Pesticide Contamination Prevention Act through its Groundwater Protection Program. The Groundwater Protection Program identifies pesticides that have the potential to pollute groundwater from legal agricultural use, requires sampling to determine if those pesticides are present in groundwater, directs CDPR to maintain a database of all wells sampled by all agencies for pesticides, and requires CDPR to conduct a formal review to determine whether the use of the detected pesticides can be modified to protect groundwater (CDPR and SWRCB 2019).

State Water Rights System

SWRCB administers a water rights system for the diversion of surface waters (springs, streams, and rivers), including diversion of water from subterranean streams flowing in known and definite channels. The granting of a water right provides permission to withdraw water from a river, stream, or groundwater source for a "reasonable" and "beneficial" use (e.g., irrigation). Water right permits and licenses identify the amounts, conditions, and construction timetables for a proposed diversion. Before issuing the permit, SWRCB must take into account all prior rights and the availability of water in the basin, as well as the flows needed to preserve instream uses such as recreation and fish and wildlife habitat (SWRCB 2021). Water rights are administered using a seniority system based on the date of applying for the water right—commonly referred to as "first in time, first in right." Junior water rights holders may not divert water in a manner that would reduce the ability of senior water rights holders to exercise their water right.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) became law in 2015 and created a legal and policy framework to manage groundwater sustainability at a local level. SGMA allows local agencies to customize groundwater sustainability plans (GSPs) to their regional economic and environmental conditions and needs and establish new governance structures, known as groundwater sustainability agencies (GSAs). SGMA requires that GSAs develop GSPs for groundwater basins designated as high and medium priority by the California Department of Water Resources (DWR). GSPs are intended to facilitate the management of groundwater supply and use in a manner that avoids specific undesirable results. Undesirable results are defined as the following:

- Chronic lowering of groundwater levels (not including overdraft during a drought if a basin is otherwise managed);
- Significant and unreasonable reduction of groundwater storage;
- Significant and unreasonable seawater intrusion;
- Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies;
- Significant and unreasonable land subsidence that substantially interferes with surface land uses; and

- Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

GSPs are required to include measurable objectives and minimum thresholds, as well as interim milestones in 5-year increments, to achieve the sustainability goal for the basin for the long-term beneficial uses of groundwater. Additionally, GSPs are required to include components related to groundwater quality monitoring, the monitoring and management of groundwater levels within the basin, mitigation of overdraft, and a description of surface water supply used or available for use for groundwater recharge or in-lieu use.

SGMA requires GSAs in medium- and high-priority basins to submit GSPs to DWR for approval. The due date for the first phase of GSPs to be submitted to DWR was January 31, 2020 for medium- and high-priority basins identified by DWR as critically overdrafted. All other medium- and high-priority basins must provide GSPs to DWR by 2022.

Kern River Groundwater Sustainability Agency

The Proposed Project is located within the San Joaquin Valley Groundwater Basin (DWR No. 5-022), Kern County Subbasin (DWR No. 5-022.14) (DWR 2021a) and within the boundaries of the Kern River Groundwater Sustainability Agency (KRGSA). Neither Buena Vista Water Storage District (BVWSD) nor Rosedale-Rio Bravo Water Storage District (RRBWSD) are member agencies of the Kern River Groundwater Sustainability Agency (KRGSA); they are considered KRGSA stakeholders. The KRGSA includes the following member agencies: City of Bakersfield, Kern Delta Water District (KDWD), Kern County Water Agency Improvement District No. 4, North of the River Municipal Water District/Oildale Mutual Water Company, and East Niles Community Services District (KRGSA 2019).

Specifically, the project site is located within the KRGSA Agricultural Management Area (MA), as identified in the KRGSA GSP. The Agricultural MA was created to allow KDWD to continue to manage the complex Kern River water rights, SWP rights, and extensive infrastructure associated with almost all the irrigated acres in the KRGSA (KRGSA 2019). The Agricultural Management MA was also created to better manage areas more susceptible to land subsidence and perched water conditions (KRGSA 2019). The KRGSA GSP identifies sustainability indicators and associated thresholds for applicable MAs, as shown in **Table 11-1**. The KRGSA GSP also identifies more specifically the controlling indicators associated with undesirable results (see **Table 11-2**).

The KRGSA GSP includes a monitoring network of wells in the KRGSA Plan Area and the sustainability criteria for each well, as shown in **Table 11-3** and **Figure 11-1**.

Table 11-1. Minimum Thresholds for Sustainability Indicators in the Kern River Groundwater Sustainability Agency Management Areas

Management Area	Subarea	Considerations for Management	Chronic Lowering of Water Levels Threshold	Reduction of Groundwater in Storage Threshold	Degraded Water Quality Threshold	Land Subsidence Threshold
Urban MA	Central/South	Municipal wellfields	Historic Low WL*	Historic Low WL	Historic Low WL	Historic Low WL
	Northeast	ENCSD wellfield	50′ below Historic Low WL*	50′ below Historic Low WL	50′ below Historic Low WL	50′ below Historic Low WL
	Northwest corner	Transition to agricultural lands	20′ below Historic Low WL*	20′ below Historic Low WL	20′ below Historic Low WL	20′ below Historic Low WL
Agricultural MA	Along southern Urban MA	Transition to municipal wells	Historic Low WL*	50′ below Historic Low WL	Historic Low WL	50′ below Historic Low WL
	North-Central	Greenfield CWD wells	Historic Low WL*	50′ below Historic Low WL	Historic Low WL	10′ below Historic Low WL
	West and Northwest	Agricultural and recovery wells	50′ below Historic Low WL*	50′ below Historic Low WL	50′ below Historic Low WL	50′ below Historic Low WL
	Southeast	Subsidence potential	50′ below Historic Low WL	50′ below Historic Low WL	50′ below Historic Low WL	20′ below Historic Low WL
	East	Transition to small system wells	Historic Low WL*	50′ below Historic Low WL	Historic Low WL	50′ below Historic Low WL
Banking MA	Kern River Channel	ID4/KCWA/City recovery activities	20′ below Historic Low WL	Not applicable	20′ below Historic Low WL	50′ below Historic Low WL
	Berrenda Mesa	KCWA operational area	Historic Low WL	Not applicable	Historic Low WL	50′ below Historic Low WL
	COB 2800 Facility	City of Bakersfield municipal wells	Historic Low WL	Not applicable	Historic Low WL	50′ below Historic Low WL

Notes: MA = Management Area; WL = Water Level; ENCSD = East Niles Community Services District; Greenfield CWD = Greenfield County Water District; KCWA = Kern County Water Agency; ID4 = Kern County Water Agency Improvement District No. 4; COB = City of Bakersfield

This is Table 5-2a from the KRGSA GSP.

Historic low WL is the lowest level observed in an area during the recent drought of 2013-2016.

Measurable objective for each sustainability indicator is the average of the minimum threshold and the historical high groundwater elevation during the historical Study Period.

* Controlling sustainability indicator(s) for that area in each MA.

Source: KRGSA 2019

Table 11-2. Undesirable Results for Controlling Sustainability Indicators in the Kern River Groundwater Sustainability Agency Management Areas

Management Area	Subarea	Considerations for Management	Controlling Indicator*	Undesirable Minimum Threshold	Undesirable Percent of Wells <MT	Undesirable Duration of MT Exceedance
Urban MA	Central/South	Municipal wellfields	Water Levels/Quality	Historic Low WL	Any well	>3 Consecutive Months
	East	ENCSD wellfield	Water Levels	50’ below Historic Low WL	ENCSD MW	>3 Consecutive Months
	Northwest corner	Transition to agricultural lands	Water Levels	20’ below Historic Low WL	Any well	>3 Consecutive Months
Agricultural MA	Along southern Urban MA	Transition with municipal wells	Water Levels/Quality	Historic Low WL	40% in Urban MA	>2 Consecutive Years
	North-Central	Greenfield CWD wells	Water Levels/Quality	Historic Low WL	Greenfield CWD MW	>2 Consecutive Years
	West and Northwest	Agricultural and recovery wells	Water Levels	50’ below Historic Low WL	40% in Agricultural MA	>2 Consecutive Years
	Southeast	Subsidence potential	Subsidence	20’ below Historic Low WL	40% in Agricultural MA	>2 Consecutive Years
	East	Transition to small system wells	Water Levels/Quality	Historic Low WL	Lamont-north area MWs	>2 Consecutive Years
Banking MA	Kern River Channel	ID4/KCWA/City recovery activities	Water Levels/Quality	20’ below Historic Low WL	Any well	>3 Consecutive Months
	Berrenda Mesa	KCWA operational area	Water Levels/Quality	Historic Low WL	Any well	>3 Consecutive Months
	COB 2800 Facility	City of Bakersfield municipal wells	Water Levels/Quality	Historic Low WL	Any well	>3 Consecutive Months

Notes:

MA = Management Area; MT = Minimum Threshold; WL = Water Level; ENCSD = East Niles Community Services District; Greenfield CWD = Greenfield County Water District; KCWA = Kern County Water Agency; ID4 = Kern County Water Agency Improvement District No. 4; COB = City of Bakersfield

This is Table 5-2b from the KRGSA GSP.

Historic low water level (WL) is the lowest level observed in an area during the recent drought of 2013-2016.

* Controlling sustainability indicator(s) for that area in each MA.

Source: KRGSA 2019

Table 11-3. Kern River Groundwater Sustainability Agency Groundwater Sustainability Plan Monitoring Well Network with Sustainability Criteria

GSP State Well Number	RMW No.	Management Area	Other Monitoring Program	Historic High Water Level (ft, msl)	Historic Low Water Level (ft, msl)	Adjustment to Historic Low for MT (ft, msl)	Minimum Threshold (ft, msl)	MO (ft, msl)	Controlling Sustainability Indicator
29S/26E-01K01	RMW-018	Urban	DWR/KCWA	212	66	-20	46	129	Water Levels
29S/26E-09H01	RMW-017	Urban	DWR/KCWA	193	87	-20	67	130	Water Levels
29S/26E-26K01	RMW-022	Urban	DWR/KCWA	296	141	0	141	219	Water Quality
29S/27E-08H53	RMW-019	Urban	KFMC/CASGEM	287	205	-20	185	236	Water Levels
29S/27E-09H	RMW-209	Urban	CWS Water Levels	261	158	0	158	210	Water Levels and Quality
29S/27E-20F01	RMW-201	Urban	City DDW	214	112	0	112	163	Water Levels and Quality
29S/28E-18K01	RMW-020	Urban	CASGEM	361	322	-20	302	332	Water Levels
29S/28E-19J02	RMW-021	Urban	CWS Water Levels	254	169	0	169	212	Water Levels and Quality
29S/28E-21G	RMW-210	Urban	CWS Water Levels	282	192	0	192	237	Water Levels and Quality
29S/28E/31B	RMW-211	Urban	CWS Water Levels	255	168	0	168	212	Water Levels and Quality
29S/28E/35H	RMW-212	Urban	ENCSD Water Levels	188	165	-50	115	152	Water Levels
30S/26E-03B01	RMW-028	Banking	KFMC	302	53	0	53	178	Water Levels and Quality
30S/26E-16B02	RMW-029	Banking	City Piezometers	317	39	0	39	178	Water Levels and Quality
30S/26E-22P03	RMW-031	Agricultural	KFMC	279	111	-50	61	170	Water Levels
30S/26E-25A02	RMW-032	Urban	KFMC	236	128	0	128	182	Water Levels and Quality
30S/27E/02D	RMW-213	Urban	CWS Water Levels	238	152	0	152	195	Water Levels and Quality
30S/27E-05D01	RMW-025	Urban/Banking	KFMC/CASGEM	279	150	0	150	215	Water Levels and Quality
30S/27E/12J	RMW-214	Urban	CWS Water Levels	239	147	0	147	193	Water Levels and Quality
30S/28E-03D01	RMW-026	Urban	CASGEM	194	119	0	119	157	Water Levels and Quality
30S/28E/08E	RMW-215	Urban	CWS Water Levels	192	132	0	132	162	Water Levels and Quality
30S/28E-11F01	RMW-030	Agricultural	KDWD Monthly	181	125	0	125	153	Water Levels and Quality
30S/28E-29B02	RMW-216	Agricultural	KDWD Monthly	213	84	0	84	149	Water Levels and Quality
30S/28E-35L01	RMW-034	Agricultural	KDWD Monthly	234	86	0	86	160	Water Levels and Quality
30S/29E-31C	RMW-217	Agricultural	CASGEM	183	76	0	76	130	Water Levels and Quality
31S/26E-03J01	RMW-035	Agricultural	KDWD Monthly	235	82	-50	32	134	Water Levels
31S/26E-16P01	RMW-037	Agricultural	KDWD Monthly	202	59	-50	9	106	Water Levels
31S/26E-32B	RMW-042	Agricultural	KDWD Monthly	191	5	-50	-45	73	Water Levels
31S/27E-07B	RMW-195	Agricultural	CASGEM	197	104	-50	54	126	Water Levels
31S/27E-12Q	RMW-196	Agricultural	CASGEM/ILRP	233	97	-50	47	140	Water Levels
31S/27E-19D01	RMW-038	Agricultural	KCWA/DWR	200	97	-50	47	124	Water Levels
31S/27E-25D01	RMW-040	Agricultural	KCWA/DWR	241	114	-50	64	153	Water Levels
31S/27E-33K	RMW-218	Agricultural	KDWD StToll	218	151	-50	101	160	Water Levels
31S/28E-05D2	RMW-202	Agricultural	Greenfield CWD	181	103	0	103	142	Water Levels and Quality
31S/28E-14D	RMW-219	Agricultural	KDWD Monthly	176	104	-20	84	130	Subsidence

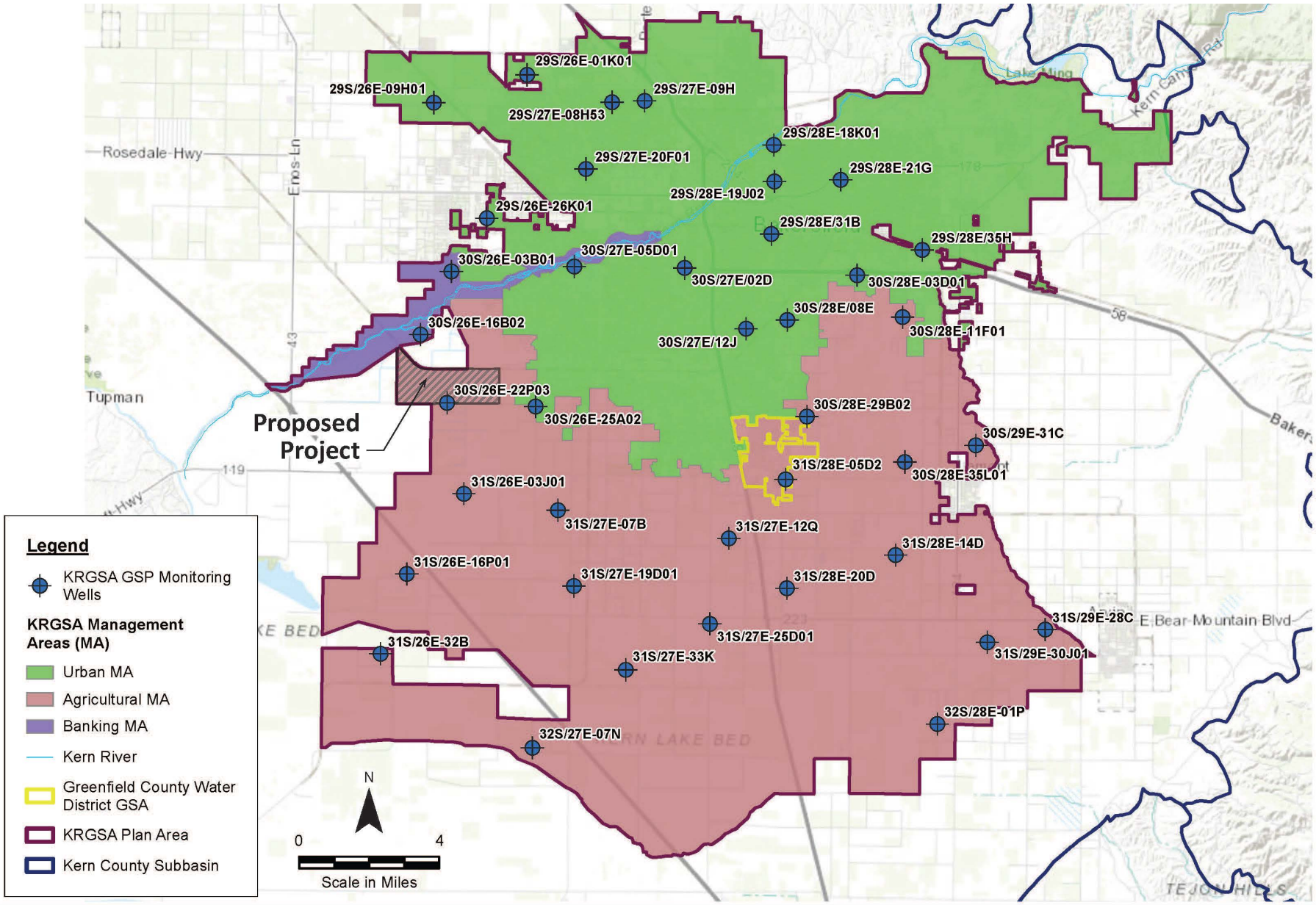
GSP State Well Number	RMW No.	Management Area	Other Monitoring Program	Historic High Water Level (ft, msl)	Historic Low Water Level (ft, msl)	Adjustment to Historic Low for MT (ft, msl)	Minimum Threshold (ft, msl)	MO (ft, msl)	Controlling Sustainability Indicator
31S/28E-20D	RMW-192	Agricultural	CASGEM	264	79	-50	29	147	Water Levels
31S/29E-28C	RMW-193	Agricultural	CASGEM	185	55	-50	5	95	Water Levels
31S/29E-30J01	RMW-041	Agricultural	DWR/KCWA	213	60	-20	40	127	Subsidence
31S/27E-07N	RMW-200	Agricultural	KDWD Monthly	170	58	-20	38	104	Subsidence
32S/28E-01P	RMW-197	Agricultural	KDWD Monthly	161	26	-20	6	84	Subsidence

Notes:

GSP = groundwater sustainability program/plan; WL = water level; ft = feet; msl = mean sea level; MT = Minimum Threshold; KFMC = Kern Fan Monitoring Committee; CASGEM = California Statewide Groundwater Elevation Monitoring; City DDW = Division of Drinking Water quality monitoring; KCWA/ID4 = Various KCWA and ID4 monitoring programs for evaluation of local groundwater conditions; KCWA/DWR = wells included in the Water Data Library and KCWA databases; Inactive CWS = Cal Water Inactive municipal well; Inactive ENCSD = ENCSD inactive municipal well; KDWD Monthly = depth to water measurements for water level maintenance in its service area; KDWD StToll = water level monitoring for a calculation of assessments.

This is Table 6-1 from the KRGSA GSP.

Source: KRGSA 2019



Source: Adapted from KRGSA 2019

Figure 11-1.
KRGSA GSP Monitoring Network

Prepared by:
Horizon WATER and ENVIRONMENT

McAllister Ranch Groundwater Banking Project

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As shown in Tables 11-1 and 11-2, given that the project site is located within the Agricultural MA, West and Northwest portion, the minimum threshold for all sustainability indicators would be 50 feet below the historic low water level. Undesirable results would occur when 40 percent of the wells in this area drop below the minimum threshold for greater than 2 consecutive years. The nearest monitoring wells to the project site included within the KRGSA GSP monitoring network are 30S/26E-22P03, 30S/26E-25A02, and 30S/26E-16B02. The specific sustainability criteria for these wells are shown in Table 11-3.

Kern Groundwater Authority

Some of the existing off-site wells that may be used for recovery operations under the Proposed Project are located to the northwest of the Kern River and within the Kern Groundwater Authority (KGA) area (DWR 2021b). The KGA is a GSA that includes the following members: Cawelo Water District, City of Shafter, Kern County Water Agency, Kern-Tulare Water District, North Kern Water Storage District, RRBWSD, Semitropic Water Storage District, Shafter-Wasco Irrigation District, Southern San Joaquin Municipal Utility District, West Kern Water District, and Westside District Water Authority.

The KGA provides for each member the right and responsibility to implement SGMA within its respective boundaries and/or management area in a manner determined by the member (KGA 2020). However, the implementation actions cannot interfere with the surrounding members or GSAs in their ability to comply with SGMA. The KGA has prepared one umbrella GSP, which incorporates information from Management Area Plans prepared by each member agency. The GSP includes minimum thresholds and measurable objectives within each member agency's jurisdiction (KGA 2020). Groundwater levels serve as the metric by which all sustainability indicators are assessed. Similar to the KRGSA Agricultural MA, the minimum threshold for groundwater levels in the area of the existing off-site wells within the KGA area would be 50 feet below the historic low water level. The RRBWSD area within the KGA area has set minimum thresholds for water quality that are based on concentrations of relevant constituents, rather than using groundwater levels as a proxy for water quality effects.

Buena Vista Water Storage District Groundwater Sustainability Agency

As noted above, BVWSD is the Proposed Project applicant. Several of the off-site wells that may be used to recover banked water as part of the Proposed Project are located within the boundary of the BVWSD GSA (DWR 2021c). The GSP developed by the BVWSD GSA (2020) establishes minimum thresholds and measurable objectives for sustainability indicators, as well as interim milestones. The central sustainability goal in the Kern County Subbasin and the BVWSD GSA area is "to maintain groundwater elevations in principal aquifers within a range that avoids the occurrence of undesirable results and that allows groundwater to remain a reliable source of water supply, particularly during prolonged droughts" (BVWSD GSA 2020). The BVWSD GSA GSP has set minimum thresholds for water quality that are based on concentrations of relevant constituents, rather than using groundwater levels as a proxy for water quality effects.

California Statewide Groundwater Elevation Monitoring Basin Prioritization

In 2009, the California State Legislature amended the California Water Code with SBx7-6, which mandates a statewide groundwater elevation monitoring program to track seasonal and long-term trends in groundwater elevations in California. Under this amendment, DWR established the California Statewide Groundwater Elevation Monitoring (CASGEM) program, which establishes the framework for regular, systematic, and locally managed monitoring in all of California's groundwater basins. The CASGEM program is essential to DWR's ranking all of California's basins by priority: high, medium, low, and very low. DWR's basin prioritization is based on the following factors:

1. Population overlying the basin
2. Rate of current and projected growth of the population overlying the basin
3. Number of public supply wells that draw from the basin
4. Total number of wells that draw from the basin
5. Irrigated acreage overlying the basin
6. Degree to which persons overlying the basin rely on groundwater as their primary source of water
7. Any documented impacts on the groundwater within the basin, including overdraft, subsidence, saline intrusion, and other water quality degradation
8. Any other information determined to be relevant by DWR

The Kern County Subbasin, within which the Proposed Project would be located, is designated high priority by DWR under CASGEM, and is noted to be in critical overdraft (DWR 2021c).

11.2.3 Local Laws, Regulations, and Policies

Metropolitan Bakersfield General Plan

The *Metropolitan Bakersfield General Plan* (MBGP) (2002, updated 2016) governs land use and planning in the greater Bakersfield area, which includes the project site. This plan identifies the following goals, policies, and implementation actions related to hydrology and water quality that are potentially applicable or relevant to the Proposed Project.

Section D, "Water Resources," in Chapter V, "Conservation," identified the following goals, policies, and implementation actions related to hydrology and water quality with regard to the Proposed Project.

Goal 1: Conserve and augment the available water resources of the planning area.

Goal 2: Assure that adequate groundwater resources remain available to the planning area.

Goal 3: Assure that adequate surface water supplies remain available to the planning area.

Goal 4: Continue cooperative planning for and implementation of programs and projects which will resolve water resource deficiencies and water quality problems.

Policy 1: Develop and maintain facilities for groundwater recharge in the planning area (I-1, I-2).

Policy 2: Minimize the loss of water which could otherwise be utilized for groundwater recharge purposes and benefit planning area groundwater aquifers from diversion to locations outside the area (I-3).

Policy 5: Work towards resolving the problem of groundwater resource deficiencies in the upland portions of the planning area (I-5, I-6).

Policy 6: Protect planning area groundwater resources from further quality degradation (I-7).

Policy 8: Consider each proposal for water resource usage within the context of total planning area needs and priorities – major incremental water transport, groundwater recharge, flood control, recreational needs, riparian habitat preservation and conservation (I-9).

Implementation Measure 2: Support all financially feasible and practical groundwater projects, for the augmentation of groundwater recharge for the south San Joaquin Valley basin by the construction and operation of additional recharge facilities or the importation of additional water for basin recharge.

Implementation Measure 3: Oppose the diversion or exportation of water resources which would unduly diminish the availability of such resources for planning area groundwater recharge.

Implementation Measure 9: Utilize the Kern River Plan Element as a policy guide for consideration of competing water resource needs, including water for municipal, industrial, direct irrigation, groundwater recharge, habitat restoration and multi-purpose recreational uses.

Section A, "Seismic Safety," in Chapter VIII, "Safety/Public Safety," identified the following goals, policies, and implementation actions related to hydrology and water quality with regard to the Proposed Project.

Goal 7: Protect land uses from the risk of dam failure inundation including the assurances that: the functional capabilities of essential facilities are available in the event of a flood; hazardous materials[1] are not released; effective measures for mitigation of dam failure inundation are

[1] This portion of the MBGP defines hazardous materials as injurious substances, including pesticides, herbicides, toxic metals and chemicals, liquefied natural gas, explosives, volatile chemicals, and nuclear fuels.

incorporated into the design of critical facilities; and the rapid and orderly evacuation of populations in the inundation area will occur.

Policy 4: Encourage critical facilities in dam inundation areas to develop and maintain plans for safe shut-down and efficient evacuation from their facilities, as appropriate to the degree of flood hazard for each facility (I-26, I-31).

Policy 18: Design discretionary critical facilities located within the potential inundation area for dam failure in order to: mitigate the effects of inundation on the facility; promote orderly shut-down and evacuation (as appropriate); and prevent on-site hazards from affecting building occupants and the surrounding communities in the event of dam failure (I-26).

Policy 19: Design discretionary facilities in the potential dam inundation area used for the manufacture, storage or use of hazardous materials to prevent on-site hazards from affecting surrounding communities in the event of inundation (I-27).

Implementation Measure 2: Require detailed site studies for ground shaking characteristics, liquefaction potential, dam failure inundation and flooding potential, and fault rupture potential, as background to the design process for critical facilities under city and county discretionary approval.

Implementation Measure 26: Develop procedures for the discretionary review of critical facilities proposed in an area of potential dam inundation. Approvals shall include requirements that emergency shut-down and facility evacuation plans be developed, maintained and exercised for each facility, and the potential effects of inundation on essential facility functions and the safety of occupants and the community in general are addressed.

Implementation Measure 27: Facilities used for the manufacture, storage or use of hazardous materials shall comply with the uniform fire code, with requirements for siting or design to prevent on-site hazards from affecting surrounding communities in the event of inundation.

Section B, “Flooding,” in Chapter VIII, “Safety/Public Safety,” identified the following goals, policies, and implementation actions related to hydrology and water quality with regard to the Proposed Project.

Goal 1: Minimize hazards to planning area residents resulting from flooding.

Goal 2: Reduce the risk of flooding to land uses.

Policy 1: Develop specific standards which apply to development located in flood hazard areas, as defined by Federal Flood Insurance maps and most recent information as adopted by the responsible agency (I-1, I-2).

Implementation Measure 1: Develop appropriate procedures for discretionary approval of all critical facilities in an area of identified flood hazard, with requirements for

mitigation of the potential effects of flooding on essential facility functions and the safety of occupants and the community in general.

Implementation Measure 2: Develop procedures for the review of proposed facilities which use, manufacture or store hazardous materials proposed in areas of identified flood hazard.

Section D, "Storm Drainage," in Chapter X, "Public Services and Facilities Element," identified the following goals, policies, and implementation actions related to hydrology and water quality with regard to the Proposed Project.

Goal 1: Ensure the provision of adequate storm drainage facilities to protect planning area residents from flooding resulting from storm water excess.

Goal 2: Maintain a comprehensive storm drainage system which serves all urban development within the planning area.

Policy 1: Develop drainage programs which will serve all currently developed portions of the planning area that are not now served by adequate storm drainage systems (I-1, I-2, I-3).

Policy 2: The city and county should pursue individual drainage plans where they are most needed (I-2, I-3, I-4).

Kern River Plan Element

The Kern River Plan Element (1985) is a part of the MBGP and the Kern County General Plan and specifically addresses planning issues around the Kern River. Section 3.4, "Floodplain Management," in Chapter III, "Issues, Goals, and Basic Plan Policies," identified the following goals and policies from the Kern River Plan Element (1985) that relate to hydrology and water quality and are potentially applicable or relevant to the Proposed Project:

3.4 Floodplain Management

Goals:

To maintain the integrity of the River channel so as to facilitate a floodway for Kern River waters for the health and safety of the community.

To maximize and fully utilize the groundwater recharge potential of the Kern River, its floodplains, and other potential recharge aquifers. Enhance riparian vegetation and wildlife habitat as a component of groundwater recharge programs. Design recharge facilities in such a way as to facilitate public use for riding and hiking trails, nature study, or other intensive forms of recreation. Encourage protection of land within the plan area which preserves and propagates examples of endemic and endangered plant species.

Policy 2: The primary floodway shall be primarily devoted to the safe and controlled passage and percolation of water and shall be maintained in a manner to adequate achieve this purpose. This shall be carried out through proper and necessary maintenance of the River

channel through appropriate deepening of the channel, when necessary, and maintenance of levees and dikes.

Policy 12: Groundwater recharge shall be considered a principal allowable use of both primary and secondary floodways. The continued groundwater recharge program involving properties owned by the City are of paramount importance. This Element was prepared using the City's approved conceptual plan for the 2,800-acre Groundwater Recharge Facility. The design, construction, operation, and maintenance of the facility are not intended to be altered or restricted by any policy or implementation measure of this Element. Future projects outside the 2,800-acre recharge facility shall be evaluated for any significant biological importance.

11.3 Environmental Setting

11.3.1 Regional Setting

The project site is located in the southwestern corner of the City of Bakersfield's incorporated limits. The property, formerly known as McAllister Ranch, is located on the Kern River alluvial fan, approximately 0.5-mile south-southeast of the main channel of the Kern River at its nearest point. Several existing groundwater recharge facilities are located in this area of the Kern River and floodplain, including portions of the City's 2,800-Acre Groundwater Recharge Facility and the Pioneer Banking Project.

As described in Section 2.2.3 of Chapter 2, *Project Description,* the climate of the project area is typical of the southern San Joaquin Valley, with temperatures ranging from an average maximum of 97 degrees Fahrenheit (°F) during the summer months to an average minimum of 37°F during the winter months. Precipitation averages approximately 5.7 inches per year, with most rainfall occurring from December through April. Table 2-1 in Chapter 2, *Project Description* shows climate data for Bakersfield, California.

11.3.2 Surface Water Hydrology and Water Quality

Surface Waterbodies

Surface waterbodies in proximity to the project site are shown in **Figure 11-2**. As noted above, the project site is located near the Kern River and within the river's alluvial fan. The Kern River originates in the southern Sierra Nevada Mountains and flows generally south-southwest, passing through Sequoia National Park and Sequoia National Forest before being impounded at Lake Isabella Dam, then ultimately passing through the City. Lake Isabella is located approximately miles 46 miles east-northeast of the project site and is formed by an earthfill main dam and auxiliary dam across the Kern River and Hot Springs Valley, respectively (USACE 2021).

Designated beneficial uses for the Kern River below the Southern California Edison Kern River Powerhouse No. 1 are Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Industrial Process Supply (PRO), Hydropower Generation (POW), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Warm Freshwater

Habitat (WARM), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), and Ground Water Recharge (GWR) (CVRWQCB 2019).

Human-made canals in the project vicinity include (distance and direction from project site): the California Aqueduct (approximately 6.75 miles west-southwest), the Buena Vista Canal (approximately 0.35 mile east at the nearest point), Kern River Canal (adjacent to the northwest), Cross Valley Canal (approximately 2 miles north), James Canal (adjacent to the north), the Pioneer Canal (approximately 2 miles north), and the Friant-Kern Canal (approximately 5.25 miles northeast). Several other canals (Stine Canal, East Side Canal, Calloway Canal, and Lerdo Canal) are also located in the general project vicinity. Other natural watercourses in the project vicinity include Poso Creek and Caliente Creek. Lake Webb and the Buena Vista Lakebed are located approximately 6 miles southwest and 6.65 miles southwest of the project site, respectively.

Surface Water Use and Import

Water supply for the Kern County portion of the southern San Joaquin Valley, in which Bakersfield and the Proposed Project are located, is derived from four major sources – from groundwater (see discussion in Section 11.3.3), from the Kern River, from the State Water Project (SWP), and from the federal Central Valley Project (CVP) (City of Bakersfield and County of Kern 2002). The principal use of water in the region is for irrigated agriculture and, for the City, municipal uses. SWP water may be provided/conveyed through the California Aqueduct and Cross Valley Canal, while CVP water is conveyed through the Friant-Kern Canal. The City holds water rights for Kern River flows that yield approximately 140,000 acre-feet per year (AFY) (City of Bakersfield and County of Kern 2002). BVWSD is the primary owner of the Second Point Kern River water right that yields on average 150,000 AFY. BVWSD and the City hold appropriative storage rights in Isabella Reservoir. The City primarily uses its Kern River supplies for municipal uses, utilizing the balance for occasional sales to local agricultural districts and groundwater recharge in the Kern River channel and City properties, including the City's 2800 Acre Recharge Area (City of Bakersfield and County of Kern 2002). BVWSD uses its Kern River supplies primarily for agricultural irrigation and groundwater recharge within its boundaries, utilizing the balance for beneficial uses to further the objectives of BVWSD and its landowners.

Surface Water Quality

In general, due the Kern River's origins high in the Sierra Nevada Mountains and relatively undeveloped path prior to Bakersfield, the quality of the river water is high. No segments of the Kern River are designated as impaired on the CWA Section 303(d) list (SWRCB 2016). Water quality in some of the human-made canals in the project vicinity may be of poorer quality due to the potential for these receiving runoff from agricultural areas.

Flooding, Tsunamis, and Seiches

As described in the MBGP (2002, updated 2016), flooding within the greater Bakersfield area originates from the Kern River watershed and from the Caliente Creek stream group which drains the west slopes of the Tehachapi Mountains. The most severe flooding problems on the Kern River near Bakersfield have resulted from high-intensity winter rainstorms over a large portion of the basin, which generally occur from November through April. The flooding potential increases when winter rains land on an existing snowpack, causing rapid snowmelt. Spring

seasonal snowmelt can also cause flooding if the snowpack is unusually large and there are unusually high spring temperatures causing rapid snowmelt. However, this situation does not occur commonly (City of Bakersfield 2002, updated 2016). In general, the spring snowmelt process has a generally longer period of runoff and also a lower peak than rain floods. Lake Isabella Dam, located roughly 40 miles east of Bakersfield, generally provides enough capacity to capture runoff from the higher watershed areas in the Sierra Nevada and provide flood protection to Bakersfield and its surrounding downstream areas. Captured rainfall runoff or snowmelt runoff in Lake Isabella is then released gradually over the following summer and fall months providing a valuable water resource benefit.

Portions of the project site (western area) are located in Federal Emergency Management Agency (FEMA) Zone A, which is a Special Flood Hazard area without Base Flood Elevations (FEMA 2008). Zone A areas are subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. The project site (along with nearly the entirety of the City) would also be within the mapped inundation area for failure of Isabella Dam. In the event of a failure of the main dam, it is estimated that the project site would reach an inundation depth of 1 foot within roughly 10 to 16 hours (County of Kern 2008a). Peak inundation depth on the project site is estimated between roughly 1 to 10 feet (County of Kern 2008b).

The project site is located within the Central Valley, over 80 miles from the coast. Thus, the site is outside of any mapped tsunami zones and is not subject to tsunami hazard. There are also no large standing bodies of water in proximity to the project site (apart from existing groundwater recharge basins to the north and west, which may be seasonally inundated). Therefore, there would be no potential for seiches[2] substantially affecting the project site.

[2] A seiche is a standing wave oscillating in a body of water. Seiches are typically caused when strong winds and rapid changes in atmospheric pressure push water from one end of a body of water to the other, although they can also be caused by earthquakes (National Oceanic and Atmospheric Administration 2021).

