Kern Fan Groundwater Storage Project

FEASIBILITY REPORT

APPENDIX B: Environmental Documentation

October 21, 2019

Irvine Ranch
WATER DISTRICT

Rosedale-Rio Bravo
WATER STORAGE DISTRICT

APPENDIX B

Stockdale Integrated Banking Project
Final Environmental Impact Report
December 2015

A Final Environmental Impact Report was prepared, certified, and approved in December 2015 for the Stockdale Integrated Banking Project (Stockdale Project). For purposes of the Stockdale Project Final EIR, Rosedale is the Lead Agency and IRWD is the Responsible Agency. The Stockdale Project Final EIR includes program-level analysis of impacts in accordance with *CEQA Guidelines* Section 15168 of a third project site yet to be identified. The third project site accounted for in the Stockdale Project Final EIR is now designated to be Phase 1 of the Kern Fan Groundwater Storage Project (Kern Fan Project).

Upon identification of the Phase 1 project site, subsequent project-level environmental review will be conducted. The Stockdale Project Final EIR will provide basis for anticipated project-level CEQA analysis for Phase 1 of the Kern Fan Project. For purposes of CEQA, Phase 2 of the Kern Fan Project is considered a fourth site in the vicinity of the Stockdale Project. Environmental review for the Kern Fan Project will therefore be completed as a Supplemental EIR (SEIR) to the Stockdale Project Final EIR. The SEIR will be completed such that the third site is specifically identified along with appurtenant conveyance facilities to be evaluated at a project-level and a fourth site added to be evaluated at a program-level. All environmental review for the Kern Fan Project will be completed prior to the implementation of Project facilities.

The Stockdale Project Final EIR is included in the Kern Fan Groundwater Storage Project directory folder submitted to Reclamation and can also be found online at: http://www.irwd.com/images/pdf/doing-business/environmental-documents/env-documents-2015/NOD_Stockdale_EIR-web.pdf

STOCKDALE INTEGRATED BANKING PROJECT

Final Environmental Impact Report
SCH #: 2013091076

Prepared for
Rosedale-Rio Bravo
Water Storage District and
Irvine Ranch Water District

November 2015

ESA

STOCKDALE INTEGRATED BANKING PROJECT

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April 2015

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April 2015

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211181

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Acronyms Used in this Report

AADT	annual average daily traffic
AB	Assembly Bill
ACI	American Concrete Institute
AF	acre feet
AFY	acre feet per year
AIA	Air Impact Assessment
AISC	American Institute of Steel Construction
ALUCP	Airport Land Use Compatibility Plan
AMSL	above mean sea level
APCD	Air Pollution Control Districts
AQMD	Air Quality Management Districts
AQMP	Air Quality Management Plan
ARB	Air Resources Board
As	Arsenic
ASCE	American Society of Civil Engineers
ASR	Aquifer Storage and Recovery
ATSFRR	Atchison, Topeka & Santa Fe Railroad
AVEK	Antelope Valley East Kern Water Agency
BACM	best available control measures
bgs	below ground surface
BMP	best management practice
BO	Biological Opinion
BVWSD	Buena Vista Water Storage District
California Register	California Register of Historical Resources
Caltrans	California Department of Transportation
CalEEMod	California Emissions Estimator Model
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CHL	California Historical Landmarks
CMP	Congestion Management Plan
CNDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
COG	Council of Governments

CPUC	California Public Utilities Commission
CTR	California Toxics Rule
CUP	conditional use permit
CVC	Cross Valley Canal
CVP	Central Valley Project
CVWD	Carpenteria Valley Water District
CWA	Clean Water Act
CWSC	California Water Service Company
dB	decibel
dBA	A-weighted decibels
DNL	Day-Night Noise Level
DOGGR	Division of Oil, Gas and Geothermal Resources
DPM	Diesel particulate matter
DPR	Department of Parks and Recreation
DTSC	Department of Toxic Substance Control
DWR	Department of Water Resources
EDB	ethylene dibromide
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ERP	Emergency Response Plan
°F	Fahrenheit
FCAA	Federal Clean Air Act
FCAAA	Federal Clean Air Act Amendments
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FIP	Federal Implementation Plan
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FR	Federal Register
FRA	Federal Railway Administration
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
GET	Golden Empire Transit
HAP	Hazardous Air Pollutants
HCP	Habitat Conservation Plan
HRI	California State Historic Resources Inventory
HSWA	Hazardous and Solid Waste Act
IBC	International Building Code
ID	Irrigation District
IRWD	Irvine Ranch Water District
ISR	Indirect Source Review
KBWA	Kern Water Bank Authority
KCC	Kern County Code

KCL	Kern County Land Company
KCWA	Kern County Water Agency
KRT	Kern Regional Transit
L_{eq}	average energy over time
LACM	Los Angeles County Natural History Museum
LOS	Level of Service
M&I	municipal and industrial
MACT	Maximum Achievable Control Technology
MBHCP	Metropolitan Bakersfield Habitat Conservation Plan
MBTA	Migratory Bird Treaty Act
MCL	maximum contaminant level
MEI	Maximally Exposed Individual
mg/l	milligrams per liter
Metropolitan	Metropolitan Water District of Southern California
MMI	Modified Mercalli Intensity
MMRP	Mitigation Monitoring and Reporting Plan
MOU	Memorandum of Understanding
mph	miles per hour
MRZ	Mineral Resource Zones
MW	megawatts
MWD	Metropolitan Water District of Southern California
MWDOC	Municipal Water District of Orange County
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
NCP	National Contingency Plan
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NO_3	nitrate
NOx	nitrogen oxides
NOC	Notice of Completion
NOD	Notice of Determination
NOP	Notice of Preparation
NORSD	North of River Sanitary District
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resources Conservation Service
OEHHA	Office of Environmental Health Hazard Assessment
OHP	California Office of Historic Preservation
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbons
Pb	lead

PCBs	polychlorinated biphenyls
pCi/L	picocuries per liter
PCE	Perchloroethene
PG&E	Pacific Gas & Electric
PHI	Points of Historical Interest
PM2.5	particulate matter less than 2.5 microns in diameter
PM10	particulate matter less than 10 microns in diameter
PPV	peak particle velocity
PRC	Public Resources Code
PUR	Pesticides Use Reporting
RCPG	Regional Comprehensive Plan and Guide
RCRA	Resource Conservation and Recovery Act
RMS	root mean square
ROG	reactive organic gases
Rosedale	Rosedale-Rio Bravo Water Storage District
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SCAG	Southern California Association of Governments
SDC	Seismic Design Category
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SSJVIC	Southern San Joaquin Valley Information Center
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_4	sulfates
SOI	sphere of influence
SPRR	Southern Pacific Railroad
SR	State Route
SRAs	State Responsibility Areas
SVP	Society for Vertebrate Paleontology
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plans
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
TCE	trichloroethene
TDS	total dissolved solids
TMDL	Total Maximum Daily Load
TSCA	Toxic Substances Control Act
UWMP	Urban Water Management Plan
U.S.	United States

USACE	U.S. Army Corps of Engineers
Vdb	vibration velocity
VMT	vehicle miles traveled
WEAP	Worker's Environmental Awareness Program
WSD	Water Storage District
WW II	World War II

SUMMARY

S.1 Introduction

The Rosedale-Rio Bravo Water Storage District (Rosedale) as the Lead Agency, in consultation with the Irvine Ranch Water District (IRWD) as a Responsible Agency, has prepared this Draft Environmental Impact Report (Draft EIR) to provide information about the potential effects on the local and regional environment associated with the Stockdale Integrated Banking Project (proposed project). The proposed project would allow both agencies to utilize available storage in the local San Joaquin Valley Groundwater Basin by developing groundwater banking facilities on up to three project sites located approximately six miles west of the City of Bakersfield. As shown in **Figure S-1**, the proposed project would include the Stockdale East property, which is owned by Rosedale, the Stockdale West property, which is owned by IRWD, and a potential third project site that would be located within a designated radius around both properties (collectively referred to as the "Stockdale Properties"). The proposed project would also include a new Central Intake Pipeline conveyance system and new turnouts along the Cross Valley Canal. Operation of the proposed project would be coordinated with Rosedale's existing Groundwater Storage, Banking, Exchange, Extraction & Conjunctive Use Program (Conjunctive Use Program) and the existing Rosedale-IRWD Strand Ranch Integrated Banking Project (Strand Ranch Project). The proposed project would provide greater operational flexibility for Rosedale and would enhance water supply reliability for IRWD by providing contingency storage to augment supplies during periods when other supply sources may be limited or not available.

This Draft EIR has been prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. seq., and the State *CEQA Guidelines* in the Code of Regulations, Title 14, Division 6, Chapter 3. Inquiries about the proposed project should be directed to:

Rosedale-Rio Bravo Water Storage District
Attn: Eric Averett, General Manager
849 Allen Road
P.O. Box 20820
Bakersfield, CA 93390-0820
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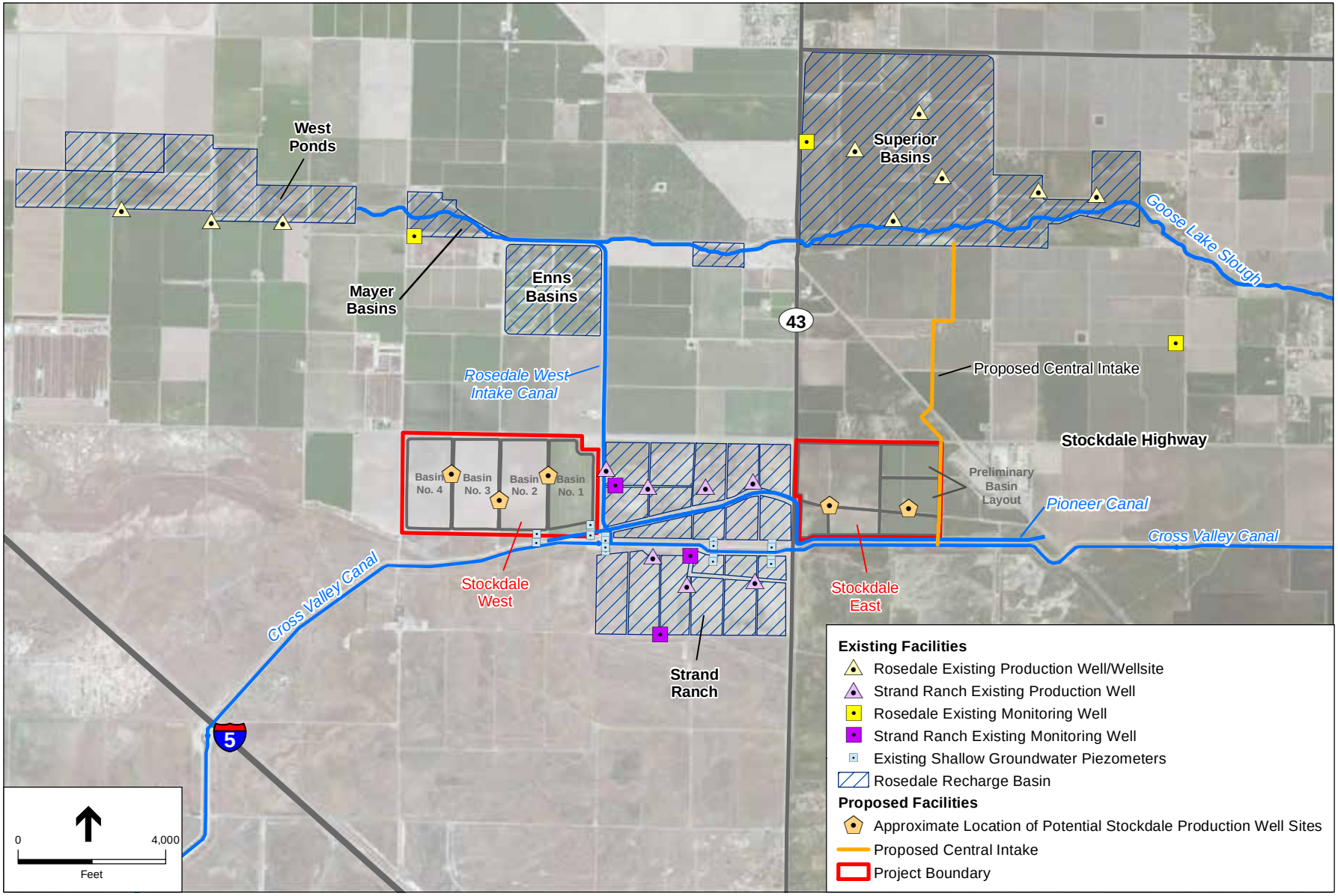


SOURCE: ESRI, 2014.

Stockdale Integrated Banking Project . 211181

Figure S-1

Proposed Project Facilities

S.2 Project Background

Rosedale-Rio Bravo Water Storage District

Rosedale was established in 1959 to develop a groundwater recharge program to offset overdraft conditions in the regional Kern County aquifer. Rosedale, located west of Bakersfield, encompasses 44,150 acres in Kern County, with 27,500 acres developed as irrigated agriculture and about 7,500 acres developed for urban uses. Rosedale's service area overlies the Kern County Subbasin of the San Joaquin Valley Groundwater Basin.

Rosedale's Conjunctive Use Program

Rosedale's Conjunctive Use Program currently manages approximately 470,000 acre feet (AF) of stored groundwater in the underlying basin, which has an estimated total storage capacity in excess of 1.7 million acre-feet (AF) (Sierra Scientific Services, 2009). The Conjunctive Use Program encompasses a broad range of activities intended to benefit Rosedale and its landowners through better management of the groundwater resource, integrating and incorporating all of Rosedale's available facilities to this end.

Rosedale has groundwater banking agreements with several participants as part of the Conjunctive Use Program, such that all recharge must occur in advance of extraction. Water supplies for the Conjunctive Use Program are supplied by the participating water agencies and include, but are not limited to, high-flow Kern River water and supplies from the Central Valley Project (CVP) and State Water Project (SWP). Currently, the infrastructure for the Conjunctive Use Program includes over 1,000 acres of recharge basins and several recovery wells. The current Program provides for maximum annual recharge of approximately 252,000 acre-feet per year (AFY) and maximum annual recovery of approximately 62,500 AFY. Rosedale certified a Final Master EIR covering the Conjunctive Use Program in July 2001. In addition, Rosedale has certified subsequent CEQA documents for individual project components.

Irvine Ranch Water District

IRWD was established in 1961 as a California Water District pursuant to the California Water District Law (California Water Code, Division 13). IRWD provides potable and recycled water, sewage collection and treatment, and urban runoff treatment to municipal and industrial (M&I), and agricultural customers within an 115,531-acre service area in Orange County, California. Along with the implementation of numerous water use efficiency programs, IRWD continues to develop a diverse mix of supplies including the use of high quality groundwater, impaired groundwater, and recycled water. Currently, 78 percent of the water IRWD provides for its customers comes from local sources, including groundwater (produced from the Orange County Groundwater Basin managed by Orange County Water District), recycled water, and surface water. The remaining 22 percent of IRWD's water supply is imported by the Metropolitan Water District of Southern California (Metropolitan or MWD) and purchased by IRWD through the Municipal Water District of Orange County (MWDOC).

IRWD is further improving its water supply reliability by developing water banking facilities in Kern County. Groundwater banking allows for storage of surplus water during wet hydrologic periods for use during periods when other supply sources may be reduced or interrupted. To enhance IRWD's ability to respond to drought conditions or potential supply interruptions, IRWD is developing long-term contingency storage for the purpose of recharging and banking supplemental water which can be called upon for delivery when needed. To-date, IRWD has implemented the Strand Ranch Project and the Stockdale West Pilot Recharge Project, as described below.

Strand Ranch Integrated Banking Project

IRWD currently participates in Rosedale's Conjunctive Use Program through its Strand Ranch Project. Strand Ranch is located in western Kern County and borders Rosedale's service area (see Figures 1-1 and 1-2). The Strand Ranch Project includes approximately 502 acres of groundwater recharge basins; seven production wells that have been completed onsite; and joint-use wells offsite that are currently being constructed by Rosedale. In the Strand Ranch Project, IRWD has the ability to store up to 50,000 AF and recover up to 17,500 AFY in accordance with its banking project terms with Rosedale. IRWD has priority rights to use the recharge basins when Rosedale is not recharging Kern River floodwaters and has first priority rights to the use of the recovery facilities. Rosedale has second priority use of Strand Ranch facilities. The water that Rosedale stores on its own behalf does not count against the 50,000 AF of storage dedicated to IRWD. Rosedale manages operation of the Strand Ranch Project on behalf of IRWD.

Stockdale West Pilot Recharge Project

In 2011, IRWD implemented a one-year Pilot Recharge Project on Stockdale West, which is directly adjacent to Strand Ranch. The purpose of the Pilot Recharge Project was to determine the recharge capabilities of Stockdale West, which would assist in determining the feasibility and physical limits of a long-term water banking project at the property. The one-year Pilot Project was limited to recharge of 10,000 AF of water over a one year period of time, which augmented the 17,500 AF of recharge allowed on Strand Ranch by IRWD. Water recharged during the Pilot Project was stored in IRWD's 50,000 AF storage account at the Strand Ranch. Water recharged during the Pilot Project will be recovered from Strand Ranch. As a result of the Pilot Project, IRWD is planning to implement groundwater banking at Stockdale West as part of the proposed Stockdale Integrated Banking Project.

In addition, in response to the declared State of Emergency in California due to prolonged drought conditions (January 17, 2014; April 25, 2014), IRWD implemented the Stockdale West Ranch Emergency Project in February 2015 (Notice of Exemption, February 17, 2015), which will allow for recharge of up to 10,000AF at Stockdale West using the existing recharge basins. Similar to the Pilot Project, the Emergency Project will be limited to recharge of 10,000 AF of water over a one year period of time, which will augment the 17,500 AF of recharge allowed on Strand Ranch by IRWD. Water recharged during the Emergency Project will be stored in IRWD's 50,000 AF storage account at the Strand Ranch. Water recharged during the Emergency Project will be recovered from Strand Ranch within the 17,500 AF per year recovery limits.

S.3 Project Objectives

The objectives of the proposed project are as follows:

- Integrate the proposed project facilities and coordinate the proposed project operations with Rosedale's Conjunctive Use Program, including the Strand Ranch Project, to provide for maximum operational flexibility between the various programs and facilities.
- Provide additional groundwater recharge, storage, and recovery capacity in the Kern River Fan region to augment and provide operating flexibility for Rosedale's existing and future programs.
- Develop recharge and recovery capacities for each of IRWD's and Rosedale's respective properties to be available for its priority use and for the other agency's use to the extent unused capacity may be available.
- Develop additional groundwater recharge, storage, and recovery capacity to provide IRWD customers with increased water supply reliability through redundancy and diversification during periods when other supply sources may be reduced or interrupted.

S.4 Project Description

The proposed project consists of three sites: Stockdale East, Stockdale West, the Central Intake Pipeline alignment, and a third project site that may be made up of non-contiguous parcels and that has yet to be specifically located. There is approximately 26,000 AF of available storage under Stockdale West and approximately 18,400 AF of available storage under Stockdale East (Thomas Harder & Co., 2013). This is additive to Rosedale's existing 1.7 million AF of storage that underlies its services area, given that Stockdale East and Stockdale West are outside of Rosedale's boundary. However, Rosedale would manage the Stockdale Properties and their associated storage along with the Conjunctive Use Program. Once the third Stockdale project site has been identified, the associated storage underlying the site would be determined. Based on characteristics of Stockdale East and West, a third proximate site of up to 640 acres may have storage of approximately 51,200 AF. In addition to storage under Stockdale West, IRWD will have access to an additional 50,000 AF of storage in Rosedale's Conjunctive Use Program ("Acquired Storage Account"). Water put into storage under the Acquired Storage Account would be recharged either through the proposed project or Strand Ranch Project or coordinated use of other Rosedale facilities.