Project Area

Figure 11-2
Surface Waters

N

0 5 10
Miles

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McAllister Ranch Groundwater Banking Project

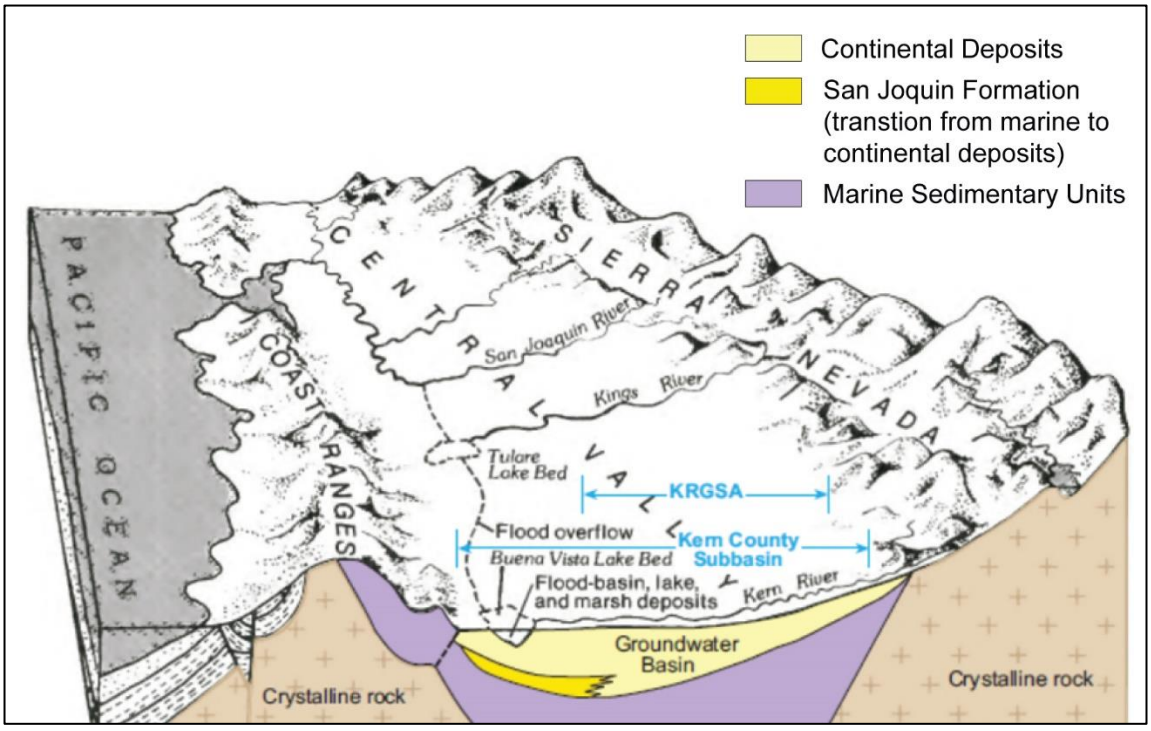
11.3.3 Groundwater

Groundwater Basin Characteristics and Hydrogeology

As noted above, the project site is underlain by the Kern County Subbasin (DWR No. 5-022.14), which is designated as a high priority basin in critical overdraft, pursuant to SGMA. The Kern County Subbasin is bounded on the north by the Kern County line and the Tule Groundwater subbasin, on the east and southeast by granitic bedrock of the Sierra Nevada foothills and Tehachapi Mountains, and on the southwest and west by the marine sediments of the San Emigdio Mountains and Coast Ranges (DWR 2006). The greater San Joaquin Valley (within which the Kern County Subbasin is located) is a structural trough up to 200 miles long and 70 miles wide filled with up to 32,000 feet of marine and continental sediments deposited during periodic inundation by the Pacific Ocean and by erosion of the surrounding mountains, respectively (DWR 2006). Continental deposits shed from the surrounding mountains form an alluvial wedge that thickens from the valley margins toward the axis of the structural trough (DWR 2006).

Sediments that comprise the shallow to intermediate depth water-bearing deposits in the groundwater subbasin are primarily continental deposits of Tertiary and Quaternary age. From oldest to youngest the deposits include the Olcese and Santa Margarita Formations; the Tulare Formation (western subbasin) and its eastern subbasin equivalent, the Kern River Formation; older alluvium/stream deposits; and younger alluvium and coeval flood basin deposits (DWR 2006). **Figure 11-3** shows a schematic of the Kern County Subbasin and the relative depths of the water-bearing units and the underlying marine sedimentary units.

Figure 11-3. Cross-Section Schematic of Kern County Subbasin



Source: KRGSA 2019

The Tulare and Kern River Formations and the overlying alluvium make up the unconfined aquifer (DWR 2006). Yield values for this aquifer have ranged from 5.3 to 19.6 percent (average of 11.8 percent) for the interval from the surface to 300 feet below grade; or 8.0 to 19.5 percent (average of 12.4 percent) for the interval thickness of 175 to 2,900 feet (DWR 2006). The highest specific yield values are associated with sediments of the Kern River Fan west of Bakersfield (DWR 2006).

Groundwater Levels and Subsidence

Groundwater levels in the Kern County Subbasin, and specifically within the KRGSA Plan Area, have fluctuated over time due to various factors. Water levels in the KRGSA Plan Area began a long and sustained decline of about 150 feet from 1945 through the drought of 1977 (KRGSA 2019). This decline was arrested, in part, by the wet hydrologic conditions between 1978 and 1983, which allowed water levels to recover across the basin. In addition, the widespread availability of imported surface water in the late 1970s contributed to some of the water level recovery across the subbasin and in the eastern KRGSA Plan Area (KRGSA 2019).

Water levels declined during the drought period of the late 1980s and early 1990s, and then rose in the late 1990s during wetter conditions. Water levels declined in the early 2000s and rose slightly during the wet period in 2010 and 2011. After 2011, water levels declined as a result of a severe drought and historic low water levels were reached from 2013 to 2017 (KRGSA 2019). Most wells declined about 40 to 50 feet during this period, with wells in the western Plan Area (where the project site is located) declining even further due to increased recovery pumping in many of the groundwater banking areas (KRGSA 2019). As noted above, the Kern County Subbasin as a whole has been designated as being in critical overdraft by DWR, due to hydrographs showing groundwater level decline (DWR 2020). DWR also notes that in some areas of critical overdraft in the Kern County Subbasin, complete disconnection between groundwater and overlying surface water systems has occurred (DWR 2020).

As a result of declining water levels, the subbasin has experienced land subsidence in the past and continues to see subsidence today. Between 1926 and 1970, groundwater extraction resulted in more than 8 feet of subsidence in the north-central portion of the subbasin, and approximately 9 feet in the south-central area (Ireland et al. 1984, cited in DWR 2006). The Kern County Subbasin received 10 points in the subsidence component (Component 7.b) of DWR's basin prioritization process. This score was based on various sources showing subsidence in the subbasin, including a source showing a maximum of 1.02 feet of inelastic subsidence in the basin from June 2015 to June 2018 (DWR 2020).

Recharge and Water Banking

Recharge occurs in the subbasin via stream seepage along the eastern subbasin and the Kern River as well as via applied irrigation water (the largest contributor) and intentional water banking/recharge projects (DWR 2006). Water banking was initiated in 1978, and as of 2000, seven projects contained over 3 million acre-feet (MAF) of banked water in a combined potential storage volume of 3.9 MAF (DWR 2006). Approximately two-thirds of this storage was in the Kern River Fan area west of Bakersfield. Over the last four decades, the City has operated its 2800 Acre Recharge Facility along a 5.5-mile reach of the Kern River. The facility has

13 recharge basins with a total capacity of more than 150,000 AFY. Over the period 1995 to 2014, recharge in the facility averaged 37,606 AFY (KRGSA 2019).

Other groundwater banking facilities in the project vicinity include Berrenda Mesa (which lies just upstream of the 2800 Acre Facility and includes six recharge basins), the Pioneer Project water bank directly east and northeast; water banking operations owned by the Kern County Water Agency (KCWA), the City of Bakersfield (City), and Kern Water Bank to the north and west; and various lakes in City parks (e.g., Truxtun Lakes) (KRGSA 2019). The City also utilizes and manages flows in the Kern River channel and operates the Kern River Canal and Irrigation Canal for recharge, banking, and recovery purposes (KRGSA 2019).

Groundwater Use

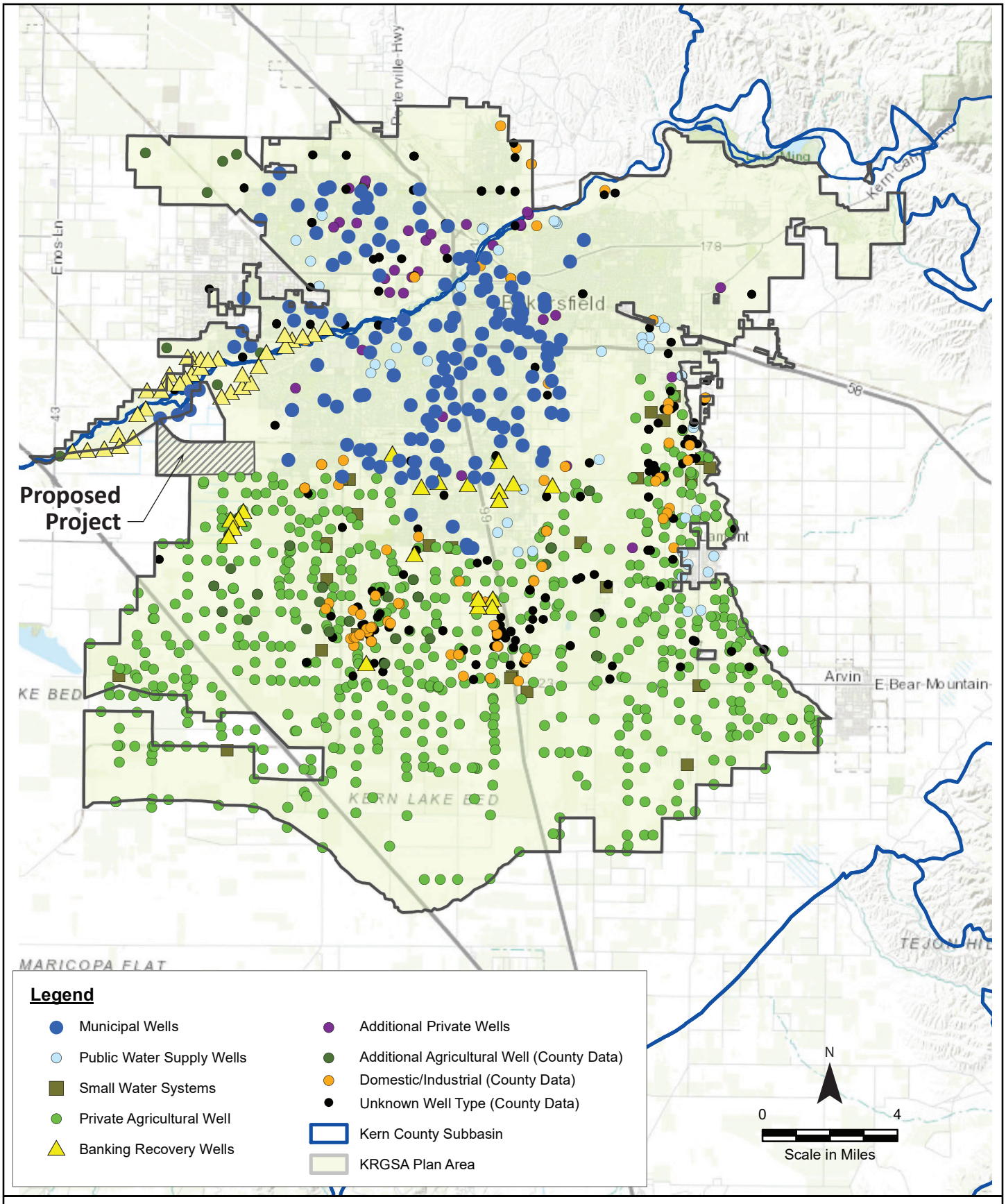
Groundwater is an important source of agricultural, domestic, and municipal supply, which is managed conjunctively with numerous surface water supplies in the Kern County Subbasin and KRGSA. DWR found that for the subbasin as a whole, there are 437 public supply wells (0.15 per square mile) and 6,101 production wells (2.19 per square mile) (DWR 2020). Overall, for Water Year 2014, 3,024,000 AF of water was applied for agriculture in the subbasin, of which 79 percent was obtained from groundwater (DWR 2020). Urban water use within the subbasin was less (196,930 AF), but a similarly high percentage (81 percent) of this water was supplied by groundwater (DWR 2020). **Figure 11-4** shows the active groundwater wells in the KRGSA Plan Area, which includes the project site.

Subbasin Storage and Groundwater Budget

Overall, it has been estimated that the total water in storage in the Kern County Subbasin is 40 MAF and the dewatered aquifer storage is 10 MAF (Fryer 2002, cited in DWR 2006). As part of the KRGSA GSP development process, a careful accounting was undertaken of the inflows (gains) and outflows (losses) of groundwater within the KRGSA Plan Area. The results of this accounting are shown in **Table 11-4**. As shown in Table 11-4, the largest consistence sources of inflows into groundwater in the KRGSA Plan Area are Kern Channel Recharge and Canal Operational Recharge (average annual amount of 60,015 AFY and 57,683 AFY, respectively, over the study period from 1995 to 2014) (KRGSA 2019). Infiltration of applied irrigation water for agriculture also plays an important role (average annual inflow of 36,151 AFY).

In certain years, groundwater banking has accounted for a large volume of recharge water (e.g., 1995 [97,667 AF], 1996 [89,897 AF], 2011 [127,987 AF]); however, in some years, very little water is recharged via groundwater banking in the KRGSA Plan Area (KRGSA 2019). Overall, on average over the period 1995 to 2014, there was an inflow of 268,910 AF to groundwater in the KRGSA Plan Area.

Outflows from the KRGSA Plan Area include Agricultural and Municipal Pumping (average annual amount of 175,668 AFY and 109,966 AFY, respectively), which comprise the largest proportion of total outflows by far, as well as Small Water System/Private Pumping and Banking Recovery (see Table 11-4). On average, from 1995 to 2014, total outflows were 305,310 AF, which exceeded the total inflows by 36,400 AF (KRGSA 2019). When considering adjustments for groundwater banking, this amount was reduced to 29,153 AF.



Source: Adapted from KRGSA 2019

Figure 11-4.
Active Wells within KRGSA Boundaries

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Table 11-4. Historical and Current Checkbook Water Budget Adjusted for Banking Obligations and Water Attributable to Non-KRGSA Entities

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	1995-2014 Cumulative	Average Annual	2015
Inflows																							
Kern Channel Recharge	62,877	62,315	72,537	78,731	75,838	73,555	25,760	45,312	75,050	50,595	105,701	95,115	32,550	17,120	19,536	81,921	134,871	51,476	24,447	14,999	1,200,307	60,015	8,447
Canal Operational Recharge	72,644	80,334	105,264	75,595	65,756	71,209	59,853	66,285	69,849	62,798	68,057	67,391	52,334	54,770	47,645	69,549	72,167	62,414	45,383	46,751	1,316,048	57,683	37,782
Municipal Return Flows	9,110	10,041	9,523	7,953	10,094	9,847	10,011	10,252	9,874	9,853	8,799	8,894	10,457	10,796	9,858	9,567	10,273	12,204	10,519	11,065	198,989	8,737	8,773
Applied Water Infiltration (Ag)	37,218	41,754	42,389	30,511	34,506	36,421	27,665	29,085	31,768	33,288	41,328	42,515	27,742	35,004	30,799	34,760	34,439	31,493	20,891	19,087	662,665	36,151	31,151
Ag Pumping Return Flows	32,183	37,420	30,278	24,668	28,672	30,085	38,669	43,501	33,954	48,197	33,376	17,936	52,932	42,445	39,169	15,756	7,190	32,098	50,950	43,766	683,245	21,671	26,207
Precipitation Percolation	4,309	3,913	4,780	6,999	4,931	4,147	4,186	3,428	3,689	3,810	4,425	5,691	3,070	3,353	3,649	6,182	5,681	2,532	2,462	3,630	84,866	6,712	4,434
Stormwater Conservation	34,083	21,975	21,574	50,138	22,510	16,958	19,466	11,840	20,135	15,185	31,073	22,610	10,670	7,526	16,590	23,714	34,551	16,556	10,469	8,094	415,718	18,162	17,827
WW Percolation	3,578	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,470	3,600	3,600	3,600	3,600	8,506	7,528	5,726	3,632	82,841	5,213	4,600
GW Banking Recharge	97,667	89,897	62,595	79,404	25,048	12,722	7,721	6,645	8,606	9,280	43,454	34,943	3,102	2,077	3,058	31,264	127,987	68,043	18,244	1,764	733,522	4,420	1,520
Input Total	353,669	351,249	352,538	357,599	270,954	258,544	196,932	219,949	256,525	236,607	339,812	298,565	196,458	176,690	173,904	276,313	435,666	284,345	189,093	152,788	5,378,201	268,910	140,741
Outflows																							
Agricultural Pumping (METRIC)	(165,633)	(192,328)	(154,647)	(126,458)	(146,404)	(154,191)	(197,215)	(173,255)	(221,238)	(245,680)	(170,955)	(104,774)	(268,938)	(215,766)	(198,745)	(95,887)	(39,773)	(162,330)	(257,739)	(221,399)	(3,513,353)	(175,668)	(196,859)
Municipal Pumping	(94,400)	(109,169)	(107,031)	(91,572)	(108,133)	(105,563)	(110,093)	(114,274)	(110,698)	(111,213)	(104,060)	(106,528)	(117,330)	(120,460)	(109,263)	(104,628)	(115,232)	(130,838)	(109,043)	(119,794)	(2,199,321)	(109,966)	(96,390)
Small Water System/Private Pumping	(12,861)	(12,029)	(1,913)	(8,611)	(11,820)	(11,485)	(11,728)	(10,902)	(9,292)	(8,696)	(5,012)	(8,150)	(9,821)	(9,867)	(8,303)	(7,958)	(7,636)	(7,645)	(7,776)	(9,259)	(180,765)	(9,038)	(7,201)
Banking Recovery	-	-	-	-	-	-	(4,350)	(4,464)	(10,073)	(5,956)	(2,137)	-	(13,020)	(23,817)	(21,041)	(5,327)	-	(4,833)	(33,848)	(83,891)	(212,757)	(10,638)	(61,929)
Total Outflows	**(272,894)**	**(313,526)**	**(263,591)**	**(226,640)**	**(266,356)**	**(271,238)**	**(323,385)**	**(350,877)**	**(303,318)**	**(371,545)**	**(282,164)**	**(219,452)**	**(409,110)**	**(369,910)**	**(337,352)**	**(213,800)**	**(162,641)**	**(305,646)**	**(408,406)**	**(434,343)**	**(6,106,196)**	**(305,310)**	**(362,379)**
Change in Groundwater Storage																							
Inflows Minus Outflows	80,775	37,723	88,947	130,959	4,597	(12,694)	(126,453)	(130,929)	(46,793)	(134,937)	57,648	79,114	(212,652)	(193,220)	(163,448)	62,513	273,025	(21,301)	(219,313)	(281,555)	(727,995)	(36,400)	(221,637)
Banking Adjustments*																					**Banking Balances in KDWD for Others (Metropolitan, SBVWD)**	-155,782	-	-123,806
																					Banking balances by KCWA for KDWD in KRGSA	2,877	-	2,995
																					Banking balance by KCWA for ID4 in KRGSA	37,662	-	29,288
																					Banking balances outside KRGSA for KDWD (Pioneer, KWB)	70,194	-	70,244
																					Banking balances outside KRGSA for ID4 (Pioneer, KWB)	189,981	-	172,146
																					TOTAL BANKING ADJUSTMENTS	144,932	-	150,867
																					Adjusted Change in Groundwater in Storage	-583,063	(29,153)	(70,770)

Notes: ag = agriculture

*Notes on Banking Adjustments: Inflows and outflows above have been adjusted to remove recharge and recovery operations in KRGSA for and by others. Adjustments made in this section account for banking balances to be exported from (subtract) or imported to (add) the KRGSA Plan Area.

Source: KRGSA 2019, Table 4-5

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Groundwater Quality

The eastern Kern County Subbasin contains primarily calcium bicarbonate waters in the shallow zones, increasing in sodium with depth (DWR 2006). Bicarbonate is replaced by sulfate and lesser chloride in an east to west trend across the subbasin. The average total dissolved solids (TDS) concentration of groundwater is 400-450 milligrams per Liter (mg/L), with a range of 150-5,000 mg/L (DWR 2006).

In the KRGSA Plan Area, groundwater quality is similar to that of the local surface water and contains relatively low TDS levels (KGRSA 2019). In general, groundwater quality has been sufficient to meet designated beneficial uses in the Plan Area, including municipal, industrial, and agricultural water supply and recreational/environmental uses (KRGSA 2019). Recently, however, two water quality constituents of concern for drinking water – 1,2,3-trichloropropane (TCP) and arsenic – have been detected above the Maximum Contaminant Level (MCL) in numerous KRGSA wells (KRGSA 2019).

An analysis was completed for the baseline groundwater quality within the project area (TH & Co. 2013). This included collection and analysis of groundwater samples from two existing agricultural wells within the project site, which were designated as JC-West and JC-East. The results of the analysis are shown in **Table 11-5**. Although the exact depths and perforation intervals of the wells are not known, it is assumed that they are perforated similar to other agricultural wells in the area (200 to 700 feet below ground surface) (TH & Co. 2013).

The locations of the JC-West and JC-East wells and associated groundwater quality data are shown in **Figure 11-5**. Also apparent on Figure 11-5 are several wells in the project area that have had samples that exceeded the MCL for various constituents of concern (e.g., arsenic, chromium, fluoride, radionuclides, benzene, lead, and chlordane).

Table 11-5. Summary of Selected Groundwater Quality Data

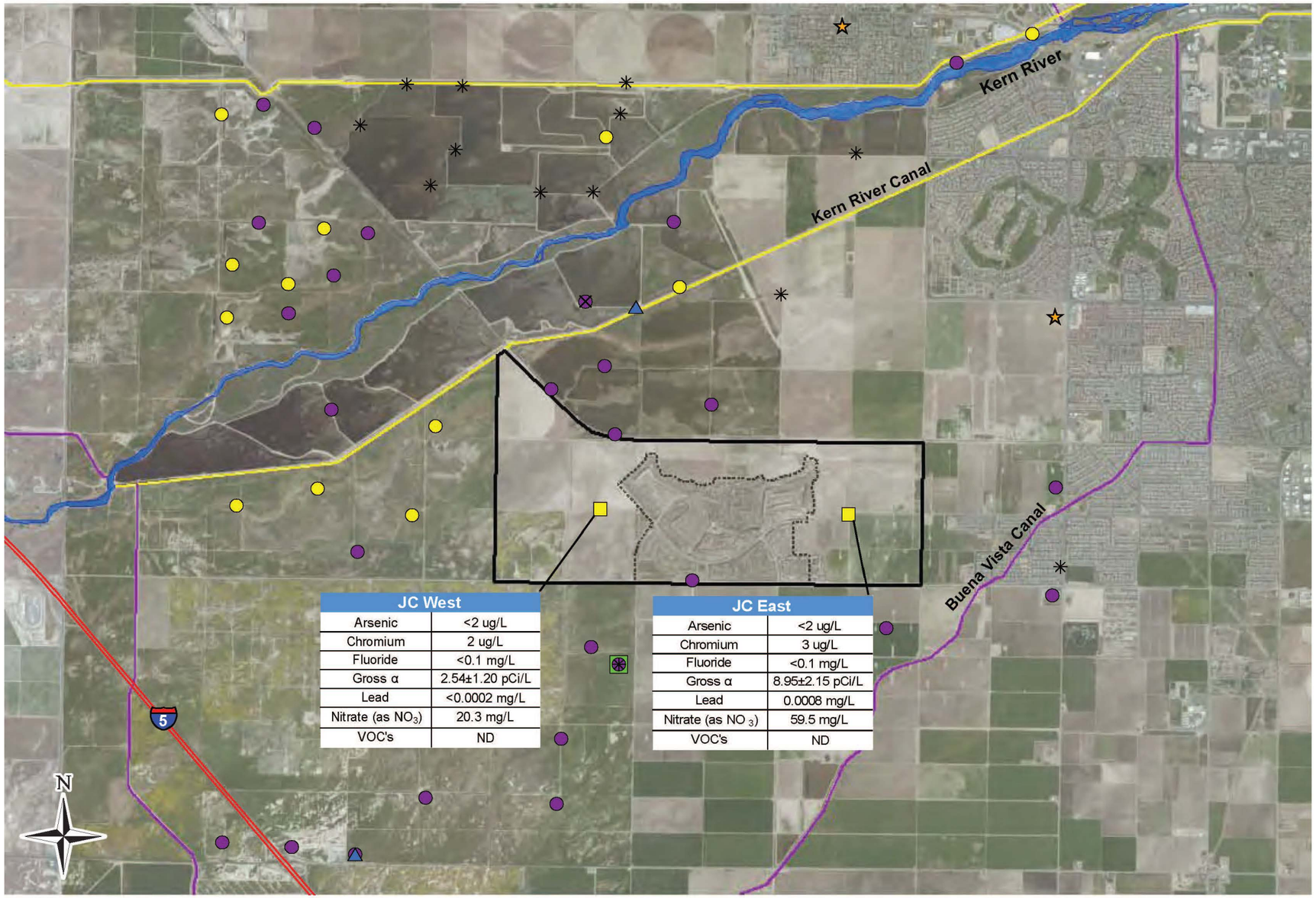
Analyte	James Canal West Analysis Result	James Canal East Analysis Result	Units	Drinking Water Standards / MCL
TDS	180	340	mg/L	500[1]
Arsenic	<2.0[2]	<2.0[2]	µg/L	10[3]
Chloride	23	35	mg/L	250[1]; 500[4]
Chromium	2	3	µg/L	50[3]
Fluoride	<0.1[2]	<0.1[2]	mg/L	2[3]
Nitrate (as NO_3)	20.3	59.5	mg/L	45[3]
Chlordane	<0.1	<0.1	µg/L	0.1[3]
Lead	<0.0002[2]	0.0008	mg/L	0.015[3]
Gross α	2.54 ± 1.20	8.95 ± 2.15	pCi/L	15[3]
VOCs	ND[5]	ND[5]	µg/L	Various

Notes: MCL = maximum contaminant level; TDS = total dissolved solids; mg/L = milligrams per liter; µg/L = micrograms per liter; pCi/L = picocuries per liter; VOC = Volatile organic compound; ND = none detected

1. California recommended secondary MCL.
2. Constituent not detected above the indicated detection limit.
3. Primary MCL.
4. California maximum secondary MCL.
5. No constituents were detected above their respective detection limits.

Source: TH& Co. 2013

Since sampling was conducted on the on-site wells in 2013, an MCL has been developed for 1,2,3-TCP. Sampling in the area of the Pioneer Project, Kern Water Bank, and RRBWSD's Strand/Stockdale sites has detected 1,2,3-TCP. However, detection has not been at levels the cause concern for the Project or intended use of the water.



JC West	
Arsenic	<2 ug/L
Chromium	2 ug/L
Fluoride	<0.1 mg/L
Gross α	2.54±1.20 pCi/L
Lead	<0.0002 mg/L
Nitrate (as NO_3)	20.3 mg/L
VOC's	ND

JC East	
Arsenic	<2 ug/L
Chromium	3 ug/L
Fluoride	<0.1 mg/L
Gross α	8.95±2.15 pCi/L
Lead	0.0008 mg/L
Nitrate (as NO_3)	59.5 mg/L
VOC's	ND

NAD 83 State Plane CA Zone 5
Central Meridian: -118

Map Features

- James Canal Existing Wells

Constituents of Concern with at least One Sample over the MCL

- Arsenic
- Chromium (Hexavalent)
- Fluoride
- Radionuclides
- Benzene
- Lead
- Chlordane
- Project Area
- Option Property
- Lined Canal
- Unlined Canal
- Kern River
- Interstate 5

Note: Water quality data from KCWA database. Coordinates from KCWA database; wells without coordinates not shown.

Source: TH & Co. 2013

Figure 11-5.
Groundwater Quality in the Project Area

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McAllister Ranch Groundwater Banking Project

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11.4 Impact Analysis

This section analyzes impacts to hydrology and water quality following the methodology and using the significance criteria described below.

11.4.1 Methodology

The impact analysis was both qualitative and quantitative in nature, and considered aspects of the Proposed Project in relation to the significance criteria described in Section 11.4.2. The analysis relied on a quantitative analysis (TH & Co. 2021, included as Appendix H to this DEIR). This analysis modeled groundwater level mounding and drawdown under historical groundwater conditions and in relation to the KRGSA GSP sustainability criteria. The impact analysis in this section incorporates information from the study, including tables and figures from the report, as applicable, for evaluation of the Proposed Project's impacts. The analysis also makes qualitative assessments regarding hydrological and water quality effects of Proposed Project features and operation in light of the existing environmental and regulatory settings.

11.4.2 Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines, the Proposed Project would have a significant impact on hydrology and water quality if it were to:

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 or through the addition of impervious surfaces, in a manner which would:

   i. Result in substantial erosion or siltation on- or offsite;

   ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

   iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

   iv. Impede or redirect flood flows.

D. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

E. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

11.4.3 Environmental Impacts

Impact WQ-1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality — Less than Significant

Ground Disturbance and Hazardous Materials

As described below in Impact WQ-3, subsection i., construction of the Proposed Project would have the potential to result in erosion and sedimentation, which could potentially violate water quality standards in receiving waters nearby. Construction activities would involve various ground-disturbing activities and operation of heavy equipment, which could loosen soils, thereby allowing for subsequent precipitation events to erode and transport the soils/sediment off-site. Additionally, much of the equipment used in Project construction (see Table 2-4 in Chapter 2, *Project Description*) would contain hazardous materials (e.g., fuel, oil, lubricant). If improperly handled or managed, these hazardous materials could leak or be spilled. Then, the materials could either be washed off-site to receiving waters or infiltrate into groundwater, potentially resulting in violations of water quality standards. The project site is relatively flat and this can reduce the risk to more intense erosion and sediment transport associated with steeper sites.

Given that the Proposed Project would disturb over 1 acre of land, it would require coverage under the Construction General Permit (see Section 11.2.2). In accordance with the Construction General Permit, BVWSD would be required to prepare and implement a SWPPP, which would include a list of BMPs that would be implemented during Proposed Project construction to prevent soil erosion and protect against discharge of sediment and other construction-related pollutants (e.g., hazardous materials) to surface waters. Under the Construction General Permit, BVWSD would be further required to conduct monitoring and reporting to ensure that BMPs are implemented correctly and are effective in controlling the discharge of construction-related pollutants. Compliance with the Construction General Permit and implementation of the SWPPP would reduce potential for the Proposed Project to result in substantial discharge of sediment or hazardous materials, such as to potentially result in violations of water quality standards. As a general permit issued under the NPDES, the Construction General Permit establishes WDRs for stormwater discharges associated with construction and land disturbance activities. BVWSD would be required to comply with these WDRs.

During operation, the Proposed Project would not involve storage of hazardous materials on-site. Relatively small volumes of hazardous materials may be used for routine maintenance and repair activities, such as in the equipment required for servicing of well facilities, levee maintenance, and repair/maintenance of flow control structures. In general, the limited extent and infrequency of these activities would minimize the potential for substantial impacts to water quality. Nevertheless, through similar mechanisms to those described above in relation to construction, improper handling and management of hazardous materials and/or improper erosion protection practices during operation and maintenance could result in adverse effects. As described in Chapter 10, *Hazards and Hazardous Materials,* the SWPPP would include good

site housekeeping measures for proper storage and management of hazardous materials, as well as spill prevention, control, and counter-measures. Implementation of the SWPPP would greatly reduce the potential for Proposed Project construction activities to result in accidental releases of hazardous materials. Therefore, this potential impact would be **less than significant**.

Recharge Activities

Another mechanism by which the Proposed Project could impact water quality is via recharge activities. If polluted water were to be allowed to recharge/infiltrate into the groundwater basin below, this would adversely affect groundwater beneficial uses, and such pollution could migrate to other areas within the subsurface aquifer. As described in the KRGSA GSP (2019), degraded water quality has the potential to affect beneficial uses of groundwater, including drinking water, agricultural or industrial supply, and environmental uses. Impacts to drinking water supply wells can cause expensive response actions including contaminant investigations, well modifications, increased sampling and monitoring, increased treatment costs, loss of wells, and/or loss of water supply (KRGSA 2019).

The KRGSA GSP identifies "recharge of surface water supplies that could impact water quality" as one of three primary pathways for undesirable results for water quality to occur (KRGSA 2019: p. 5-26). However, the KRGSA GSP determines that such an event is unlikely under current conditions in the KRGSA. As stated in the GSP (KRGSA 2019, p. 5-27):

> Surface water quality of the Kern River is acceptable for all beneficial uses and supplies high quality drinking water to the KRGSA. Therefore, the extensive managed recharge operations using Kern River water is likely to improve groundwater quality rather than degrade it. Imported water that is banked for subsequent recovery is also considered high quality water and would not contribute to water quality degradation.

As described in Chapter 2, *Project Description,* of this DEIR, the recharge water for the Proposed Project would be secured and acquired by BVWSD and RRBWSD from various sources, potentially including federal, state, and local supplies. Specifically, the sources include water from the Kern River, SWP, and CVP, depending on annual availability and appropriative (pre-1914 and post-1914) water rights; Friant-Kern Canal; floodwater, and possibly other sources that may be available from time to time. Many of these sources ultimately come from runoff from the Sierra Nevada and Cascade Ranges, which is generally of very high quality. As described in Section 11.3, the quality of Kern River water is high and no segments of the river are designated as impaired on the CWA Section 303(d) list. Although some of the manufactured canals (e.g., Friant-Kern Canal) may be more likely to receive polluted runoff from surrounding agricultural areas, there is no reason to believe water conveyed in these canals would be substantially polluted.

As such, recharge of the groundwater basin using available surface water supplies for the Proposed Project would not result in substantial degradation of water quality or violation of water quality standards. Rather, as stated in the KRGSA GSP (2019), it would be more likely to improve existing groundwater quality. Therefore, this impact would be less than significant and potentially beneficial.

Recovery Activities and Groundwater Levels Potential for Spread or Exacerbation of Contaminant Plumes

Adverse effects from the Proposed Project also could occur due to recovery activities (i.e., groundwater pumping to recover banked water). This could potentially cause the spread or exacerbation of any contaminant plumes existing in the aquifer. As described in the KRGSA GSP (2019), "pumping wells that are likely to spread or exacerbate contaminant plumes" is another of the three primary pathways through which an undesirable result for water quality may occur. However, similar to recharge of surface supplies, the GSP states that the potential for this pathway to cause undesirable results is unlikely under current conditions. First, no distinct plumes have been identified in the KRGSA Plan Area. Further, pumping centers have been established for decades and wells are routinely monitored for groundwater quality (KRGSA 2019, p. 5-27).

As such, operation of on- or off-site wells for recovery operations under the Proposed Project would not result in the spread or substantial exacerbation of existing contaminant plumes. Although various constituents of concern have been documented above the MCL in the project vicinity (see Figure 11-5), these samples are not indicative of a known large contaminant plume. As shown in Table 11-5, the measurements taken from wells within the project site (JC-West and JC-East) were mostly below the respective MCLs for the constituents considered (except for nitrate in JC-East [59.5 mg/L], which exceeded the primary MCL). 1,2,3-TCP has also been detected in the area of the Proposed Project. While operation of the wells during recovery activities could create temporary cones of depression in the areas immediately surrounding the wells, thereby altering the localized hydraulic head and potentially altering groundwater flow in these areas, this would not result in substantial exacerbation of existing contamination problems.

Declining Groundwater Levels and Conveyance of Recovered Water

Given that two of the three pathways for undesirable water quality results identified in the KRGSA GSP are unlikely to occur, the GSP focuses on the third pathway/action: "operation of groundwater levels that increase concentrations of contaminants in wells such that the beneficial use of groundwater is impacted" (KRGSA 2019, p. 5-26). Arsenic[3], in particular, is correlated with water levels, with arsenic concentrations increasing in some wells when water levels decline.[4] If arsenic is associated with the deeper aquifer zones, the contributions from those zones could be higher when water levels are low (KRGSA 2019, p. 5-27). For this reason,

[3] Arsenic occurs naturally as a trace component in many rocks and sediments. Whether the arsenic is released from these geologic sources into groundwater depends on the chemical form of the arsenic, the geochemical conditions in the aquifer, and the biogeochemical processes that occur (USGS 2021). Arsenic also can be released into groundwater as a result of human activities, such as mining, and from its various uses in industry, in animal feed, as a wood preservative, and as a pesticide. In drinking-water supplies, arsenic poses a problem because it is toxic at low levels and is a known carcinogen. In 2001, the USEPA lowered the MCL for arsenic in public-water supplies to 10 µg/L from 50 µg/L (USGS 2021).

[4] Less is known about extent of 1,2,3-TCP in the regional aquifer. With the recent (2017) adoption of an MCL for 1,2,3-TCP, banking projects and water purveyors continue to learn the extent and mitigation techniques to best manage the contaminant. As discussed below, water extracted for the Proposed Project purposes would, as necessary, be required to meet applicable requirements for water quality, including 1,2,3-TCP.

the sustainability indicator and minimum threshold for degraded water quality for all areas in the KRGSA Plan Area is based on the groundwater level. As shown in Table 11-1, the minimum threshold for degraded water quality in the West-Northwest portion of the Agricultural MA (within which the project site is located) is 50 feet below the historic low water level.

In general, the effects of the Proposed Project on groundwater levels would be beneficial, as the Proposed Project would allow for increased groundwater recharge capacity and rates relative to baseline conditions. However, during recovery periods (i.e., when on- and off-site Project wells are used to extract previously banked groundwater), groundwater levels would drop in the immediate area, potentially resulting in adverse effects on groundwater quality.

As discussed in detail below in Impact WQ-2, the Proposed Project's potential effects on groundwater levels were analyzed in a hydrogeologic study (TH & Co. 2021; see Appendix H). The study found that maximum groundwater drawdown in on-site project wells is predicted to be as high as approximately 50 feet in the shallow/intermediate aquifer and up to 60 feet in the deep aquifer (TH & Co. 2021); this drawdown would decrease in severity as one moves further from the project wells. Maximum pumping drawdown near offsite production wells is predicted to be less than 10 feet. The study specifically compared the Proposed Project's level of drawdown to the applicable minimum thresholds in the KRGSA GSP. As described further in Impact WQ-2, overlaying the project's operational scenario on historical groundwater levels would not cause groundwater levels to drop below applicable minimum thresholds (with the exception of one well [29S/26E-26K01], where the baseline hydrograph already dropped below the threshold). Given that operation of the Proposed Project for groundwater recovery would not cause groundwater levels to drop below the applicable minimum thresholds in the KRGSA GSP (which were developed to avoid undesirable results to water quality), the Proposed Project would not substantially affect groundwater quality due to effects on groundwater levels.

Recovered non-Kern River water could be conveyed into the California Aqueduct, which is used to convey water to Southern California, some of which is used for domestic purposes. These operations would be subject to applicable pump-in water quality requirements, which would ensure that the Proposed Project operations do not violate applicable water quality standards. The Proposed Project operators would enter into agreements with KCWA and/or DWR as necessary; such agreements would include water quality requirements for discharging non-SWP water into the California Aqueduct. Prior to pumping extracted groundwater into the California Aqueduct, the recovering district would be responsible for ensuring that the water quality was sufficient to meet applicable water quality requirements. The recovering district would be required to submit to DWR a pump-in proposal that identifies the water sources, planned operation, inflow water quality, and any anticipated impacts to water quality and/or operations. Any water that did not meet water quality requirements or could not be blended to meet such requirements, as imposed by the conveyance facility operators, would not be conveyed within the Proposed Project canals for delivery to the California Aqueduct.

Further, extractions of water related to the Proposed Project would be subject to the terms and conditions of the MOUs and operations plans that govern groundwater banking activities and prescribes mitigation where effects occur (see Appendix B, *Draft Mitigation Joint Use Agreement, Operations Plan, and MOUs*). As discussed further under Impact WQ-2, the Joint Operating Plan requires the regular evaluation of groundwater conditions and forecasting of "With Project" and "Without Project" groundwater levels at the outset of recovery programs,

and includes a set of triggers and actions to provide mitigation in the event that a landowner is determined to experience impacts at a well by declining groundwater levels as a result of recovery operations.

Proposed Project recovery operations would also be subject to the McAllister Ranch Use of Facilities and Mitigation Agreement between the City, BVWSD and RRBWSD (Joint Use Agreement, provided as Appendix B of this DEIR) commits the districts to avoiding adverse impacts on water quality, as described in Chapter 2 and summarized in Impact WQ-2. Specifically, the districts have committed to maintain a positive water balance at all times, adjust pumping rates or terminate pumping to reduce significant impacts if necessary, and to take corrective actions when certain conditions occur. Examples of such actions include financial compensation for the costs of deepening wells or drilling new wells, alternative or replacement water supplies when existing wells are not operating or are under modification or construction, and 1/3-mile setbacks between project wells and existing neighboring wells. The combined effect of the Joint Use Agreement's, MOU's, and Operations Plan's operations provisions and would be to avoid adverse impacts on water quality.

Conclusion

The Proposed Project would likely be beneficial overall with respect to water quality, as it would recharge the groundwater basin, which is currently in a state of critical overdraft. If hazardous materials (e.g., in construction equipment) are mishandled or mismanaged during construction or operation, this could potentially provide a pathway for groundwater or surface water pollution. Implementation of the SWPPP would reduce this potential impact to less than significant. Recharge and recovery activities under the Proposed Project would not result in adverse impacts on water quality. The surface water to be used for recharge would be of high or adequate quality and the recovery operations would not reasonably cause the spread or exacerbation of contaminant plumes; nor would it cause groundwater levels to drop to such a level as to cause significant adverse water quality effects. Recovery operations for delivery to conveyance facilities that convey water for domestic purposes would be required to comply with the requirements of the project operators, including drinking water standards. Therefore, this impact would be **less than significant.**

Impact WQ-2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin – Less than Significant

As discussed above in Impact WQ-1, in general, the Proposed Project is anticipated to benefit groundwater supplies and facilitate more sustainable management of the groundwater basin. Considering that the Proposed Project would be designed to allow for recharge of the underlying groundwater basin using available surface water supplies (and later recovery of banked water), it would improve operational flexibility and should increase groundwater supplies over the long term. Specifically, by increasing the of BVWSD and RRBWSD to store and utilize surface water supplies that might otherwise not be usable (e.g., excess, non-storable floodwater available through the CVP; excess SWP water that cannot be stored in state-operated reservoirs; high flow Kern River water supplies in wet years), this would maximize use of surface supplies and reduce the utilization of other existing groundwater supplies.

As stated in Chapter 2, *Project Description,* it is expected that up to 200,000 AF of water could be stored by the Proposed Project during any given year. By contrast, it is expected that up to 56,000 AF of stored water could be extracted from the aquifer in any given year. The Proposed Project would store water prior to recovery and would not extract more water than would be stored.

Conditions of Operation

As described in Chapter 2, *Project Description*, the Proposed Project would be bound by existing agreements and plans for minimizing and/or mitigating for potential impacts from recovery (i.e., pumping) of banked groundwater. As stated in Chapter 2 (pp. 2-17 to 2-18):

> Recovery operations would be consistent with the *Project Recovery Operations Plan Regarding Pioneer Project, Rosedale-Rio Bravo Water Storage District and Kern Water Bank Authority Projects* (Joint Operating Plan) and the Mitigation Agreement with the City, as well as the MOUs and the Operations Plans described below. Banking and recovery would be monitored for potential groundwater level impacts, resulting from operation of the Proposed Project on neighboring agricultural, municipal, and domestic wells, and significant impacts would be avoided, eliminated, or mitigated by implementing one or more of the corrective actions listed therein. As required by SGMA, the KRGSA would also monitor operation of the Proposed Project to ensure consistency with its GSP.

As described in the Long-Term Operations Plan and Joint Operating Plan, included in Appendix B (KCWA, RRBWSD, and Kern Water Bank Authority 2017), the parties to the plan would be required to regularly evaluate groundwater conditions and forecast "With Project" and "Without Project" groundwater levels at the outset of recovery programs. The Joint Operating Plan includes a set of triggers and corrective actions that BVWSD and/or RRBWSD will employ in the event that a landowner is determined to experience certain effects by declining groundwater levels as a result of recovery operations. The corrective actions identified in the Joint Operating Plan include the following (KCWA, RRBWSD, and Kern Water Bank Authority 2017; p. 3):

i. Providing a short-term emergency water supply to domestic well owners. Short-term emergency supplies shall be provided as soon as reasonably possible, but in all cases within 14 days of notification to the JOC [Joint Operations Committee] of such needs;

ii. Providing funds to lower a well pump;

iii. Providing funds to complete a connection to an M&I [municipal and industrial] water provider;

iv. Supplying an equivalent water supply from an alternate source;

v. Providing funds to replace the affected well with a deeper well that meets Kern County well ordinance standards;

vi. Reducing or adjusting recovery pumping as necessary to avoid the impacts; or

vii. With the consent of the affected landowner, providing other acceptable mitigation.

The costs paid for mitigation by the parties to the Joint Operating Plan would be proportional to the parties' respective contributions to the groundwater level reductions and associated impacts. The safeguards included in the Joint Operating Plan, to which the Proposed Project would adhere, would serve to limit any potential localized impacts on groundwater supplies or levels from the Proposed Project's recovery operations. In the event the Joint Operating Plans expires, the proposed project would remain subject to the similar terms and conditions of the Long-Term Operations Plan, which should likewise serve to limit potential localized impacts at nearby wells.

The draft Joint Use Agreement between the City and BVWSD and RRBWSD would require the districts to monitor and record groundwater levels on a monthly basis, when in use, and provide all monitoring results to the City; recharge water supplies that are generally suitable for groundwater banking purposes; and act to prevent or mitigate for adverse impacts. Mitigation could include financial compensation for the costs of deepening wells or drilling new wells, alternative or replacement water supplies when existing wells are not operating or are under modification or construction, and 1/3-mile setbacks between project wells and existing neighboring wells. The draft Joint Use Agreement specifies that the Proposed Project "shall not cause or contribute to overdraft of the groundwater basin" (p. 9).

Modeled Groundwater Conditions based on Conditions of Operation

The hydrogeologic study evaluated potential drawdown from the Proposed Project under various historical groundwater conditions, as documented in Appendix H (TH & Co. 2021). In general, the potential effects of the Proposed Project would depend on the regional hydrologic and water supply conditions and associated groundwater level conditions. For example, the potential for adverse groundwater level drawdown would be most pronounced during recovery operations when groundwater levels are already low or declining due to extended dry conditions and lack of recharge water being available. The analysis completed for the Proposed Project properly considered the Proposed Project elements, as described in the DEIR, and the report analyzed consistency with KRGSA GSP sustainability criteria and thresholds.

As explained in the hydrogeologic report (TH & Co. 2021), potential changes in groundwater levels specific to project operations were evaluated relative to baseline groundwater level conditions for the period between 2005 and 2018. This period represents an extreme range in groundwater level conditions, including near historical high groundwater conditions in 2007 and historical low groundwater conditions in 2016 (TH & Co. 2021). The baseline hydrographs for Wells 30S/26E-22P01 and 30S/26E-22P03, located at the southern boundary of the project site, are shown in **Figure 11-6**. (Note that Figures 11-6 through 11-9 are provided at the end of this chapter.) The baseline groundwater level conditions were compared against a project operational scenario, which was designed to simulate the maximum amount of recharge the Proposed Project could accommodate while maintaining groundwater levels below the levels protective of liquefaction (TH & Co. 2021). The analysis resulted in recharge rates ranging from 48,500 acre-feet per year (AFY) for the 2005-2006 time period to 182,067 AFY for 2017.

Conversely, under the project operational scenario modeled in the hydrogeologic study, groundwater recovery was spread out over four years to maximize recovery and minimize

additional drawdown at nearby non-project wells (TH & Co. 2021). Groundwater pumping was simulated over four 10-month periods overlapped in March through December 2008, 2009, 2014, and 2015 groundwater level conditions. A total of 180,212 AF was recovered during this time, of which 75 percent was recovered from onsite project wells, and 25 percent was recovered from 16 offsite production wells. The assumptions used in the operational scenario are shown in **Table 11-6**.

Table 11-6. Summary of Model Operational Scenario

Facility	Annual Recharge Rate (AF)	Combined Recharge Rate (AFY)	Total Recharged (AF)	Simulated Period of Recharge	Annual Recovery Rate (AFY)	Total Recovered (AF)	Simulated Period of Recovery
JC-SW	9,000 / 22,776 / 22,776	48,500 / 110,556 / 182,067	341,123	Jan 2005 – Dec 2006, Jan 2011 – Dec 2012, Jan 2017 – Dec 2017	42,000 / 35,000 / 51,606 / 51,606	180,212	Mar 2008 – Dec 2008, Mar 2009 – Dec 2009, Mar 2014 – Dec 2014, Mar 2015 – Dec 2015
JC-NW	7,000 / 15,000 / 42,048						
JC-N	7,000 / 15,549 / 15,549						
JC-NE	9,000 / 18,725 / 18,725						
JC-SE	9,000 / 18,506 / 18,506						
Opt. Prop.	7,500 / 20,000 / 64,463						

Note: AF = acre-feet

Source: TH & Co. 2021 (Appendix H of this DEIR)

Overall, the model predicted that groundwater pumping drawdown, relative to the baseline condition, would be greatest in the west central part of the project area. Maximum groundwater drawdown in project wells is predicted to be as high as approximately 50 feet in the shallow/intermediate aquifer and up to 60 feet in the deep aquifer (TH & Co. 2021). Maximum pumping interference in the nearest non-project wells occurs in the deep aquifer and is predicted to range from approximately 13 to 29 feet (TH & Co. 2021). Maximum pumping drawdown near offsite production wells is predicted to be less than 10 feet. The results of the modeling exercise are shown in Figure 11-7 and **Figure 11-8**. As shown in the figures, the level of drawdown that could occur from project recovery operations would generally decrease with distance from the project site. The operational hydrographs (depicting the effects of the project's operational scenario) for individual wells included in Figure 11-7 show a generally modest change from the baseline hydrographs. Also apparent in the hydrographs in Figure 11-7 are the increased groundwater levels that are predicted based on project recharge operations.

The hydrogeologic study also compared its groundwater drawdown modeling results to the sustainability thresholds in the KRGSA GSP. First, note that Well 30S/26E-22P03 (hydrograph shown on Figure 11-6) is one of the wells included in the KRGSA GSP monitoring network (see Figure 11-1). This well and other KRGSA GSP wells are identified on Figure 11-7 and Figure 11-8. Additionally, Figure 11-9 shows modeling results for individual KRGSA GSP monitoring network wells in the project vicinity relative to the sustainability thresholds for those wells. As shown in

Figure 11-9, overlaying the Project's operational scenario on historical groundwater levels would not cause groundwater levels to drop below applicable sustainability thresholds (with the exception of one well [29S/26E-26K01], where the baseline hydrograph already dropped below the threshold).

Conclusion

The hydrogeologic analysis confirms that the Proposed Project would have potential adverse effects, which could occur during very low groundwater conditions. Interference with nearby non-project wells (as can be seen in Figure 11-4 there are several agricultural wells to the south of the project site and several municipal wells to the northwest of the site) could occur as a result of the Proposed Project's recovery operations; however, the measures included in the Operating Plans and the Joint Use Agreement would serve to avoid, minimize, or mitigate for, any significant effects. Notably, operation of the Proposed Project, on its own, would not cause groundwater levels to drop below the thresholds identified in the KRGSA GSP.

The overall effect of the Proposed Project on groundwater supplies and sustainable management of the basin is likely to be beneficial. As noted above, storage and later utilization of excess surface water supplies (e.g., floodwater) that cannot otherwise be stored would have a positive effect on the region's groundwater balance. It is anticipated that the project would store substantially more water than it would recover in any given year. As discussed in Section 11.3.3 and shown in Table 11-4, the Kern County Subbasin and KRGSA Plan Area are heavily impacted under existing conditions in terms of groundwater use exceeding natural and artificial recharge rates. The subbasin is designated high priority under SGMA and is identified as being in "critical overdraft." The Proposed Project would be consistent with, and would serve to implement, the KRGSA GSP. Although not specifically called out in the GSP, the Proposed Project would allow for improved conjunctive use[5], thus meeting the following GSP Phase One project objectives (KRGSA 2019):

- Increases in recharge and banking to offset potential future deficits and avoid overdraft, and
- Optimal conjunctive management of surface water and groundwater resources.

The Proposed Project would be one of many actions and projects being implemented by water agencies in the Kern County Subbasin and KRGSA Plan Area to address the ongoing water supply situation and ongoing groundwater basin impacts. The Proposed Project would not serve as an impediment to sustainable management of the basin. It may also be noted that by implementing the Proposed Project rather than the previously planned McAllister Ranch Specific Plan (which included up to 9,000 residential units, along with 355 acres of commercial uses and other uses), the water demand associated with that previous proposed use would be avoided.

[5] "Conjunctive use" is generally used to refer to the coordinated management of surface water and groundwater. Active conjunctive use involves storing surface water underground through groundwater injection or recharge projects, and then groundwater is withdrawn for use during dry years.

The Proposed Project would not create any new permanent water supply, but rather would improve the reliability of water supply to serve existing demands.

In conclusion, the Proposed Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin; instead, the Proposed Project would increase groundwater supplies, improve groundwater recharge, and enhance sustainable groundwater management in the basin. These results would be beneficial to BVWSD and RRBWSD, and their customers, as well as to water users in the Kern River Subbasin in general. Therefore, this impact would be **less than significant.**

Impact WQ-3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. Result in substantial erosion or siltation on- or offsite – *Less than Significant*

Construction of the Proposed Project would have potential to alter the existing drainage pattern of the site, such as to result in erosion or siltation. Construction activities would involve ground-disturbing activities, such as demolition and removal of existing on-site improvements (e.g., partially built roads and utilities), earth-moving for construction of levee structures, and recovery well drilling and construction. Off-site improvements would include construction of the head gate and gravity turnout at the southeast corner of Basin 1 of the City's 2800 Acre Groundwater Recharge Facility and the unlined canal from Basin 1 to the project site (siphon crossings would be required at several locations).

These activities would loosen soils and remove vegetation (where it exists on-site), leaving the area more susceptible to erosion. Subsequent precipitation events could carry loosened soils and sediments and/or cause additional erosion on the site and transport these constituents off-site. Sediments are generally detrimental to surface waters, particularly in higher volumes that may be generated by a ground-disturbing construction project. For example, eroded sediments can increase the turbidity of waters, which may be detrimental to aquatic life and adversely affect other beneficial uses. Fine sediments also may infill coarse cobbles and other interstitial spaces in waterbodies that may serve as spawning grounds for special-status fish species.

The project site is located relatively low in the Kern River watershed and is relatively flat. As shown in Figure 11-2, apart from the Kern River (approximately 0.6 mile northwest of the Project site), there are several artificial canals in proximity to the project site. Although the gentle topography of the area minimizes the potential for substantial off-site movement of eroded soils, precipitation events could potentially wash any construction-related sediments off-site to these waterbodies. The surface waterbodies near and downstream of the project site are not designated as impaired under the CWA Section 303(d); nevertheless, such sedimentation/siltation could be detrimental to beneficial uses, as designated in the Basin Plan (2019).

As the Proposed Project would disturb over 1 acre of land, it would be subject to the Construction General Permit (refer to Section 11.2.1). In accordance with the Construction General Permit, BVWSD would be required to prepare and implement a SWPPP. Among other

things, the SWPPP would include a list of BMPs that would be implemented during project construction to prevent soil erosion and protect against discharge of sediment and other construction-related pollutants to surface waters. Under the Construction General Permit, BVWSD would be further required to conduct monitoring and reporting to ensure that BMPs are implemented correctly and are effective in controlling the discharge of construction-related pollutants. Compliance with the Construction General Permit and implementation of the SWPPP would reduce potential for the Proposed Project to result in substantial erosion or siltation on- or off-site during construction to a level that is less than significant.

During operation, the Proposed Project would have minimal potential to result in substantial erosion or siltation. The project would create minimal impervious surfaces associated with well pads or flow control structures, as the majority of the site would be covered with recharge basins, which would be pervious. Thus, precipitation falling on the site during operation would likely infiltrate into the soil rather than sheet-flow off the site. The Proposed Project is within the City of Bakersfield limits and thus subject to the Phase 1 NPDES MS4 permit, but since the project would not create substantial new impervious surfaces, it would have minimal potential for stormwater generation. Thus, impacts would be less than significant during operation.

Overall, this impact would be **less than significant.**

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite – *Less than Significant*

As described under subsection i. above, the Proposed Project would create minimal new impervious surfaces and most of the site would be covered with recharge basins, which would be very pervious. Thus, the Proposed Project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite. Therefore, this impact would be **less than significant.**

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff – *Less than Significant*

For the reasons described above, the Proposed Project would not create or contribute substantial runoff water to areas off the site. The Proposed Project would not be connected to any stormwater drainage systems and would not require stormwater drainage service. As described in Chapter 19, *Utilities and Service Systems*, stormwater drainage facilities (e.g., storm drains) that are currently present on the interior of the site due to the previous partial construction of the McAllister Ranch development would be abandoned as part of project construction. Temporary drainage facilities would be built to handle existing road drainage until actual build out of the road by others. As a result, this impact would be **less than significant.**

iv. Impede or redirect flood flows – *Less than Significant*

As described in Section 11.3, relatively small portions of the Project site (western portions) are located within the 1-percent-annual-chance flood hazard area (FEMA Zone A). The Proposed Project would include levees separating the recharge basins and around the perimeter of the site that would range from 3 to 6 feet above the original (current) grade. The levees would have a trapezoidal cross section, with a top width of 16 feet and a bottom width ranging from 28 to

40 feet. The perimeter levees would be located along the outer edges of the project site and would be offset about 15 feet inside the property line.

Therefore, while portions of the project site are currently within the mapped inundation area for a 1-percent-annual-chance (i.e., 100-year) flood event, the project levees (upon construction) would likely prevent any flood flows from entering the site. In this respect, the project levees may impede or redirect flood flows in the localized area; however, this would not be likely to result in substantial adverse effects. The western portion of the project site and the immediately surrounding area are undeveloped with no housing or other habitable structures nearby. As such, to the extent flood flows may be redirected from the project site, this would be unlikely to affect any structures or people. If flood waters were to enter the project site (e.g., through the conveyance facilities and inter-basin flow structures), the project's recharge basins may serve to detain flood flows and allow for groundwater recharge.

Therefore, this impact would be **less than significant.**

Impact WQ-4. Result in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation – Less than Significant

The Proposed Project is outside of any tsunami hazard areas and there are no large, enclosed bodies of water nearby that could generate a seiche. As discussed above, portions of the site are located within the mapped 1-percent-annual-chance flood hazard area; thus, it is possible (although remote) that these portions of the project site could be inundated during a 100-year flood event that may occur during the project construction period (anticipated to last 5 years). Once project construction is complete, the 3- to 6-foot-high perimeter levees would likely prevent flood waters from entering the site.

If the project site were to be inundated during the construction period, this could potentially result in the release of pollutants, which could thereby adversely affect water quality. Project construction would involve use of a variety of construction equipment (see Table 2-4 in Chapter 2, *Project Description*), much of which would use or contain hazardous materials (e.g., fuel, oil, lubricant, etc.). Given that these pieces of equipment and the materials needed for their operation and maintenance may be stored on the site during the project construction period, inundation of portions of the site during a flood event could result in release of these pollutants. However, given the low probability of such a scenario occurring, this impact would be considered less than significant.

As noted above, following completion of project construction, the perimeter levees would likely prevent floodwaters from entering the site (unless the inundation depth exceeded 3 to 6 feet). Regardless, the Proposed Project would not store hazardous materials or other pollutants on site during operation. Thus, even if the site were to be inundated, it would not result in a substantial release of pollutants.

Apart from "natural" flooding, the Proposed Project also could be affected by inundation due to failure of Isabella Dam. As described in Section 11.3, the project site (along with nearly the entirety of the City of Bakersfield) is within the mapped inundation area for failure of the main Isabella Dam. The inundation depth on the project site could reach up to 10 feet in the event of such a failure (County of Kern 2008b). For similar reasons to those described above, if

inundation from dam failure were to occur during the project construction period, this could result in the release of pollutants (e.g., hazardous materials stored on-site and/or in construction equipment). However, due to the low probability of such an event occurring, this impact would be considered less than significant.

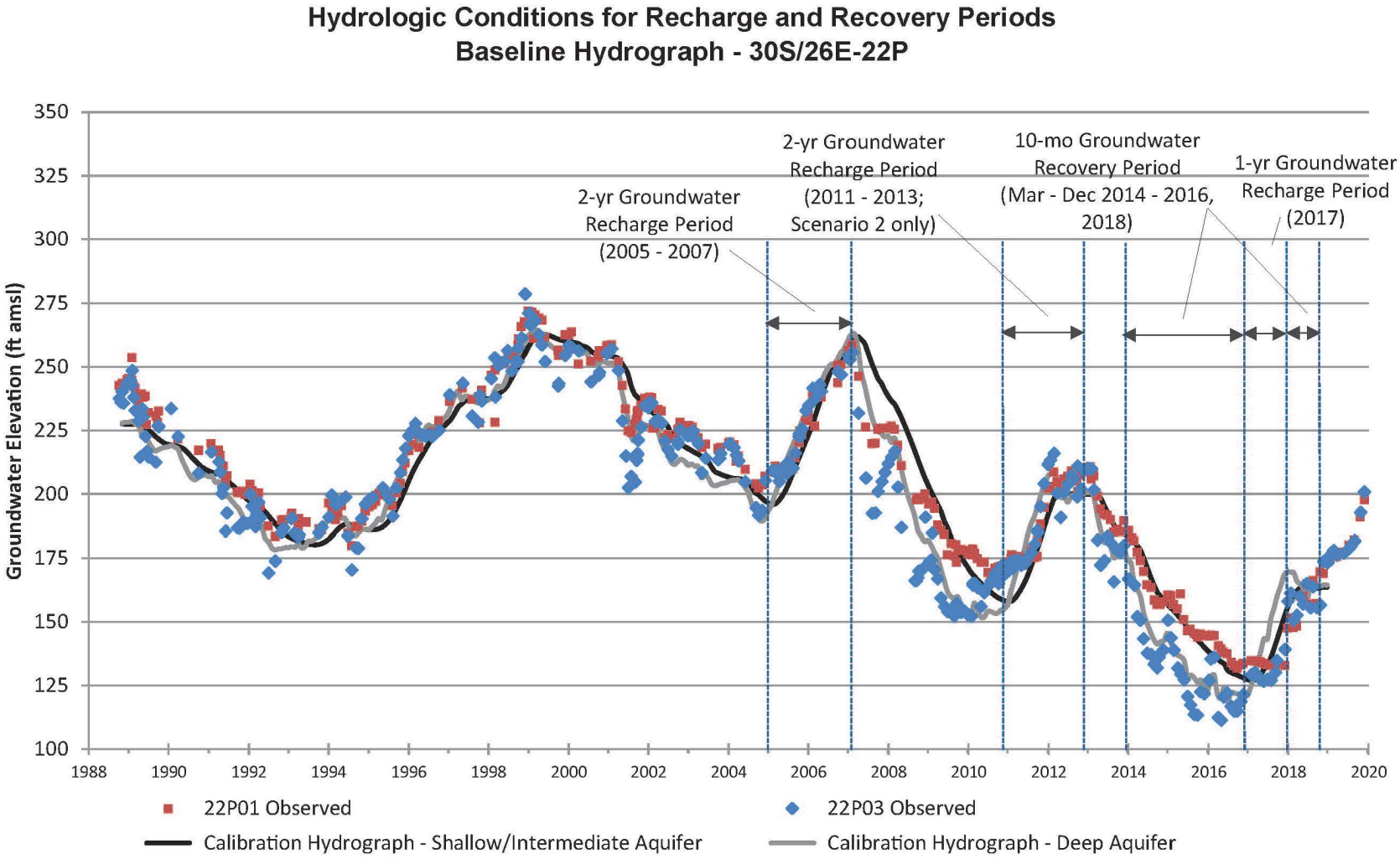
Overall, this impact would be **less than significant.**

Impact WQ-5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan – Less than Significant

As discussed in Impacts WQ-1 and WQ-2, the Proposed Project would not result in substantial degradation of water quality or drawdown of groundwater supplies. Rather, provided that potential impacts related to hazardous materials use/management during construction and operation are avoided or minimized, the Proposed Project would likely have a beneficial overall effect on water quality and groundwater levels. By using available surface supplies to recharge groundwater, the project would increase groundwater supplies/levels in the subbasin, which is currently in "critical overdraft." To the extent that the project increases storage of supplies in the aquifer, this would likely improve groundwater quality, since some naturally-occurring pollutants (e.g., arsenic) are more associated with the deeper subsurface materials. In this respect, the Proposed Project would further progress toward achievement and maintenance of groundwater beneficial uses identified in the Basin Plan.

Likewise, the operational flexibility provided by the Proposed Project would benefit sustainable groundwater management and would be consistent with the KRGSA GSP. As noted in Impact WQ-2, the Proposed Project would specifically meet or contribute towards KRGSA GSP Phase One objectives to increase recharge and banking and optimize conjunctive management of surface water and groundwater. The Proposed Project also would be consistent with other GSPs in the vicinity (e.g., KGA, BVWSD GSA), which generally advocate for more recharge and conjunctive use projects. Hydrologic conditions in any given year may dictate the operation of the project (e.g., whether surface supplies are available for recharge, relative need for groundwater pumping/recovery during the dry season) and relative benefit to groundwater levels in a given time period. Over the long-term, however, the effects of the project would be positive. The project would expand the toolkit available to water managers to maximize storage and use of available surface water supplies and limit the ongoing overdraft of the groundwater basin.

As result, the Proposed Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, this impact would be **less than significant**.



Note: 22P03 is a KRGSA SGMA RMS well.

Source: TH & Co. 2021

Figure 11-6.
Historical Groundwater Levels – Baseline Hydrograph

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Horizon WATER and ENVIRONMENT

McAllister Ranch Groundwater Banking Project

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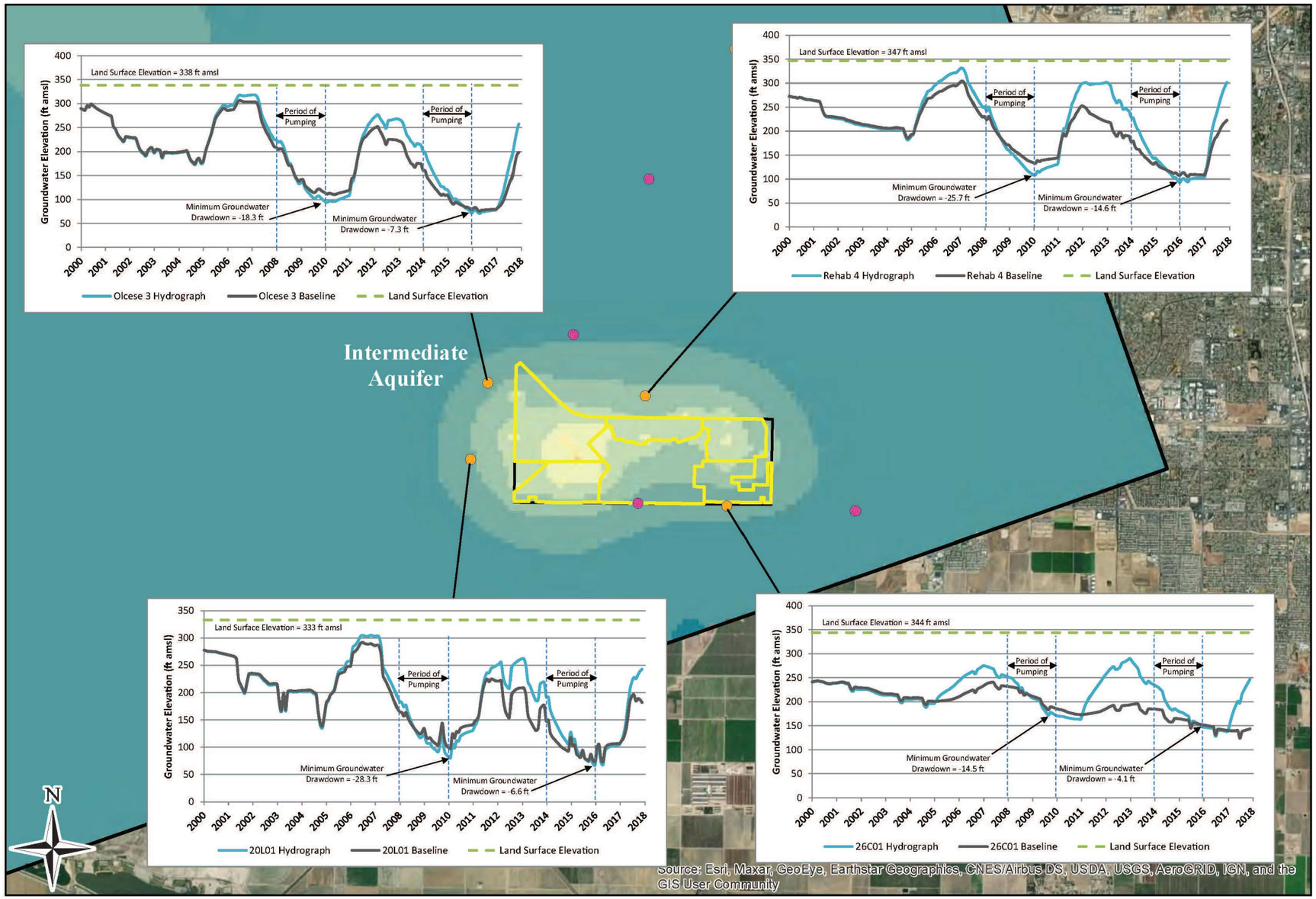

Map Features

Maximum Groundwater Level Drawdown (ft)

- 10 to 20
- 0 to 10
- 0 to -10
- -10 to -20
- -20 to -30
- -30 to -40
- -40 to -50
- -50 to -60
- -60 to -70
- -70 to -80
- -80 to -90
- -90 to -100
- Production Well
- KRGSA SGMA RMS Well
- Recharge Zone
- Project Area
- Model Domain

Source: TH & Co. 2021

Figure 11-7.
Drawdown Modeling Results – On-site Wells
Sheet 1 of 2 - Intermediate Aquifer

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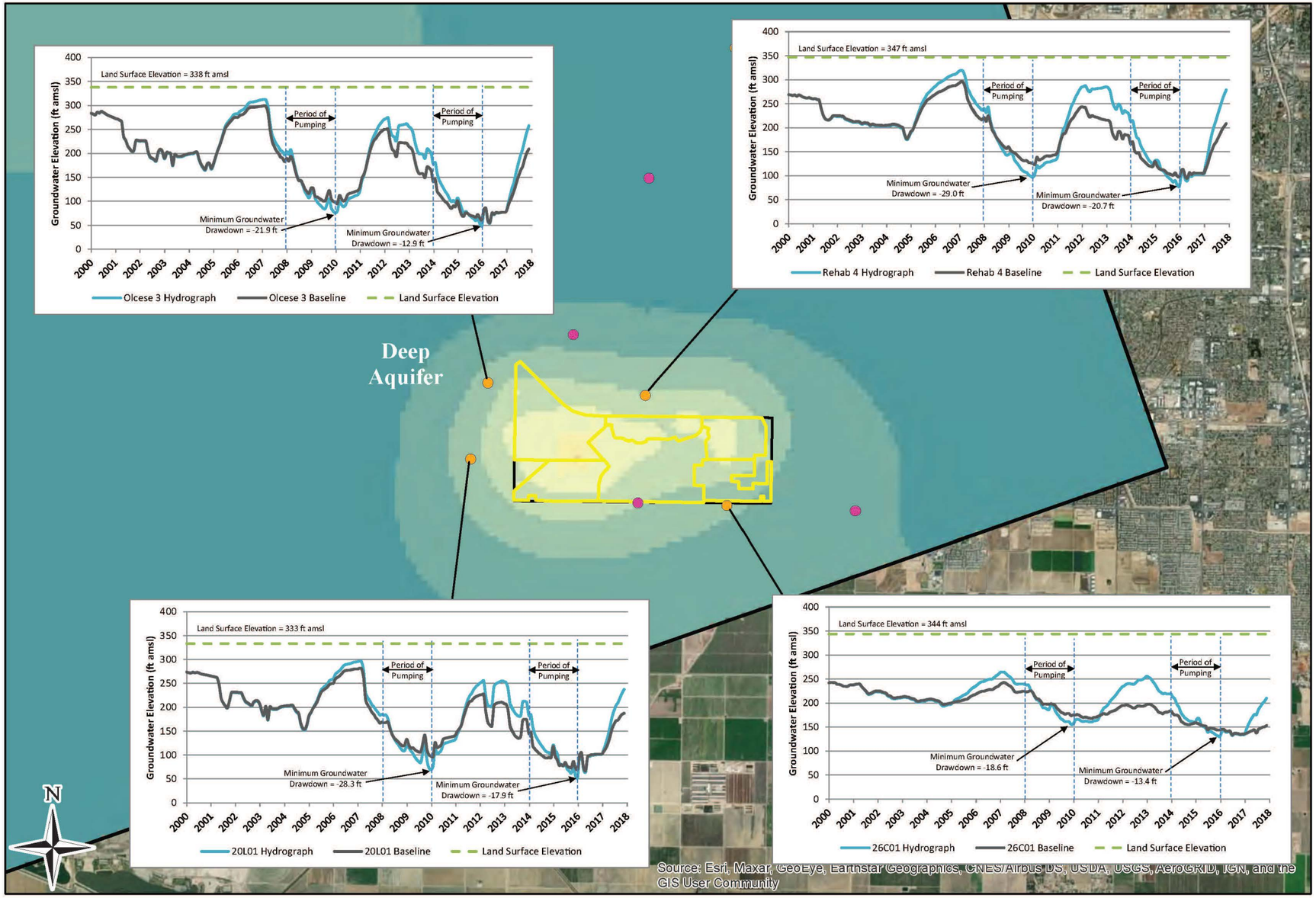

NAD 83 State Plane CA Zone 5

Map Features

Maximum Groundwater Level Drawdown (ft)

- 10 to 20
- 0 to 10
- 0 to -10
- -10 to -20
- -20 to -30
- -30 to -40
- -40 to -50
- -50 to -60
- -60 to -70
- -70 to -80
- -80 to -90
- -90 to -100
- Production Well
- KRGSA SGMA RMS Well
- Recharge Zone
- Project Area
- Model Domain

Source: TH & Co. 2021

Figure 11-7.
Drawdown Modeling Results – On-site Wells
Sheet 2 of 2 - Deep Aquifer

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McAllister Ranch Groundwater Banking Project

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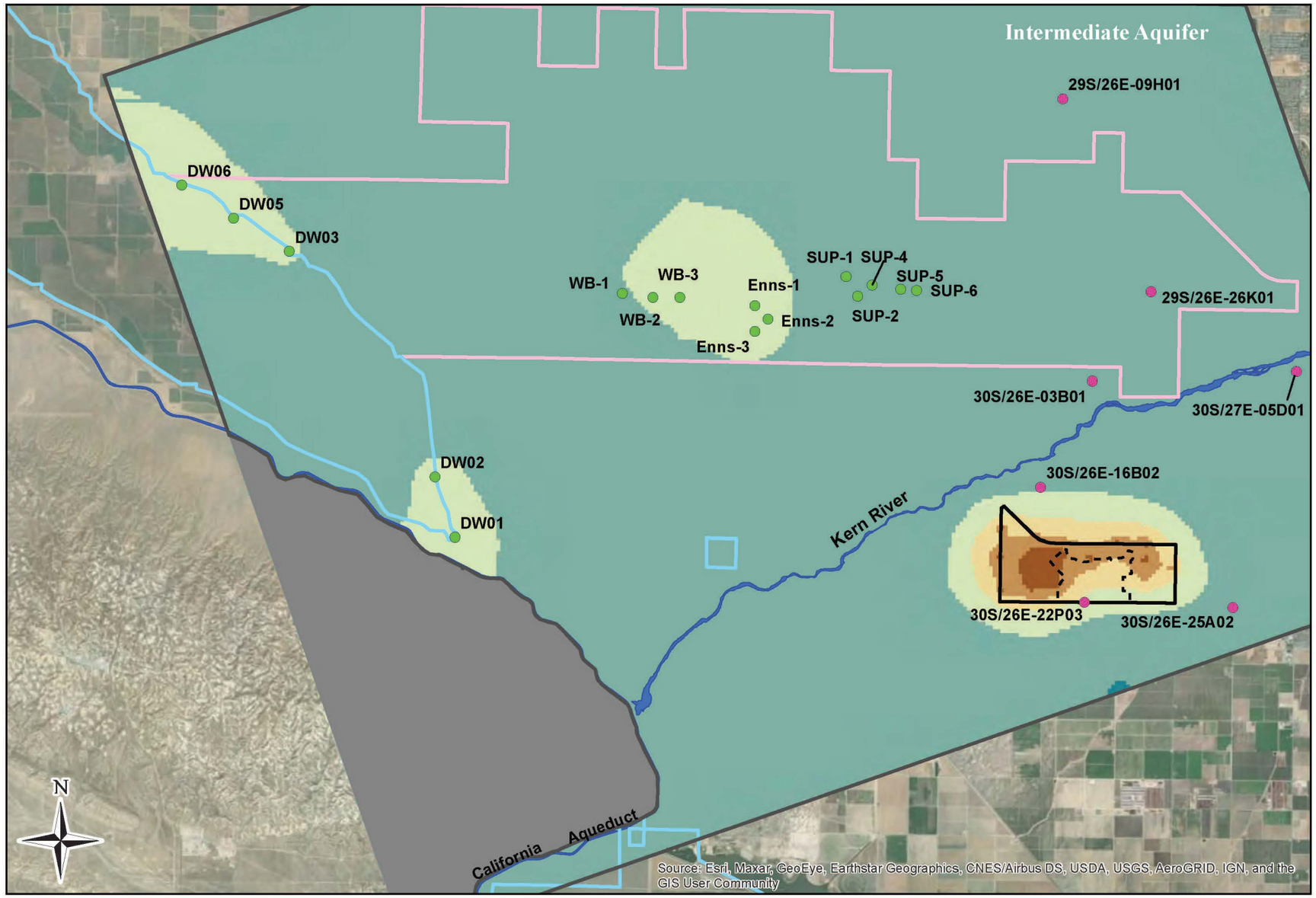