Recharge capacities for the Stockdale Properties are estimated to be approximately 27,100 acre-feet per year (AFY) for Stockdale West and approximately 19,000 AFY for Stockdale East (Thomas Harder & Co., 2015). Recharge capacity is based on an estimated infiltration rate of 0.28 feet per day for 365 days (Thomas Harder & Co., 2015). Recovery facilities would be designed to extract approximately 11,250 AFY at Stockdale West and approximately 7,500 AFY at Stockdale East. Once the third Stockdale project site has been identified, the associated recharge and recovery capacities would be determined. Based on characteristics of Stockdale East and Stockdale West, a third proximate site of up to 640 acres may have recharge capacities of approximately 52,200 AFY and recovery of approximately 22,500 AFY. All groundwater

banking facilities on Stockdale West would be owned by IRWD and operated and maintained by Rosedale for the duration of the proposed project. All groundwater banking facilities on Stockdale East would be owned, operated, and maintained by Rosedale.

The proposed Central Intake Pipeline would connect the Goose Lake Slough to the CVC and will serve as a conveyance for delivery of recharge water to Stockdale East and the existing Superior Basins, and for delivery of water pumped from Stockdale East wells and other Rosedale wells on the Superior Basins to regional conveyance facilities via the CVC. The Central Intake Pipeline would generally run along and between existing agricultural parcels, along the eastern edge of the Stockdale East property, and up to a new pump station and CVC turnout/turn-in facility. The Central Intake Pipeline will be owned and operated by Rosedale.

S.5 Project Alternatives

An EIR must describe a range of reasonable alternatives to the proposed project or alternative project locations that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts of the proposed project. The alternatives analysis must include the "No Project Alternative" as a point of comparison. The No Project Alternative includes existing conditions and reasonably foreseeable future conditions that would exist if the proposed project were not approved (*CEQA Guidelines* §15126.6). The following alternatives are discussed further in **Chapter 6, Alternatives Analysis**.

No Project Alternative

Under the No Project Alternative, IRWD would not construct recovery wells on Stockdale West, and Rosedale would not construct recharge basins and recovery wells on Stockdale East, or the Central Intake Pipeline. Stockdale East would continue to be operated for agricultural production and Stockdale West also would accommodate agricultural activities within the existing recharge basins, including grazing. Groundwater would continue to be pumped from agricultural wells to support agricultural activities at both properties, with no recharge to offset such pumping. The third Stockdale project site would not be identified and developed, and the Stockdale Properties would not be integrated with Rosedale's Conjunctive Use Program. Under the No Project Alternative, IRWD's water supply would be less reliable during periods when existing supplies may be reduced or interrupted. Rosedale would continue to explore and develop partnerships with other water districts within or outside of the Kern Fan to expand its Conjunctive Use Program.

Alternatives Rejected from Further Consideration

Additional alternatives considered and rejected from further consideration by Rosedale and IRWD include alternative locations to Stockdale East and Stockdale West for constructing groundwater banking facilities; alternative alignment locations for the Central Intake Pipeline; construction of injection wells on the Stockdale Properties to inject water into the groundwater basin rather than construct recharge basins on the surface; development of local IRWD storage facilities in Orange County; enhanced conservation policies to be implemented during periods of

drought; and increased use of recycled water to reduce potable water demands. These alternatives did not meet the project objectives, were found to result in significant environmental impacts, or were otherwise determined to be infeasible.

Summary of Alternatives Analysis

One of the primary purposes of the alternatives analysis is to identify project alternatives that may avoid or substantially lessen significant project impacts (*CEQA Guidelines* §15126.6). The proposed project would not result in any significant impacts as documented in the analyses provided in Chapters 3, 4, and 5 of this Draft EIR. Nonetheless, CEQA requires that an EIR shall assess the No Project Alternative. A comparison of the proposed project to the No Project Alternative presents a tradeoff between achieving project objectives and impacting the environment. The No Project Alternative would avoid all the environmental impacts of the proposed project but would not meet any of the project objectives. The No Project Alternative also would forego any environmental benefits to the San Joaquin Valley Groundwater Basin such as correction of overdraft conditions, including those due to groundwater pumping to support irrigated agriculture at the Stockdale East property.

CEQA requires that an EIR identify the environmentally superior alternative of a project other than the No Project Alternative (*CEQA Guidelines* §15126.6(e)(2)). Since the proposed project would be compatible with agricultural land uses, support sustainable use of groundwater for agriculture in Kern County, benefit the San Joaquin Valley Groundwater Basin through recharge and storage, enhance water supply reliability for IRWD, and not result in any significant impacts that cannot be mitigated, the proposed project is considered the environmentally superior alternative.

S.6 Areas of Controversy

During the public comment period and during scoping session held for the proposed project, concerns were raised regarding potential adverse impacts to the following: water quality; special status species; water supply sources for the proposed project; and adverse impacts to the City of Bakersfield's water supply and surrounding environment. These concerns have been addressed in Chapters 3 and 4 of this Draft EIR.

S.7 Summary of Impacts

Table S-1, at the end of this chapter, presents a summary of the impacts and mitigation measures identified for the proposed project. The complete impact statements and mitigation measures are presented in Chapters 3 and 4 of this Draft EIR. The level of significance for each impact was determined using significance criteria (thresholds) developed for each category of impacts; these criteria are presented in the appropriate sections of Chapter 3. Significant impacts are those adverse environmental impacts that meet or exceed the significance thresholds; less than significant impacts would not exceed the thresholds. **Table S-1** indicates the measures that will be implemented to avoid, minimize, or otherwise reduce significant impacts to a less than significant level.

The impacts associated with the proposed project would occur during both construction and operational phases. Most construction impacts would be short term and temporary. These construction related impacts either are considered less than significant or are reduced to less than significant levels with appropriate mitigation measures. Operation of the proposed project would primarily affect hydrology and groundwater, in particular changes in groundwater levels during recharge and recovery operations. Operational impacts either are considered less than significant or are reduced to less than significant levels with appropriate mitigation measures. The proposed project would not result in any significant and unavoidable impacts.

S.8 Organization of this EIR

The chapters of this Draft EIR are as follows:

S. Summary. This chapter summarizes the contents of the Draft EIR.

1. Introduction and Project Background. This chapter discusses the CEQA process and the purpose of the EIR, and background information for the proposed project.

2. Project Description. This chapter provides an overview of the proposed project, describes the need for and objectives of the proposed project, and provides detail on the characteristics of the proposed project.

3. Environmental Setting, Impacts and Mitigation Measures. This chapter describes the environmental setting and identifies impacts of the proposed project for each of the following environmental resource areas: Aesthetics; Agriculture and Forestry Resources; Air Quality; Biological Resources; Cultural Resources; Geology, Soils, and Seismicity; Greenhouse Gas Emissions; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Mineral Resources; Noise; Transportation and Traffic; and Utilities and Energy. Measures to mitigate the impacts of the proposed project are presented for each resource area where significant potential impacts have been identified. References are included in each chapter.

4. Cumulative Impacts Analysis. This chapter describes the potential impacts of the proposed project when considered together with other related projects in the project area.

5. Growth Inducement Potential. This chapter summarizes population projections and water demands within the IRWD and Rosedale service areas and describes the potential for the proposed project to induce development.

6. Alternatives Analysis. This chapter presents an overview of the alternatives development process and describes the alternatives to the proposed project that were considered.

7. Report Preparers. This chapter identifies those involved in preparing this Draft EIR, including persons and organizations consulted.

TABLE S-1
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Potential Impact	Mitigation Measure	Significance Determination
Aesthetics		
Impact AES-1: The proposed project could alter the existing visual character of the sites by changing the land use from agricultural production to a combination of groundwater recharge, water conveyance, and agricultural production.	None required.	Less than Significant.
Impact AES-4: The proposed project would create new sources of nighttime lighting.	**Mitigation Measure AES-1:** All nighttime construction lighting and security lighting installed on new facilities shall be shielded and directed downward to avoid light spill onto neighboring properties.	Less than Significant with Mitigation.
Agriculture and Forestry Resources		
Impact AGR-1: The proposed project would build groundwater banking and conveyance facilities on lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.	None required.	Less than Significant.
Impact AGR-2: The proposed project could build groundwater banking facilities on lands under a Williamson Act contract.	**Mitigation Measure AGR-1:** If the third Stockdale project site is under a Williamson Act contract, then the use of the property would be managed as applicable in accordance with Kern County's *Agricultural Preserve Standard Uniform Rules*, which identify land uses that are compatible within agricultural preserves established under the Williamson Act.	Less than Significant with Mitigation.
Impact AGR-3: The proposed project could convert farmland to a combined land use of groundwater recharge and agricultural production.	Implement **Mitigation Measure BIO-5**.	Less than Significant with Mitigation.
Air Quality		
Impact AQ-1: The proposed project could conflict with or obstruct implementation of SJVAPCD air quality plan.	None required.	Less than Significant.
Impact AQ-2: Construction and/or operation of the project could generate emissions of criteria air pollutants that could contribute to existing nonattainment conditions.	None required.	Less than Significant.
Impact AQ-3: Construction and operation of the project could result in cumulatively considerable increases of criteria pollutant emissions.	None required.	Less than Significant.

TABLE S-1
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Potential Impact	Mitigation Measure	Significance Determination
Impact AQ-4: Construction and/or operation of the project could expose sensitive receptors to substantial pollutant concentrations.	None required.	Less than Significant.
Impact AQ-5: Operation of the project could create objectionable odors affecting a substantial number of people.	None required.	Less than Significant.
Biological Resources		
Impact BIO-1: Construction of the proposed project could result in adverse impact to special-status species.	**Mitigation Measure BIO-1:** The following measures would reduce potential impacts to nesting and migratory birds and raptors to less than significant levels: • Within 15 days of site clearing, a qualified biologist shall conduct a preconstruction, migratory bird and raptor nesting survey. The biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. This survey shall include species protected under the Migratory Bird Treaty Act including the tricolored blackbird. The survey shall cover all reasonably potential nesting locations for the relevant species on or closely adjacent to the proposed project site. • Nesting habitat should be removed prior to the bird breeding season (February 1 – September 30). • If an active nest is confirmed by the biologist, no construction activities shall occur within 250 feet of the nesting site for migratory birds and within 500 feet of the nesting site for raptors. The buffer zones around any nest within which project-related construction activities would be avoided can be reduced as determined acceptable by a qualified biologist. Construction activities may resume once the breeding season ends (February 1 – September 30), or the nest has either failed or the birds have fledged. **Mitigation Measure BIO-2:** If construction activities are scheduled to take place outside of the Swainson's hawk nesting season (which runs from March 1 – September 15), then no preconstruction clearance surveys or subsequent avoidance buffers are required. If construction activities are initiated within the nesting season then preconstruction nesting surveys shall be conducted by a qualified biologist prior to ground disturbance, in accordance with the guidance provided in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee, 2000). The required windshield surveys shall cover a one-half mile radius around the project sites. If a nest site is found, the qualified biologist shall determine the appropriate buffer zone around the nest within which project-related construction activities would be avoided. In addition, the qualified biologist shall consult with Rosedale and/or IRWD to determine whether consultation with CDFW is necessary. **Mitigation Measure BIO-3:** A pre-construction survey shall be conducted for burrowing owls 14 to 30 days prior to clearing of the site by a qualified biologist in accordance with the most recent CDFW protocol, currently the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Surveys shall cover suitable burrowing owl habitat disturbed by construction including a 500-foot buffer. The survey would	Less than Significant with Mitigation.