Map Features

Maximum Groundwater Level Drawdown (ft)

- 10 to 20
- 0 to 10
- -10 to 0
- -20 to -10
- -30 to -20
- < -30
- Offsite Production Well
- KRGSA SGMA RMS Well
- Project Area
- Option Property
- Buena Vista Water Storage District
- Rosedale-Rio Bravo Water Storage District
- Model Domain
- No-Flow Cells
- Water Courses

Source: TH & Co. 2021

Figure 11-8.
Drawdown Modeling Results – Off-site Wells
Sheet 1 of 2 - Intermediate Aquifer

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McAllister Ranch Groundwater Banking Project

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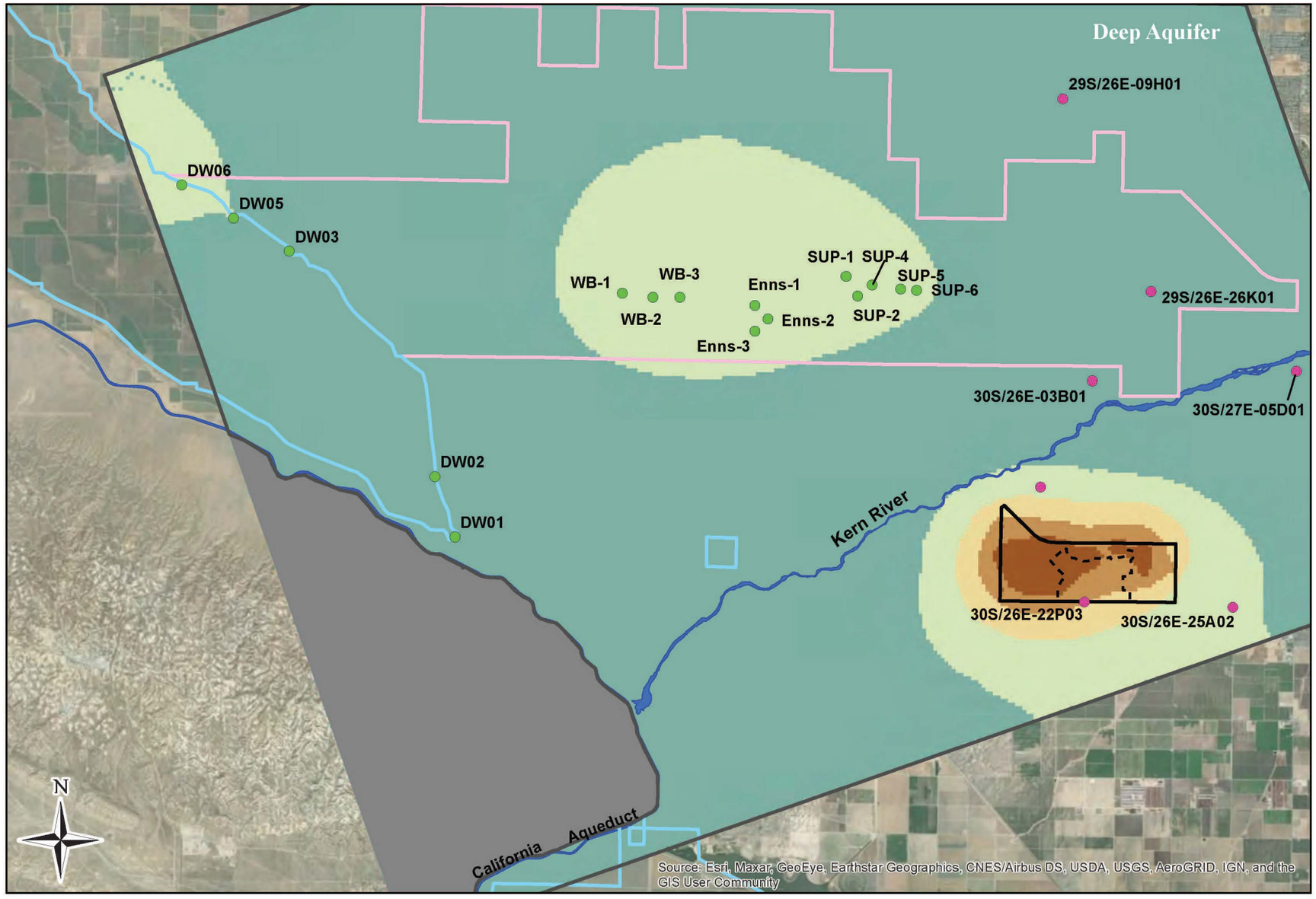

Map Features

Maximum Groundwater Level Drawdown (ft)

- 10 to 20
- 0 to 10
- -10 to 0
- -20 to -10
- -30 to -20
- < -30

- Offsite Production Well
- KRGSA SGMA RMS Well
- Project Area
- Option Property
- Buena Vista Water Storage District
- Rosedale-Rio Bravo Water Storage District
- Model Domain
- No-Flow Cells
- Water Courses

Source: TH & Co. 2021

Figure 11-8.
Drawdown Modeling Results – Off-site Wells
Sheet 2 of 2 - Deep Aquifer

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McAllister Ranch Groundwater Banking Project

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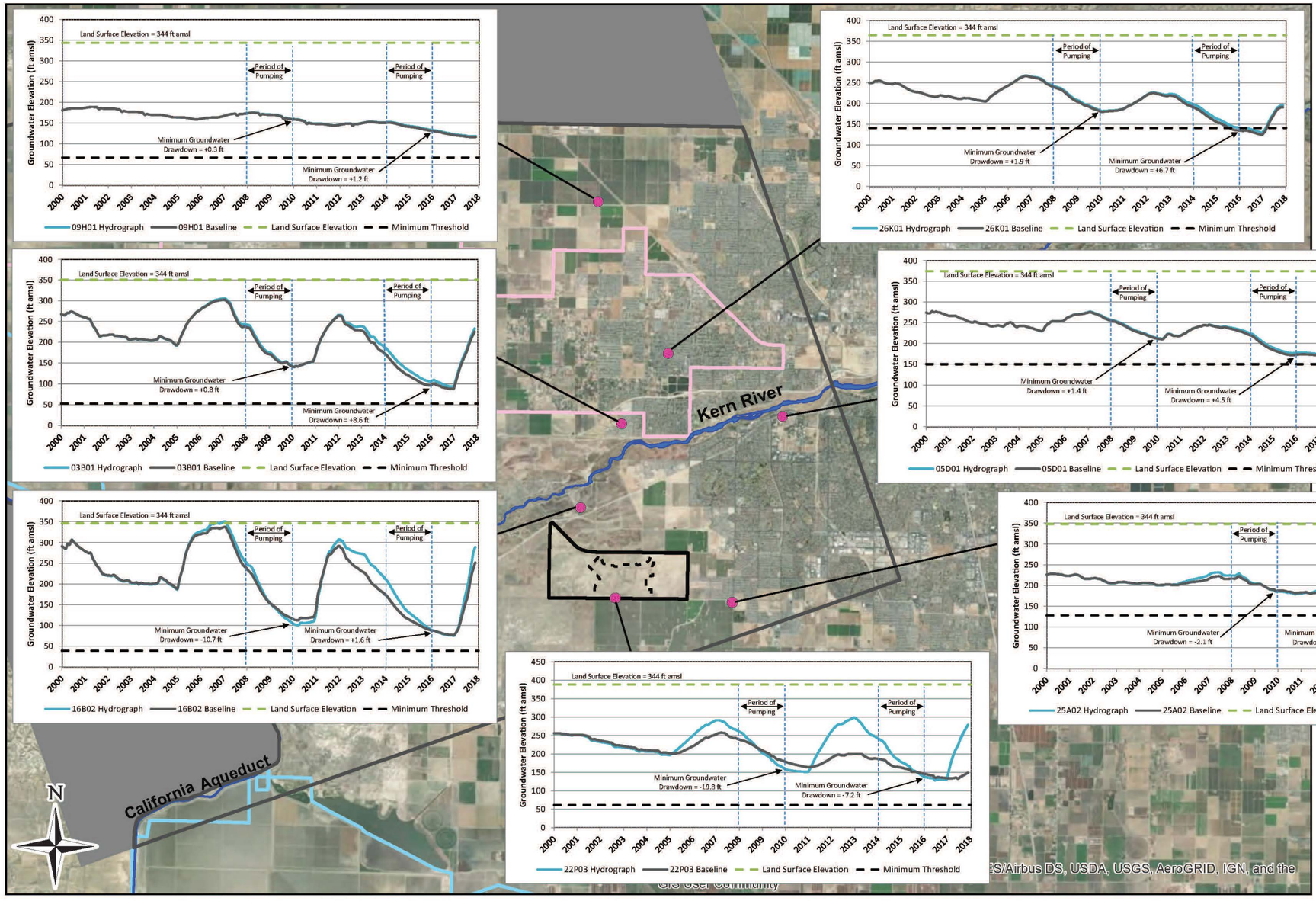

Map Features

- KRGSA SGMA RMS Well
- Project Area
- Option Property
- Buena Vista Water Storage District
- Rosedale-Rio Bravo Water Storage District
- Model Domain
- No-Flow Cells
- Water Courses

Note: There is a minimum threshold discrepancy for 30S/26E-16B02 in the KRGSA GSP (see Attachment A). Table 6-1 in theGSP (see Attachment A p.1) lists the minimum threshold as 39 ft amsl whereas Figure 6-2 of the GSP (see Attachment A p.3) lists the minimum threshold as 79 ft amsl. The minimum threshold shown on this figure is from Table 6-1 of the GSP.

Source: TH & Co. 2021

Figure 11-9. Drawdown Modeling Results Relative to KRGSA Groundwater Sustainability Plan Minimum Thresholds
Sheet 1 of 2 - Intermediate Aquifer

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McAllister Ranch Groundwater Banking Project

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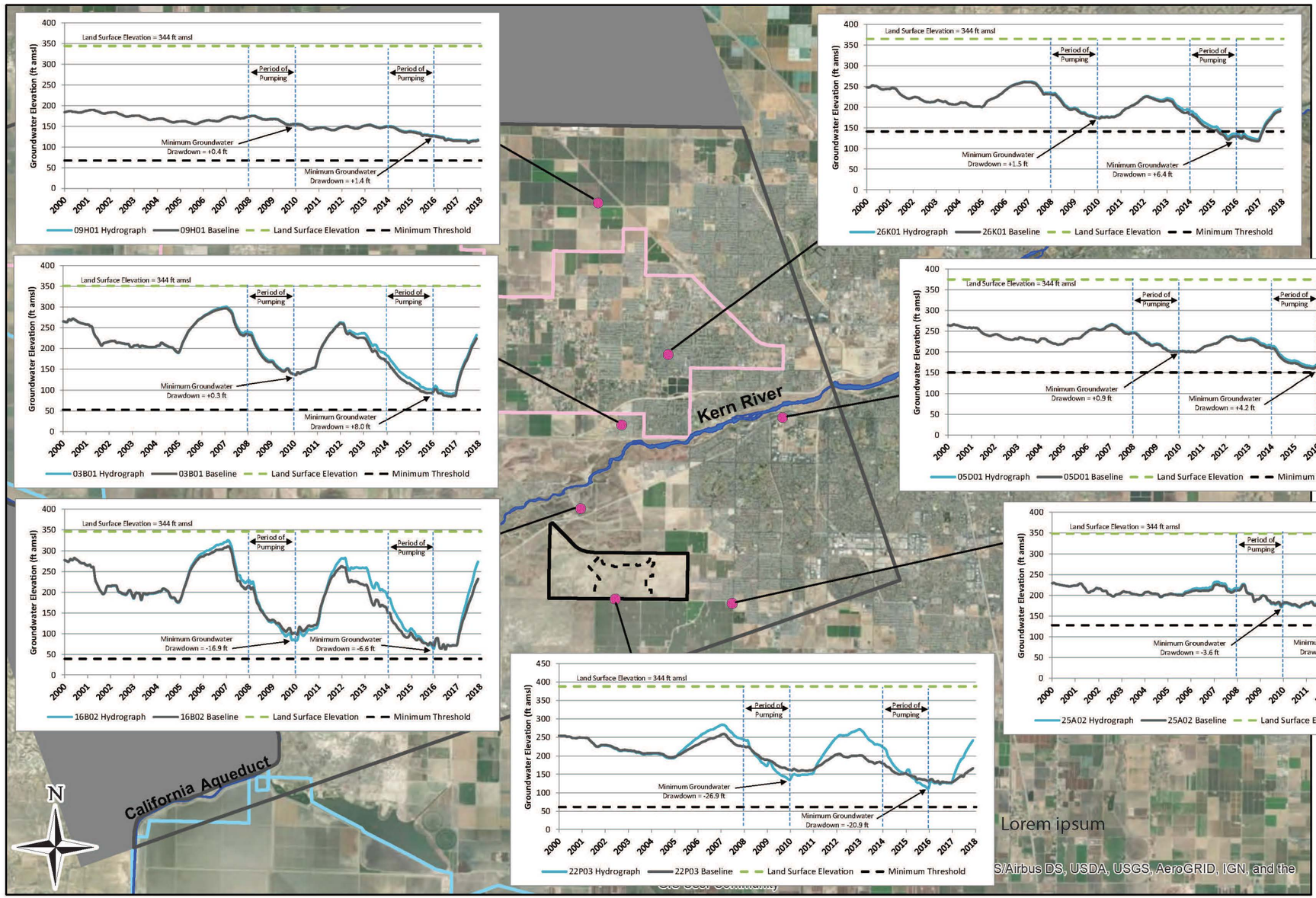

Map Features

- KRGSA SGMA RMS Well
- Project Area
- Option Property
- Buena Vista Water Storage District
- Rosedale-Rio Bravo Water Storage District
- Model Domain
- No-Flow Cells
- Water Courses

Note: There is a minimum threshold discrepancy for 30S/26E-16B02 in the KRGSA GSP (see Attachment A). Table 6-1 in theGSP (see Attachment A p.1) lists the minimum threshold as 39 ft amsl whereas Figure 6-2 of the GSP (see Attachment A p.3) lists the minimum threshold as 79 ft amsl. The minimum threshold shown on this figure is from Table 6-1 of the GSP.

Source: TH & Co. 2021

Figure 11-9. Drawdown Modeling Results Relative to KRGSA Groundwater Sustainability Plan Minimum Thresholds
Sheet 2 of 2 - Deep Aquifer

Prepared by:
Horizon WATER and ENVIRONMENT

McAllister Ranch Groundwater Banking Project

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Chapter 12
LAND USE/PLANNING

12.1 Overview

This chapter describes the setting and potential impacts of the Proposed Project related to land use and planning. Existing land uses in the study area and applicable land use polices and regulations for the City of Bakersfield are presented. Under the California Environmental Quality Act (CEQA), land use and planning generally refers to existing land uses and land use plans, and significance criteria relate to the potential for a project to physically divide an existing community or conflict substantially with an existing land use plan or regulation.

12.2 Regulatory Setting

12.2.1 Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies pertaining to land use and planning are applicable to the Proposed Project.

12.2.2 State Laws, Regulations, and Policies

Beginning in 2017, a series of housing bills have been passed by the California State Legislature and signed into law that focus on creating and/or protecting opportunities for development of new housing stock (especially affordable housing stock) in response to California's housing crisis. Some of these laws involve modifications to implementation of a jurisdiction's general plan Housing Element. The laws described below may affect zoning and development of the Proposed Project site.

Senate Bill 166 (Skinner): No Net Loss

The purpose of Senate Bill (SB) 166 is to ensure development opportunities remain available throughout the planning period to accommodate a jurisdiction's regional housing need allocation (RHNA), especially for lower income and moderate-income households. The following summarizes of No Net Loss requirements is:

- A jurisdiction must maintain an adequate number of sites to accommodate its remaining unmet RHNA in each income category at all times throughout the entire planning period.
- A jurisdiction may not take any action to reduce a parcel's residential density unless it makes findings that the remaining sites identified in its Housing Element sites inventory can accommodate the jurisdiction's remaining unmet RHNA in each income category, or it identifies additional sites so that there is no net loss of residential unit capacity.

- If a jurisdiction approves development of a parcel identified in its Housing Element sites inventory with fewer units than shown in the Housing Element, it must either make findings that the Housing Element's remaining sites have sufficient capacity to accommodate the remaining unmet RHNA in each income level, or identify and make available sufficient sites to accommodate the remaining unmet RHNA for each income category.

Assembly Bill 72 (Santiago): Enforce Housing Element Law

Assembly Bill (AB) 72 authorizes California Department of Housing and Community Development (HCD) to find a jurisdiction out of compliance with state housing law at any time (instead of the current 8-year time period) and refer any violations of state housing law to the Attorney General if HCD determines the action is inconsistent with the jurisdiction's adopted housing element.

Assembly Bill 1397 (Low): Adequate Housing Element Sites

AB 1397 requires cities to zone more appropriately for their share of regional housing needs and, in certain circumstances, requires by-right development on identified sites. The law requires that cities provide stronger justification when non-vacant sites are used to meet housing needs, particularly for lower income housing.

California Executive Order N-10-19

On April 29, 2019, Governor Gavin Newsom signed Executive Order (EO) N-10-19 directing the secretaries of the California Natural Resources Agency, California Environmental Protection Agency, and California Department of Food and Agriculture to prepare a water resilience portfolio that meets the needs of California's communities, economy, and environment through the 21st century. The order directed these agencies to inventory and assess information such as existing demand for water, existing water quality, projected water needs, and anticipated climate change impacts on water systems. The order identified principles to be embodied by the water resilience portfolio, such as prioritizing multi-benefit approaches, utilizing natural infrastructure, embracing innovation and new technologies, and encouraging regional approaches.

A final version of the Water Resilience Portfolio was released on July 28, 2020, providing a blueprint for equipping California to cope with more extreme droughts and floods, rising temperatures, declining fish populations, over-reliance on groundwater and other challenges. Priorities identified in the Portfolio include implementing the Safe and Affordable Drinking Water Act of 2019, supporting local communities to successfully implement the Sustainable Groundwater Management Act of 2014, updating regulations to expand water recycling, and accelerating permitting of new smart water storage.

12.2.3 Local Laws, Regulations, and Policies

Metropolitan Bakersfield General Plan

The Proposed Project site is located within the City of Bakersfield and is therefore included within the Metropolitan Bakersfield General Plan (MBGP) (City of Bakersfield 2002, updated 2016). The City's General Plan guides decisions affecting the future character of the Metropolitan Bakersfield planning area. The Land Use Element of the MBGP incorporates two general principles: focusing new development into distinctive centers that are separated by low land use densities, and siting development to take advantage of the natural setting. This approach seeks to encourage people to live and work in the same area and thereby minimize sprawl and reduce traffic. The site of the Proposed Project includes the following land use designations: SR (Suburban Residential), LR (Low Density Residential), LMR (Low Medium Density Residential), HMR (High Medium Density Residential), HR (High Density Residential), and GC (General Commercial).

The following goals and policies in the MBGP may be applicable to the Proposed Project:

Land Use Element

Goal 2: Accommodate new development which provides a full mix of uses to support its population.

Goal 3: Accommodate new development which is compatible with and complements existing land uses.

Goal 3: Accommodate new development which capitalizes on the planning area's natural environmental setting, including the Kern River and the foothills.

Goal 6: Accommodate new development that is sensitive to the natural environment, and accounts for environmental hazards.

Policy 52: Locate new development where infrastructure is available or can be expanded to serve the proposed development.

Conservation Element

Water Resource Policy 1: Develop and maintain facilities for groundwater recharge in the planning area.

Bakersfield 2015-2023 Housing Element

Since 1969, the State of California has mandated a Housing Element as one of the seven elements required to be included in every general plan. The State's housing goals are met by an assignment of board allocations of housing unit goals to regional government councils, which in turn allocate the housing unit goals to counties and cities. The RHNA is the document that allocates housing unit goals . In Kern County, the regional government council responsible for the preparation of the RHNA is Kern Council of Governments (Kern COG). For the period 2015 to 2023, the City of Bakersfield has been given a housing need allocation of 36,290 new housing

units. The 2015 to 2023 Housing Element provides a series of objectives and goals to assist the City of Bakersfield in meeting its RHNA goal.

HCD is responsible for reviewing each jurisdiction's housing element to determine whether it meets that jurisdiction's housing need allocation. The *2015-2023 Housing Element* (City of Bakersfield 2016) was created in compliance with State law pertaining to housing elements. The City of Bakersfield received a letter indicating full compliance from HCD on February 16, 2016.

Applicable goals and policies in the *2015-2023 Housing Element* include the following:

Goal 2: Provide and maintain an adequate supply of sites for the development of new affordable housing.

It is the goal of the City of Bakersfield to provide adequate, suitable sites for residential use and development or maintenance of a range of housing that varies sufficiently in terms of cost, design, size, location, and tenure to meet the housing needs of all segments of the community at a level no greater than that which can be supported by the infrastructure.

Policy 2-1: Provide information to profit and nonprofit developers and other housing providers on available vacant land.

Programs 2-1a: Monitor the amount of land zoned for all types of housing and initiate zone changes if necessary. Utilizing GIS updates, monitor the amount of land zoned for both single family and multifamily development and initiate zone changes to accommodate affordable housing. The City's objective is to annually review its residential zones to make sure there is enough land to accommodate housing for all incomes.

Policy 2-2: Provide a sufficient amount of zoned land to accommodate development for all housing types and income levels

Programs 2-2a: Monitor the amount of land zoned for all types of housing and initiate zone changes if necessary. Utilizing GIS updates, monitor the amount of land zoned for both single family and multifamily development and initiate zone changes to accommodate affordable housing. The City's objective is to annually review its residential zones to make sure there is enough land to accommodate housing for all incomes.

Programs 2-2b: Ensure that there is a sufficient amount of multi-family zoned land to meet the housing need identified in the Regional Housing Needs Assessment (RHNA). Continue the program of lot consolidation to combine small residential lots into a large lot and large lot subdivisions to accommodate affordable housing production. Offer incentives such as offering graduated density bonuses on a case-by-case basis. The City's objective is to do 5 lot consolidations and 30 subdivisions.

McAllister Ranch Specific Plan

The *McAllister Ranch Specific Plan* (County of Kern 1993) is based on the MBGP and provides more detailed regulations, conditions and standards for a Plan area of approximately 2,070 acres. The specific plan provides for residential, commercial, and recreation land uses; and identifies approximately 1,160 acres within the Plan area for residential use, for a maximum of 9,000 residential units. Proposed facilities included a public golf course, a beach club with swimming lagoon, a 31-acre lake, and multi-purpose pedestrian/bicycle and equestrian/hiking trails. The specific plan addresses the location of various land uses, regulation of land use in areas affected by safety hazards, the location and capacity of circulation/transportation systems, maximum residential unit calculations, the location and capacity of water supply and sewer systems, and the provision of storm water drainage facilities.

Applicable goals and objectives in the *McAllister Ranch Specific Plan* include the following:

Concept Goal/Objective 1: Diversify land uses and improve commercial/economic opportunities within the project area.

Concept Goal/Objective 2: Provide public facilities and urban services to serve the project area, with the potential for serving adjacent land area.

Resource Policy 6: Groundwater Recharge and/or Extraction Facilities will be an allowed use by public agencies having Countywide water banking powers within the project boundaries providing the developer/landowner consents to future facilities, and complies with all requirements of the Kern County Zoning Ordinance.

Zoning Ordinance

The City of Bakersfield's Zoning Ordinance, Chapter 17 of the Bakersfield Municipal Code, establishes the location and boundaries of various zoning districts on the City's Official Zoning Map, and sets forth regulations for the development of land within each zoning district. The Proposed Project site currently includes the following zoning designations: R-1 (One Family Dwelling), E (Estate), R-2/PUD (Limited Multiple Family Dwelling/Planned Unit Development), R-3/PUD (Multiple Family Dwelling/Planned Unit Development), C-1/PCD (Neighborhood Commercial/Precise Commercial Development), C-C-/PCD-PE (Commercial Center/Precise Commercial Development-Petroleum Extraction Combining) and DI (Drill Island).

12.3 Environmental Setting

12.3.1 Regional Setting

The City of Bakersfield is the largest urban community in Kern County and includes the core urban area of Kern County and the greater region and is the primary center of economic activity outside of the agricultural industry. Other incorporated cities located in Kern County – such as Arvin, Wasco, Shafter, McFarland, and Delano – are generally located on major transportation routes, provide retail hubs that serve the agricultural lands located throughout the county and the region, and are small in comparison with Bakersfield. The central downtown area of

Bakersfield includes dense commercial and residential land uses, and various municipal services. The remainder of Bakersfield is a mix of residential and commercial uses.

The Proposed Project site is located just within the western extent of Bakersfield's incorporated limits. Land uses surrounding the site include water banking operations, petroleum production operations, agriculture, residential, commercial development, and open space. More detailed information about land uses and facilities adjacent to the Project site is provided in Section 2.2, "Project Location," which also includes a land use map of the Project site and vicinity.

12.4 Impact Analysis

12.4.1 Methodology

The analysis of land use and planning impacts is qualitative in nature and compares aspects of the Proposed Project to the significance criteria described below. The land use plans, policies, and regulations, described in Section 12.2, "Regulatory Setting," as well as existing land uses and mitigation obligations described in Section 12.3, "Environmental Setting," were considered in the impacts analysis.

12.4.2 Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact related to land use and planning if they would:

A. Physically divide an established community; or

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.

12.4.3 Environmental Impacts

Impact LU-1: Potential to Physically Divide an Established Community — No Impact

The Proposed Project would be located west of suburban residential and commercial area and would not separate that suburban area of any activity centers. The other land uses adjacent to the project site consist of rural, water banking operations, petroleum production operations, agriculture, and open space. As such, there would be no potential for the Proposed Project to physically divide an established community. **No impact** would occur.

Impact LU-2: Conflicts with Applicable Land Use Plans, Policies, or Regulations Community — Less than Significant

The criterion for determining significance with respect to a land use plan emphasizes conflicts with plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. This criterion recognizes that an inconsistency with an individual plan,

policy, or regulation does not necessarily equate to a significant physical impact on the environment.

State Laws, Regulations, and Policies

SB 166 (Skinner): No Net Loss

SB 166 was designed to ensure that development opportunities remain available throughout the planning period to accommodate a jurisdiction's RHNA needs. The City has a total RHNA allocation of 36,290 units (City of Bakersfield 2021). As shown in **Table 12-1**, 14,613 units have been built during the period of 2015-2021, with 21,677 units remaining to meet the City's RHNA requirement. The Proposed Project would create a significant impact, from lack of compliance with SB 166, if the Proposed Project were to create a net loss that would prevent the City from meeting its remaining RHNA allocation.

Table 12-1. City of Bakersfield RHNA Allocation Needs

Housing Income Type	RHNA Allocation by Income Level	Total Units Built, 2015-2021	Remaining RHNA by Income Level
Very Low	9,706	510	9,196
Low	5,800	141	5,659
Moderate	6,453	4,413	2,040
Above Moderate	14,331	9,549	4,782
Total	**36,290**	**14,613**	**21,677**

Source: City of Bakersfield 2002 (updated 2016), 2021

Table 12-2. City of Bakersfield Vacant Unit Potential

Housing Income Type	2014 Vacant Unit Potential	Total Units Built 2015-2021	Present Existing Vacant Unit Potential	Proposed McAllister Ranch Units	Vacant Unit Potential to Meet RHNA Allocation
Very Low	19,477	510	18,967	9,000	91,731
Low	22,777	141	22,636		
Moderate	63,994	4,413	59,581		
Above Moderate	30,773	9,549	21,224		
Total	**137,021**	**14,613**	**122,408**	**9,000**	**113,408**

Source: City of Bakersfield 2002 (updated 2016), 2021

As shown in **Table 12-2**, the City had a total vacant unit potential of 137,021 units in 2014. Accounting for the number of units built to date, removing the McAllister Ranch Specific Plan units would result in a vacant unit potential of 91,731 units. The present vacant unit potential in the City exceeds the remaining RHNA allocation need by approximately 523 percent. Therefore, the City would have sufficient capacity to accommodate the remaining unmet RHNA allocation in each income level and would be in compliance with SB 166. The City's vacant unit potential would also be in compliance with AB 72 and AB 1397, as there is limited planning and zoning hindrance to the development of low-income housing in Bakersfield.

Executive Order N-10-19

The Proposed Project would be consistent with principles that EO N-10-19 identifies for the State's Water Resilience Portfolio, including the prioritization of multi-benefit approaches and encouraging regional approaches. The Proposed Project would be consistent with the overall purpose of the State's Water Resilience Portfolio to equip California to cope with more extreme droughts and floods, rising temperatures, declining fish populations, over-reliance on groundwater and other challenges. The Proposed Project would provide a reliable, affordable, and usable water supply through economic and efficient storage, distribution, and use of available water supplies. In addition, the Proposed Project proposes to protect and benefit the groundwater basins that underlie the project site and surrounding area. Anticipated benefits of the Proposed Project include conserving available water supplies for use during dry and multiple-dry water years, providing water storage and recovery capacity for BVWSD and RRBWSD, increasing water supply reliability in the area in a cost-effective and environmentally sound manner, and reducing BVWSD and RRBWSD dependence on the Delta through programs such as the SWP and CVP.

Metropolitan Bakersfield General Plan

The MBGP sets the broad parameters for growth in Bakersfield and establishes future land use patterns. A project is consistent with the MBGP if, considering all its aspects, it would further the objectives and policies of the MBGP and would not obstruct their attainment. Perfect conformity with every policy set forth in the MBGP is not required; instead, it is sufficient that a project would substantially conform to the objectives, policies, general land uses, and programs specified in the MBGP.

The project site currently consists of the following land use designations: SR (Suburban Residential), LR (Low-Density Residential), LMR (Low Medium Density Residential), HMR (High Medium Density Residential), HR (High-Density Residential), and GC (General Commercial). The Proposed Project proposes certain amendments to the General Plan, including changing the site's various land use designations to EA (Resource – Extensive); and changing the Circulation Element to remove all McAllister Ranch interior street alignments approved by Resolution 094-07. Approval of the proposed General Plan amendments would further the MBGP's objectives, policies, general land uses, and programs related to hydrology, sustainability, and biological resources. For this reason, the Proposed Project's impact related to the MBGP would be less than significant.

Bakersfield 2015-2023 Housing Element

As mentioned above, California has mandated a Housing Element within every general plan since 1969. However, housing elements are unique in that they must be updated every 8 years, much more frequently than general plans. For this reason, this impact analysis considers the *2015-2023 Housing Element* separate from the MBGP.

From 2015 to 2023, the City of Bakersfield has been given a housing need allocation of 36,290 new housing units. The *2015-2023 Housing Element* contains a series of objectives and goals to assist the City of Bakersfield in meeting its RHNA goal. Recognizing the need for housing, the *2015-2023 Housing Element* developed policies to meet the City's housing needs allocation.

As approved, the *McAllister Ranch Specific Plan* included a total of 9,000 housing units. However, the proposed urban development of McAllister Ranch was discontinued in 2008 due to the downturn in the real estate market. No housing units were constructed, and urban development is not likely in the immediate future. The Proposed Project would remove the zoning that allowed these units. As such, the Proposed Project could conflict with Goal 2 of the *2015-2023 Housing Element* to provide and maintain an adequate supply of sites for the development of new affordable housing. Further, the Proposed Project could conflict with Policy 2-2 to provide a sufficient amount of zoned land to accommodate development for all housing types and income levels. However, as discussed above the Proposed Project would not create a meaningful reduction in the total potential vacant units within the City. The City would still have a buffer of nearly five times as many potential units required under the City's RHNA allocation. Therefore, the Proposed Project would not prevent the development of housing as specified under Goal 2 of the 2015-2023 Housing Element. Existing policies, development standards and environmental review for development of alternative sites of housing would ensure impacts are less than significant.

McAllister Ranch Specific Plan

The Proposed Project's uses are not consistent with the goals, policies, and implementation measures of the existing *McAllister Ranch Specific Plan*. However, approval of the Proposed Project by design would rescind the *McAllister Ranch Specific Plan*. Therefore, because the City would rescind the *McAllister Ranch Specific Plan*, the Proposed Project would no longer conflict with the goals, policies, and implementation measures and this impact would be less than significant.

Zoning Ordinance

The City of Bakersfield uses zoning to establish uses and development standards for properties. The project site is within the following zoning districts: R-1 (One-Family Dwelling), E (Estate), R-2/PUD (Limited Multiple Family Dwelling/Planned Unit Development), R-3/PUD (Multiple-Family Dwelling/Planned Unit Development), C-1/PCD (Neighborhood Commercial/Precise Commercial Development), C C /PCD-PE (Commercial Center/Precise Commercial Development-Petroleum Extraction Combining) and DI (Drill Island).

The Proposed Project's uses would conflict with existing zoning designations on the project site. To resolve conflicts between existing zoning and the proposed uses, the Proposed Project proposes to rezone the site. The new zoning district would be reflected in the City's zoning map

as A-WR (Agriculture – Water Recharge Combining). Therefore, because the City's zoning map would be amended as described, the Proposed Project would not conflict with the City's Zoning Ordinance, and a potential impact to the zoning code would be less than significant.

Conclusion

If the City finds that amendments to the MBGP and Zoning Ordinance are warranted to allow implementation of the Proposed Project, the City would resolve conflicts between the MBGP, Zoning Ordinance, and the Proposed Project through legislative amendments of the MBGP and the Zoning Ordinance.

A project's conflict with a plan, policy, or regulation does not indicate a significant environmental land use impact under CEQA unless the project would substantially conflict with a land use plan or policy adopted to avoid or mitigate an environmental effect, such that the conflict would result in a substantial adverse physical change in the environment related to land use. To the extent that such conflicts may result in substantial physical environmental impacts, this EIR discloses and analyzes these physical impacts in the relevant environmental topic sections, as noted in the introduction to this section. See, for example, Chapter 4, *Air Quality*, and Chapter 13, *Noise and Vibration*.

For the most part, the Proposed Project would not conflict with land use plans and policies such that a substantial adverse physical change in the environment related to land use would result. Up to 9,000 future housing units designated for development on a portion of the project site would be lost with rescission of the *McAllister Ranch Specific* Plan and approval of the Proposed Project. However, as discussed above, the Proposed Project would not create a substantial reduction in Bakersfield's vacant unit potential. The City would still have a buffer of nearly five times as many potential units as would be required under the City's RHNA allocation. No conflict with land use policies related to the development of housing units would occur. As such, the Proposed Project's impact with regard to land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect would be **less than significant**.

Chapter 13
NOISE AND VIBRATION

13.1 Overview

This chapter describes the existing noise and vibration environment in the vicinity of the McAllister Ranch Groundwater Banking Project (Proposed Project), presents relevant noise and vibration regulations, identifies sensitive noise and vibration receptors that could be affected by the proposed program, and evaluates the noise and vibration impacts of the proposed program. Mitigation measures are prescribed to reduce significant impacts, where applicable. Technical information used in preparing this chapter is provided in **Appendix I**.

13.1.1 Noise Principles and Descriptors

Noise Background

In the California Environmental Quality Act (CEQA) context, noise can be defined as unwanted sound. Sound is characterized by various parameters, including the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound level, or sound intensity. The decibel (dB) scale is used to quantify sound intensity. Because sound pressure can vary enormously within the range of human hearing, a logarithmic scale is used to keep sound intensity numbers at a convenient and manageable level. The human ear is not equally sensitive to all frequencies in the spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive, creating the A-weighted decibel (dBA) scale.

Different types of measurements are used to characterize the time-varying nature of sound. Below are brief definitions of these measurements and other terminology used in this chapter.

Decibel (dB) is a measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude.

A-weighted decibel (dBA) is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

Maximum sound level (L_{max}) is the maximum sound level measured during a given measurement period.

Minimum sound level (L_{min}) is the minimum sound level measured during a given measurement period.

Equivalent sound level (L_{eq}) is the equivalent steady-state sound level that, in a given period, would contain the same acoustical energy as a time-varying sound level during that same period.

Day-night sound level (L_{dn}) is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dBA added from 10:00 p.m. to 7:00 a.m. (typical sleeping hours). This weighting adjustment reflects the elevated sensitivity of individuals to ambient sound during nighttime hours.

Community noise equivalent level (CNEL) is the energy average of the A-weighted sound levels during a 24-hour period, with 5 dBA added between 7:00 p.m. and 10:00 p.m. and 10 dBA added between 10:00 p.m. and 7:00 a.m.

In general, human sound perception is such that a change in sound level of 3 dB is barely noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving the sound level. **Table 13-1** presents approximate noise levels for common noise sources, measured adjacent to the source.

Table 13-1. Examples of Common Noise Levels

Common Outdoor Activities	Noise Level (dBA)
Jet flyover at 1,000 feet	110
Gas lawnmower at 3 feet	100
Diesel truck at 50 feet traveling 50 miles per hour	90
Noisy urban area, daytime	80
Gas lawnmower at 100 feet, commercial area	70
Heavy traffic at 300 feet	60
Quiet urban area, daytime	50
Quiet urban area, nighttime	40
Quiet suburban area, nighttime	30
Quiet rural area, nighttime	20

Note: dBA = A-weighted decibel.

Source: California Department of Transportation (Caltrans) 2013

Vibration Background

Groundborne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration may be composed of a single pulse, a series of pulses, or a continuous oscillatory motion. The frequency of a vibrating object describes how rapidly it is oscillating, measured in Hertz (Hz). Most environmental vibrations consist of a composite, or "spectrum," of many frequencies. The normal frequency range of most groundborne vibrations that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz. Vibration information for this analysis has been described in terms of the peak particle velocity (PPV),

measured in inches per second, or of the vibration level measured with respect to root-mean-square vibration velocity in decibels (VdB), with a reference quantity of 1 micro-inch per second.

Vibration energy dissipates as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. High-frequency vibrations attenuate much more rapidly than do those characterized by low frequencies, so that in a far-field zone distant from a source, the vibrations with lower frequency amplitudes tend to dominate. Soil properties also affect the propagation of vibration. When groundborne vibration interacts with a building, a ground-to-foundation coupling loss usually results but the vibration also can be amplified by the structural resonances of the walls and floors. Vibration in buildings is typically perceived as rattling of windows, shaking of loose items, or the motion of building surfaces. In some cases, the vibration of building surfaces also can be radiated as sound and heard as a low-frequency rumbling noise, known as groundborne noise.

Groundborne vibration is generally limited to areas within a few hundred feet of certain types of industrial operations and construction/demolition activities, such as pile driving. Road vehicles rarely create enough groundborne vibration amplitude to be perceptible to humans unless the receiver is in immediate proximity to the source or the road surface is poorly maintained and has potholes or bumps. Human sensitivity to vibration varies by frequency and by receiver. Generally, people are more sensitive to low-frequency vibration. Human annoyance also is related to the number and duration of events; the more events or the greater the duration, the more annoying it becomes.

Sensitive Receptors

Some land uses and their occupants are considered more sensitive to ambient noise levels than others because of the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, places of worship, hospitals, nursing homes, auditoriums, and parks and other outdoor recreation areas generally are considered more sensitive to noise than are commercial and industrial land uses.

13.2 Regulatory Setting

13.2.1 Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies for construction-related noise and vibration apply to the Proposed Project. However, the Federal Transit Administration (FTA) *Guidelines for Construction Vibration in Transit Noise and Vibration Impact Assessment* state that, for evaluating daytime construction noise impacts in outdoor areas, noise thresholds of 90 dBA L_{eq} and 100 dBA L_{eq} should be used for residential and commercial/industrial areas, respectively (FTA 2018).

For construction vibration impacts, the FTA guidelines use an annoyance threshold of 80 VdB for infrequent events (fewer than 30 vibration events per day) and a damage threshold of 0.12 inch per second (in/sec) PPV for buildings susceptible to vibration damage (FTA 2018).

13.2.2 State Laws, Regulations, and Policies

California requires each local government entity to implement a noise element as part of its general plan. California Administrative Code, Title 4, presents guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The state land use compatibility guidelines are listed in **Table 13-2**.

13.2.3 Local Laws, Regulations, and Policies

Local regulation of noise involves implementation of general plan policies and noise ordinance standards. Local general plans identify general principles intended to guide and influence development plans, and noise ordinances set forth the specific standards and procedures for addressing particular noise sources and activities. General plans recognize that different types of land uses have different sensitivities toward their noise environment; residential areas are generally considered to be the most sensitive type of land use to noise, and industrial/ commercial areas are generally considered to be the least sensitive.

City of Bakersfield Noise Ordinance

The City of Bakersfield Noise Ordinance states that it is unlawful for construction to occur outside the hours of 6:00 a.m. to 9:00 p.m. on weekdays and 8:00 a.m. to 9:00 p.m. on weekends. Construction performed 1,000 feet or more from residential receptors is exempt from these hours (City of Bakersfield 2021).

Table 13-2. State Land Use Compatibility Standards for Community Noise Environment

Land Use Category	Community Noise Exposure - L_{dn} or CNEL (dB)						
	55	60	65	70	75	80	
Residential – Low Density Single Family, Duplex, Mobile Homes							
Residential – Multi-Family							
Transient Lodging – Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arenas, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							

Normally Acceptable:	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
Conditionally Acceptable:	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
Normally Unacceptable:	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
Clearly Unacceptable:	New construction or development generally should not be undertaken.

Source: California Governor's Office of Planning and Research 2017

Metropolitan Bakersfield General Plan

The *Metropolitan Bakersfield General Plan* (MBGP) (City of Bakersfield 2002) establishes noise level performance standards for exterior noise levels at sensitive receptors based on time of day, duration, and type of noise. These standards are provided in **Table 13-3**.

Table 13-3. City of Bakersfield Noise Level Performance Standards

Category	Cumulative Number of Minutes in Any 1-hour Period	Daytime (7 am to 10 pm)	Nighttime (10 pm to 7 am)
1	30	55	50
2	15	60	55
3	5	65	60
4	1	70	65
5	0	75	70

Source: City of Bakersfield 2002

Each of the noise level standards specified in this table shall be reduced by 5 dBA for pure tone noises, noises consisting primarily of speech or music, or recurring impulsive noises.

13.3 Environmental Setting

13.3.1 Study Area

For the purposes of this noise and vibration analysis, the study area is defined as the area surrounding the Proposed Project site.

13.3.2 Existing Noise Environment

In Bakersfield, the major sources of noise are traffic on state highways and major roads, railroad operations, airport operations, and local industrial activities (City of Bakersfield 2002). In the Proposed Project area, the primary noise sources are agricultural activities and noise from the adjacent Southern Pacific railroad, McKittrick branchline. Interstate 5 and the nearest airports are more than 2 miles from the site.

13.3.3 Sensitive Receptors

The nearest sensitive receptors to the Proposed Project site are residences located on Panama Lane, Pensinger Road, Maclure Drive, and Hawksmoor Street approximately 1,450 feet east of the project area. The Kern River Parkway Bike Trail is located 2,900 feet northwest of the Proposed Project boundary. Buena Vista Elementary School and St. John's Lutheran Church are located approximately 4,500 and 6,000 feet east of the project area, respectively. Stockdale High School is 1.5 miles northeast of the project boundary.

13.4 Impact Analysis

13.4.1 Methodology

Noise Analysis

Construction-related and operation-related noise sources include various pieces of heavy equipment and other machinery. The FTA recommends that the noisiest two pieces of equipment be used to analyze the anticipated noise levels at sensitive receptors, assuming the following:

- full power operation for a full 1 hour,
- no obstructions to the noise travel paths,
- typical noise levels from construction equipment, and
- both pieces of equipment operating at the center of the work area.

Using these assumptions, the noise levels at specific distances can be obtained using the following equation:

$$L_{eq}(equip) = EL_{50ft} - 20log_{10}(D/50)$$

Where:

L_{eq} (equip) = the noise emission level at the receiver at distance D over 1 hour

EL_{50ft} = noise emission level of a particular piece of equipment at a reference distance of 50 feet

D = the distance from the receiver to the piece of equipment, in feet

To add the two noisiest pieces of equipment together, the following equation applies:

$$L_{total} = 10\ log_{10}(10^{\frac{L1}{10}} + 10^{\frac{L2}{10}})$$

Where:

L_{total} = the noise emission level of two pieces of equipment combined

L_1 = the noise emission level of equipment type 1

L_2 = the noise emission level of equipment type 2

These equations were used to compare proposed construction and operation activities to the noise emission limits described in Table 13-3. The following assumptions were used to evaluate noise effects of proposed construction and operation activities:

- While the above calculations apply to construction and operation equipment, truck traffic to and from the work sites could also create additional noise for residences and commercial establishments located along haul routes.
- Using typical equipment noise emission levels from Table 12-1 of FTA's *Transit Noise and Vibration Impact Assessment* (FTA 2018) and Table 9.1 of FHWA's *Construction Noise Handbook* (Federal Highway Administration [FHWA] 2019), the noisiest piece of equipment used for any construction activity would be a drill rig (rock drill), which would not be used during all construction activities. Apart from the drill rig, many types of equipment that would be used for the Proposed Project's construction activities have similar noise levels (85 dBA at 50 feet.).
- Using the equations described above, the estimated distance between the construction work site and the nearest sensitive receptors would need to be at least 932.5 feet to meet the single-family residential CNEL of 70 dBA and 93.3 feet to meet the FTA and certain cities' standards of 90 dBA.
- Operational equipment was assumed to be pumps that are contained in buildings or enclosures or underground.
- Using the equations described above, the estimated distance between the operation equipment and the nearest sensitive receptors would need to be at least 293 feet, assuming no damping of noise (e.g., from shrouding or enclosure in a building or underground) to meet the City of Bakersfield exterior noise performance standards of 50 dBA during the nighttime.

Vibration Analysis

Construction activity associated with the operation of heavy equipment and vibratory pile driving may generate localized groundborne vibration and noise. Vibration from ground-disturbing construction activity is typically below the threshold of perception when the activity is more than 50 feet from the receiver. Based on methods described by FTA (2018), the vibration levels at specific distances can be calculated using the following equation:

$$L_{eq}(equip) = EL_{50ft} - 20log_{10}(D/50)$$

Using the most sensitive building types and land use categories, the PPV would have to exceed 0.12 inch per second and the L_{eq} would have to exceed 65 VdB to result in any building damage or vibrational disturbances. For industrial buildings, the PPV would have to exceed 0.5 inch per second to result in any building damage or vibrational disturbances (FTA 2018). The typical annoyance level for single-family residences is 80 VdB.

Potential vibration from the Proposed Project during construction or operation was evaluated using the following assumptions:

- Using typical equipment noise emission levels from Table 12-2 of FTA's *Transit Noise and Vibration Impact Assessment* (FTA 2018), the pieces of equipment that would produce the greatest vibration would be drill rig (rock drill) and bulldozer. For construction activities that do not include either of these equipment items, loaded trucks would be another possible source of vibration.

- Using the equations described above, the estimated distance between the Proposed Project area and the nearest sensitive receptors would need to be at least 42.8 feet to meet the annoyance level threshold of 80 dBA.

The distance between the Proposed Project site and the nearest affected building would need to be at least 14.6 feet for activities involving bulldozers or drilling to meet the building vibration level threshold of 0.12 inch per second.

13.4.2 Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines, the Proposed Project would have a significant impact related to noise if it would meet any of the following conditions:

- Generate a substantial temporary, periodic, or permanent increase in ambient noise levels in the vicinity of the proposed maintenance sites in excess of standards established in a local general plan or noise ordinance or in the applicable standards of other agencies;
- Generate excessive groundborne vibration or groundborne noise levels; or
- Be located within the vicinity of a private airstrip or an airport land use plan area, or, where such a plan has not been adopted, be within 2 miles of a public airport or public-use airport, such that people residing or working in the area are exposed to excessive noise levels.

13.4.3 Environmental Impacts

Impact NOI-1. Substantial temporary or permanent increase in ambient noise levels in the vicinity of proposed maintenance areas in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state or federal standards — Less than Significant

The Proposed Project would generate noise associated with construction activities (e.g., grading and trenching activities) that would temporarily increase noise levels in the project area and would cease once construction is complete. Following construction, the primary operation-related noise source would be mechanical noise from pumps used to convey water.

The nearest sensitive receptors are located along Pensinger Road east of the Proposed Project site. These residents are about 100 feet from the project boundary and more than 7,500 feet from the middle of the site. At this distance, the construction equipment noise level is anticipated to be 51.9 dBA based on the two noisiest pieces of equipment (drill rig and excavator or dozer). The 90 dBA noise threshold occurs at 93.3 feet from the project area. Therefore, construction noise levels would not exceed thresholds at the nearest sensitive receptors. Detailed noise calculations are shown in Appendix I.

The Bakersfield Noise Ordinance exempts construction equipment that is more than 1,000 feet from sensitive receptors, which includes most of the project site. Within 1,000 feet of sensitive receptors, the noise ordinance restricts construction activities to the hours of 6:00 a.m. to 9:00 p.m. on weekdays and 8:00 a.m. to 9:00 p.m. on weekends. This limitation correlates with the intended hours of construction activity, as described in Chapter 2, *Project Description.*

Operational noise would result from electric pumps that are used to convey water and control the facility. The pumps are anticipated to range in size from 250 to 450 horsepower. Pump specification sheets indicate that the sound levels range from 81 to 86 dBA at 1 meter. Without any consideration for noise dampening from enclosures, the threshold of 50 dBA (nighttime) would be reached approximately 293 feet from the pump. The nearest residence to a proposed pump site is approximately 1,500 feet on Panama Lane, which could result in a noise level of 35.8 dBA if no dampening for enclosures is assumed. Therefore, operational noise levels from pumps would not exceed thresholds at the nearest sensitive receptors.

Overall, construction noise levels would be below levels of significance. During operation, noise levels from pumps would be below the levels of significance if placed at least 293 feet from residences so as to result in nighttime noise levels below the 50-dBA threshold for single-family residential areas. Therefore, this impact would be **less than significant**.

Impact NOI-2. Generation of Excessive Groundborne Vibration or Groundborne Noise Levels — Less than Significant

The FTA's vibration threshold for buildings is a PPV of 0.12 in/sec for buildings that are extremely susceptible to vibration damage; the human annoyance threshold for infrequent events is 80 VdB. Vibration and groundborne noise levels were estimated following methods described in the FTA's *Noise and Vibration Impact Assessment* (FTA 2018) to determine the PPV that could affect buildings and the VdB for annoyance, since the City has no applicable vibration-related thresholds or recommended methodology. The analysis assumed that the construction equipment operating nearest to residences and with the greatest vibration potential would have vibration sound levels similar to those of a bulldozer or caisson drilling; these two pieces of equipment are assumed to have the greatest potential for vibration and require the greatest distance to sensitive receptors to be below vibration thresholds. **Table 13-4** shows the construction equipment and distances to vibration thresholds.

During operation of the Proposed Project, vibration levels of the pumps would be substantially lower than levels for the construction equipment.

Table 13-4. Equipment and Vibration Distances

Equipment	PPV at 25 feet	Distance to PPV of 0.12 in/sec	Noise Vibration Level at 25 feet	Distance to 80 VdB
Large Bull Dozer/Drill	0.089	14.6 feet	87 VdB	42.8 feet

Notes: in/sec = inch per second; PPV = peak particle velocity; VdB = velocity in decibels.

Source: Noise calculations are provided in Appendix I.

Table 13-4 shows that the vibration noise is below the human perception level of 80 VdB at 42.8 feet from the Proposed Project area and that the building damage threshold is achieved at 14.6 feet. There are no sensitive buildings within this damage threshold distance. The pumps would have vibration levels substantially lower than the construction equipment and the impact would be less than significant. Therefore, since the vibration is below the perception level and

there are no buildings within the damage threshold, this impact would be **less than significant**. No mitigation is required.

Impact NOI-3: Location in the vicinity of a private airstrip or an airport land use plan area, or, within 2 miles of a public airport, and exposure of people residing or working in the area to excessive noise levels — No Impact

The Proposed Project is not located within an airport land use plan area or within 2 miles of a public or private airport or airstrip. The nearest airport is Bakersfield Municipal Airport, which is located 8.5 miles from the Proposed Project site. The site is not within that airport's influence area or 55 CNEL noise contour (County of Kern 2012). Therefore, the Proposed Project would have **no impact** related to airport noise exposure.

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Chapter 14
POPULATION AND HOUSING

14.1 Overview

This chapter evaluates the Proposed Project's potential impacts on population and housing resources and summarizes the regulations and policies related to population and housing.

14.2 Regulatory Setting

14.2.1 Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies apply to population and housing resources associated with the Proposed Project.

14.2.2 State Laws, Regulations, and Policies

As described in Chapter 12, *Land Use and Planning,* the State of California requires that cities and counties include a housing element in their general plans to indicate how they plan to accommodate their fair share of housing need.

Beginning in 2017, a series of housing bills have been passed by the California State Legislature and signed into law that focuses on creating and/or protecting opportunities for development of new housing stock (especially affordable housing stock) in response to California's housing crisis. Some of these laws involve modifications to implementation of a jurisdiction's general plan Housing Element. The laws described below may affect zoning and development of the Proposed Project site.

Senate Bill 166 (Skinner): No Net Loss

The purpose of Senate Bill (SB) 166 is to ensure development opportunities remain available throughout the planning period to accommodate a jurisdiction's regional housing need allocation (RHNA), especially for lower income and moderate-income households. The following summarizes of No Net Loss requirements is:

- A jurisdiction must maintain an adequate number of sites to accommodate its remaining unmet RHNA in each income category at all times throughout the entire planning period.
- A jurisdiction may not take any action to reduce a parcel's residential density unless it makes findings that the remaining sites identified in its Housing Element sites inventory can accommodate the jurisdiction's remaining unmet RHNA in each income category, or it identifies additional sites so that there is no net loss of residential unit capacity.

- If a jurisdiction approves development of a parcel identified in its Housing Element sites inventory with fewer units than shown in the Housing Element, it must either make findings that the Housing Element's remaining sites have sufficient capacity to accommodate the remaining unmet RHNA in each income level, or identify and make available sufficient sites to accommodate the remaining unmet RHNA for each income category.

Assembly Bill 72 (Santiago): Enforce Housing Element Law

Assembly Bill (AB) 72 authorizes California Department of Housing and Community Development (HCD) to find a jurisdiction out of compliance with state housing law at any time (instead of the current 8-year time period) and refer any violations of state housing law to the Attorney General if HCD determines the action is inconsistent with the jurisdiction's adopted housing element.

Assembly Bill 1397 (Low): Adequate Housing Element Sites

AB 1397 requires cities to zone more appropriately for their share of regional housing needs and, in certain circumstances, requires by-right development on identified sites. The law requires that cities provide stronger justification when non-vacant sites are used to meet housing needs, particularly for lower income housing.

14.2.3 Local Laws, Regulations, and Policies

Metropolitan Bakersfield General Plan

The following policies contained in Chapter II, the Land Use Element, of the *Metropolitan Bakersfield General Plan* (MBGP) (City of Bakersfield 2002, updated 2016) are related to population and housing and may be applicable to the Proposed Project.

Goal LUE 1: Accommodate new development which captures the economic demands generated by the marketplace and establishes Bakersfield's role as the capital of the southern San Joaquin Valley.

Goal LUE 2: Accommodate new development which provides a full mix of uses to support its population.

Goal LUE 3: Accommodate new development which is compatible with and complements existing land uses.

Goal LUE 5: Accommodate new development which capitalizes on the planning area's natural environmental setting, including the Kern River and the foothills.

Goal LUE 6: Accommodate new development that is sensitive to the natural environment, and accounts for environmental hazards.

Policy LUE 50: Coordinate with the appropriate agencies so that adequate land and facilities are set aside for schools, parks, police/fire, libraries, cultural facilities, recreational facilities and other service uses to serve the community.

Policy LUE 52: Locate new development where infrastructure is available or can be expanded to service the proposed development.

Bakersfield 2015-2023 Housing Element

Since 1969, the State of California has mandated a Housing Element as one of the seven elements required to be included in every general plan. The State's housing goals are met by an assignment of board allocations of housing unit goals to regional government councils, which in turn allocate the housing unit goals to counties and cities. The RHNA is the document that allocates housing unit goals. In Kern County, the regional government council responsible for the preparation of the RHNA is Kern Council of Governments (Kern COG). For the period 2015 to 2023, the City of Bakersfield has been given a housing need allocation of 36,290 new housing units. The 2015 to 2023 Housing Element provides a series of objectives and goals to assist the City of Bakersfield in meeting its RHNA goal.

HCD is responsible for reviewing each jurisdiction's housing element to determine whether it meets that jurisdiction's housing need allocation. The *2015-2023 Housing Element* (City of Bakersfield 2016) was created in compliance with State law pertaining to housing elements. The City of Bakersfield received a letter indicating full compliance from HCD on February 16, 2016.

As part of HCD's certification of the 2015-2023 Housing Element, a Vacant Sites Inventory was approved so as to ensure compliance with the aforementioned RHNA of 36,290 new housing units. The vacant sites inventory identified the potential for 137,021 total units in the City. The McAllister Ranch Specific Plan area identified 11,640 dwelling units. This total amounts to approximately 8.5 percent of the total identified units.

As a component of the vacant sites inventory, sites included within the vacant sites analysis are also assigned an income level based on the proposed density of the site. For McAllister Ranch, included vacant sites provide 2,752 very-low-income dwellings and 3,583 low-income dwelling, which accounts for 62 percent of the total low-income housing requirements of the RHNA. There are an additional 40,919 units identified for low-income housing in the vacant sites inventory outside of McAllister Ranch.

Applicable goals and policies in the *2015-2023 Housing Element* include the following:

Goal 2: Provide and maintain an adequate supply of sites for the development of new affordable housing.

It is the goal of the City of Bakersfield to provide adequate, suitable sites for residential use and development or maintenance of a range of housing that varies sufficiently in terms of cost, design, size, location, and tenure to meet the housing needs of all segments of the community at a level no greater than that which can be supported by the infrastructure.

Objective 2-1: Provide information to profit and nonprofit developers and other housing providers on available vacant land.

Objective 2-3: Provide a sufficient amount of zoned land to accommodate development for all housing types and income levels.

Policy 2-3-1: Monitor the amount of land zoned for all types of housing and initiate zone changes if necessary. Utilizing GIS updates, monitor the amount of land zoned for both single family and multifamily development and initiate zone changes to accommodate affordable housing. The City's objective is to annually review its residential zones to make sure there is enough land to accommodate housing for all incomes.

Policy 2-3-2: Ensure that there is a sufficient amount of multi-family zoned land to meet the housing need identified in the Regional Housing Needs Assessment (RHNA). Continue the program of lot consolidation to combine small residential lots into a large lot and large lot subdivisions to accommodate affordable housing production. Offer incentives such as offering graduated density bonuses on a case-by-case basis. The City's objective is to do 5 lot consolidations and 30 subdivisions.

McAllister Ranch Specific Plan

The *McAllister Ranch Specific Plan* (County of Kern 1993) is based on the MBGP and provides more detailed regulations, conditions, and standards for a Plan area of approximately 2,070 acres. The specific plan provides for residential, commercial, and recreation land uses; and identifies approximately 1,160 acres within the Plan area for residential use, for a maximum of 9,000 residential units. Proposed facilities included a public golf course, a beach club with swimming lagoon, a 31-acre lake, and multi-purpose pedestrian/bicycle and equestrian/hiking trails. The specific plan addresses the location of various land uses, regulation of land use in areas affected by safety hazards, the location and capacity of circulation/transportation systems, maximum residential unit calculations, the location and capacity of water supply and sewer systems, and the provision of storm water drainage facilities.

Applicable goals and objectives in the *McAllister Ranch Specific Plan* include the following:

Concept Goal/Objective 1: Diversify land uses and improve commercial/economic opportunities within the project area.

Concept Goal/Objective 2: Provide public facilities and urban services to serve the project area, with the potential for serving adjacent land area.

Concept Goal/Objective 6: Provide a development plan which incorporates recreational amenities to enhance residential uses.

14.3 Environmental Setting

14.3.1 Water Services and Groundwater Storage

A number of water suppliers and purveyors provide water for municipal and agricultural use within Bakersfield, including the California Water Service (Cal Water), East Niles Community Services District, North of the River Municipal Water District, and Oildale Mutual Water Company (City of Bakersfield 2002), although the City is ultimately responsible for providing water supplies to all City residents. The City also provides direct water service to a portion of the city, including the area of Bakersfield that encompasses the project site. These water purveyors receive, treat, and distribute Kern River, State Water Project (SWP) water, and groundwater supplies to residential, commercial, industrial, and governmental customers within their respective service areas (California Water Service 2021). The City also operates the 2,800 Acre Groundwater Recharge Project, which provides groundwater recharge for Kern River flows utilizing both the City's water rights and agreements with other water agencies for banking their waters in the underground aquifer (City of Bakersfield 2002), and the City recharges and manages Kern River flows to produce additional stored and banked water supplies for M&I use.

As described in Chapter 2, *Project Description,* BVWSD and RRBWSD jointly purchased the project site in 2011. BVWSD controls an average entitlement of approximately 150,000 acre-feet/year of surface water from the Kern River along with an additional entitlement of approximately 21,300 acre-feet/year from the State Water Project (BVWSD 2021). RRBWSD uses a series of canals and ponds to recharge the groundwater aquifer (RRBWSD 2021). RRBWSD receives 25 percent of its water supply from the SWP; 17 percent of its water supply from the Kern River through agreements with the City and other entities; and 44 percent of its water supply from other sources, including the U.S. Bureau of Reclamation, Kern River flood flows, spot-market water purchases, beneficial rainfall, and the groundwater basin safe-yield (RRBWSD 2021).

14.3.2 Population

The City of Bakersfield and Kern County have experienced population growth consistently since the 1990s. As of 2010, the City of Bakersfield represented 41 percent of the Kern County population (City of Bakersfield 2016). As shown in **Table 14-1**, Kern County is estimated to have a population of 900,235 in 2020, of which 403,455 resided in Bakersfield. Over the 29-year period from 1990 to 2020, the County grew by an average of 18,287 residents per year, including 14,431 residents per year in Bakersfield. The County has had a steadily increasing population with an average annual growth rate at approximately 3 percent. However, from 1990 to 2020, the City of Bakersfield experienced a 130 percent increase in population.

Table 14-1. Population in the City of Bakersfield and Kern County, 1990-2020

Jurisdiction	1990	2000	2010	2019	2020	Change (No.)	Change (%)
Kern County	543,477	661,649	839,631	900,202	909,235	365,758	67
Bakersfield	174,820	247,057	347,483	384,145	403,455	288,635	130

Sources: City of Bakersfield 2016; U.S. Census Bureau 2021

14.3.3 Employment

As shown in **Table 14-2**, as of 2013, farming is the largest industry in the county (18 percent), followed by State and local government (16 percent), educational and health services (10 percent), and retail (10 percent).

Table 14-2. Kern County Employment by Industry, 2007-2013

Industry	2007	%	2013	%
Total Farm	48,200	16	55,900	18
Mining, Oil, & Gas Extraction, Well Drilling	10,000	3	12,900	4
Construction	17,400	6	17,800	6
Manufacturing Durable Goods	5,700	2	5,400	2
Manufacturing Nondurable Goods	7,800	3	8,900	3
Wholesale	8,000	3	9,200	3
Retail	30,000	10	31,200	10
Transportation, Warehousing and Utilities	9,700	3	9,900	3
Information	2,900	1	2,500	1
Financial, Insurance, and Real Estate	8,900	3	8,800	3
Professional and Business Services	25,400	9	26,800	9
Educational and Health Services	27,800	10	31,800	10
Leisure and Hospitality	21,600	7	23,000	7
Other Services	7,000	2	7,500	2
Federal Government	9,600	3	9,900	3
State and Local Government	52,300	18	49,800	16
TOTAL	**292,300**	**100**	**311,300**	**100**

Source: City of Bakersfield 2016

As shown in **Table 14-3**, the largest industry in the City is educational, health care, and social services (23 percent) followed by retail (11 percent), and agriculture, fisheries, and oil and gas (10 percent).

Table 14-3. Bakersfield Employment by Industry (2006-2013)

Industry	2006	%	2013	%
Agriculture, Fisheries, Oil and Gas	11,520	8	14,929	10
Construction	12,932	9	8,381	6
Manufacturing	5,725	4	7,854	5
Wholesale	5,522	4	4,856	3
Retail	15,798	11	16,650	11
Transportation, Warehousing, Utilities	8,804	6	7,642	5
Information	2,774	2	2,104	1
Finance, Insurance, Real Estate	8,766	6	7,859	5
Professional and Administrative Services	11,079	8	11,726	8
Educational, Health Care, Social Services	31,396	23	33,019	23
Arts, Entertainment, Hotels, Food Service	8,414	6	12,850	9
Other Services, Except Public Administration	8,154	6	7,172	5
Public Administration	7,659	6	9,859	7
TOTAL	**138,543**	**100**	**144,901**	**100**

Source: City of Bakersfield 2016

As shown in **Table 14-4**, Kern County had a labor force of 379,600 and an unemployment rate of 15.2 percent in 2020. The state's estimated unemployment rate in 2020 was 8.7 percent. Since 1990, the Kern County labor force has substantially increased, but the unemployment rate has varied, first slightly decreasing between 1990 and 2000, and then substantially increasing between 2000 and 2020. Trends for both the labor force and the unemployment rate in Kern County are consistent with employment characteristics of the state, although Kern County has consistently had a greater unemployment rate than the state.

In 2014, there were approximately 165,800 persons in the City's labor force, an increase of 18,300 persons from 2007. Generally, the unemployment rate has decreased since 2010 in the City. In 2010, the unemployment rate in the City was 11.2 percent (City of Bakersfield 2016).

According to the California Employment Development Department (EDD), the metropolitan area of Bakersfield and Kern County had a labor force of approximately 378,900 persons as of May 2021. In addition, the unemployment rate for both the city and county was approximately 10.1 percent (EDD 2021).

14.3.4 Housing

Vacancy trends show housing supply and demand. If the demand for housing is greater than the supply, the vacancy rate is most likely low and the price of housing will increase. The ideal vacancy rate is around 5 percent. When the number decreases, the demand for housing exceeds the supply (City of Bakersfield).

As shown in **Table 14-5**, Kern County had a total of 284,367 housing units and a vacancy rate of 10.5 percent in 2010. Since 1990, both the number of housing units in Kern County and the vacancy rate have consistently increased. Over this period, the vacancy rate and the number of units in the state has increased, but the vacancy rate decreased between 1990 and 2000, and then increased between 2000 and 2010. Kern County has consistently had a higher vacancy rate than the state.

In 2010, the City had a total of 120,725 housing units. In 2019, the City's total number of housing units increased by 9,397, for a total of 130,122 housing units. The vacancy rate for the City in 2019 was 8.5 percent (City of Bakersfield 2019).

Table 14-4. Labor Force in Bakersfield and Kern County

Jurisdiction	1990		2000		2010		2020	
	Labor Force	Unemployment Rate (%)	Labor Force	Unemployment Rate (%)	Labor Force	Unemployment Rate (%)	Labor Force	Unemployment Rate (%)
California	15,113,900	6.5	16,944,100	4.7	18,376,500	12.4	18,604,600	8.7
Kern County*	257,000	12.1	292,700	8.6	374,900	15.6	379,600	15.2

Notes: Non-seasonally adjusted annual average data is presented.

*Kern County and the metropolitan area of the City of Bakersfield had the same labor force and unemployment rate statistics according to the EDD.

Source: EDD 2021

Table 14-5. Housing Units and Vacancies in Bakersfield and Kern County

Jurisdiction	1990		2000		2010		2019	
	Units	Vacancy Rate (%)	Units	Vacancy Rate (%)	Units	Vacancy Rate (%)	Units	Vacancy Rate (%)
California	11,182,882	7.2	12,214,549	5.8	13,680,081	8.1	14,366,366	4.1
Kern County	198,636	8.6	231,564	9.9	284,367	10.5	302,898	4.7
City of Bakersfield	–	–	–	–	120,725	–	130,122	8.5

Source: EDD 2021; City of Bakersfield 2019; California Department of Numbers 2021a, 2021b

Under the *McAllister Ranch Specific Plan*, up to 9,000 housing units were planned to be constructed, as shown in **Table 14-6.** As described in Chapter 2, *Project Description*, development of McAllister Ranch was discontinued in 2008 due to the downturn in the real estate market. Thus, these housing units would no longer be constructed.

Table 14-6. Housing Units Proposed Under McAllister Ranch

Residential Uses	Number of Units	Total Acreage
Suburban Residential (SR)	338	135.21
Low Density Residential (LR)	2,850	584.86
Low Medium Density Residential (LMR)	220	66.47
High Medium Density Residential (HMR)	2,261	237.86
High Density Residential (HR)	3,331	137.54
Total Residential	**9,000**	**1,161.94**

14.4 Impact Analysis

14.4.1 Methodology

The analysis of potential impacts related to population and housing is primarily qualitative. The criteria listed below are used to determine the significant of potential impacts.

The analysis of potential impacts related to displacement of persons and inducement of population growth considers population estimates but is primarily qualitative. The criteria listed in the section below are used to determine the significance of potential impacts.

The Proposed Project does not involve the construction of any facilities or structures. The use of the Kern River and City's 2800 Acre Groundwater Recharge Facility for water conveyance would not require any additional modifications to the river or the recharge facility. The Proposed Project does not propose direct conversion of any lands and would not directly displace existing housing units or persons. As a result, direct impacts related to population and housing are not possible under the Proposed Project and are not discussed further.

On the other hand, the Proposed Project has the potential to result in indirect population growth by providing additional water supplies, and thus removing an obstacle to growth. Potential indirect inducement of population growth is assumed to occur unevenly throughout the City's SOI and the larger project area.

14.4.2 Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact on population and housing if it would:

- 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 and other infrastructure), or
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

14.4.3 Environmental Impacts

Impact POP-1. Potential to Induce Population Growth within the City of Bakersfield — Less than Significant

Growth can be induced directly (e.g., by building new homes or businesses, or by creating new jobs), or indirectly (e.g., by removing obstacles to growth, such as through the extension of infrastructure). The Proposed Project does not involve the construction of any new facilities that would directly induce growth.

During construction, approximately 13 workers would be on site daily for approximately 1,856 construction days; construction is anticipated to take 5 years, from 2022 to 2027. As shown in Tables 14-2 and 14-3 above, the construction industry in the City and County accounts for 6 percent of the total work force (City of Bakersfield 2016). As such, there is sufficient availability of the local existing construction labor force to support construction of the Proposed Project. Thus, construction crews would commute to and from the Project site from the local area throughout the duration of construction and would not be required to relocate. Therefore, an increased demand for housing to accommodate workers would not occur due to Project construction.

Operation of the Proposed Project would require 1-2 employees on site daily, 7 days a week. Although operation of the Proposed Project would provide employment opportunities in the local area, the Proposed Project would not require a specialized labor force that would draw large numbers of new employees to the area. Based on the existing unemployment rates in the City and County, any new employees would already be located within the City limits and would not relocate to the Bakersfield area specifically to obtain jobs associated with the Project. Thus, employees would likely be drawn from the existing population. Therefore, an increased demand for housing to accommodate workers would not occur due to Project operations.

The Project would increase groundwater storage in the Kern River Subbasin up to 200,000 AF. It is anticipated that up to 56,000 AF of stored water could be extracted from the aquifer in any given year. Water recharged under the Proposed Project would be used by BVWSD and RRBWSD to supplement existing uses, including for irrigation and M&I uses, with the primary goal to increase water supply reliability in the area. As described in Chapter 2, *Project Description*, planned development proposed under the *McAllister Ranch Specific Plan* would no longer be constructed with implementation of the Proposed Project, including construction of 9,000 housing units which was anticipated to increase population in the area by approximately 26,000

people (Kern County Planning and Development Services Department 1993). Thus, because McAllister Ranch would no longer be constructed with implementation of the Proposed Project, the Proposed Project would indirectly decrease population growth in the region by replacing an area zoned for residential development with a water storage and recovery facility.

Overall, the existing available local labor force would be sufficient to accommodate the minimal number of jobs created by both construction and operation of the Proposed Project. Further, because the housing units proposed under McAllister Ranch would no longer be constructed and the associated increase in population would no longer occur with that project, implementation of the Proposed Project would not directly induce population growth in the region. A ***less-than-significant impact*** would occur and no mitigation is required.

Impact POP-2. Potential Effects to Existing Housing Stock within the City of Bakersfield — Less than Significant

As described above, the City set a housing goal of providing 36,290 housing units between 2015-2023. This goal was based on projected population and employment growth for city residents between 2015 and 2023. As shown in Tables 14-1 and 14-4, population and employment have steadily increased within the City since 1990, resulting in the need for additional housing. The City's RHNA allocation needs to accommodate this increase in population and employment were calculated in the City's Annual Housing Element Progress Report (City of Bakersfield 2021) are shown in **Table 14-7** and available on HCD's Housing Element Implementation and APR (Annual Progress Report) Dashboard at https://www.hcd.ca.gov/apr-data-dashboard-and-downloads. As of December 31, 2021, a total of 14,613 units had been built since 2015, compared to the total RHNA allocation of 36,290 units. The remaining RHNA allocation was 21,677 units.

Table 14-7. City of Bakersfield RHNA Allocation Needs

Housing Income Type	RHNA Allocation by Income Level	Total Units Built, 2015-2021	Remaining RHNA Allocation by Income Level
Very Low	9,706	510	9,196
Low	5,800	141	5,659
Moderate	6,453	4,413	2,040
Above Moderate	14,331	9,549	4,782
Total	**36,290**	**14,613**	**21,677**

Source: City of Bakersfield 2016, 2021

The project site consists of vacant land. The project site was previously approved for a total of 9,000 housing units and other associated uses under the McAllister Ranch Specific Plan. However, the 2015–2023 Housing Element Vacant Sites Inventory identifies the potential for 11,600 dwelling units within the proposed urban development of the discontinued McAllister Ranch Specific Plan area. Significant portions of required low and very-low-income dwelling units are included in 2008 due to the downturn in overall total within the real estate market. No housing units were ever constructed.