TABLE S-1
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Potential Impact	Mitigation Measure	Significance Determination
	identify adult and juvenile burrowing owls and signs of burrowing owl occupation. This survey shall include two early morning surveys and two evening surveys to ensure that all owl pairs have been located. If occupied burrowing owl habitat is detected on the proposed project site, measures to avoid, minimize, or mitigate impacts shall be incorporated into the proposed project and shall include, but not be limited to, the following: • If owls are identified on or adjacent to the site, a qualified biologist shall provide a pre-construction Worker's Environmental Awareness Program to contractors and their employees that describes the life history and species protection measures that are in effect to avoid impacts to burrowing owls. Construction monitoring will also occur throughout the duration of ground-disturbing construction activities to ensure no impacts occur to burrowing owl. • Construction exclusion areas shall be established around the occupied burrows in which no disturbance shall be allowed to occur while the burrows are occupied. Buffer areas shall be determined by a qualified biologist based on the recommendations outlined in the most recent Staff Report on Burrowing Owl Mitigation (CDFW 2012). • If occupied burrows cannot be avoided, a qualified biologist shall develop and implement a Burrowing Owl Management Plan. The biologist shall develop the Plan in consultation with Rosedale and/or IRWD and shall coordinate with CDFW as necessary. **Mitigation Measure BIO-4:** IRWD and Rosedale shall conduct a USFWS-approved "early evaluation" of the project area to determine if the project sites represent San Joaquin kit fox habitat. If the evaluation shows that the San Joaquin kit fox does not utilize the project sites, and the project will not result in take, then no further mitigation shall be required for this endangered species. If the "early evaluation" finds potential for the presence of kit fox, USFWS may require a San Joaquin kit fox survey to be conducted by a qualified biologist, in accordance with the most recent USFWS *San Joaquin Kit Fox Survey Protocol*. If it is determined that the San Joaquin kit fox has the potential to utilize the property then the following measures are required to avoid potential adverse effects to this species: • Rosedale and/or IRWD shall initiate discussions with the USFWS to determine appropriate project modifications to protect kit fox, including avoidance, minimization, restoration, preservation, or compensation. • If evidence of active or potentially active San Joaquin kit fox dens is found within the area to be impacted by the proposed project, compensation for the habitat loss shall be determined and provided in consultation with USFWS and CDFW. **Mitigation Measure BIO-5:** Prior to ground disturbing activities at the Goose Lake Slough and third Stockdale site, a qualified biologist shall conduct a pre-construction floristic survey and, if deemed necessary, focused rare plant survey of project areas to determine and map the location and extent of special-status plant species populations and natural communities of special concern within disturbance areas. Focused rare plant surveys shall occur during the typical blooming periods of special-status plants with the potential to occur. The plant surveys shall follow the CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (November 24, 2009). If a special-status plant species is found to be present, and avoidance of the species and/or habitat is not feasible, the implementing agency shall retain a qualified botanist to prepare and implement a	

TABLE S-1
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Potential Impact	Mitigation Measure	Significance Determination
	Revegetation/Restoration Mitigation Plan. **Mitigation Measure BIO-6:** Prior to ground disturbing activities at the third Stockdale site, a habitat assessment shall be conducted by a qualified biologist to determine the potential for special-status wildlife species to occur within affected areas. If the habitat assessment determines that a special-status species has the potential to be present within a minimum of 500 feet of the construction zone, a qualified biologist shall determine whether subsequent focused surveys are required prior to project implementation to determine presence or absence. If a special-status wildlife species is found to be present, and avoidance of the species and/or habitat is not feasible, then Mitigation Measures BIO-1 through BIO-4 shall be implemented as appropriate, or Rosedale and/or IRWD shall consult with a qualified biologist to prepare a species-specific mitigation plan and determine whether consultation with wildlife agencies are recommended.	
Impact BIO-2: The proposed project could have a substantial adverse effect on sensitive natural communities.	Implement **Mitigation Measure BIO-5**.	Less than Significant with Mitigation.
Impact BIO-3: The proposed project could have a substantial adverse effect on federally protected wetlands.	**Mitigation Measure BIO-7:** For project components that have potential to impact jurisdictional features, prior to ground disturbing activities, a qualified biologist shall be retained to conduct a jurisdictional delineation in areas that may be affected by the project. If jurisdictional resources are identified, the qualified biologist shall prepare a jurisdictional delineation report outlining the potential acreage of jurisdictional features that may be impacted. The jurisdictional delineation report will be submitted to USACE for a jurisdictional determination. If the delineation report determines that jurisdictional waters and/or wetlands are present within the project site, regulatory permits may be required prior to project impacts which include mitigation and/or compensation to reduce impacts to jurisdictional features to a less than significant level. Based on the results of the delineation report, permits required may include a 404 or Nationwide Permit from USACE, a 401 Certification from RWQCB and/or a Streambed Alteration Agreement from CDFW. Project impacts under 0.10 acres may not require a permit from USACE but only a notification of impact. The appropriate permits required to reduce impacts to jurisdictional features will be determined through initial consultation with the resource agencies.	Less than Significant with Mitigation.
Impact BIO-4: The proposed project could conflict with the Metropolitan Bakersfield Habitat Conservation Plan.	None required.	Less than Significant.
Cultural Resources		
Impact CUL-1: The project could cause a substantial adverse change in the significance of a historical or archaeological resource, as defined in CEQA Guidelines Section 15064.5.	**Mitigation Measure CUL-1:** In the event that prehistoric or historic subsurface cultural resources are discovered during ground-disturbing activities, all work within 50 feet of the resources will be halted and Rosedale or IRWD (as applicable) will consult with a qualified archaeologist to assess the significance of the find according to *CEQA Guidelines* Section 15064.5. If any find is determined to be significant, then Rosedale or IRWD and the archaeologist will meet to determine the appropriate avoidance measures or other appropriate mitigation. Rosedale or IRWD (as applicable) will make the final determination. All significant cultural materials recovered will be, as necessary and at the discretion of	Less than Significant with Mitigation.

TABLE S-1
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Potential Impact	Mitigation Measure	Significance Determination
	the consulting archaeologist, subject to scientific analysis, professional museum curation, and documentation according to current professional standards. In considering any suggested mitigation proposed by the consulting archaeologist in order to mitigate impacts to historical resources or unique archaeological resources, Rosedale or IRWD will determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is infeasible, other appropriate measures (e.g., data recovery) will be instituted. Work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is being carried out. **Mitigation Measure CUL-2:** For any project components not previously subject to archaeological survey (e.g., the third Stockdale site), prior to the initiation of ground disturbance, a qualified archaeologist shall be retained to carry out a Phase I Cultural Resources Survey of the project component. The Phase I Survey shall identify and evaluate the significance of any resources that may be directly or indirectly impacted by the proposed project. The Phase I Survey effort shall be documented in a Phase I Report. If as a result of the additional Phase I Survey any resource is found to be a historical or unique archaeological resource as defined in PRC Section 21084.1 and 21083.2(g), respectively, then **Mitigation Measure CUL-1** shall be implemented.	
Impact CUL-2: The project could directly or indirectly affect a unique paleontological resource or site or unique geologic feature, as defined in CEQA Guidelines Section 15064.	**Mitigation Measure CUL-3:** In the event that paleontological resources are discovered, Rosedale or IRWD (depending upon the project component) will notify a qualified paleontologist. The paleontologist will document the discovery as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in *CEQA Guidelines* Section 15064.5. If fossil or fossil bearing deposits are discovered during construction, excavations within 50 feet of the find will be temporarily halted or diverted until the discovery is examined by a qualified paleontologist. The paleontologist will notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If Rosedale or IRWD determines that avoidance is not feasible, the paleontologist will prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important. The plan will be submitted to Rosedale or IRWD for review and approval prior to implementation. **Mitigation Measure CUL-4:** Once the location of the third Stockdale site is determined (or any additional project components), prior to the initiation of ground disturbance, a paleontological literature, map, and museum locality review shall be conducted in order to assess the paleontological sensitivity of the project component. If the literature, map, and museum locality review identifies potentially sensitive paleontological resources, then a qualified paleontologist shall be retained to conduct a pedestrian survey and assessment of the project component. A report shall be prepared which summarizes the results of the survey and assessment and provides recommendations regarding implementation of mitigation, such as **Mitigation Measure CUL-3**.	Less than Significant with Mitigation.

TABLE S-1
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Potential Impact	Mitigation Measure	Significance Determination
Impact CUL-3: The proposed project could result in adverse impacts to human remains.	**Mitigation Measure CUL-5:** If human remains are uncovered during project construction, Rosedale or IRWD (as applicable) shall immediately halt work, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.4 (e)(1) of the *California Environmental Quality Act Guidelines*. If the Coroner determines the remains are Native American in origin, the Coroner shall contact the Native American Heritage Commission (NAHC). As provided in Public Resources Code Section 5097.98, the NAHC shall identify the person or persons believed to be most likely descended from the deceased Native American. The most likely descendent shall be afforded the opportunity to provide recommendations concerning the future disposition of the remains and any associated grave goods as provided in PRC 5097.98.	Less than Significant with Mitigation.
Geology, Soils, and Seismicity		
Impact GEO-1: The proposed project could expose new structures to adverse effects related to strong seismic ground shaking, ground failure, and liquefaction.	Implement **Mitigation Measure HYDRO-2.**	Less than Significant with Mitigation.
Impact GEO-2: The proposed project could result in soil erosion or the loss of topsoil.	Implement **Mitigation Measure HYDRO-1.**	Less than Significant with Mitigation.
Impact GEO-3: Operation of the proposed project could affect groundwater levels and result in on-site or off-site subsidence from compaction.	None required.	Less than Significant.
Greenhouse Gas Emissions		
Impact GHG-1: The proposed project could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	None required.	Less than Significant.
Impact GHG-2: The proposed project could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	None required.	Less than Significant.
Hazards and Hazardous Materials		
Impact HAZ-1: The proposed project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	None required.	Less than Significant.

TABLE S-1
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Potential Impact	Mitigation Measure	Significance Determination
Impact HAZ-2: The proposed project could 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.	**Mitigation Measure HAZ-1:** Prior to construction at Stockdale East, Rosedale shall collect representative samples of soils remaining in place near the oilfield as identified in the Phase 1 Environmental Site Assessment. The samples shall be analyzed for total petroleum hydrocarbons and pesticides. Rosedale shall avoid if feasible or otherwise remove from the site soils identified as containing hazardous quantities of contaminants and dispose of such soils in accordance with applicable hazardous waste regulations. **Mitigation Measure HAZ-2:** In the event that asbestos-containing materials are uncovered during project construction, work at the project sites shall immediately halt and a qualified hazardous materials professional shall be contacted and brought to the project sites to make a proper assessment of the suspect materials. All potentially friable asbestos-containing materials shall be removed in accordance with Federal, State, and local laws and the National Emissions Standards for Hazardous Air Pollutants guidelines prior to ground disturbance that may disturb such materials. All demolition activities shall be undertaken in accordance with California Occupational Safety and Health Administration standards, as contained in Title 8 of the CCR, Section 1529, to protect workers from exposure to asbestos. Materials containing more than one percent asbestos shall also be subject to San Joaquin Valley Air Pollution Control District regulations. Demolition shall be performed in conformance with Federal, state, and local laws and regulations so that construction workers and/or the public avoid significant exposure to asbestos-containing materials. **Mitigation Measure HAZ-3:** A Phase I Environmental Site Assessment shall be prepared for the Central Intake Pipeline and the third Stockdale project site to identify potential hazards and hazardous materials located within a one-mile radius. The construction contractor shall be informed of potential hazards and shall develop appropriate plans to avoid or remediate hazards.	Less than Significant with Mitigation.
Impact HAZ-3: The proposed project could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	**Mitigation Measure HAZ-4:** In the event the third Stockdale project site is located within a quarter mile of any school facilities, prior to construction, the contractors shall coordinate the proposed project construction route with the impacted school district and school facility to avoid school safety routes.	Less than Significant with Mitigation.
Impact HAZ-4: The proposed project could be located on a site which is included on a list of hazardous materials sites and could create a significant hazard to the public or the environment.	Implement **Mitigation Measure HAZ-3**.	Less than Significant with Mitigation.
Impact HAZ-5: The proposed project operation could cause an increase in airborne insect populations.	**Mitigation Measure HAZ-5:** IRWD and Rosedale shall coordinate with the Kern County Department of Public Health Services and the Kern Mosquito and Vector Control District prior to project operations to develop and implement, if necessary, appropriate insect abatement methods. Such methods shall not utilize any substances that may contaminate groundwater.	Less than Significant with Mitigation.

TABLE S-1
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Potential Impact	Mitigation Measure	Significance Determination
Hydrology and Water Quality		
Impact HYDRO-1: The proposed project could violate water quality standards or waste discharge requirements during construction or project operation.	**Mitigation Measure HYDRO-1:** The SWPPP for the proposed project shall include the following BMPs: • Establish an erosion control perimeter around active construction and contractor layout areas including silt fencing, jute netting, straw waddles, or other appropriate measures to control sediment from leaving the construction area. • Stockpiled soils shall be watered, covered, or otherwise managed to prevent loss due to water and wind erosion. • Install containment measures at fueling stations and at fuel and chemical storage sites. Employ good house-keeping measures including clearing construction debris and waste materials at the end of each day.	Less than Significant with Mitigation
Impact HYDRO-2: The proposed project could deplete groundwater supplies and lower the groundwater table through extraction of banked groundwater.	None required.	Less than Significant.
Impact HYDRO-3: Recharge operations on the proposed project site could result in groundwater mounding that could potentially impact underground structures or impair recharge efforts of adjacent groundwater banking operations.	**Mitigation Measure HYDRO-2:** Prior to operation of the project, Rosedale shall develop and implement a shallow groundwater monitoring plan for purposes of protecting subsurface structures of the Cross Valley Canal (CVC). Piezometers shall be installed adjacent to the CVC at Stockdale East and the third Stockdale project site if applicable. Piezometers have already been installed at Stockdale West. The location and design of the new piezometers shall be approved by the Kern County Water Agency (KCWA). Piezometers at the Stockdale Properties shall be used to monitor groundwater levels beneath the CVC. Prior to initiating the project, a California state licensed geotechnical engineer shall conduct an analysis to determine the critical depth at which shallow groundwater would pose a threat to the stability of CVC structures. Based on this analysis, the monitoring plan shall identify depths at which monitoring frequency shall change, such as from monthly to weekly to daily, as shallow groundwater levels approach the critical depth. The monitoring plan shall also identify the depth at which project operation would cease such that the critical depth would not be reached and the conditions under which project operation could resume. The monitoring plan shall be approved by KCWA.	Less than Significant with Mitigation.
Impact HYDRO-4: The proposed project could substantially alter the existing drainage pattern of a site that could result in substantial erosion or siltation on- or off-site.	Implement **Mitigation Measure HYDRO-1.**	Less than Significant with Mitigation.
Impact HYDRO-5: The proposed project could substantially degrade groundwater quality by the addition of recharge water.	Implement **Mitigation Measure HAZ-1**	Less than Significant with Mitigation

TABLE S-1
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Potential Impact	Mitigation Measure	Significance Determination
Impact HYDRO-6: The proposed project could place structures within a 100-year flood hazard area.	**Mitigation Measure HYDRO-3:** If the third Stockdale project site includes a flood hazard area, then associated project facilities would be designed either: (1) to avoid development within the flood hazard area, or (2) to ensure that flood hazards or flood elevations on neighboring parcels are not significantly altered.	Less than Significant with Mitigation.
Lane Use and Planning		
Impact LU-1: The proposed project could conflict with any applicable land use plan, policy, or regulation of the jurisdiction over the project.	**Mitigation Measure LU-1:** A General Plan Amendment may be requested from Kern County to eliminate the mid-section line setback requirements from the Stockdale properties.	Less than Significant (LU-1 is not required)
Impact LU-3: The proposed project could conflict with the Metropolitan Bakersfield Habitat Conservation Plan.	None required.	Less than Significant.
Mineral Resources		
Impact MRS-1: The proposed project could block access to oil resources beneath the Stockdale Properties.	None required.	Less than Significant.
Noise		
Impact NOISE-1: The proposed project could generate noise levels that exceed noise standards.	None required.	Less than Significant.
Impact NOISE-2: The proposed project could generate or result in excessive groundborne vibration or groundborne noise levels.	None required.	Less than Significant.
Impact NOISE-3: The proposed project could result in a substantial permanent increase in ambient noise levels in the project vicinity.	None required.	Less than Significant.
Impact NOISE-4: The proposed project could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity.	**Mitigation Measure NOISE-1:** To reduce temporary construction related noise impacts at the third Stockdale site, the following shall be implemented by the construction contractor: a. Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site. b. Locate equipment staging in areas that will create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction. c. Ensure proper maintenance and working order of equipment and vehicles, and that all	Less than Significant with Mitigation.

TABLE S-1
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Potential Impact	Mitigation Measure	Significance Determination
	construction equipment is equipped with manufacturers approved mufflers and baffles. d. Install sound-control devices in all construction and impact equipment, no less effective than those provided on the original equipment.	
Transportation and Traffic		
Impact TR-1: The proposed project could conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.	**Mitigation Measure TR-1:** For project features that require open-trench construction across roadways, the Construction Traffic Control Plan for the proposed project shall include measures that ensure Rosedale provides signage and flagging to alert motorists of pending and actual lane or road closures and detours. Such measures shall conform to the requirements of the Kern County Roads Department and any requirements of related encroachment permits.	Less than Significant with Mitigation.
Impact TR-2: The proposed project could conflict with an applicable congestion management program and reduce the level of service of surrounding roads and highways.	None required.	Less than Significant.
Impact TR-3: The proposed project could result in a substantial increase to hazards due to a design feature or incompatible uses.	**Mitigation Measure TR-2:** IRWD and Rosedale shall require the construction contractor to prepare and implement a Construction Traffic Control Plan that conforms to requirements of the Kern County Roads Department, California Department of Transportation District 6, and the California Department of Transportation Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook. The construction contractor shall obtain all necessary permits for the work within the road right-of-way or use of oversized/overweight vehicles that will utilize county maintained roads, which may require California Highway Patrol or a pilot car escort. Implement **Mitigation Measure HAZ-4**	Less than Significant with Mitigation.
Impact TR-4: The proposed project could result in inadequate emergency access.	Implement **Mitigation Measure TR-2.**	Less than Significant with Mitigation.
Utilities and Energy		
Impact UTIL-1: The proposed project could require new or expanded water supply resources or entitlements.	None required.	Less than Significant.
Impact UTIL-2: The proposed project could require additional landfill capacity.	None required.	Less than Significant.
Impact UTIL-3: The proposed project could result in a substantial increase in energy consumption that could affect local and regional energy supplies.	**Mitigation Measure UTIL-1:** IRWD and Rosedale shall install energy efficient equipment, including pumps and motors, for operation of the proposed project.	Less than Significant with Mitigation.