As shown in **Table 14-8**, the City had a total vacant unit potential of 137,021 units in 2014. Accounting for the number of units built to date, removing the McAllister Ranch Specific Plan units would result in a vacant unit potential of 91,731 units. The present vacant unit potential (137,021 units) in the City exceeds the remaining RHNA allocation need (21,677 units) by approximately 523 percent. Therefore, even with removal of the McAllister Ranch Specific Plan units, the City would have sufficient capacity to accommodate the remaining unmet RHNA allocation in each income level and would be in compliance with SB 166.

Table 14-8. City of Bakersfield Vacant Unit Potential

Housing Income Type	2014 Vacant Unit Potential	Total Units Built, 2015-2021	Present Existing Vacant Unit Potential	Proposed McAllister Ranch Units	Vacant Unit Potential to Meet RHNA Allocation
Very Low	19,477	510	18,967	9,000	91,731
Low	22,777	141	22,636		
Moderate	63,994	4,413	59,581		
Above Moderate	30,773	9,549	21,224		
Total	**137,021**	**14,613**	**122,408**	**9,000**	**113,408**

Source: City of Bakersfield 2016, 2021

The City's vacant unit potential would also be in compliance with AB 72 and AB 1397, as there is limited planning and zoning hindrance to the development of low-income housing in Bakersfield. Existing policies, development standards and environmental review for development of alternative sites of housing would ensure impacts are less than significant. As such, the Proposed Project's impact with regard to existing housing stock within the City of Bakersfield would be **less than significant**.

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Chapter 15
PUBLIC SERVICES

15.1 Overview

This chapter describes the setting and potential impacts on public services from the Proposed Project. This chapter also summarizes regulations and policies related to public services and evaluates the potential impacts of the Proposed Project on public services.

15.2 Regulatory Setting

This section reviews the policies and regulations relevant to evaluating impacts on public services potentially caused by the Proposed Project.

15.2.1 Federal Laws, Regulations, and Policies

No specific federal regulations apply to public services associated with the Proposed Project.

15.2.2 State Laws, Regulations, and Policies

CALGreen (California Building, Electrical, and Fire Codes)

The California Building Standards Code, Title 24 of the California Code of Regulations (CCR) – also known as CALGreen – serves as the basis for the design and construction of buildings in California. 24 CCR Part 3 is the Electrical Code, which contains standards for electrical systems, including safety features such as overcurrent protection, surge arresters, and proper wiring methods.

24 CCR Part 9 is the California Fire Code. This portion of the code contains requirements related to emergency planning and preparedness, fire service features, building services and systems, fire-resistance-rated construction, fire protection systems, and construction requirements for existing buildings, as well as specialized standards for specific types of facilities and materials.

15.2.3 Local Laws, Regulations, and Policies

Metropolitan Bakersfield General Plan

The *Metropolitan Bakersfield General Plan* (MBGP) (City of Bakersfield 2002) is a long-range comprehensive plan that governs growth and development in Bakersfield. The following policies contained in various elements of the MBGP may be applicable to the Proposed Project.

Chapter II – Land Use Element

Policy 50: Coordinate with the appropriate agencies so that adequate land and facilities are set aside for schools, parks, police/fire, libraries, cultural facilities, recreational facilities and other service uses to serve the community.

Policy 54: The developer shall be responsible for all on-site costs incurred as a result of the proposed project, in addition to a proportional share of off-site costs incurred in service extension or improvements. The availability of public or private services or resources shall be evaluated during discretionary project consideration. Availability may affect project approval or result in a reduction in size, density, or intensity otherwise indicated in the general plan's map provisions.

Chapter VIII – Safety/Public Safety

Policy 30: Require the city and county to maintain effective mutual aid agreements for fire, police, medical response, emergency morgue, mass care, heavy rescue, and other functions as appropriate.

Chapter XI – Parks Element

Goal 2: Supply neighborhood parks at a minimum of 2.5 acres per 1,000 persons throughout the plan area.

Goal 3: Provide four acres of park and recreation space for each 1,000 persons (based on the most recent census) for general regional recreation opportunity as a minimum standard. Park and recreational space includes mini-parks, neighborhood parks, community parks and regional parks.

Goal 5: Coordinate development of park facilities and trail systems throughout the plan area which enhance the centers concept and complement unique visual or natural resources.

Goal 6: Ensure that all park and recreational facilities are adequately designed, landscaped, and maintained.

Policy 13: Evaluate the feasibility of including new regional parks as a component of proposed groundwater recharge areas.

Policy 26: Encourage the further development of the City of Bakersfield’s specific trails plan.

Policy 27: Encourage pedestrian and bicycle linkages between residential and commercial uses.

15.3 Environmental Setting

15.3.1 Fire Protection and Emergency Services

Fire protection services for the metropolitan Bakersfield area are provided through a joint fire protection agreement between the City and County. Agreements between the two departments rely on a "closest station" concept and include a dual agency training facility and joint emergency radio communication/dispatching from a single center (City of Bakersfield 2002). As a result, the project site is served by both the Bakersfield Fire Department (BFD) and the Kern County Fire Department (KCFD).

BFD responds to fires within the city limits. The district has 240 personnel and 14 fire stations throughout the city (City of Bakersfield 2021a). Response time is 7 minutes or less to any fire. The eastern portion of the project site is served by BFD Station 14, which is located at 5815 Mountain Vista Drive, approximately 1.5 miles away.

KCFD operates 48 fire stations, with 13 of these stations established within metropolitan Bakersfield (City of Bakersfield 2002). KCFD fire stations within the city of Bakersfield have been situated to have a response time of 7 minutes or less (City of Bakersfield 2002). Although the entire project site is located within the city boundaries of Bakersfield, KCFD Station 53 serves the western portion of the project site. KFCD Station 53 is located at 9443 Taft Highway, approximately 3 miles from the project site (City of Bakersfield 2021b).

15.3.2 Police Protection

The City of Bakersfield Police Department provides law enforcement service to all areas within the city limits, which is 114 square miles and had a 2020 population of 403,455 according to the 2020 Census (U.S. Census Bureau 2021). The city is separated into 17 patrol districts that operate 24 hours per day. The average response time is 8 minutes and 45 seconds for emergency calls. Since the 1980s, the City has utilized a ratio of 1.5 officers per thousand residents (City of Bakersfield 2002). However, in 2018 Measure N was passed, which increased sales tax by 1 percent to fund various city priorities, including improving public safety services (Ballotpedia 2021). The City announced that revenue from Measure N would be used to hire 100 additional police officers, increasing the police force to 500 officers over 3 years (Bakersfield.com 2019). Although Bakersfield has approved 479 positions within the police department, 44 of those positions are vacant and about 30 are for trainees, resulting in 405 active police members, which is close to the staffing levels in 2018. The city has hired 130 new police officers since 2019; however, this has been offset by multiple retirements and other separations. This, along with an 18-month training period, are factoring into the relatively unchanged staffing levels of police officers on active duty; however, the City continues to work toward having 500 active police officers as soon as possible (Bakersfield.com 2021).

The City of Bakersfield Police Department has divided the city into six zones for all community relations matters. The project site is located in the South Zone (City of Bakersfield 2021c).

15.3.3 Schools

The project site is located within the Panama-Buena Vista Union School District. The district is located in Bakersfield and serves 18,000 students from pre-kindergarten through eighth grade (Panama-Buena Vista Union School District 2021). At the secondary level, the project site is served by the Kern High School District for grades 9-12. The Kern High School District is the largest high school district in California, with 18 high schools and more than 40,000 students (Kern High School District 2021). The closest school to the project site is Buena Vista Elementary, which is approximately 1 mile away.

15.3.4 Parks

The City of Bakersfield Recreation and Parks Department provides many amenities, including 61 public parks, four public pools, 13 spray parks, two sports complexes, two skate parks, one amphitheater, and disc golf courses and pickleball courts located at specific parks (City of Bakersfield 2021d). The project site is located within Park Maintenance Zone: Area 5. The closest park, Belcourt Park, is located 0.75 mile northeast of the project site on Windermere Street (City of Bakersfield 2021e).

15.4 Impact Analysis

15.4.1 Methodology

Potential impacts on public services were evaluated qualitatively by considering aspects of the Proposed Project in light of the CEQA Guidelines Appendix G significance criteria and the existing regulatory and environmental settings.

15.4.2 Criteria for Determining Significance

Based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, the Proposed Project would result in a significant impact on public services if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
  - Fire protection
  - Police protection
  - Schools
  - Parks
  - Other public facilities

Topics Eliminated from Further Evaluation

The Initial Study for the Proposed Project identified topics that do not require further evaluation, for the following reasons:

- The Proposed Project is a change to the land use designation of the McAllister Ranch property to enable construction and operation of a groundwater recharge and recovery facility and, as such, would not generate any additional school children in the Project area or the subsequent need for additional schools.
- The Proposed Project is not expected to substantially increase the residential population of the Metropolitan Bakersfield area, and therefore the Proposed Project would not substantially increase the demand for and use of existing parks.
- The Proposed Project is a change to the land use designation of the McAllister Ranch property to enable construction and operation of a groundwater recharge and recovery facility and, as such, would not cause a direct residential growth-inducing effect, although the potential exists for housing eliminated from the City's stock at this location would be relocated elsewhere and require additional public facilities. Although the Proposed Project would result in an increase in maintenance responsibility for the City related to the proposed water conveyance infrastructure, this potential increase would be addressed in the Operating Agreement between the City and the applicant, if necessary.

Therefore, impacts to schools, parks, and other public facilities are not discussed any further.

15.4.3 Environmental Impacts

Impact PS-1. 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 would cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for:

i. Fire Protection – Less than Significant

As described in Chapter 2, *Project Description*, during periods when groundwater is being stored at the site, the Proposed Project would operate as a groundwater banking operation continuously 7 days per week and have 1 to 2 employees on site per day. The site is located on the western edge of the city of Bakersfield, south of the Kern River, in a primarily rural area. During other times, the Proposed Project would be inactive (approximately 85 percent of the year) and would be maintained as dry ponds during those inactive periods. Regular project operations would require minimal employees, would not induce population growth, and would not involve high fire hazard activities. Therefore, the Proposed Project would not increase in the need for fire protection services. Construction of the Proposed Project would primarily occur on site and would not affect the roadways; thus, construction would not affect response times of emergency vehicles in the area.

As part of the McAllister Ranch Specific Plan, a 2-acre fire station was required to be built on the project site to meet the increased demand for fire services resulting from McAllister Ranch. However, because the Proposed Project would replace the development intended to be served by this facility, the fire station would no longer be needed.

Therefore, the Proposed Project would not result in the need for new or altered fire protection facilities, nor would it cause impacts to response times. This impact would be ***less than significant*.**

ii. Police Protection – Less than Significant

The Proposed Project does not propose any new homes or businesses, and the number of employees engaged in regular project operations would be minimal. Furthermore, groundwater banking is not a use that causes hazards that would be likely to require increased police services. Therefore, operations would not substantially increase demand for police protection. As discussed above, the site is anticipated to be inactive 85 percent of the year. The site would be entirely fenced; in addition, BVWSD would install downward-facing lighting to monitor the site while operations are inactive. Construction would mainly occur on the project site; therefore, it is not anticipated that construction would result in calls for service from local law enforcement or cause delays to police response times in the area. Therefore, the impact on police service would be ***less than significant.***

Chapter 16
RECREATION

16.1 Overview

This chapter presents an overview of recreational resources that could be affected by the Proposed Project. This chapter also summarizes laws, regulations, and policies related to recreation and evaluates the potential impacts of the Proposed Project on recreational resources.

16.2 Regulatory Setting

16.2.1 Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies related to recreational resources are applicable to the Proposed Project.

16.2.2 State Laws, Regulations, and Policies

Quimby Act

California Government Code Section 66477, Subdivision Map Act, referred to as the Quimby Act, permits local jurisdictions to require the dedication of land and/or the payment of in-lieu fees for park and recreation purposes. The required dedication and/or fees are based upon the residential density, parkland cost, and other factors. Land dedication and fees collected under the Quimby Act may be used for acquisition, improvement, and expansion of park, playground, and recreational facilities or the development of public school grounds.

16.2.3 Local Laws, Regulations, and Policies

Metropolitan Bakersfield General Plan

The following policies contained in Chapter XI, "Parks Element," of the *Metropolitan Bakersfield General Plan* (MBGP) (City of Bakersfield 2002, updated 2016) may be applicable to the Proposed Project.

Goal 5: Coordinate development of park facilities and trail systems throughout the plan area which enhance the centers concept and complement unique visual or natural resources.

Goal 6: Ensure that all park and recreational facilities are adequately designed, landscaped, and maintained.

> **Policy 13:** Evaluate the feasibility of including new regional parks as a component of proposed groundwater recharge areas.

Policy 26: Encourage the further development of the City of Bakersfield's specific trails plan.

Policy 27: Encourage pedestrian and bicycle linkages between residential and commercial uses.

City of Bakersfield Recreation and Parks Master Plan

The following policies contained in Chapter 4, "General Policies and Guidelines," of the *Recreation and Parks Master Plan* (City of Bakersfield 2007) may be applicable to the Proposed Project.

Policy RPMP 3: Providing parks and recreation facilities that complement one another and are evenly distributed throughout the City.

City of Bakersfield Bicycle Transportation Plan

The following policies contained in Chapter 1, "Introduction," of the *Bicycle Transportation Plan* (City of Bakersfield 2013) may be applicable to the Proposed Project.

Goal 1: Increase bicycle mobility.

Objective 1.2: Increase the mileage of bikeways by 10 percent by 2018 and 20 percent by 2023.

Kern River Plan

The Kern River Plan Element of the MBGP and the *Kern County General Plan* discusses features that were incorporated into development along the Kern River (City of Bakersfield 1985).

Policy 3.1.3-3: Foot access, riding and hiking trails, and bicycle paths may be developed on features such as canal banks, levees and public easement corridors. Design of such trails and paths shall take into consideration public safety and security of adjacent land uses.

Policy 3.4.3-8: Recreational uses which require minimum physical development shall be encouraged as long as public health and safety are not put at risk. Such uses would include riding and hiking trails, fishing access, view areas, and beaches.

Policy 3.4.3-13: Design riding and hiking trails, nature study areas, and other non-intensive forms of recreation to be compatible with water recharge facilities, structures, and uses.

16.3 Environmental Setting

16.3.1 Existing Park Facilities

The City of Bakersfield Recreation and Parks Department (City Parks Department) oversees planning, operation, and maintenance of the parks and recreation facilities in Bakersfield. The City Parks Department manages 61 public parks, four public pools, 13 spray parks, two sports complexes with skate parks, three disc golf courses, and pickleball courts at one park (City of Bakersfield 2021a). **Table 16-1** provides a list of parks and recreational facilities located near the project site.

Table 16-1. Parks and Recreational Facilities near the Project Site

Name	Address	Distance from Project Site	Description
Kern River Parkway	Manor Street to Stockdale Highway Bridge	6 miles	6,000 acres; amenities include Kern River Parkway Bike Trail, BBQ pits, fishing area, horseshoe pit, volleyball courts, picnic areas, parking lots, restrooms
Greystone Park	South of Harris Road, between Oak Creek Drive and Mountain Vista Drive	1.4 miles	8 acres; amenities include playground, splash pad, basketball courts, picnic area, BBQs, restrooms, parking lots
Tradewinds Park	North of Harris Road, between Beach Rose Drive and the Union Pacific railroad tracks	2.4 miles	8 acres; amenities include playground, picnic area, BBQ, backstop, volleyball courts, horseshoe pits
Campus Park North	Between Parkview Drive and Hemmingway Place	2.3 miles	8 acres; amenities include playground, picnic area, BBQs
Campus Park South	Adjacent to Sing Lum Elementary School and west of Pin Oak Park Boulevard	2.5 miles	12 acres; amenities include playground, picnic areas, BBQ, tennis courts
Bridle Creek Dog Park	East of Pine Flat Drive	2.3 miles	2 acres; amenities include water fountains and dog bowl fountains, playground, picnic areas, basketball courts
Silver Creek Park	South of Harris Road, adjacent to Donald E. Suburu Elementary School	3.5 miles	14 acres; amenities include community center, picnic areas, swimming pool, pavilion, BBQs, basketball courts, tennis courts, pool, disc golf course, horseshoe pits, playground, restrooms
Seasons Park	South of Harris Road, adjacent to Bill L. Williams Elementary	4.7 miles	10 acres; amenities include picnic areas, BBQs, playground, basketball courts, dog park

Name	Address	Distance from Project Site	Description
Tevis Park	North of Campus Park Drive, adjacent to Oaks Children Center	2.1 miles	9 acres; amenities include BBQs, playground, picnic areas, basketball courts
Wilderness Park	South of Harris Road and east of Wilderness Drive	3.3 miles	5 acres; amenities include BBQs, playground, basketball courts, picnic areas
Pin Oak Park	North of Park View Drive between Pin Oak Park Boulevard and Mill Oak Run Road	2.6 miles	17 acres; amenities include playground, picnic areas, BBQs, basketball courts, restrooms, volleyball courts
Deer Peak Park	Beckenham Parkway, north of Ascot Crossing Street	2.7 miles	6 acres; amenities include playground, picnic area, restrooms, BBQs, basketball courts
Windsor Park	Southwest of Windsor Park Drive	3.2 miles	6 acres; amenities include playground, picnic area, BBQs, basketball courts, restroom
Haggin Oaks Park	South of Limoges Way and north of Mc Innes Boulevard	2.8 miles	10 acres; amenities include playground, BBQs, rennis courts
The Park at River Walk	South side of Kern River east of the Stockdale Highway	2.9 miles	32 acres; amenities include amphitheater, BBQs, bike path, pavilion, picnic areas, restrooms
River Oaks Park	South side of Kern River between Stockdale Highway and South Allen Road	2.3 miles	10 acres; amenities include playground, basketball courts, walking trails

Source: RRM Design Group 2021; Bakersfield Californian 2016, 2020; City of Bakersfield 2021b

Park and Recreational Facility Usage

Bakersfield residents were surveyed in 2006, as part of the process of preparing the City's *Recreation and Parks Master Plan*, to determine park attendance and what attributes draw residents to these resources (City of Bakersfield 2007). Nearly 32 percent of residents surveyed described themselves as frequent users of parks and recreational facilities, 45 percent described themselves as moderate users, and 23 percent described themselves as light/non-users (City of Bakersfield 2007).[1] Primary recreational uses identified in the survey included walking/jogging/running, picnicking, bicycling, use of play equipment/playgrounds, and recreational sports (e.g., basketball, swimming, softball).

According to the survey, overall community satisfaction with existing parks was very high (over 80 percent). Dissatisfaction was primarily related to maintenance and safety issues. Park and bathroom cleanliness were the main reasons residents were unhappy with park maintenance. Issues with drugs, crime, and gangs were cited as the top safety problems. These concerns were believed to be interrelated, as the perception of parks being unsafe was generally attributed to deferred maintenance of facilities and the presence of graffiti (City of Bakersfield 2007).

16.3.2 Recreational Trails

Numerous trails are located throughout Bakersfield, providing recreational access for residents and visitors. The City has installed 143 miles of bikeways, including approximately 28 miles of Class I bike paths, 114 miles of Class II bike lanes, and 0.75 mile of Class III bike routes. Bikeways are generally classified as follows (California Department of Transportation 2020):

- Class I bikeways, also known as bike paths or shared use paths, are facilities with exclusive right-of-way for bicyclists and pedestrians, away from the roadway and with cross flows by motor traffic minimized.
- Class II bikeways are bike lanes established along streets and are defined by pavement striping and signage to delineate a portion of a roadway for bicycle travel.
- Class III bikeways, or bike routes, designate a preferred route for bicyclists on streets shared with motor traffic not served by dedicated bikeways to provide continuity to the bikeway network.

The Kern River Parkway Bike Trail is the longest bikeway in the city, with 32 miles of pathways that attract cyclists and pedestrians from Bakersfield and the surrounding region (City of Bakersfield 2013). This bike trail is the central component of the Kern River Parkway and provides direct connections to many parks along the Kern River (e.g., Beach Park, the Park at River Walk, the Uplands of the Kern River Parkway, and California State University). The City

[1] For the survey, frequent users were defined as residents who visited parks and/or recreational facilities more than once a week, once a week, or 3 to 4 times per month. Moderate users were defined as residents who visited parks and/or recreational facilities once or twice a month or several times per year. Light/non-users were defined as residents who visited parks and/or recreational facilities once a year or not at all.

maintains the Kern River Parkway Bike Trail within city limits, except for 3 miles of paths that are managed by Kern County (City of Bakersfield 2013).

16.4 Impact Analysis

16.4.1 Methodology

This chapter describes the Proposed Project's potential impacts on recreation. Potential impacts on recreation were evaluated qualitatively and were based on the CEQA Guidelines Appendix G significance criteria (see below). Temporary effects on recreational opportunities due to temporary disturbances associated with the Proposed Project (e.g., construction noise, dust, air pollutant emissions, and traffic) are described in other sections of this DEIR.

16.4.2 Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact on recreation if it would:

- Include recreational facilities or require construction or expansion of recreational facilities that might have an adverse physical effect on the environment; or
- 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.

16.4.3 Environmental Impacts

Impact REC-1: Include Recreational Facilities that Would Have an Adverse Physical Effect on the Environment — Less than Significant

The Proposed Project includes construction of a bicycle path that would extend from the Kern River connector trail along the Kern River canal at the northwest corner of the Project site to Pensinger Road located on the eastern side of the Project site. The Kern River connector trail provides a connection to the Kern River Parkway and Kern River Parkway bike trail. As noted in Chapter 2, the bike trail is conceptual only at this time.

The *Bikeway Transportation Plan* identified a bicycle path connecting suburban southwest Bakersfield to the Kern River Trail as a community priority (City of Bakersfield 2013). The Proposed Project would provide a portion of this connection.

In the long term, the new bicycle path would provide Bakersfield residents with a more complete connection to the Kern River Parkway and parks and trails along the Kern River, improving recreational access in the area. Implementation of the Proposed Project and construction of the new bicycle path would not result in adverse physical effects on the environment and would result in an environmental benefit for recreational resources. Therefore, Proposed Project impacts on recreation would be **less than significant**.

Impact REC-2: Increase the Use of Existing Recreational Facilities — No Impact

Under the McAllister Ranch Specific Plan, 290 acres of recreational facilities were proposed to be constructed, including an 18-hole golf course, 31-acre lake, and bike, equestrian, and pedestrian trails, to provide recreational facilities for 9,000 new residential units. Under the Proposed Project, these recreational facilities would not be constructed. However, as described in Chapter 14, *Population and Housing,* the 9,000 housing units proposed for McAllister Ranch would not be constructed, and the Proposed Project would not result in additional population growth. Therefore, the use of existing surrounding recreational facilities would not change under the Proposed Project compared to existing conditions and substantial physical deterioration of these facilities would not occur. Thus, the Proposed Project would result in **no impact** on existing recreational facilities.

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Chapter 17
TRIBAL CULTURAL RESOURCES

17.1 Overview

This chapter describes potential impacts of the Proposed Project related to tribal cultural resources (TCRs). TCRs are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project being evaluated. Archaeological sites and burial sites can also be TCRs.

17.2 Regulatory Setting

17.2.1 Federal Laws, Regulations, and Policies

Federal law does not address TCRs, as these resources are defined in the California Pub. Res. Code. However, similar resources, called Traditional Cultural Properties (TCPs), fall under the purview of Section 106 of the National Historic Preservation Act (NHPA), as described in Chapter 7, Cultural Resources, of this DEIR. TCPs are locations of cultural value that are historic properties. A place of cultural value is eligible as a TCP "because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1990, rev. 1998). A TCP must be a tangible property, meaning that it must be a place with a referenced location, and it must have been continually a part of the community's cultural practices and beliefs for the past 50 years or more. Unlike TCRs, TCPs can be associated with communities other than Native American tribes, although the resources are usually associated with tribes. By definition, TCPs are historic properties; that is, they meet the eligibility criteria as a historic property for listing in the National Register of Historic Places (NRHP). Therefore, as historic properties, TCPs must be treated according to the implementing regulations found under Title 36 Code of Federal Regulations (CFR) Section 800, as amended in 2001.

17.2.2 State Laws, Regulations, and Policies

CEQA and CEQA Guidelines

Assembly Bill (AB) 52 (Statutes of 2014, Chapter 532) requires that lead agencies, before the release of an EIR or Negative Declaration, must begin consultation with a tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if:

- The tribe requested in writing to be informed by the Lead Agency through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe; and

- The tribe responds, in writing, within 30 days of receipt of the formal notification, and requests the consultation.

AB 52 requires that TCRs be identified early in the environmental review process under the California Environmental Quality Act (CEQA) and that any adverse impacts to said resources be addressed. To accomplish those goals, the legislature added or amended Public Resources Code (Pub. Res. Code) Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 5097.94.

As defined in Pub. Res. Code Section 21074(a), TCRs are:

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

    a. Included or determined to be eligible for inclusion in the California Register of Historic Resources (CRHR); or

    b. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

2. 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

In addition to Section 21074(a) above, TCRs are further defined under Section 21074(b) and (c) as follows:

    b. A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape; and

    c. A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms to the criteria of subdivision (a) [of Section 21074].

Mitigation measures for TCRs may be developed in consultation with the affected California Native American tribe in accordance with Public Resources Code (Pub. Res. Code) 21080.3.2. Under Pub. Res. Code Section 21084.3. TCR mitigation measures include avoidance and preservation of TCRs and treating TCRs with culturally appropriate dignity, taking into account tribal cultural values and the meaning of the resource.

17.2.3 Local Laws, Regulations, and Policies

City of Bakersfield

The current *Metropolitan Bakersfield General Plan* (MBGP) (City of Bakersfield 2002, updated 2016) has a place holder for a future Historical Resources Element chapter. Until the chapter is developed and adopted, the General Plan addresses historical resources under the Land Use Element. Six of the seven policies under this element that pertain to historic preservation focus on historic neighborhoods and built environment resources and are not directly applicable to the Proposed Project. The one exception is Policy 104, as follows:

> As part of the environmental review procedure, an evaluation of the significance of paleontological, archaeological, and historical resources and the impact of proposed development on those resources shall be conducted and appropriate mitigation and monitoring included for development projects.

17.3 Environmental Setting

As discussed in Chapter 6, *Cultural Resources*, the Proposed Project is in the traditional ancestral territory of the Southern Valley Yokuts. The City, as well as Kern County, have consistently worked with local Native American tribes throughout various proposed uses of the McAllister Ranch since at least as early as 2006 (ASM Affiliates [ASM] 2020; W&S Consultants 2006).

No tribes with a traditional and cultural affiliation to the Proposed Project area have requested consultation with City of Bakersfield on department projects pursuant to Pub. Res. Code Section 21080.3.1. However, in the spirit of Pub. Res. Code Section 21080.3.1, a request was submitted to the Native American Heritage Commission (NAHC) on May 27, 2020, to review its files for the presence of sacred sites at or near the project location. At the same time, requests were made for a list of tribes with a traditional and cultural affiliation with the Proposed Project area for the purpose of consultation as required by Pub. Res. Code Section 21080.3.1. The NAHC responded on May 28, 2020, noting that no sacred sites are known to exist in the vicinity of the Proposed Project site, and provided 17 tribal contacts for the purposes of Pub. Res. Code Section 21080.3.1 consultation.

Each of the individuals identified by the NAHC was provided notification about the Proposed Project via U.S. mail on June 16, 2020, with a returned certified receipt. Return receipts were not received for three of the letters mailed and follow-up emails were sent to those contacts on July 10, 2020. **Table 17-1** lists the Native American consultation efforts to date.

Table 17-1. Native American Consultation

Contact	Tribe	Letter Date	Comments
James Rambeau, Sr., Chairperson	Big Pine Paiute Tribe of the Owens Valley	June 16, 2020	No response.
Sally Manning, Environmental Director	Big Pine Paiute Tribe of the Owens Valley	June 16, 2020	No response.
Danelle Gutierrez THPO	Big Pine Paiute Tribe of the Owens Valley	June 16, 2020	No response.
Julio Quair, Chairperson	Chumash Council of Bakersfield	June 16, 2020	**07/10/2020:** Horizon sent follow up email because return receipt had not been received. Email kicked back. **08/13/2020:** Letter returned unclaimed and unable to forward.
Jairo F. Avila, THPO	Fernandeno Tataviam Band of Mission Indians	June 16, 2020	No response.
Robert Robinson, Chairperson	Kern Valley Indian Community	June 16, 2020	No response.
Julie Turner, Secretary	Kern Valley Indian Community	June 16, 2020	No response.
Brandy Kendricks	Kern Valley Indian Community	June 16, 2020	**07/10/2020:** Horizon sent follow up email because return receipt had not been received.
Delia Dominguez, Chairperson	Kitanemuk & Yowlumne Tejon Indians	June 16, 2020	No response.
Jessica Mauck, Director-CRM Dept.	San Manuel Band of Mission Indians	June 16, 2020	**07/10/2020:** Horizon sent follow up email because return receipt had not been received. **07/12/2020:** Email response noting that the project is not in Serrano territory and they do not wish to consult.

Contact	Tribe	Letter Date	Comments
Leo Sisco, Chairperson	Santa Rosa Rancheria Tachi Yokut Tribe	June 16, 2020	**06/12/2020**: Email from Samantha McCarty in response to first Notice of Preparation (NOP) notice of 05/22/2020 before AB 52 notice sent. Requested AB 52 consultation in coordination with Tejon. Requested meeting with City, Samantha McCarty **09/15/2020:** City emailed Samantha, acknowledging request for consultation and asking about a joint meeting with the Tejon tribe. **09/16/2020:** Request from the City for potential meeting dates. **08/30/2021:** Email from the City to re-engage in consultation after project hiatus. Requested potential meeting dates. On the same day, the tribe requested a status update of the project. **09/01/2021:** The City provided copies of the NOP to the tribe. **10/22/2021:** Conference call between the City, and the Tachi and Tejon tribes about the project. Site visit scheduled. **10/25/2021:** Email from Tachi saying that they will defer to the Tejon for the site visit. **12/1/2021:** Draft mitigation language emailed to Shana Powers for review.
Octavio Escobedo III, Chairperson	Tejon Indian Tribe	June 16, 2020	No response.

Contact	Tribe	Letter Date	Comments
Colin Rambo, Cultural Resource Management Technician	Tejon Indian Tribe	June 16, 2020	**06/11/2020:** Email in response to first NOP notice of 05/22/2020 before AB 52 notice sent. Requested AB 52 consultation in coordination with Tachi Yokut. Requested meeting with City and available cultural data. **09/15/2020:** City emailed Colin, acknowledging request for consultation and asking about a joint meeting with the Tachi tribe. **09/15/2020:** Response from Colin, agreeing to a meeting with the Tachi. **09/16/2020:** Request from the City for potential meeting dates. **08/30/2021:** Email from the City to re-engage in consultation after project hiatus. Requested potential meeting dates. **10/22/2021:** Conference call between the City, and the Tachi and Tejon tribes about the project. Site visit scheduled. **11/03/2021:** The City, Tejon tribe, and water district representatives visited the site to discuss protection of cultural resources. **12/1/2021**: Draft mitigation language emailed to the Tribe for review; accepted on 12/2/2021 with input.
Robert L. Gomez, Jr., Tribal Chairperson	Tubatulabals of Kern Valley	June 16, 2020	No response.
Neil Peyron, Chairperson	Tule River Indian Tribe	June 16, 2020	No response.
Kenneth Woodrow, Chairperson	Wuksache Indian Tribe/Eshom Valley Band	June 16, 2020	No response.
Mona Olivas Tucker, Chairwoman	yak tityu yak tiłhini Northern Chumash Tribe	June 16, 2020	No response.

One tribe, the San Manuel Band of Mission Indians, formally responded that they did not wish to consult on the project. Two tribes, the Santa Rosa Rancheria Tachi Yokut Tribe and the Tejon Indian Tribe, formally requested consultation on the project. No responses were received from any of the other tribes contacted.

Prior to receipt of the AB 52 project notification letter, both the Santa Rosa Rancheria Tachi Yokut Tribe and the Tejon Indian Tribe had contacted the City in response to the Notice of Project (NOP) that was issued to the public on May 22, 2021. In their respective emails to the City, both tribes requested consultation in collaboration with the other tribe, clearly signaling that they would be coordinating with each other on the Project. They again voiced their requests to consult upon receiving the AB 52 project notification letter.

The City held a teleconference call with the Tachi and Tejon tribes on October 22, 2021 to discuss the project and the potential to impact tribal cultural resources. This was followed by a field visit to the project site by the City and the Tejon tribe (the Tachi had deferred to the Tejon for the purposes of the field review) on November 3, 2021. The known locations of Native American archaeological sites were visited and methods for protecting the resources from ground disturbance and inundation were discussed. The mitigation measures listed in Sections 6.4.2 and 17.4.3 were developed as the result of the conversations that took place during the field review. The mitigation measures were also reviewed and approved by the tribes.

The City will continue to work closely with the Tejon and Tachi tribes as Project design proceeds, as described in Chapter 2, *Project Description*.

17.4 Impact Analysis

17.4.1 Methodology

Consultation with tribes that have a traditional and cultural affiliation with the Proposed Project area followed the protocols outlined under Pub. Res. Code Sections 21080.3.1, 21080.3.2, and 21082.3 and guidelines provided the NAHC, the Governor's Office of Planning and Research, and the California Natural Resources Agency.

17.4.2 Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact on TCRs if it would:

- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Pub. Res. Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
  - Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Pub. Res. Code Section 5020.1(k), or

- 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 Pub. Res. Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Pub. Res. Code Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

17.4.3 Environmental Impacts

Impact TCR-1. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074, that is Listed or eligible for listing in the CRHR as defined in Public Resources Code Section 5020.1(k); OR 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 — Less than Significant with Mitigation

Four tribal cultural resources that are also archaeological sites have been identified within the boundaries of the Proposed Project. Described in Section 6.4.1, these resources are archaeological sites CA-KER-668, CA-KER-1051, CA-KER-2282, and CA-KER-3156. The City has committed to working with the Santa Rosa Rancheria Tachi Yokut Tribe and the Tejon Indian Tribe to avoid impacts to these resources by mapping their observed boundaries and designing the Project around the sites, as discussed in Section 2.6.

As discussed in Chapter 6, *Cultural Resources*, up to four pre-contact Native American Resources are known to be located within the Proposed Project area. All of the resources have been determined eligible for listing in the NRHP and/or California Register of Historical Resources during previous studies, and are identified as tribal cultural resources by the Tejon Indian Tribe and the Santa Rosa Rancheria Tachi Yokut Tribe. The City and BVWSD are committed to work with the tribes to protect the sites through modification of the project design. Prior to advancing design plans, BVWSD shall retain a qualified archaeologist to work with the tribes to accurately map the boundaries of the known resources. Following site delineation, the City and BVWSD will then discuss potential design elements to protect the sites with the tribes, and provide the tribes the opportunity to discuss and review the construction design plans at 60 percent completion and 90 percent completion to ensure that the resources are avoided or treated appropriately. The design plans shall also designate a protected area within the Project limits that will be used to reinter any Native American human remains and associated grave items that may be discovered during construction.

The topography of the area, as part of the Kern River Delta, indicates that flooding from the Kern River regularly occurred in the past, and the current Federal Emergency Management Agency (FEMA) rating (see Section 11.3.2, “Flooding, Tsunamis, and Seiches”) identifies it as an area that continues to have the potential to flood. Flooding events deposit silts over the landscape and can bury cultural remains, which has been demonstrated at site CA-KER-668. Section 6.4.1 discusses the geoarchaeological sensitivity of the Proposed Project area for the potential to contain buried archaeological sites and classified the Proposed Project location, as having Very High sensitivity for subsurface sites. As a result, despite the City’s commitment to avoid known tribal cultural resources through project design, undetected buried archaeological

resources, including human remains, that are also tribal cultural resources could be discovered during project construction activities detailed in Chapter 2, *Project Description*, and discussed in Chapter 6, *Cultural Resources*, Section 6.4.2, "Environmental Impacts." Impacts to tribal cultural resources due to ground disturbing construction activities would be a **significant impact**.

Mitigation Measure CR-1 requires monitoring of all construction-related ground disturbance by a representative from a culturally affiliated Native American tribe and a qualified archaeologist. **Mitigation Measure CR-2** requires preparation and implementation of an Unanticipated Discovery Plan in consultation with consulting tribes. **Mitigation Measure CR-3** requires that work stop if human remains are discovered and that the requirements of Health and Safety Code 7050 be followed. **Mitigation Measure TCR-1** would ensure protection of TCRs in accordance with California law. Therefore, impacts to tribal cultural resources would be **less than significant with mitigation**.

Mitigation Measure TCR-1: Implement Mitigation Measures Recommended in Public Resources Code Section 21084.3 to Avoid Damaging Effects on Tribal Cultural Resources.

Public Resources Code Section 21084.3 identifies the following treatments as possible mitigation measures of significant impacts to tribal cultural resources:

(1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

(2) Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

(A) Protecting the cultural character and integrity of the resource.

(B) Protecting the traditional use of the resource.

(C) Protecting the confidentiality of the resource.

(3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

The City shall consider application of these measures, in consultation with consulting tribes, for the treatment of any tribal cultural resources discovered during project construction. The City and the tribes shall collaborate on determining and implementing the appropriate treatment.

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Chapter 18
UTILITIES/SERVICE SYSTEMS

18.1 Overview

This chapter describes the setting and potential impacts on utilities and service systems that could result from the Proposed Project. Impacts on utilities and service systems under California Environmental Quality Act (CEQA) are generally related to increased demand for, or use of, utilities and service systems such as water, wastewater, and solid waste disposal that would require construction of new or expanded facilities. The CEQA Guidelines also have significance criteria for utilities and service systems related to non-compliance with existing solid waste laws and regulations.

18.2 Regulatory Setting

This section summarizes the laws, regulations, and policies relevant to evaluating impacts on utilities and service systems potentially caused by the Proposed Project.

18.2.1 Federal Laws, Regulations, and Policies

Federal Safe Drinking Water Act

The Safe Drinking Water Act was enacted in 1974 to ensure the safe quality of drinking water to the public. It is administered by the U.S. Environmental Protection Agency (USEPA); therefore, USEPA is authorized to set national standards for drinking water quality, called the National Primary Drinking Water Regulations, to protect against both naturally occurring and man-made contaminants. The USEPA oversees the states, localities, and water suppliers who implement those standards.

18.2.2 State Laws, Regulations, and Policies

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 , enacted through Assembly Bill (AB) 939 and modified by subsequent legislation, required all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by 2000 (Public Resources Code [Pub. Res. Code] Section 41780). Later legislation mandated that the 50 percent diversion requirement be achieved every year. A jurisdiction's diversion rate is the percentage of its total waste that is diverted from disposal through reduction, reuse, and recycling programs. The state, acting through the California Integrated Waste Management Board, determines compliance with this mandate. Per capita disposal rates are used to determine if a jurisdiction's efforts are meeting the intent of the act.

Assembly Bill 341 (Statutes of 2012), Solid Waste Diversion

Effective July 1, 2012, California's Commercial Recycling Bill (AB 341) established a policy goal for California that at least 75 percent of solid waste generated be source-reduced, recycled, or composted by 2020.The bill is intended to reduce GHG emissions by diverting recyclable materials and expand the opportunity for increased economic activity and green industry job creation. AB 341 is a statewide policy goal rather than a city or county jurisdictional mandate.

CALGreen (California Green Building Code)

In an effort to reduce greenhouse gas emissions and fight against climate change, the State of California Green Building Code (CALGreen) took effect in 2011. CALGreen mandates energy efficiency, water efficiency, and resource conservation measures for all newly constructed commercial and residential projects. CALGreen applies to all residential, commercial, hospital and school buildings to ensure that every new building in California is built using environmentally advanced construction practices, including construction waste diversion requirements, as follows:

- Submit a Construction Waste Management Plan prior to construction for approval by the local Building Department.
- Recycle and/or Reuse a minimum of 65 percent of construction & demolition waste.
- Recycle or Reuse 100 percent of tree stumps, rocks and associated vegetation and soils resulting from land clearing (Kern County Public Works 2017).

18.2.3 Local Laws, Regulations, and Policies

Metropolitan Bakersfield General Plan

The following policies contained in Chapter X (10), "Public Services and Facilities Element," of the *Metropolitan Bakersfield General Plan* (MBGP) (City of Bakersfield 2002) may be applicable to the Proposed Project.

General Utility Service

Goal 1: Maintain a coordinated planning and implementation program for the provision of public utilities to the planning area.

Policy 3: Municipal-type utility services within the city's sphere of influence (or designated urban area) should be provided.

Policy 5: Require all new development to pay its pro rata share of the cost of necessary expansion in municipal utilities, facilities and infrastructure for which it generates demand and upon which it is dependent.

Water Distribution

Goal 1: Ensure the provision of adequate water service to all developed and developing portions of the planning area.

Policy 1: Reach agreement regarding mutually beneficial improvements in domestic water service and distribution facilities as required to improve overall metropolitan water service capabilities.

Policy 2: Continue to provide domestic water facilities which are contributed directly by developers, through development and/or availability fees.

Policy 3: Require that all new development proposals have an adequate water supply available.

Sewer Service

Goal 1: Ensure the provision of adequate sewer service to serve the needs of existing and planned development in the planning area.

Goal 3: Provide trunk sewer availability to and treatment/disposal capacity for all metropolitan urban areas, to enable cessation or prevention of the use of septic tanks where such usage creates potential public health hazards or may impair groundwater quality, and to assist in the consolidation of sewerage systems. Provide sewer service for urban development regardless of jurisdiction.

Storm Drainage

Goal 2: Maintain a comprehensive storm drainage system which serves all urban development within the planning area.

Policy 2: The city and county should pursue individual drainage plans where they are most needed.

Solid Waste

Goal 1: Ensure the provision of adequate solid waste disposal services to meet the demand for these services in the planning area.

Goal 2: Evaluate, and develop as feasible, resource recovery and recycling systems.

Policy 1: Comply with, and update as required, the adopted county solid waste management plan.

18.3 Environmental Setting

As described in Section 3.3 of Chapter 3, *Introduction to the Environmental Analysis,* the project site is vacant but, in 2006-2008, underwent the early stages of construction of residential, recreational, and commercial development under the McAllister Ranch Specific Plan. As a result, some utilities were installed on site. All municipal utilities installed at that time would be removed during regrading of the site and construction of the Proposed Project; therefore, these facilities are noted but not addressed in detail in this chapter. Existing groundwater wells on the site are shown Figure 2-3, and existing power lines are shown in Figure 2-5.

18.3.1 Wastewater Collection and Treatment Services

Bakersfield is served by four major wastewater treatment plants. The City operates Wastewater Treatment Plants (WWTPs) Nos. 2 and 3. WWTP No. 2 is a trickling filter facility that serves the area east of State Route (SR) 99. It has a capacity of 25 million gallons per day (mgd), with a current average daily flow of 13.7 mgd. WWTP No. 3 is an activated sludge facility that serves the area west of SR 99, including the Proposed Project site. It has a capacity of 32 mgd and a current average daily flow of 17.3 mgd (City of Bakersfield 2021). In 2010, WWTP No. 3 was upgraded, expanding from 16 mgd to 32 mgd capacity (Waste and Water Digest 2011). The City of Bakersfield projects that demand will increase most rapidly at WWTP No. 3.

Additionally, portions of Bakersfield are also served by two smaller wastewater treatment plants operated by the Kern Sanitation Authority and North of River Sanitary District Number 1; these agencies own and maintain the sewer systems for their respective treatment plants (City of Bakersfield 2002).

Municipal wastewater pipelines were installed at the project site during the preliminary construction of development for the McAllister Ranch Specific Plan. As part of regrading and construction at the Proposed Project site, these pipelines would be removed. A portable restroom would be installed at the project site for use by employees during routine operations and maintenance.

18.3.2 Water Supply

Bakersfield receives an average of 6.49 inches of rainfall per year. Therefore, water from sources other than direct local rainfall, including Kern River flows, groundwater, State/Federal projects, and other local sources, is crucial to this area. Kern County as a whole receives water from multiple sources. **Table 18-1** provides a list of the different sources that supply water to Kern County.

Table 18-1. Water Sources in Kern County

Source	Percent of Total
Kern River	20
State Water Project (California Aqueduct)	26
Federal – Central Valley Project (Friant-Kern Canal)	12
Local Streams and Other Sources (Poso Creek)	6
Groundwater	26
Total	**100**

Source: Water Association of Kern County 2021

Nine water purveyors provide service to Bakersfield. The City is the current water purveyor for the project site (City of Bakersfield 2017). The City's Ashe Water Company obtains supplies from wells. The City also operates the 2,800 Acre Groundwater Recharge Project, which provides groundwater recharge for Kern River flows utilizing both the City's water rights and agreements with other water agencies for banking their waters in the underground aquifer (City of Bakersfield 2002).

As shown in Figure 2-3, the project site has eight existing groundwater wells from past agricultural operations, as well as several unlined irrigation canals that transfer water to and around the project area. The Proposed Project would retain the existing wells and canals and would construct six additional groundwater wells and eight groundwater monitoring wells. These wells would be used for recovery of stored groundwater. No domestic water connection would be installed for the Proposed Project.

18.3.3 Stormwater Drainage

Stormwater drainage policies for Bakersfield reflect the generally flat topography and limited rainfall of the area (City of Bakersfield 2002). While overall annual rainfall amounts are low, highly intense precipitation can occur in Bakersfield, leading to locally significant runoff. The County and City operate and maintain a joint storm drainage system serving metropolitan Bakersfield and a portion of the surrounding unincorporated area. This area is regulated by an NPDES permit; the City and County prepared a Storm Water Management Plan that describes the framework for managing stormwater discharges (City of Bakersfield and Kern County 2015). Most stormwater in the Bakersfield area is discharged into one of approximately 322 retention basins or one of 52 direct outfalls or 10 indirect outfalls discharging to the Kern River, East Side Canal, Carrier Canal, Stine Canal, or Kern Island Canal (City of Bakersfield and Kern County 2015). However, the project site is not located within the area covered by this plan.

The City of Bakersfield discourages onsite stormwater retention and accepts stormwater runoff into its system as long as adequate downstream facilities are available. In cases where onsite retention is necessary owing to a lack of offsite drainage facilities, the City attempts to locate sump pumps so that they can be incorporated into future development (City of Bakersfield 2002).

The project site has existing stormwater drainage facilities that were installed during the construction of McAllister Ranch. These storm drains have been installed along the roadways that border the project site and the roads within the project site. The Proposed Project would remove storm drains during the grading and construction process, with the exception of those present in roads accessing the site. Stormwater drainage for the Proposed Project would be retained on site in the recharge basins.

18.3.4 Solid Waste Disposal

The City of Bakersfield's Public Works Department Solid Waste Division provides garbage and recycling services to its residents and businesses. The City either provides curbside collection of waste or contracts with a local waste hauler to collect waste (Kern County Public Works 2021a). The City and County also provide assistance to contractors, developers, and businesses in recycling construction and demolition debris. Construction and demolition waste are accepted at most Kern County disposal sites for recycling, reuse, or disposal (Kern County Public Works 2017).

Kern County Public Works operates seven landfills, nine transfer stations, and one bin site (Kern County Public Works 2021b). Of the seven landfills, Bena Landfill is the primary landfill serving metropolitan Bakersfield. It is located 18 miles east of Bakersfield and has a projected lifespan of 65–75 years, with a capacity of 70 million cubic yards (City of Bakersfield 2002). According to the California Department of Resources Recycling and Recovery's (CalRecycle's) Solid Waste Information System, Bena Landfill has a permitted maximum capacity of 53,000,000 cubic yards. As of July 2013, the remaining capacity was 32,808,260 cubic yards, and the facility has an estimated closure date of April 1, 2046 (CalRecycle 2019).

The Proposed Project would be served by the City's garbage and recycling service. Construction activities would include demolition of improvements installed in 2006-2008 for the McAllister Ranch development project; approximately 70-100 truckloads of material are estimated to be hauled off site to a landfill. Because the facility would be staffed only briefly for operations and maintenance activities during most of the year, solid waste generation at the site during operation of the Proposed Project is anticipated to be primarily domestic and minimal.

18.3.5 Electricity and Natural Gas

Electric power supply and distribution for the entire Bakersfield area is furnished by Pacific Gas and Electric Company (PG&E). Natural gas is supplied by PG&E and Southern California Gas Company (City of Bakersfield 2002). Southern California Edison owns and operates a 500-kilovolt transmission line that runs just west of the project site; however, it does not provide service to the project site (California Energy Commission 2021). Figure 2-5 in Chapter 2, *Project Description*, shows the existing power lines on the project site, which are located along Panama Lane on the south and west property line, as well as some lines that cross the project site.

The Proposed Project would connect to the PG&E electrical grid for power by means of the existing power lines; additional power poles would be constructed to provide power to all parts of the project site. No natural gas service would be needed for the site.

18.3.6 Communications

Telephone service is supplied to the Bakersfield metropolitan area by several companies. Cable television and internet service is provided by Cox Cable and Time-Warner under the terms of city and county franchises regulating installation and service charges (City of Bakersfield 2002). The Proposed Project would not require telephone service.

18.4 Impact Analysis

18.4.1 Methodology

Potential impacts on utilities were evaluated qualitatively by considering aspects of the Proposed Project in light of the CEQA Guidelines Appendix G significance criteria (see below) and the existing regulatory and environmental settings.

18.4.2 Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact on utilities and service systems if it would:

- 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;
- Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- 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; or
- Fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Topics Dismissed from Further Evaluation

The Initial Study for the Proposed Project identified the following topics that do not require further evaluation, for the following reasons:

- **Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.** The Proposed Project's demand for wastewater services would be minimal because on-site staff occupancy would be limited to 1-2 employees daily for brief periods when the groundwater bank is actively operating. No wastewater treatment provider has determined that they have an inadequate capacity to serve the Proposed Project. Therefore, impacts related to wastewater service are not discussed further in this DEIR.

18.4.3 Environmental Impacts

Impact UTL-1: Require or result in the relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects — Less than Significant

The project site underwent the early stages of construction of the McAllister Ranch in 2006-2008; therefore, some utilities have already been installed on the site. The Proposed Project proposes to remove many of these utilities and relocate others (primarily power poles) to provide adequate utility service for the Proposed Project. Expansion, relocation, or construction of these utilities would be limited to the project site; no offsite utility improvements are anticipated.

No significant environmental impacts are anticipated from relocation or expansion of wastewater, water, storm drainage, gas, or telephone/cable facilities are anticipated. Therefore, this impact is **less than significant** and no mitigation is required.

Impact UTL-2: Have insufficient water supplies to supply the project and reasonably foreseeable future development during normal, dry and multiple dry years — Less than Significant

Water use during construction would be primarily for dust control and portable restroom facilities to serve 13 construction workers during the 5-year construction period. This would be a less-than-significant impact.

Operation of the Proposed Project would have minimal water use associated with it. Operational water use would include portable restrooms to serve 1-2 employees during brief periods of active operations.

The objective of the Proposed Project is to secure additional water supplies to provide a more reliable source of water to the Bakersfield area during dry conditions. As described in Section 2.8.4 of Chapter 2, *Project Description,* the Proposed Project has various water sources available

for groundwater recharge, which may include the Central Valley Project (Friant-Kern Canal), State Water Project (California Aqueduct), and appropriative Kern River water rights.

The Proposed Project can legally attain water as available through each of the above-listed sources through existing or future rights, agreements, transfers, and/or contracts. BVWSD and RRBWSD would analyze which sources were available to them each year and make any necessary arrangements to receive that water and apply it to recharge on the Proposed Project site. Therefore, the water that would be stored through the Proposed Project would be limited to water that is available to BVWSD and RRBWSD. The water would then be stored on site to be recovered during dry years by BVWSD and RRBWSD. The impacts to water supply from operation of the Proposed Project would be environmentally beneficial because the Proposed Project would increase groundwater storage, thereby providing additional water supplies to BVWSD and RRBWSD landowners, among others, and increasing water supply reliability in multiple dry-year conditions. Operation of the Proposed Project would have a beneficial impact on water supply.

Based on the analysis above, overall impacts on water supply would be **less than significant** and no mitigation is necessary.

Impact UTL-3: 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 — Less than Significant with Mitigation

Construction

The Proposed Project involves cut and fill of dirt to construct 24 groundwater basins and the demolition and removal of existing features on the site, including all remaining aboveground infrastructure components from the McAllister Ranch development project (e.g., street pavement, curbs, sidewalks, and the foundation of a burned building). Underground utilities would be removed when the housing and golf course areas are regraded for construction of the recharge ponds to facilitate interbasin transfer flow.

Excavated dirt would be used to construct the levees separating the recharge basins. Asphalt and concrete removed during demolition would be ground and used onsite for roadways and levee protection. Approximately 70-100 truckloads of steel rebar, plastic, and conduit would be disposed of offsite. Although the nearest landfill, Bena, has sufficient capacity to accommodate this amount of disposal, CALGreen requires that contractors and developers reuse and recycle 65 percent of construction and demolition waste. In addition, local policies encourage recycling and waste reduction where possible. Therefore, the impact of construction-generated solid waste disposal would be potentially significant.

The City and the County have programs to assist contractors and businesses in meeting waste reduction goals. **Mitigation Measure UTL-1** would require BVWSD and RRBWSD or their contractors to comply with CALGreen construction waste diversion requirements to the extent feasible. With implementation of Mitigation Measure UTL-1, the Proposed Project would comply with solid waste reduction goals. Therefore, this impact would be less than significant with mitigation.

Operation

The Proposed Project's operations would produce minimal solid waste, primarily domestic waste produced by 1-2 employees on site during periods of active operation. All solid waste that is produced would be collected and disposed of under a contract with one of the City's trash collection service providers. Therefore, the impact related to operation-generated solid waste would be less than significant.

Conclusion

Construction-related waste impacts would be reduced to a less-than-significant level with implementation of Mitigation Measure UTL-1, which requires compliance with CALGreen waste diversion requirements. Operation-related waste impacts would be less than significant because occupancy of the site would be minimal. Therefore, impacts related to solid waste generation by the Proposed Project would be **less than significant with mitigation**.

Mitigation Measure UTL-1: Comply with CALGreen Waste Diversion Requirements to the Extent Feasible.

BVWSD and RRBWSD or their contractors shall comply with the following CALGreen waste diversion requirements to the extent feasible, recognizing that the requirements are targeted primarily at residential and commercial projects:

- Submit a Construction Waste Management Plan prior to construction for approval by the City Building Department.
- Recycle and/or reuse a minimum of 65 percent of construction and demolition waste.
- Recycle or Reuse 100 percent of tree stumps, rocks, and associated vegetation and soils resulting from land clearing.

Impact UTL-4: Failure to comply with federal, state, and local management and reduction statutes and regulations related to solid waste — Less than Significant with Mitigation

As described in Impact UTL-3 above, construction-related impacts related to solid waste diversion would be mitigated to a less-than-significant level with implementation of Mitigation Measure UTL-1. Operation of the Proposed Project would generate minimal domestic waste through occupancy by 1-2 employees during periods of active operation. Therefore, the impact of the Proposed Project regarding solid waste regulations would be **less than significant with mitigation**.

Chapter 19
ALTERNATIVES ANALYSIS

19.1 INTRODUCTION

This chapter describes the alternatives considered for the Proposed Project and evaluates their environmental impacts as compared with those of the Proposed Project. The purpose of the alternatives analysis in an EIR is to describe a range of reasonable, potentially feasible alternatives to the project that can feasibly attain most of the identified project objectives and would reduce or avoid one or more of the project's significant impacts.

A more detailed description of the CEQA regulatory requirements for alternatives analysis is provided below. The chapter then describes the alternative development process and evaluates the alternatives that were considered. The chapter closes with a discussion regarding the environmentally superior alternative.

Because the Proposed Project would not result in any anticipated significant impacts following the application of mitigation measures, alternatives were developed to reduce the magnitude of significant impacts that were reduced to a less-than-significant level.

19.1.1 Regulatory Requirements

CEQA requires that an EIR evaluate a reasonable range of potentially feasible alternatives to the proposed project, including the No Project Alternative. The No Project Alternative allows decision makers to compare the impacts of approving the action against the impacts of not approving the action. While there is no clear rule for determining a reasonable range of alternatives to a proposed project, CEQA provides guidance that can be used to define the range of alternatives for consideration in an environmental document.

The alternatives described in an EIR must feasibly accomplish most of the basic project objectives, should reduce or eliminate one or more of the significant impacts of the proposed project (although the alternative could have greater impacts overall), and must be potentially feasible (CEQA Guidelines Section 15126.6[a]).

In determining whether alternatives are potentially feasible, Lead Agencies are guided by the general definition of feasibility found in CEQA Guidelines Section 15364: "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." In accordance with CEQA Guidelines Section 15126.6(f), the Lead Agency should consider

site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, and jurisdictional boundaries in determining the feasibility of alternatives to be evaluated in an EIR.

An EIR must briefly describe the rationale for selection and rejection of alternatives and the information that the Lead Agency relied on in making the selection. It also should identify any alternatives that were considered by the Lead Agency but were rejected as infeasible during the scoping process and briefly explain the reason for their exclusion (CEQA Guidelines Section 15126.6[c]).

An EIR's analysis of alternatives is required to identify the environmentally superior alternative among all those considered (CEQA Guidelines Sections 15126.6[a], [e][2]). If the "no project" alternative is identified as the environmentally superior alternative, then the EIR must also identify an environmentally superior alternative among the other alternatives.

These guidelines were used in developing and evaluating the alternatives to the Proposed Project for this DEIR, as described below.

19.2 ALTERNATIVES DEVELOPMENT PROCESS

The Proposed Project's purpose and objectives, as well as its potentially significant environmental impacts, were considered while developing alternatives. In addition to the No Project Alternative, a Reduced Pumping Alternative and a Reduced Recharge Area Alternative were developed to reduce the general magnitude of anticipated adverse environmental effects associated with the Proposed Project. While the No Project Alternative does not achieve the purpose, goals, and objectives of the Proposed Project, the Reduced Pumping Alternative and Reduced Recharge Area Alternative would achieve most of the primary goals and objectives of the Proposed Project, but to a reduced level of performance. The No Project Alternative, Reduced Pumping Alternative, and Reduced Recharge Area Alternative are presented in Section 19.4, "Alternatives to the Proposed Project," which describes their potential impacts as well as benefits.

19.2.1 Project Goals and Objectives

The following goals and objectives are the same as those set out in Section 2.4, "Purpose and Objectives," in Chapter 2, *Project Description*. The Proposed Project consists of construction and operation of a water banking project on approximately 2,070 acres of undeveloped real property located north of Panama Lane and west of South Allen Road, in Bakersfield, California. Water supplies available to Buena Vista Water Storage District (BVWSD), the project applicant, and the Rosedale-Rio Bravo Water Storage (RRBWSD), would primarily be delivered from the Kern River, recharged, and stored at the project site and would later be recovered for irrigation and municipal and industrial (M&I) uses when needed. At full buildout, up to approximately 200,000 acre-feet (AF) of water could be diverted and recharged into the groundwater basin in

any one year. The maximum recovery of stored water in a single year would be approximately 56,000 AF.

Primary water management goals of independent water storage districts are to benefit the lands, landowners, and water users within their respective boundaries, as well as water banking partners, by providing a reliable, affordable, and usable water supply through economic and efficient storage, distribution, and use of available water supplies. Such districts must also facilitate programs that protect and benefit the groundwater basins that underlie their areas, as required by the Sustainable Groundwater Management Act (SGMA) (California Water Code Sections 10720 et seq.).

In support of the general water management goal described above, the Proposed Project would provide the following benefits (purposes):

- Conserve available water supplies for use during below-average years or as otherwise needed for BVWSD's and RRBWSD's purposes;
- Provide water recharge, storage, and recovery capacity, which would allow for the efficient management of water supplies in BVWSD's and RRBWSD's service areas; and
- Provide flexibility for BVWSD and RRBWSD in implementing their Conjunctive Use Programs.

More specific objectives of the Proposed Project are as follows:

- To increase water supply reliability in the area, in a cost-effective and environmentally sound manner, by providing a means to store water in the groundwater aquifer and provide a means to extract and use the stored groundwater when needed;
- To reduce BVWSD's and RRBWSD's dependence on the Sacramento–San Joaquin River Delta (Delta) through programs such as the State Water Project (SWP) and Central Valley Project (CVP), by storing water locally in the groundwater aquifer for later extraction and use;
- Capture, recharge, and store water from the Kern River, SWP, Federal projects, and other available sources for later use;
- Provide operating flexibility for BVWSD's and RRBWSD's existing and future Conjunctive Use Programs with banking partners, exchanges, and sales;
- Assist in achieving groundwater sustainability within Kern County Sub-basin of the San Joaquin Valley Groundwater Basin through implementation of projects consistent with California Executive Order N-10-19 directing State agencies to develop a "water resilience portfolio"; and
- Provide ecosystem public benefits and water supply benefits for agricultural and M&I uses.

The Reduced Pumping Alternative and the Reduced Recharge Area Alternative were developed to meet the general purpose and objectives of the Proposed Project and meet most of the specific objectives listed above.

19.2.2 Significant Environmental Impacts of the Proposed Project

A number of impacts have been identified as significant but would be mitigated to a less-than-significant level through implementation of mitigation measures. These impacts are listed in Table ES-1 in the Executive Summary of this DEIR.

19.2.3 Significant and Unavoidable Environmental Impacts of the Proposed Project

No impacts of the Proposed Project have been identified as significant and unavoidable.

19.3 PROJECT FEATURE OPTIONS CONSIDERED AND DISMISSED

19.3.1 Conveyance Route Options

During development of the Proposed Project, the project engineering team evaluated four possible conveyance routes to bring water to the project site. Option 2 was ultimately selected on the basis of design, land ownership, topographic, environmental, and engineering considerations. A brief explanation of each option and the reasons for their dismissal are provided below; **Figure 19-1** shows the four alternative conveyance routes.

Option 1. Central Option with Connection to James Canal: Option 1 would involve constructing a new canal from the Basin 2 headgate of the City's 2800 Acre facility that would travel south to join the James Canal, which passes through the project site in a north-south direction and conveys water to the Kern Water Bank south of the project site. This option would require new construction and would also affect the existing canal, which would require widening, new turnouts, culvert crossings, and siphons. This option would deliver water to lower elevation basins of the project; therefore, pumping would be required to move water to the higher elevation basins of the project. This option was dismissed because of the additional impacts associated with modifying the existing James Canal and the environmental impact associated with energy use from pumping.

Option 2. East Alignment Along Pioneer Project: Option 2 would involve construction of a new turnout at the Basin 1 headgate leading to a new canal that would follow along the east side of the Pioneer Project property to the east side of the project site. This option to convey water from the City's 2800 Acre facility to the Proposed Project is the most efficient in terms of alignment and gravity flow, and requires the least impactful amount of construction or energy use compared to the other options.

Option 3. Reconstruct the James Canal from the River to the Delivery Point: Option 3 would involve constructing a new turnout west of the Basin 1 headgate leading to a new canal that would travel southeast through the Pioneer Project property to join the James Canal, which passes through the project site in a north-south direction and conveys water to the Kern Water Bank south of the project site. This option would require new construction and also affect the existing canal, which would require widening, new turnouts, culvert crossings, and siphons. This option would deliver water to lower elevation basins of the project; therefore, pumping would be required to move water to the higher elevation basins of the project. This option was dismissed because of the greater construction impacts and impacts to the existing James Canal and the environmental impact associated with energy use from pumping.

Option 4. Serve McAllister Independent of Pioneer Project: Option 4 would involve constructing a new canal from the Basin 2 headgate, from which water would pass through Basin 3 in a dredged channel leading to Basin 4, reaching the northwest tip of the project site at the south side of the Kern River Canal. This option would require new construction, which would require widening, new turnouts, culvert crossings, and siphons. This option would deliver water to lowest elevation basin of the project; therefore, intensive pumping would be required to move water to the higher elevation basins of the project. This option was dismissed because of the extensive construction impacts and the least efficient design in terms of alignment, gravity flow, and energy requirements.

The Option 2 conveyance route was carried forward as a component of the Proposed Project.

19.3.2 Bicycle Trail Alignment Options

The Applicant proposes to dedicate an easement to the City and execute all necessary documents for a bicycle path(s) that would connect trails in other parts of Bakersfield to the south and east with the Kern River Canal and, from there, across the canal to the Kern River Parkway Trail. The proposed bicycle path is conceptual in nature at this time; **Figure 19-2** shows the proposed conceptual alignment. The City Recreation and Parks Department would design, construct, and maintain the trail, which would be located in such a way that users would not have access to areas within the Proposed Project site. General characteristics of the trail would conform to bicycle path requirements in the *City of Bakersfield Recreation and Parks Master Plan* (City of Bakersfield 2007) and the *City of Bakersfield Bicycle Transportation Plan* (City of Bakersfield 2013). When funding is available and design of the trail is more developed, the City would determine whether additional CEQA review is required.

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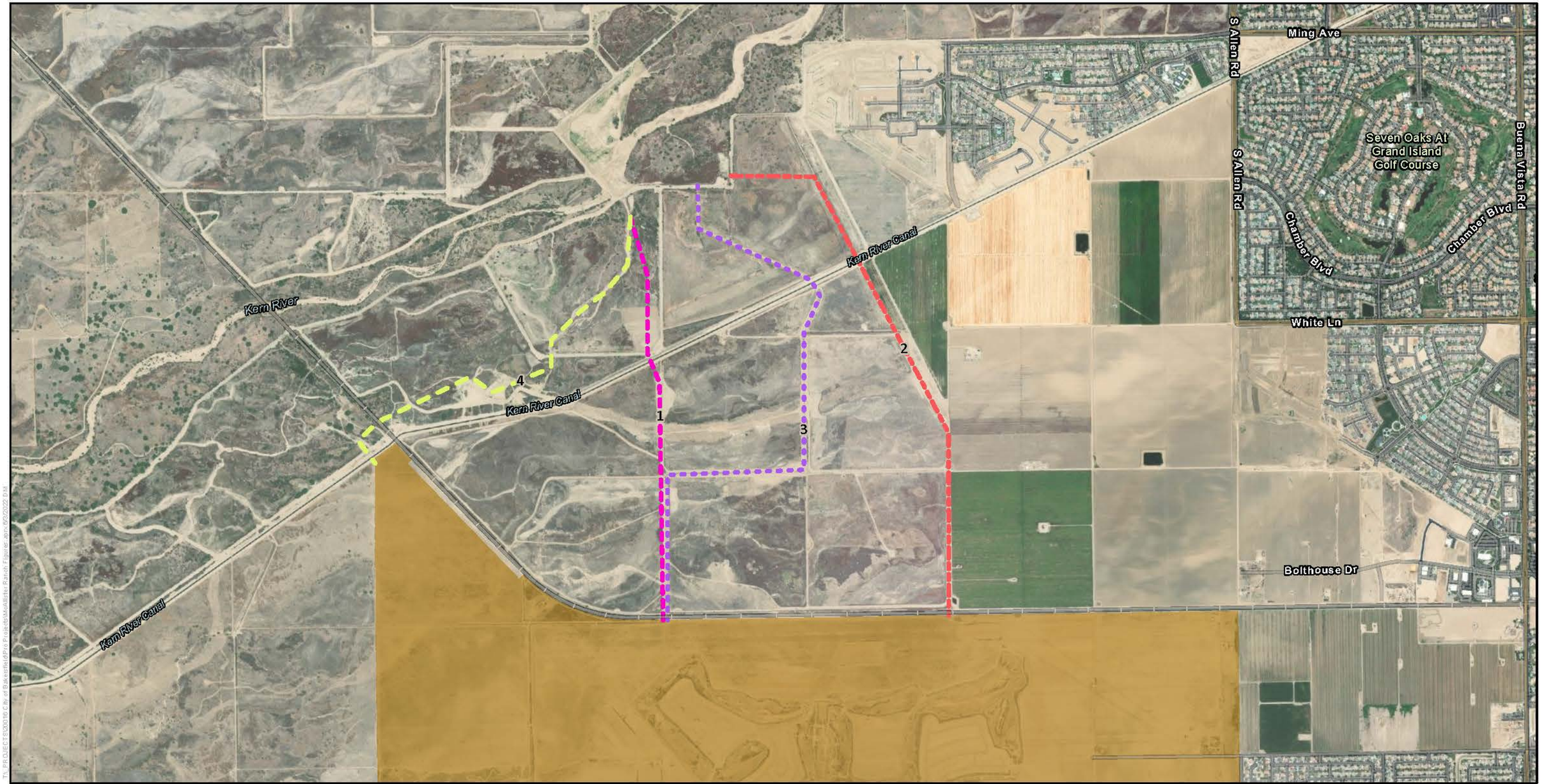

Figure 19-1
Alternative Conveyance Alignments

McAllister Ranch Groundwater Banking Project

Horizon WATER and ENVIRONMENT

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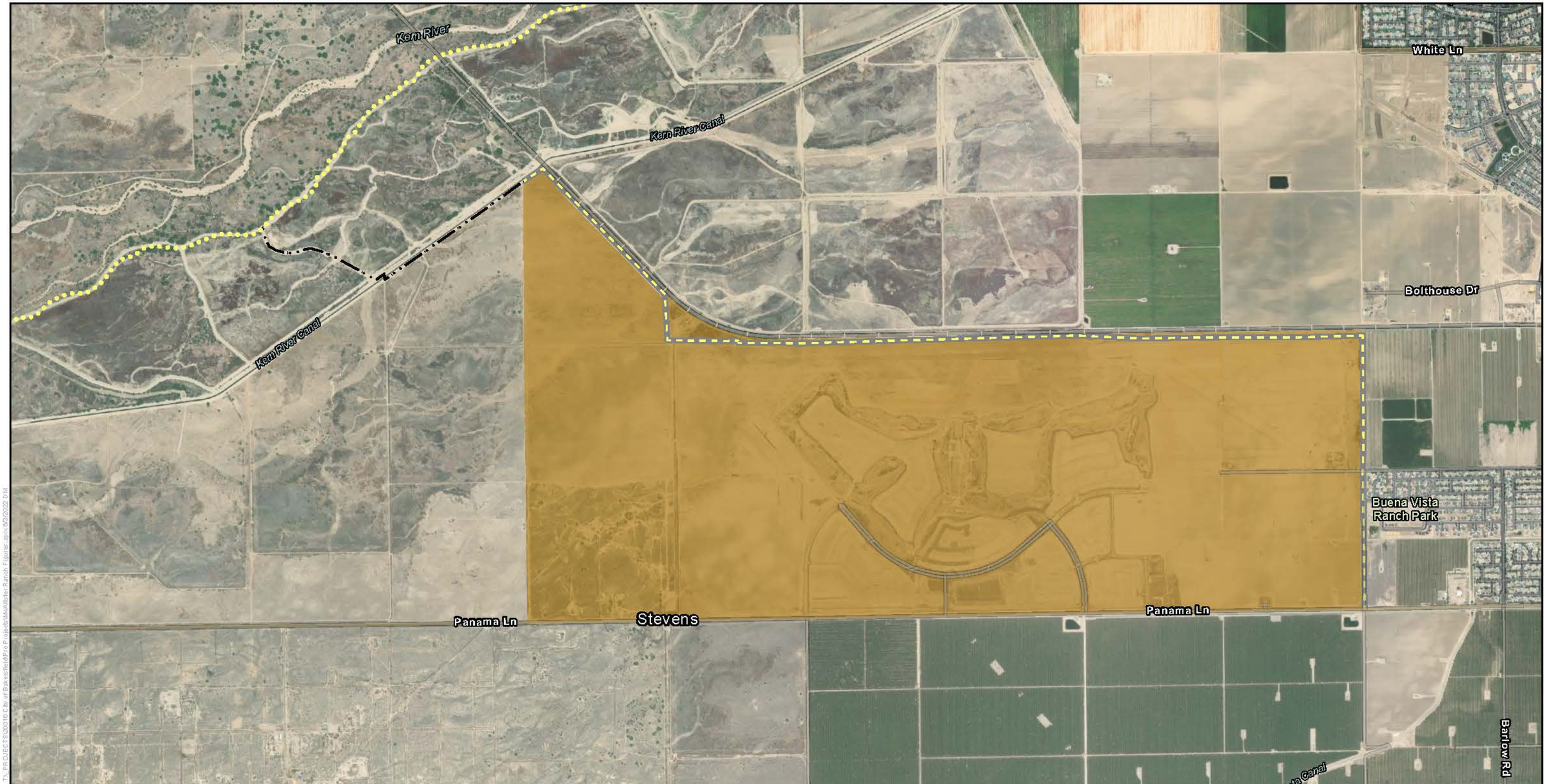

Figure 19-2
Conceptual Bike Trail

McAllister Ranch Groundwater Banking Project

Horizon WATER and ENVIRONMENT

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19.4 ALTERNATIVES TO THE PROPOSED PROJECT

As described above, CEQA requires that an EIR evaluate a reasonable range of alternatives to the Proposed Project that would feasibly accomplish most of the basic project objectives, should reduce or eliminate one or more of the significant impacts of the Proposed Project, and must be potentially feasible. The No Project Alternative must also be considered, as required by CEQA. In addition to the No Project Alternative, the following alternatives were considered because they would meet most of the Proposed Project's objectives (though to a lesser level of performance), are potentially feasible, and would avoid or substantially reduce one or more significant impacts (considered prior to application of mitigation measures) of the Proposed Project:

- **Alternative 1:** Reduced Pumping Alternative
- **Alternative 2:** Reduced Recharge Area Alternative

These alternatives were identified within the context of the primary environmental concerns raised during EIR scoping and the significant impacts of the Proposed Project, considered prior to the application of mitigation measures. The Reduced Pumping Alternative would reduce energy and electrical demand needed by the Proposed Project, reduce GHG emissions, reduce noise levels associated with the operation of the Proposed Project, and reduce the potential for groundwater pumping at the project site to interfere with nearby non-project wells. This alternative is further described in Section 19.4.2. The Reduced Recharge Area Alternative would likewise reduce energy and electrical demand, GHG emissions, noise levels, and potential for interference with non-project wells; however, it would also avoid the potential for impacts on biological and cultural/tribal cultural resources at the project site. This alternative is further described in Section 19.4.3. Section 19.4.4 contains a summary of the alternatives considered and compares them to the Proposed Project.

19.4.1 No Project Alternative

Characteristics of this Alternative

Under the No Project Alternative, BVWSD and RRBWSD would not construct groundwater recharge ponds, a conveyance pipeline to carry water from the City's 2800 Acre facility to the site, or build infrastructure required to operate a groundwater recharge facility at the site of the previously approved McAllister Ranch Specific Plan area. The existing, derelict improvements to the site would remain in place. The general plan and zoning approvals for the existing specific plan would remain in effect, although there are no current or foreseeable plans or known project proponents who are considering development of the site.

Implementing the No Project Alternative would forego the opportunity to support achieving groundwater sustainability within Kern County Sub-basin; provide ecosystem public benefits and water supply benefits for agricultural and M&I uses; and reduce BVWSD's and RRBWSD's dependence on the California Delta by storing water locally in the groundwater aquifer for later extraction and use. The No Project Alternative would not achieve any of the Proposed Project's objectives but is being considered as required by CEQA Guidelines Section 15126.6(e).