TABLE S-1
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Potential Impact	Mitigation Measure	Significance Determination
Cumulative Impacts		
Impact CUM-1: Concurrent construction of several projects in the vicinity of the Stockdale Properties could result in cumulative short-term impacts associated with air quality, biological resources, cultural resources, noise, traffic, and water quality.	**Mitigation Measure CUM-1:** The construction contractor shall consult with appropriate local agencies and jurisdictions prior to initiating ground-disturbing activities, to determine if other construction projects will occur coincidentally at the same time and in the vicinity of the proposed project, depending on project schedule. Coordination of construction activities for coincident projects shall occur to ensure impacts to noise and traffic do not compound to be cumulatively significant and to ensure compatibility of activities within construction zones. Adjustments to construction schedules and plans shall be made accordingly as necessary.	Less than Significant with Mitigation.
Impact CUM-2: The proposed project and related projects could result in cumulative long-term impacts to groundwater resources.	**Mitigation Measure CUM-2**: Operation of the proposed project shall be conducted in accordance with the Long Term Project Recovery Operations Plan Regarding Rosedale-Rio Bravo Water Storage District Projects (Long Term Operations Plan). The Long Term Operations Plan requires monitoring of groundwater conditions; annual predictions of project-related groundwater declines in the area; definition of negative project impact (NPI) to neighboring wells relative to no-project conditions; triggers for implementation of mitigation measures based on NPI that affects neighboring well operation; and mitigation measures to be implemented for different categories of wells. Mitigation measures include, but are not limited to, providing compensation to lower well pumps; reducing or adjusting pumping to prevent, avoid, or eliminate the NPI; or drilling a new well.	Less than Significant with Mitigation.
Impact CUM-3: The proposed project and related projects could result in cumulative long-term impacts to agricultural resources.	None required.	Less than Significant.

CHAPTER 1
Introduction and Project Background

Introduction

The Rosedale-Rio Bravo Water Storage District (Rosedale) and the Irvine Ranch Water District (IRWD) are proposing to implement the Stockdale Integrated Banking Project (proposed project) in western Kern County. The proposed project would allow both agencies to utilize available storage in the local San Joaquin Valley Groundwater Basin by developing groundwater banking facilities on up to three project sites located approximately six miles west of the City of Bakersfield. As shown in **Figure 1-1**, the proposed project would include the Stockdale East property, which is owned by Rosedale, the Stockdale West property, which is owned by IRWD, and a potential third project site that would be located within a designated radius around both properties (collectively referred to as the "Stockdale Properties"). The proposed project would also include a new Central Intake Pipeline conveyance system and new turnouts along the Cross Valley Canal. Operation of the proposed project would be coordinated with Rosedale's existing Groundwater Storage, Banking, Exchange, Extraction & Conjunctive Use Program (Conjunctive Use Program) and the existing Rosedale-IRWD Strand Ranch Integrated Banking Project (Strand Ranch Project). The proposed project would provide greater operational flexibility for Rosedale and would enhance water supply reliability for IRWD by providing contingency storage to augment supplies during periods when other supply sources may be limited or not available.

1.1 Purpose of the EIR

Rosedale as the Lead Agency, in consultation with IRWD as a Responsible Agency, has prepared this Draft Environmental Impact Report (EIR) to provide the public, trustee agencies, and other responsible agencies with information about the potential effects on the local and regional environment associated with construction and operation of the proposed project. This Draft EIR has been prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. seq., and the State *CEQA Guidelines* in the Code of Regulations, Title 14, Division 6, Chapter 3.

This Draft EIR describes the environmental impacts of the proposed project and suggests mitigation measures where necessary to reduce impacts to a less than significant level. The impact analyses are based on a variety of sources, including publicly-available documents, agency consultation, technical studies and field surveys.

Rosedale and IRWD intend to use this EIR to consider implementation of the proposed project. According to CEQA, when a project is to be carried out by multiple public agencies, one agency

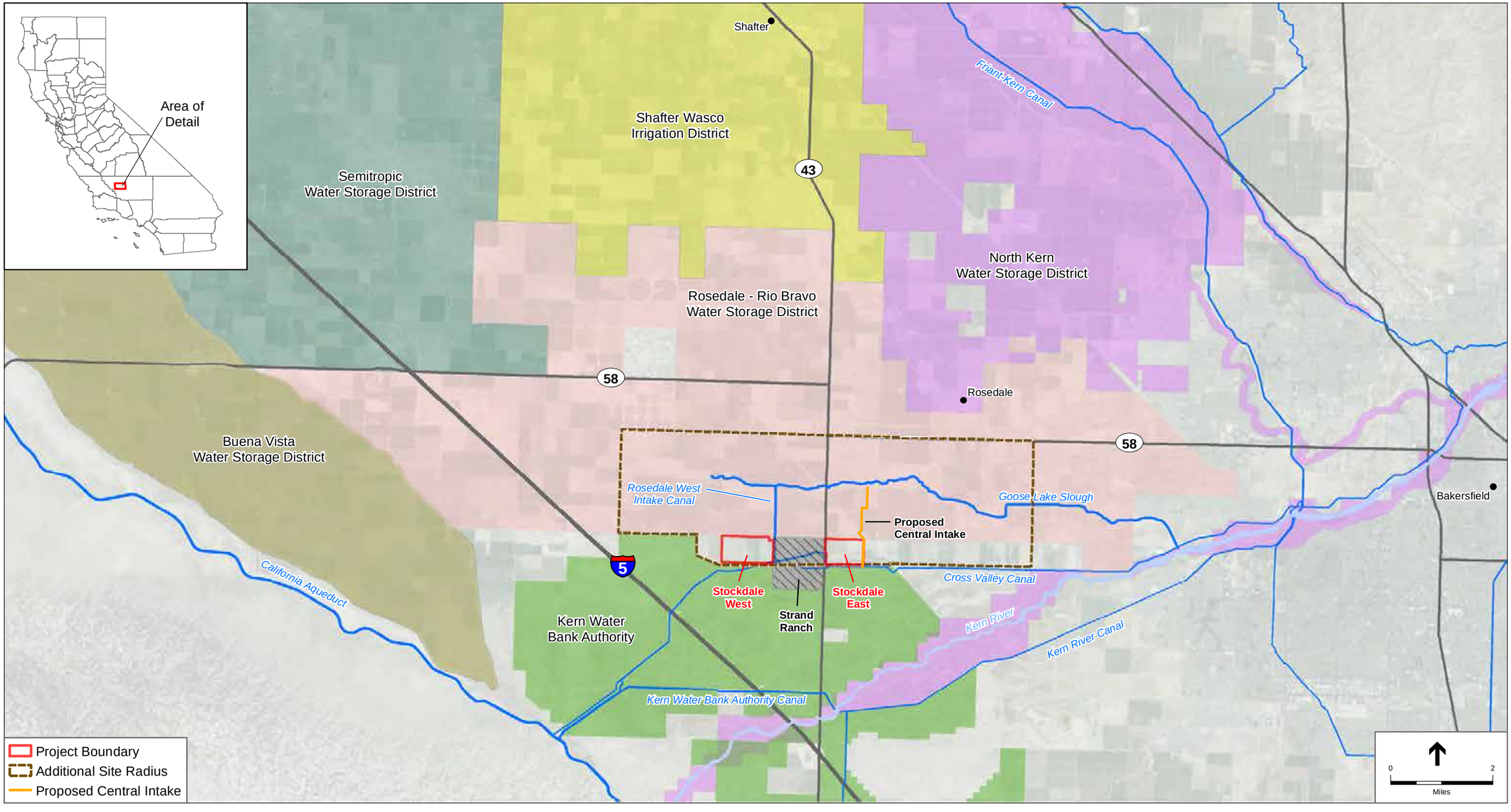
is selected to be the lead agency and the other agencies are designated as responsible agencies (*CEQA Guidelines* §15050(a)). The proposed project is a joint project of both Rosedale and IRWD. For purposes of this EIR, Rosedale is the Lead Agency and IRWD is the Responsible Agency. The Rosedale Board of Directors, as the decision-making body for the Lead Agency, independently shall consider and certify this EIR prior to approving the proposed project. The Lead Agency shall certify that this EIR has been completed in compliance with CEQA and that the EIR reflects its independent judgment and analysis (*CEQA Guidelines* §15090(a)). The IRWD Board of Directors, as the decision-making body for the Responsible Agency, shall consider the Lead Agency's EIR prior to approving the project, and shall certify that it reviewed and considered the information contained in this EIR (*CEQA Guidelines* §15050(b)).

1.2 Project-level and Program-level Analyses in this Draft EIR

The *CEQA Guidelines* Section 15161 defines a project-level EIR as "focusing primarily on the changes in the environment that would result from project development." Project-level analyses examine all phases of a proposed project, including planning, construction, and operation, at a site-specific level. This Draft EIR evaluates construction and operation of facilities at Stockdale East, Stockdale West, the Central Intake Pipeline, and associated turnouts and pump station at a site-specific project level, consistent with *CEQA Guidelines* Section 15161 and 15378(a).

Under CEQA, a project is defined as "the whole of an action" that could result in direct or indirect environmental effects (*CEQA Guidelines* Section 15378). For the proposed project, the whole of the action includes the third Stockdale project site. The Stockdale East, Stockdale West, and the third Stockdale site, together with associated conveyances such as the Central Intake Pipeline system, are considered together to comprise the Stockdale Integrated Banking Project. Because the location of the third Stockdale site has not been identified, a program-level analysis of impacts is provided in this Draft EIR in accordance with *CEQA Guidelines* Section 15168. A program-level analysis allows a public agency to evaluate the effects of a series of actions that are related geographically and as logical parts in a chain of contemplated actions. The advantages of a program-level analysis include providing more comprehensive consideration of alternatives and cumulative impacts than would be possible for individual actions, and avoiding duplicative reconsideration of basic policy considerations, while also reducing paperwork.

If and when the third Stockdale project site is identified, subsequent project-level environmental review will be conducted pursuant to *CEQA Guidelines* Section 15168(c). This Draft EIR would provide the basis for any future project-level CEQA analysis for the third Stockdale site (CEQA Guidelines Section 15168(d)).



SOURCE: ESRI 2013

Stockdale Integrated Banking Project . 211181

Figure 1-1

Regional Location

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1.3 Organization of this EIR

The chapters of this Draft EIR are as follows:

ES. Executive Summary. This chapter summarizes the contents of the Final EIR.

1. **Introduction and Project Background.** This chapter discusses the purpose of the EIR, the CEQA process, and pertinent background information about both Rosedale and IRWD, and the proposed project.
2. **Project Description.** This chapter provides an overview of the proposed project, describes the need for and objectives of the proposed project, and provides detail on the characteristics of the proposed project.
3. **Environmental Setting, Impacts and Mitigation Measures.** This chapter describes the baseline environmental setting and identifies impacts of the proposed project for each of the following environmental resource areas: Aesthetics; Agriculture and Forestry Resources; Air Quality; Biological Resources; Cultural Resources; Geology, Soils, and Seismicity; Greenhouse Gas Emissions; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Mineral Resources; Noise; Transportation and Traffic; and Utilities and Energy. Measures to mitigate the impacts of the proposed project are presented for each resource area where significant potential impacts have been identified.
4. **Cumulative Impacts Analysis.** This chapter describes the potential impacts of the proposed project when considered together with combined impacts of other related projects in the project area.
5. **Growth Inducement Potential.** This chapter summarizes population projections and water demands within the IRWD and Rosedale service areas and describes the potential for the proposed project to induce growth.
6. **Alternatives Analysis.** This chapter presents an overview of the alternatives development process and describes the alternatives to the proposed project that were considered.
7. **Report Preparers.** This chapter identifies those involved in preparing this EIR, including persons and organizations consulted.

1.4 CEQA Process

1.4.1 Public Scoping

Notice of Preparation

In accordance with Section 15082 of the *CEQA Guidelines*, a Notice of Preparation (NOP) of an EIR was prepared and circulated for review by applicable local, state and federal agencies and the public (See **Appendix A**). On September 24, 2013, the NOP was mailed to interested parties, responsible and trustee agencies, and the Office of Planning and Research. The NOP was published in the Bakersfield Californian and Orange County Register, and a Notice of Completion (NOC) was sent to the State Clearinghouse. The NOP was made available for public

review at the Beale Memorial Library in Kern County and the Heritage Park Regional Library in Orange County, and on IRWD's internet site: www.irwd.com.

The NOP provided a general description of the facilities associated with the proposed project, a summary of the probable environmental effects of the project to be addressed in the EIR, and a figure showing the project location. The NOP provided the public and interested public agencies with the opportunity to review the proposed project and to provide comments or concerns on the scope and content of the environmental review document including: the range of actions; alternatives; mitigation measures, and significant effects to be analyzed in depth in the EIR.

The 30-day project scoping period, which began with the distribution of the NOP, remained open through October 24, 2013. During the scoping period, four comment letters were received from the California Department of Fish and Wildlife, Arvin-Edison Water Storage District, City of Bakersfield, and San Joaquin Valley Air Pollution Control District. These letters are provided in the Scoping Summary in Appendix A.

Public Scoping Meeting

CEQA recommends conducting early coordination with the general public, appropriate public agencies, and local jurisdictions to assist in developing the scope of the environmental document. Pursuant to *CEQA Guidelines* Section 15083, two public scoping meetings were held on October 15, 2013 at IRWD's district office and on October 16, 2013 at Rosedale's district office, to allow agency consultation and public involvement for the Draft EIR. A public notice was placed in the local newspapers of general circulation in the Rosedale and IRWD service areas, the Bakersfield Californian and Orange County Register, to inform the general public of the scoping meeting and the availability of the NOP. The purpose of the meeting was to present to the public the proposed project and its potential environmental impacts. Attendees were provided an opportunity to voice comments or concerns regarding potential effects of the proposed project. Comments received during the scoping meetings are included in the Scoping Summary in Appendix A.

1.4.2 Draft EIR

This Draft EIR contains a description of the proposed project, description of the baseline environmental setting for each resource listed in the Appendices F and G of the *CEQA Guidelines*, identification of project impacts (direct, indirect, and cumulative), mitigation measures for impacts found to be significant, and an analysis of project alternatives.

The *CEQA Guidelines* Section 15125(a) requires that a Draft EIR include a description of the physical environmental conditions as they exist when the NOP is published. This environmental setting typically constitutes the baseline against which the lead agency compares the physical environmental changes that may occur as a result of the project and determines whether such impacts are significant. The baseline environmental conditions for the analysis included within this Draft EIR are generally from September 2013, when the NOP was published. However, for dynamic resources that can fluctuate greatly, such as river flow or groundwater levels, the baseline can also constitute a range of conditions over a representative time period. This ensures that an outlier or transitory condition is not used as the baseline condition out of context and that

a representative range is established from which to analyze impacts of the project. For the analysis in this Draft EIR, the baseline for groundwater levels is based on historical hydrological conditions and is described further in **Chapter 3.9, Hydrology and Water Quality**.

As described above, this Draft EIR provides an assessment of impacts at the project level for facilities and activities associated with Stockdale East, Stockdale West, the Central Intake Pipeline, and associated turnouts and pump station (*CEQA Guidelines* §15161) and at the program level for facilities and activities associated with the third Stockdale project site (*CEQA Guidelines* §15168). A subsequent assessment of impacts will be required prior to implementation of project facilities at the third Stockdale project site, once the location has been identified.

Significance criteria have been developed for each environmental resource analyzed in this Draft EIR, based on Appendices F and G of the *CEQA Guidelines*. Impacts are categorized as follows:

- **Significant and Unavoidable:** mitigation might be recommended but impacts are still significant.
- **Less than Significant with Mitigation:** potentially significant impact but mitigated to a less than significant level;
- **Less than Significant:** mitigation is not required under CEQA but may be recommended; or
- **No Impact:** impacts would not occur or project has features that prevent impacts**.**

CEQA requires that a lead agency avoid or substantially lessen significant impacts where feasible (*CEQA Guidelines* §15091 and §15092). No significant and unavoidable impacts have been identified in this Draft EIR. All potentially significant impacts would be substantially lessened though means such as implementation of mitigation measures or project design features.

1.4.3 Public Review

This document is being circulated to local, state and federal agencies, and to interested organizations and individuals who may wish to review and comment on the Draft EIR. Publication of this Draft EIR marks the beginning of a 45-day public review period, during which written comments may be submitted at any time. Written comments on the Draft EIR must be received at the following address prior to the end of the 45-day review period.

Eric Averett
General Manager
Rosedale-Rio Bravo Water Storage District
P.O. Box 20820
Bakersfield, CA 93390-0820
eaverett@rrbwsd.com

During the 45-day review period, two public informational meetings will be held to present the results of the Draft EIR and allow for the submittal of verbal or written comments. The meetings will be held as follows:

	Rosedale-Rio Bravo Water Storage District	Irvine Ranch Water District
DATE:	May 12, 2015	May 13, 2015
TIME:	11:00 AM	6:00 PM
LOCATION:	849 Allen Road Bakersfield, California	15600 Sand Canyon Avenue Irvine, California

1.4.4 Final Environmental Impact Report Publication

Written and oral comments received in response to the Draft EIR will be addressed in a Response to Comments document which, together with the Draft EIR, will constitute the Final EIR. As the decision-making body of the lead agency, the Rosedale Board of Directors will then consider the Final EIR for certification (*CEQA Guidelines* §15090). The Rosedale Board of Directors will certify that it has reviewed and considered the information contained in the Final EIR, that the Final EIR reflects the lead agency's independent judgment and analysis, and that the Final EIR has been completed in compliance with CEQA. Once the Final EIR has been certified, the lead agency may proceed to consider project approval. Prior to approving the project, the lead agency must make written Findings with respect to each significant environmental effect identified in the Draft EIR in accordance with Section 15091 of the *CEQA Guidelines*.

CEQA requires that the lead agency neither approve nor implement a project unless the project's significant environmental effects have been reduced to a less than significant level, essentially "eliminating, avoiding, or substantially lessening" the expected impacts. If the lead agency approves the project despite residual significant impacts that cannot be mitigated to a less than significant level, the agency must state the reasons for its action in writing in a Statement of Overriding Considerations (SOC). As defined in *CEQA Guidelines* Section 15093, a SOC balances the benefits of a project against its unavoidable environmental consequences. The SOC must be included in the record of the project approval.

As a Responsible Agency, IRWD will also adopt the Final EIR, adopt Findings, and if necessary adopt a Statement of Overriding Considerations, prior to approving the project and proceeding with project implementation, in accordance with *CEQA Guidelines* Section 15096.

Within five working days after the Rosedale Board of Directors has approved the project, the lead agency will file a Notice of Determination (NOD) with the Kern County Clerk and the State Clearinghouse (*CEQA Guidelines* §15094). As a responsible agency, IRWD also will file an NOD with the Kern County and Orange County Clerks and State Clearinghouse.

1.4.5 Mitigation Monitoring and Reporting Program

State law requires lead agencies to adopt a mitigation monitoring and reporting program (MMRP) for those changes to the project that have been adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The *CEQA Guidelines* do not require that the specific reporting or monitoring program be included in the EIR. Throughout this Draft EIR, however, proposed mitigation measures, as well as monitoring and reporting requirements, have been clearly identified and presented in language that will facilitate

establishment of a monitoring program. All adopted measures will be included in a MMRP to verify compliance. The MMRP may be included as an attachment to the Final EIR.

1.5 Project Background and Context

1.5.1 Rosedale-Rio Bravo Water Storage District

The water districts of Kern County are leaders in the development of groundwater banking programs in California. Portions of Kern County are characterized by hydrogeologic conditions that are particularly suitable for groundwater recharge operations. Kern County is also strategically located in central California near federal, state, and local water supply conveyance facilities. The groundwater banking programs of Kern County benefit local customers and water districts and also provide groundwater storage for districts in northern and southern California.

Rosedale is located west of Bakersfield and encompasses approximately 44,150 acres in Kern County (Figure 1-1), with 27,500 acres developed as irrigated agriculture and approximately 7,500 acres developed for urban uses. Rosedale's service area overlies the Kern County Subbasin of the San Joaquin Valley Groundwater Basin. Rosedale was established in 1959 to develop a groundwater recharge program to offset overdraft conditions in the underlying basin. Prior to the groundwater recharge efforts initiated by Rosedale, groundwater levels in the District were declining at a rate of eight to ten feet per year. Through implementation of groundwater recharge programs and participation in the State Water Project (SWP), Rosedale slowed the decline in groundwater levels dramatically. In the mid-1990s, groundwater levels again were declining, and Rosedale initiated the Conjunctive Use Program.