Impact Analysis

Under the No Project Alternative, all of the impacts associated with the construction and operation of the Proposed Project would be avoided. No temporary construction-related impacts or long-term operational impacts would result, including beneficial impacts on groundwater levels. The potential for impacts on biological resources and cultural/tribal cultural resources would be eliminated; however, significant Native American sites in the project area would remain unprotected and would continue to be subject to vandalism. The bicycle path planned for construction as part of the Proposed Project would not be built, delaying connection from the western portion of Bakersfield to the Kern River Parkway. The No Project Alternative would retain approximately 9,000 housing units identified in the City's RHNA allocation, although no project proponent is currently considering development of those units.

Most notably, the No Project Alternative would not increase water supply reliability in the area, increase operating flexibility for BVWSD's and RRBWSD's existing and future Conjunctive Use Programs, or assist in achieving the sustainability goals of the Kern River Groundwater Sustainability Agency and other regional water districts. The No Project Alternative would not meet any of the purposes or objectives of the Proposed Project.

19.4.2 Alternative 1: Reduced Pumping Alternative

Characteristics of this Alternative

Alternative 1 would involve a modified schedule of groundwater pumping for the Proposed Project that would allow a larger percentage of stored groundwater to remain within the aquifer. Hydrologic modeling indicated that there is some potential for the Proposed Project to have adverse effects during very low groundwater conditions. Groundwater pumping drawdown, relative to the baseline condition, would be greatest in the west central part of the project area. Maximum groundwater drawdown in project wells is predicted to be as high as approximately 50 feet in the shallow/intermediate aquifer and up to 60 feet in the deep aquifer (TH & Co. 2021). Maximum pumping interference in the nearest non-project wells occurs in the deep aquifer and is predicted to range from approximately 13 to 29 feet (TH & Co. 2021). Alternative 1 would place additional restrictions on the timing and amount of

groundwater recovery to avoid or reduce pumping interference in non-project wells to 10-15 feet or less.

Implementing Alternative 1 would meet most, but not all, of the project objectives, though at a reduced level of performance compared to the Proposed Project. Limiting recovery during very low groundwater conditions would reduce the project's ability to increase operating flexibility for BVWSD's and RRBWSD's existing and future Conjunctive Use Programs. However, operations would remain unchanged during most years.

Impact Analysis

Air Quality

Impacts of Alternative 1 on air quality would be similar to those of the Proposed Project. Reduced levels of pumping during very low groundwater conditions would result in a reduction in air pollutant emissions from pumps; however, air quality impacts would remain less than significant with mitigation, as with the Proposed Project.

Biological Resources

Impacts of Alternative 1 on biological resources would be similar to those of the Proposed Project. Adjustments to the timing and frequency of pumping would not directly affect biological resources at the project site.

Cultural Resources/Tribal Cultural Resources

Impacts of Alternative 1 on cultural resources and tribal cultural resources would be similar to those of the Proposed Project. Adjustments to the timing and frequency of pumping would not directly affect cultural or tribal cultural resources at the project site.

Energy

Impacts of Alternative 1 on energy would be similar to those of the Proposed Project. Reduced levels of pumping during very low groundwater conditions would result in a reduction in energy usage from pumps; however, energy impacts would remain less than significant, as with the Proposed Project.

Geology, Soils, and Seismicity

Impacts of Alternative 1 on geology, soils, and seismicity would be similar to those of the Proposed Project. Adjustments to the timing and frequency of pumping would not directly affect geology or soils at the project site.

Greenhouse Gas Emissions

Impacts of Alternative 1 on GHG emissions would be similar to those of the Proposed Project. Reduced levels of pumping during very low groundwater conditions would

result in a reduction in GHG emissions from pumps; however, impacts would remain less than significant, as with the Proposed Project.

Hazards and Hazardous Materials

Impacts of Alternative 1 related to hazards and hazardous materials would be similar to those of the Proposed Project. Adjustments to the timing and frequency of pumping would not directly affect the presence of hazards or hazardous materials at the project site.

Hydrology and Water Quality

Alternative 1 would be subject to the same water quality and stormwater regulations as the Proposed Project; therefore, impacts related to surface water and groundwater quality would be similar. Adjusting the timing and frequency of pumping in very low groundwater conditions would reduce the level of pumping interference in the nearest non-project wells occurs in the deep aquifer, although this would require reduced pumping, which would also reduce the benefit of the Proposed Project for water supply in times of scarcity. Mitigation measures would reduce the potential for significant impacts to a less-than-significant level.

Land Use

Adjustments to the timing and frequency of pumping would not directly affect land use and planning at the project site.

Noise

Impacts of Alternative 1 related to noise would be similar to those of the Proposed Project. Reduced levels of pumping during very low groundwater conditions would result in a reduction in noise levels from pumps; however, impacts would remain less than significant with mitigation, as with the Proposed Project.

Population and Housing

Adjustments to the timing and frequency of pumping would not directly affect population and housing at the project site.

Public Services

Adjustments to the timing and frequency of pumping would not directly affect fire or police protection at the project site.

Recreation

Adjustments to the timing and frequency of pumping would not directly affect recreation at the project site.

Utilities and Service Systems

Impacts of Alternative 1 related to utilities and service systems would be similar to those of the Proposed Project. Reduced levels of pumping during very low groundwater conditions would result in a reduction in electricity demand from pumps. Limiting recovery during very low groundwater conditions would slightly reduce the water supply available during those periods; however, impacts would remain less than significant with mitigation, as with the Proposed Project.

19.4.3 Alternative 2: Reduced Recharge Area Alternative

Characteristics of this Alternative

Alternative 2 would reduce the area operated as part of the Proposed Project from 2,070 acres to 1,910 acres by removing Basin 24 (measuring approximately 160 acres) from the project area. This area would be fenced off to separate it from the remaining groundwater recharge area. No project-related activities would take place within this area. As shown in Table 2-3, the loss of this area would eliminate approximately 41.4 cubic feet per second (cfs) of recharge capacity, which would reduce the overall recharge capacity of the Proposed Project by approximately 8 percent, from 488 cfs to 446.6 cfs.

Implementing Alternative 2 would meet most of the project objectives, albeit at a reduced level of performance. Removing Basin 24 from the project area would reduce the amount of water stored in the groundwater aquifer and could, during dry or multiple-dry years, reduce the amount of water available for recovery.

Impact Analysis

Air Quality

Impacts of Alternative 2 on air quality would be similar to those of the Proposed Project. Reducing the area available for recharge and recovery would result in a reduction in air pollutant emissions from pumps; however, air quality impacts would remain less than significant with mitigation, as with the Proposed Project.

Biological Resources

Impacts of Alternative 2 on biological resources would be reduced from those of the Proposed Project. Avoiding operations at Basin 24 would eliminate the potential for impacts on chenopod scrub habitat and the multiple special-status plant and wildlife species found there. Although the Proposed Project would include mitigation to reduce impacts to a less-than-significant level, avoiding the impact altogether would be preferable.

Cultural Resources/Tribal Cultural Resources

Impacts of Alternative 2 on cultural resources and tribal cultural resources would be reduced from those of the Proposed Project. Avoiding operations at Basin 24 would eliminate the potential for impacts on significant cultural and tribal cultural resources. Although the Proposed Project would include mitigation to reduce impacts to a less-than-significant level, avoiding the impact altogether would be preferable.

Energy

Impacts of Alternative 2 on energy would be similar to those of the Proposed Project. Reducing the area available for recharge and recovery would result in a reduction in energy usage by pumps; however, energy impacts would remain less than significant, as with the Proposed Project.

Geology, Soils, and Seismicity

Impacts of Alternative 2 on geology, soils, and seismicity would be similar to those of the Proposed Project. Reducing the area available for recharge and recovery by approximately 8 percent would not directly affect geology or soils at the project site.

Greenhouse Gas Emissions

Impacts of Alternative 2 on GHG emissions would be similar to those of the Proposed Project. Reducing the area available for recharge and recovery would result in a reduction in GHG emissions by pumps; however, GHG impacts would remain less than significant, as with the Proposed Project.

Hazards and Hazardous Materials

Impacts of Alternative 2 related to hazards and hazardous materials would be similar to those of the Proposed Project. Reducing the area available for recharge and recovery by approximately 8 percent would not directly affect the presence of hazards or hazardous materials at the project site.

Hydrology and Water Quality

Alternative 2 would be subject to the same water quality and stormwater regulations as the Proposed Project; therefore, impacts related to surface water and groundwater quality would be similar. Reducing the area available for recharge and recovery would result in a reduction of approximately 8 percent in the amount of water stored in the groundwater aquifer and could, during dry or multiple-dry years, reduce the amount of water available for recovery.

Land Use

Impacts of Alternative 2 related to land use and planning would be similar to those of the Proposed Project. Reducing the area available for recharge and recovery would not directly affect land use and planning at the project site.

Noise

Impacts of Alternative 2 related to noise would be similar to those of the Proposed Project. Reducing the area available for recharge and recovery would result in a reduction in noise levels from pumps; however, impacts would remain less than significant with mitigation, as with the Proposed Project.

Population and Housing

Impacts of Alternative 2 related to population and housing would be similar to those of the Proposed Project. Reducing the area available for recharge and recovery would not directly affect population and housing.

Public Services

Impacts of Alternative 2 related to public services (fire and police protection) would be similar to those of the Proposed Project. Reducing the area available for recharge and recovery would not directly affect fire or police protection at the project site.

Recreation

Impacts of Alternative 2 related to recreation would be similar to those of the Proposed Project. Reducing the area available for recharge and recovery would not directly affect recreation at the project site.

Utilities and Service Systems

Impacts of Alternative 2 related to utilities and service systems would be similar to those of the Proposed Project. Reducing the area available for recharge and recovery would result in a reduction in electricity demand from pumps. Reducing the area available for recharge and recovery would result in a reduction of approximately 8 percent in the amount of water stored in the groundwater aquifer and could, during dry or multiple-dry years, reduce the amount of water available for recovery. Impacts would remain less than significant with mitigation, as with the Proposed Project.

19.4.4 Summary Comparison of Alternatives

Table 19-1 summarizes the alternatives considered above and compares them to the Proposed Project.

Table 19-1. Summary of Alternatives and Comparison to the Proposed Project

Alternative	Characteristics	Relationship to Project Objectives	Impacts Compared to the Proposed Project
No Project Alternative	No construction of groundwater recharge ponds, conveyance pipeline, or infrastructure to operate groundwater recharge facility at the site of the previously approved McAllister Ranch Specific Plan area General plan and zoning approvals for the specific plan would remain in effect	Would not achieve any of the Proposed Project's objectives	No construction-related or operational impacts, including beneficial impacts on groundwater levels Potential for biological and cultural/tribal impacts would be avoided; Native American sites would remain unprotected No increase in water supply reliability, BVWSD's and RRBWSD's operating flexibility, or achievement of sustainability goals
Alternative 1: Reduced Pumping Alternative	Additional restrictions on the timing and amount of groundwater recovery to avoid or reduce pumping interference in non-project wells	Would achieve most of the Proposed Project's objectives, though to a reduced level of performance	Slight reductions in air pollutant emissions, GHG emissions, energy usage, electricity demand, and noise levels Reduced level of pumping interference at nearest non-project wells Reduced flexibility of recovery operations

Alternative	Characteristics	Relationship to Project Objectives	Impacts Compared to the Proposed Project
Alternative 2: Reduced Recharge Area Alternative	Reduced area operated as part of the Proposed Project by removing Basin 24 from the project area.	Would achieve most of the Proposed Project's objectives, though to a reduced level of performance	Slight reductions in air pollutant emissions, GHG emissions, energy usage, electricity demand, and noise levels Avoidance of impacts on some special-status plant and wildlife species Avoidance of impacts on significant cultural and tribal cultural resources Reduced water storage and, during dry or multiple-dry years, potentially reduced availability of water for recovery

19.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Of the alternatives evaluated in detail above, Alternative 2: Reduced Recharge Area Alternative is considered the environmentally superior alternative among the alternatives (excluding the Proposed Project) carried forward for full analysis in this EIR. Alternative 2 is considered environmentally superior as it would reduce some of the environmental impacts associated with implementing the Proposed Project, including avoidance of impacts on some special-status plant and wildlife species and avoidance of impacts on significant cultural and tribal cultural resources. It would achieve most of the Proposed Project's objectives, but at a reduced performance level. The Reduced Recharge Area Alternative would also reduce the Proposed Project's amount of water storage and potentially the availability of groundwater for recovery.

The No Project Alternative and Alternative 1: Reduced Pumping Alternative were not selected as the environmentally superior alternative for the following reasons:

No Project Alternative. The No Project Alternative would not meet any of the Proposed Project's objectives. Allowing the McAllister Ranch Specific plan approvals to remain in place would not increase water supply reliability in the Bakersfield area; reduce

BVWSD's and RRBWSD's dependence on the Delta through local storage; or provide ecosystem public benefits and water supply benefits for agricultural and M&I uses.

Alternative 1: Reduced Pumping Alternative. Alternative 1 Would achieve most of the Proposed Project's objectives, though to a reduced level of performance. This alternative would result in slight reductions in air pollutant emissions, GHG emissions, energy usage, electricity demand, and noise levels, and would reduce the level of pumping interference at nearby non-project wells. Significant impacts on special-status plant and wildlife species would remain, however, and would require mitigation to avoid take of protected species and sensitive natural habitats. The potential for significant impacts on cultural and tribal cultural resources would remain because project activities would continue to take place in an area identified as highly sensitive for significant resources.

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Chapter 20
OTHER STATUTORY CONSIDERATIONS

20.1 Introduction

This chapter presents discussions of significant and unavoidable impacts, significant irreversible environmental changes, growth-inducing impacts, and cumulative impacts as required by the California Environmental Quality Act (CEQA) Guidelines.

20.2 Significant and Unavoidable Impacts

Section 15126.2(b) of the CEQA Guidelines requires an environmental impact report environmental impact report (EIR) to describe any significant impacts that cannot be mitigated to a less-than-significant level. Based on the analysis in Chapters 4-18 of this EIR, all of the impacts associated with the Proposed Project would be reduced to a less-than-significant level through the implementation of identified mitigation measures. No impacts have been identified as significant and unavoidable.

20.3 Significant Irreversible Environmental Changes

Section 15126.2(c) of the CEQA Guidelines requires that an EIR identify significant irreversible environmental changes that would be caused by the Proposed Project. These changes may include, for example, uses of non-renewable resources or provision of access to previously inaccessible areas, as well as project accidents that could result in permanent, long-term changes.

Construction of the Proposed Project would require a permanent, minor commitment of natural resources resulting from the direct consumption of fossil fuels, construction materials, and energy required for the production of materials. Operation of the Proposed Project would allow for the recharge of groundwater in the San Joaquin Valley Groundwater Basin (DWR No. 5-022), Kern County Subbasin (DWR No. 5-022.14), thereby increasing the reliability of groundwater availability. This would constitute a beneficial change in the environment. Furthermore, operation of the Proposed Project would not require the future use of non-renewable resources beyond fuel and equipment needed for routine operation and maintenance activities. Therefore, the primary and secondary impacts resulting from the operation of the Proposed Project would be less than significant.

Accidental release of hazardous materials, could trigger irreversible environmental damage. As discussed in Chapter 11, *Hydrology and Water Quality*, construction would involve various ground-disturbing activities and operation of heavy equipment, which could loosen soils, thereby allowing for subsequent precipitation events to erode and transport the soils/sediment off-site. Additionally, much of the equipment used in project construction and operation would contain small amounts of hazardous materials (e.g., fuel, oil, lubricant). If improperly handled or managed, these hazardous materials could leak or be spilled. Then, the materials could either be

washed off-site to receiving waters or infiltrate into groundwater, potentially resulting in violations of water quality standards.

The Proposed Project would be required to obtain coverage under the Construction General Permit, which requires preparation and implementation of a stormwater pollution prevention plan (SWPPP). The SWPPP would include good site housekeeping measures for proper storage and management of hazardous materials, as well as spill prevention, control, and counter-measures. Implementation of the SWPPP would greatly reduce the potential for Proposed Project construction activities to result in accidental releases of hazardous materials. Considering the types and relatively minimal quantities of hazardous materials that would be used for the Proposed Project and the spill response plans and other procedures that would be required by the SWPPP, accidental release is unlikely. As a result, significant irreversible environmental changes from accidental releases are not expected.

20.4 Growth Inducement

Section 15126.2(d) of the CEQA Guidelines requires an EIR to include a detailed statement of a proposed project's anticipated growth-inducing impacts. The analysis of growth-inducing impacts must discuss the ways in which a proposed project could foster economic or population growth or the construction of additional housing in the surrounding environment. The analysis must also address project-related actions that would remove existing obstacles to population growth, tax existing community service facilities and require construction of new facilities that cause significant environmental effects, or encourage or facilitate other activities that could, individually or cumulatively, significantly affect the environment. A project would be considered growth inducing if it induces growth directly (through the construction of new housing or increasing population) or indirectly (increasing employment opportunities or eliminating existing constraints on development). Under CEQA, growth is not assumed to be either beneficial or detrimental.

As described in Chapter 14, *Population and Housing*, the Proposed Project would not increase the need for new homes or businesses; therefore, it would not directly induce substantial population growth. The Proposed Project, on its own, would not extend water supply service to new areas such that it would indirectly induce population growth. However, the Proposed Project would increase groundwater storage in the Kern River Subbasin up to 200,000 acre-feet (AF). It is anticipated that up to 56,000 AF of stored water could be extracted from the aquifer in any given year. Following completion of the Proposed Project, BVWSD and RRBWSD would be able to provide recovered water to their landowners and customers, among others, for beneficial uses, including irrigation and municipal and industrial (M&I) uses.

Furthermore, construction-related jobs would be short-term and would be anticipated to draw from the existing work force. The Proposed Project would not displace any existing housing units or persons, or create any housing units. The small amount of job growth associated with the Proposed Project's operation is not anticipated to generate sufficient economic activity such that it would result in substantial population growth.

Therefore, the Proposed Project would improve the reliability with which BVWSD and RRBWSD could accommodate beneficial uses of water.

20.5 Cumulative Impacts

A cumulative impact refers to the combined effect of "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines § 15355). Cumulative impacts reflect "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor, but collectively significant projects taking place over a period of time" (CEQA Guidelines §15355(b)).

CEQA Guidelines section 15130, subd. (a), requires that an EIR address the cumulative impacts of a proposed project when:

- the cumulative impacts are expected to be significant; and
- the project's incremental effect is expected to be cumulatively considerable, or significant, when viewed in combination with the effects of past, current, and probable future projects.

An EIR does not need to discuss cumulative impacts that do not result in part from the project evaluated in the EIR.

CEQA Guidelines Section 15130 requires an analysis of cumulative impacts to contain the following elements:

- Either (a) a list of past, present, and probable future projects producing related cumulative impacts, or (b) a summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect.
- A definition of the geographic scope of the area affected by the cumulative effect, and a reasonable explanation for the geographic limitation used.
- A summary of the environmental effects expected to result from those projects with specific reference to additional information stating where that information is available.
- A reasonable analysis of the combined (cumulative) impacts of the relevant projects.

The analysis of cumulative impacts must also evaluate a proposed project's potential to contribute to the significant cumulative impacts identified, and discuss feasible options for mitigating or avoiding any contributions assessed as cumulatively considerable.

The discussion of cumulative impacts is not required to provide as much detail as the discussion of the effects attributable to the project alone. Rather, the level of detail should be guided by what is practical and reasonable.

20.5.1 Methods Used in this Analysis

As mentioned above, CEQA Guidelines Section 15130 provides two recommended approaches for analyzing and preparing an adequate discussion of significant cumulative impacts. The approaches as defined in CEQA Guidelines Section 15130 are to use either:

- the *list approach,* which would involve listing past, present, and probable future projects producing related or cumulative impacts, including those projects outside the control of the lead agency; or

- the *projection approach,* which utilizes a summary of projections contained in an adopted general plan, a related planning document, or an adopted environmental document that evaluated regional or area-wide conditions contributing to the cumulative impact.

This discussion utilizes the list approach for the cumulative impact analysis. In support of the CEQA Guidelines, but to also ensure that the level of detail is practical and reasonable, a cumulative impact analysis should consider a proposed project's geographic scope and other factors such as a project's construction or operation activities, or the environmental resources potentially affected. . The discussion in Section 20.5.2 focuses on the environmental resources that could be expected to be cumulatively affected by the Proposed Project in conjunction with other past, present, and reasonably foreseeable future projects.

In summary, the Proposed Project would have the potential to make a contribution to cumulative impacts related to the following resource topics: biological resources, cultural/tribal cultural resources, and hydrology and water quality. Cumulative air quality impacts are evaluated under Impact AQ-2 in Chapter 4, *Air Quality,* and the Proposed Project is found not to contribute to a significant cumulative impact. GHG emissions are intrinsically a cumulative issue and are already addressed in Chapter 9, *Greenhouse Gas Emissions and Energy*; the Proposed Project is found not to contribute to a significant cumulative impact.

Resource Topics Considered and Dismissed for Potential Cumulative Impacts

The following topics were dismissed from consideration in this EIR because they have no potential to be substantially affected by the Proposed Project or alternatives (see Section 3.0 for more detail): aesthetics, agricultural resources and forestry, transportation, and wildfire. In addition, the Proposed Project and alternatives would not make a considerable contribution to cumulative significant impacts to these resources. Therefore, these topics are not discussed further in this chapter. For all other resource topics, as shown in **Table 20-1**, either significant cumulative impacts do not exist or the Proposed Project would not have the potential to make a considerable contribution to the significant cumulative impacts. These resource topics have been dismissed from consideration in the analysis of cumulative impacts and are not discussed further.

Table 20-1. Resource Topics Dismissed from Further Consideration in the Analysis of Cumulative Impacts

Resource Topic	Rationale
Energy	The Proposed Project would have less-than-significant impacts regarding wasteful, inefficient, or unnecessary consumption of energy and would not conflict with state or local renewable energy plans. Energy use is largely a project-specific issue, and compliance with state and local plans is typically required of all projects. Therefore, there would be no potential for a significant cumulative impact.
Geology, Soils, and Seismicity	Extensive previous excavation at the project site has not identified geological, soils, or seismic concerns. With implementation of erosion control BMPs and SWPPP compliance, impacts of the Proposed Project would be less than significant, as described in Chapter 8 of this EIR. Paleontological resources could be affected during construction, and Mitigation Measure GEO-1 would reduce that impact to a less-than-significant level. Geology and soils are, by nature, site specific; therefore, there would be no potential for a significant cumulative impact.
Hazards and Hazardous Materials	Once in operation, the Proposed Project may require the use of insect control measures for mosquito abatement in the percolation basins. Mitigation Measure HAZ-1 would reduce this impact to a less-than-significant level. Small quantities of hazardous substances were observed on the Proposed Project site during the site reconnaissance, including near some of the active oil wells within and near the site. If contamination is present, then soil excavation activities could expose construction workers to existing on-site hazardous materials. Mitigation Measures HAZ-2 and HAZ-3 would reduce this impact to a less-than-significant level. Cumulative projects would have similar potential for insect control issues and hazardous materials onsite. Because these issues are site specific, there would be no potential for a significant cumulative impact.
Land Use and Planning	Because the project site is located at the western edge of development in Bakersfield, the Proposed Project would not physically divide an existing community. The Proposed Project would involve rescinding approval of the McAllister Ranch Specific Plan, eliminating the potential for a conflict with the policies contained in that plan. In addition, the Proposed Project would be consistent with policies and objectives of the Sustainable Groundwater Management Act (SGMA) and the groundwater sustainability plans of the Kern River Groundwater Sustainability Agency and Kern Groundwater Authority. Cumulative projects would similarly be consistent with those policies and objectives. Therefore, there would be no potential for a significant cumulative impact.

Resource Topic	Rationale
Noise and Vibration	Noise modeling shows that construction activities for the Proposed Project would not result in a substantial temporary increase in ambient noise levels. Implementation of Mitigation Measure NOI-1 would ensure that project operations and routine maintenance would not result in substantial increases in ambient noise levels. Thus, the Project's contribution to cumulative impacts related to noise would not be considerable.
Population and Housing	The Proposed Project would increase groundwater storage in the Kern River Subbasin but would not involve construction of new facilities that would directly induce growth. Rescinding approval of the McAllister Ranch Specific Plan and the corresponding 9,000 housing units would result in a vacant unit potential that exceeds the remaining RHNA allocation need by approximately 523 percent. Therefore, the City would have sufficient capacity to accommodate the remaining unmet RHNA allocation in each income level and would be in compliance with SB 166. Similarly, the cumulative projects would not directly induce growth or affect existing housing stock. Therefore, the Proposed Project would not contribute to a significant cumulative impact.
Public Services	The site is located in a primarily rural area. As a groundwater recharge facility, the site would be inactive during approximately 85 percent of the year (the dry season) and would be maintained as dry ponds. Regular project operations would require minimal employees, would not induce population growth, and would not involve high fire hazard activities. As a result, the Proposed Project would not increase in the need for fire or police protection services. Similarly, the cumulative projects would have no potential to increase the need for public services. Therefore, the Proposed Project would not contribute to a significant cumulative impact.
Recreation	The Proposed Project would include construction of a bicycle path connecting suburban Bakersfield development to the Kern River Parkway. Impacts on recreation would be less than significant. The cumulative projects would, in a conservative assessment, have no impacts on recreation; at best, additional recreational facilities could be added to the area. Therefore, the Proposed Project would not contribute to a significant cumulative impact.

Resource Topic	Rationale
Utilities and Service Systems	The Proposed Project would not require new or expanded entitlements or utility infrastructure to serve the facility. Water, wastewater, electricity, and other service systems have availability to serve the project. Storm drainage would be retained on site. During construction, approximately 70-100 truckloads of steel rebar, plastic, and conduit would be disposed of offsite; asphalt and concrete removed during demolition would be ground and used onsite for roadways and levee protection; and excavated dirt would be used to construct levees separating the recharge basins. Mitigation Measure UTL-1 would require compliance with CALGreen waste diversion requirements to the extent feasible. The cumulative projects would, for the most part, involve little to no solid waste removal aside from domestic waste. Therefore, the Proposed Project would not contribute to a significant cumulative impact.

Table 20-2 defines the geographic scope that will be used in the impact analysis for each of the resource areas to which the Proposed Project could contribute to cumulative impacts.

Table 20-2. Geographic Scope for Resources with Cumulative Impacts Relevant to the Proposed Project

Resource	Geographic Scope	Explanation for the Geographic Scope
Biological Resources	San Joaquin Valley	Chenopod scrub habitat is present in the southwest corner of the project site; this habitat comprises an assemblage of endangered and threatened plant species.
Cultural/Tribal Cultural Resources	Bakersfield area	Significant archaeological resources have been identified in and around the project area and vicinity.
Hydrology and Water Quality	Kern River Subbasin	As required by SGMA, activities that would affect the Kern River Subbasin must be coordinated among the GSAs managing groundwater in the area.

20.5.2 Cumulative Impact Analysis

Cumulative Setting

Table 20-3 lists projects planned in the Bakersfield area that could affect resources that would also be affected by the Proposed Project. The list was developed by compiling information about current and proposed groundwater recharge projects in the Bakersfield area, as well as reviewing the City of Bakersfield current development project list for active and recently approved project. While not every potential cumulative project is listed, the list of cumulative projects is considered sufficiently comprehensive and representative of the types of impacts that would be generated by other projects similar to or related to the Proposed Project. The evaluation of cumulative impacts assumes that the impacts of past and present projects are represented by baseline conditions, and that cumulative impacts are considered in the context of baseline conditions alongside reasonably foreseeable future projects.

Table 20-3. List of Past, Present, and Reasonably Foreseeable Future Projects and Activities that May Cumulatively Affect Resources of Concern for the Proposed Project

Project	Summary of Project Activity	Resource Topics Cumulatively Affected
West Basin Improvement Project, Bakersfield (Rosedale-Rio Bravo Water Storage District)	The project improves existing recharge ponds and develops an additional 50 acres west of Bakersfield designed to recharge, store, and recover groundwater to provide a cost-effective and reliable water supply for landowners within the RRBWSD service area. RRBWSD purchased the properties in 2009-2015. The project could recharge up to 5,000 AF of water in wet years and provide RRBWSD with up to 1,000 AFY.	Biological Resources, Cultural/Tribal Cultural Resources, Hydrology and Water Quality
Stockdale Integrated Project, Bakersfield (Rosedale-Rio Bravo Water Storage District)	The project includes 230 acres of new recharge ponds, 32,500 feet of pipeline, wells, a pump station, and a new Cross Valley Canal turn-out. These facilities will provide recharge, conveyance, and recovery capacity. Recharge capacity is approximately 27,100 AFY for Stockdale West and approximately 19,000 AFY for Stockdale East. Recovery facilities were designed to extract approximately 11,250 AFY at Stockdale West and approximately 7,500 AFY at Stockdale East.	Biological Resources, Cultural/Tribal Cultural Resources, Hydrology and Water Quality
Daley Ranch Groundwater Recharge Pond, unincorporated Kern County (Buena Vista Water Storage District)	The project consists of a groundwater recharge pond in the southern portion of BVWSD, approximately 1.4 miles south of Buttonwillow. The project is located on 92 acres and provides approximately 40 acres of recharge ponds. Water recharged on the project site would be recovered by BVWSD landowners using existing private wells.	Biological Resources, Cultural/Tribal Cultural Resources, Hydrology and Water Quality
Corn Camp Groundwater Recharge Pond, unincorporated Kern County (Buena Vista Water Storage District)	The project involves a 50-acre recharge pond located within BVWSD. Recharge, based on a full-year operation schedule, would average 24,500 AFY. The project also includes a pump station and 30-foot-tall water storage tank.	Biological Resources, Cultural/Tribal Cultural Resources, Hydrology and Water Quality
Palms Groundwater Banking Project, unincorporated Kern County (Buena Vista Water Storage District)	The groundwater replenishment and water banking project would cover approximately 1,160 acres within BVWSD. The project includes features needed to apply surface water for groundwater recharge, as well as facilities needed for recovery of stored groundwater.	Biological Resources, Cultural/Tribal Cultural Resources, Hydrology and Water Quality

Project	Summary of Project Activity	Resource Topics Cumulatively Affected
Palms Groundwater Recovery Project, unincorporated Kern County (Buena Vista Water Storage District)	The proposed project is designed to enhance groundwater management by increasing BVWSD's ability to more efficiently recover previously banked water. The project would utilize a suite of 14 wells, nine new and five replacement wells, to recover up to 25,000 AFY of water previously banked within BVWSD's recharge facilities. Approximately 11.9 miles of conveyance pipe and associated facilities would also be included.	Biological Resources, Cultural/Tribal Cultural Resources, Hydrology and Water Quality
Kern Fan Groundwater Storage Project, unincorporated Kern County (Rosedale-Rio Bravo Water Storage District)	RRBWSD and Irvine Ranch Water District (IRWD) have formed a Joint Powers Authority to more effectively manage sources of water supply available to RRBWSD and IRWD by using available underground storage. The project would be located in western Kern County, west of Bakersfield, and would include both recharge and recovery facilities. These facilities would be constructed in two phases on approximately 1,300 acres of agricultural or vacant land within or near the RRBWSD service area. The project would also involve the acquisition of easements for construction, operation, and maintenance of proposed conveyance facilities that would deliver water to and from the California Aqueduct and other facilities operated in RRBWSD's Conjunctive Use Program.	Biological Resources, Cultural/Tribal Cultural Resources, Hydrology and Water Quality
Semitropic WSD	In-Lieu/Direct Recharge and Recovery Projects	Hydrology and Water Quality
Arvin-Edison WSD	In-Lieu/Direct Recharge and Recovery Projects	Hydrology and Water Quality
Rosedale-Rio Bravo WSD	In-Lieu/Direct Recharge and Recovery Projects	Hydrology and Water Quality
Buena Vista WSD	In-Lieu/Direct Recharge and Recovery Projects	Hydrology and Water Quality
Kern Delta Water District	In-Lieu/Direct Recharge and Recovery Projects	Hydrology and Water Quality
Cawelo Water District	In-Lieu/Direct Recharge and Recovery Projects	Hydrology and Water Quality
Berrenda Mesa Water District	Direct Recharge and Recovery Projects	Hydrology and Water Quality
City of Bakersfield, 2800 Acres	Direct Recharge and Recovery Projects	Hydrology and Water Quality

Project	Summary of Project Activity	Resource Topics Cumulatively Affected
Kern County Water Agency Pioneer Project	Direct Recharge and Recovery Projects	Hydrology and Water Quality
Kern Water Bank	Direct Recharge and Recovery Projects	Hydrology and Water Quality
West Kern Water District/ Buena Vista WSD	Direct Recharge and Recovery Projects	Hydrology and Water Quality
North Kern WSD	Direct Recharge and Recovery Projects	Hydrology and Water Quality

Notes: AFY = acre-feet per year; WSD = water storage district.

Source: RRBWSD/BVWSD, 2021

20.5.3 Cumulative Impacts

Impact CUM-1. Effects on Biological Resources — Less than Significant with Mitigation

The Proposed Project would have significant impacts on multiple special-status plant and wildlife species and sensitive natural communities, including 160 acres of chenopod scrub. Mitigation Measures BIO-1 through BIO-13 and BIO-23 through BIO-25, identified in Chapter 5, *Biological Resources,* include a Kern mallow avoidance buffer, take authorization from USFWS if applicable, and avoidance of chenopod scrub to the extent feasible. Implementation of these measures would reduce these impacts to a less-than-significant level.

The cumulative projects described in Table 20-3 would involve ground disturbance to construct groundwater recharge ponds. Because many of these projects are in the same types of habitat as the Proposed Project, the potential exists for similar impacts on biological resources to result. The loss of multiple special-status plant and wildlife species and sensitive natural communities would be a significant cumulative impact.

The Proposed Project would mitigate impacts on special-status species and sensitive natural communities and obtain take authorization if applicable, ensuring that impacts on these species would be less than significant with mitigation. Therefore, the Proposed Project would not contribute substantially to the significant cumulative impact on biological resources.

Impact CUM-2. Effects on Cultural and Tribal Cultural Resources — Less than Significant with Mitigation

As described in Chapter 6, *Cultural Resources*, four Native American pre-contact archaeological sites are located within the Proposed Project site boundaries. All of the resources have been determined eligible for listing the National Register of Historic Places and/or California Register of Historical Resources during previous studies, and are identified as tribal cultural resources by the Tejon Indian Tribe and the Santa Rosa Rancheria Tachi Yokut Tribe. The City and BVWSD are committed to work with the tribes to protect the sites through a Project design that avoids affecting the areas with sensitive tribal resources. As described in Section 2.6 of Chapter 2, *Project Description*, prior to advancing design plans, the City shall retain a qualified archaeologist to work with the tribes to accurately map the boundaries of the known resources. Following site delineation, the City will then discuss potential design elements to protect the sites with the tribes, and provide the tribes the opportunity to discuss and review the construction design plans at 60 percent completion and 90 percent completion to ensure that the resources are avoided or treated appropriately. The design plans shall also designate a protected area within the Project limits that will be used to reinter any Native American human remains and associated grave items that may be discovered during construction. In addition, implementation of Mitigation Measures CR-1, CR-2, and CR-3 would require preconstruction cultural resources awareness training and construction monitoring, as well as preparation of an unanticipated discovery plan for artifacts, resources, and human remains. Implementation of these measures would reduce these impacts to a less-than-significant level.

The cumulative projects identified in Table 20-3 would be located in the vicinity of the Proposed Project and would likely be sensitive for the presence of archaeological and/or historic

resources. The potential exists for unanticipated discovery of artifacts and resources during excavation activities. These projects would be required under CEQA to implement similar mitigation measures to the Proposed Project thereby reducing impacts to a level that would be less than significant with mitigation. Therefore, the Proposed Project would not contribute substantially to a significant cumulative impact on cultural or tribal cultural resources.

Impact CUM-3. Effects on Hydrology and Water Quality — Less than Significant

The Proposed Project would not result in substantial degradation of water quality or drawdown of groundwater supplies. Rather, the Proposed Project would likely have a beneficial overall effect on water quality and groundwater levels. Using available surface water supplies to recharge groundwater would benefit groundwater supplies/levels in the subbasin, which is currently in "critical overdraft." Improving storage of water supplies in the aquifer would likely improve groundwater quality as well, since some naturally occurring pollutants (e.g., arsenic) are more closely associated with deeper subsurface materials. In this respect, the Proposed Project would further progress towards achievement and maintenance of groundwater beneficial uses identified in the Water Quality Control Plan for the Sacramento and San Joaquin River Basins.

During very low groundwater conditions, the Proposed Project could interfere with nearby non-project wells as a result of the Proposed Project's recovery operations; however, the Draft Mitigation Joint Use Agreement describes project operations under all pumping scenarios and establishes limitations that would minimize or mitigate for any significant effects (Appendix B). Likewise, the Proposed Project will be subject to the conditions of the MOU and Operations Plans (Appendix B). Notably, operation of the Proposed Project, on its own, would not cause groundwater levels to drop below the thresholds identified in the KRGSA GSP.

The overall effect of the Proposed Project on groundwater supplies and sustainable management of the basin would be beneficial. As noted above, storage and later utilization of excess surface water supplies (e.g., floodwater) that cannot otherwise be stored would have a positive effect on the region's groundwater balance. The project would store substantially more water than it would recover in any given year. As such, the Proposed Project would have a beneficial impact on hydrology and water quality.

The Proposed Project would be one of many actions and projects being implemented by water agencies in the Kern County Subbasin and KRGSA Plan Area to address the current water supply situation and ongoing groundwater basin impacts. The cumulative projects identified in Table 20-3 are similarly intended to address these same impacts. Both the future cumulative projects and existing local groundwater banking programs would operate under strict guidelines from the applicable GSAs, the California Department of Water Resources, and the State Water Resources Control Board, as well as MOUs and Operations Plans similar to those that will be required of the Proposed Projects. Overall, these projects would improve groundwater and water supply conditions in the Kern River Subbasin. Therefore, the Proposed Project would not contribute substantially to a significant cumulative impact on hydrology or water quality.

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Chapter 22
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