Defining Conjunctive Use

"Conjunctive use" refers to coordinating the management of surface water and groundwater to improve the overall reliability of water supply (Pacific Institute, 2011). "Groundwater banking" is the practice of recharging specific amounts of water in a groundwater basin that can later be withdrawn and used by the entity that deposited the water (Pacific Institute, 2011). Groundwater banking uses underground aquifers for percolation and storage purposes, as an alternative to building aboveground storage, and offers water users both within and outside of the groundwater basin the opportunity to store water there. It allows flexibility to respond to seasonal and inter-annual variability, as water can be stored in wet periods, when water is abundant, for use in dry periods, when water may be in short supply. Groundwater banking programs may benefit water levels in the local aquifer because the amount of water available for recovery is less than the amount recharged; this difference can mitigate for overdraft conditions and raise groundwater levels.

Rosedale's Conjunctive Use Program

Rosedale's Conjunctive Use Program currently manages approximately 470,000 acre feet (AF) of stored groundwater in the underlying basin, which has an estimated total storage capacity in excess of 1.7 million acre-feet (AF) (Sierra Scientific Services, 2009). The Conjunctive Use Program encompasses a broad range of activities intended to benefit Rosedale and its landowners through better management of the groundwater resource, integrating and incorporating all of

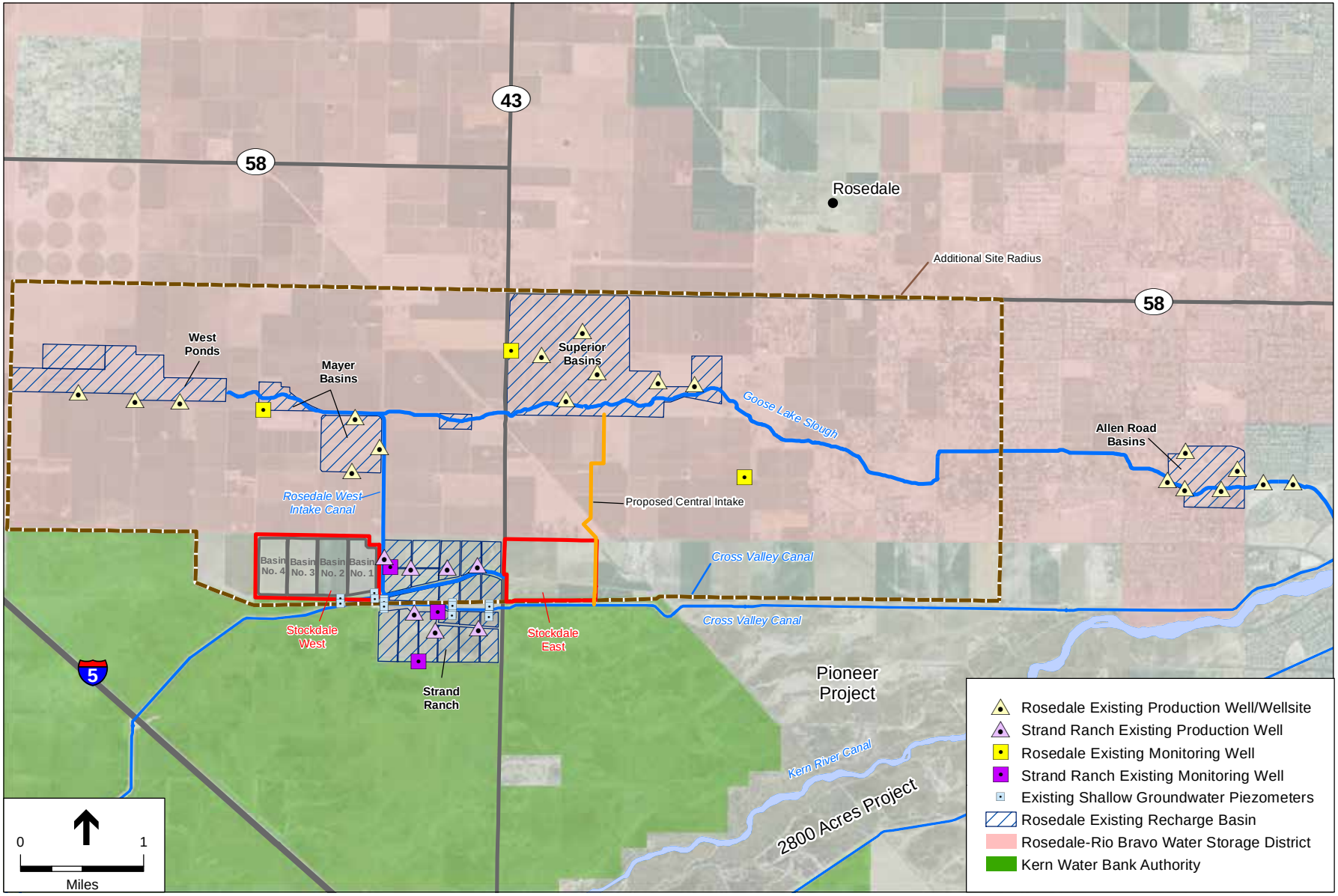
Rosedale's available facilities to this end.

Rosedale has groundwater banking agreements with several participants as part of the Conjunctive Use Program, under which all recharge must occur in advance of extraction. Water supplies for the Conjunctive Use Program are supplied by the participating water agencies and include, but are not limited to, high-flow Kern River water and supplies from the Central Valley Project (CVP) and State Water Project (SWP). Currently, the infrastructure for the Conjunctive Use Program includes over 1,000 acres of recharge basins and several recovery wells (**Figure 1-2**). The current Conjunctive Use Program provides for maximum annual recharge of approximately 252,000 acre-feet per year (AFY) and maximum annual recovery of approximately 62,500 AFY.

Master EIR for the Conjunctive Use Program

In 2001, Rosedale certified a Master Environmental Impact Report (Master EIR) that outlined parameters of the Conjunctive Use Program. The Master EIR is designed to expand and integrate additional groundwater banking opportunities in association with out-of-district partners. Any new facilities incorporated into the Conjunctive Use Program after 2001 require site-specific analysis prior to implementation. Since 2001, Rosedale has adopted CEQA compliance documentation for five specific projects that fall within the Conjunctive Use Program. The Strand Ranch Project represented an addition to the Conjunctive Use Program, and as such, the Strand Ranch Final EIR did not tier from the Master EIR. Similarly, this EIR for the Stockdale Integrated Banking Project is not tiered from the Master EIR, and represents an addition to the Conjunctive Use Program. The recharge and recovery amounts identified in this document are in addition to the amounts identified in the Master EIR, additional CEQA documentation, and subsequent addenda.

In 2011, Rosedale completed an assessment of the integrated operation of all its Conjunctive Use Program groundwater banking and sales programs and facilities, including specific projects such as the Strand Ranch Project (ESA, 2011). The assessment concluded that the premise of integration is explicit within the Master EIR and operating the Conjunctive Use Program expressly as an integrated program would not result in any environmental effect not already foreseen and considered in the CEQA compliance documentation to-date.



SOURCE: ESRI ,2015

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Figure 1-2

Existing Water Banking Facilities

1.5.2 Rosedale's Operating Plans

Memoranda of Understanding

Effective January 1, 2003, Rosedale entered into two (2) MOUs with adjoining entities in the Kern Fan area, which include Semitropic Water Storage District, Buena Vista Water Storage District, Henry Miller Water Storage District, Berrenda Mesa Water Storage District, Kern Water Bank Authority, Improvement District No 4, and West Kern Water District. The MOUs provide guidelines for operation and monitoring of Rosedale's groundwater banking programs. The proposed project would be subject to and consistent with the conditions of these MOUs, as provided in **Appendix B**.

The MOUs allow for Rosedale to operate its Conjunctive Use Program to achieve maximum water storage and withdrawal benefits, while also avoiding, eliminating, or mitigating adverse impacts to the groundwater basin and to the operation of other groundwater banking programs in the Kern Fan area. As part of the operating objectives defined in the MOUs, Rosedale's Conjunctive Use Program includes the following:

- Maintain, or if possible enhance, the quality of the groundwater in its district. For example, Rosedale will attempt to implement recovery operations in such a manner that TDS in recovery waters exceed TDS of recharge waters.
- Control the migration of poor quality water. For example, Rosedale 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 not be limited to the following:
  - if necessary provide buffer areas between recovery wells and neighboring districts;
  - 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 Rosedale and all Adjoining Entities. The Monitoring Committee is collectively responsible for monitoring groundwater levels and water quality in the Kern Fan area. The MOUs stipulate that modifications to Rosedale's Conjunctive Use Program would be subject to environmental review pursuant to CEQA and would require review by the Monitoring Committee. Operation of the proposed project would be coordinated with Rosedale's Conjunctive Use Program, and this EIR will satisfy the CEQA requirements as indicated in the MOUs.

Long Term Operations Plan

Rosedale has also developed the *Long Term Project Recovery Operations Plan Regarding Rosedale-Rio Bravo Water Storage District Projects* (Long Term Operations Plan), which implements the provisions of the MOU and is provided in Appendix B. This Long Term Operations Plan is based on the current Interim Operations Plan, under which both Rosedale and KWBA are required to operate, and which also is provided in Appendix B.[1] The proposed project will 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 as follows:

A. Establish a Protocol for Monitoring and Reporting Groundwater Conditions:

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

B. Implement Proactive Measures

- Rosedale's Groundwater Model will be used to predict the contribution of Rosedale's projects 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 Rosedale project.
- The Model will be periodically run and updated as recovery plans become known or change in any given year.

[1] In order to allow the Kern Water Bank Authority's operations to continue pending certification of a new EIR by the Department of Water Resources (DWR), the parties in recent litigation (including Rosedale, Buena Vista Water Storage District, the Kern Water Bank Authority and its member entities) submitted to the Court a proposed *Interim Project Recovery Operations Plan Regarding Kern Water Bank Authority (KWB) and Rosedale-Rio Bravo Water Storage District (Rosedale) Project* (Interim Operations Plan), which was incorporated by the Court into its final writ of mandate. The purpose of the Interim 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 Interim Operations Plan is to mitigate and/or compensate for legitimate project impacts. The Interim Operations Plan applies to the Kern Water Bank project and all Rosedale projects which are subject to an MOU wherein the KWBA is a signatory as an adjoining entity. The Interim Operations Plan is effective September 5, 2014 and ends upon DWR's certification of a new EIR as ordered by the Court and DWR's filing of its Return Writ in the litigation. The proposed project will be subject to and consistent with the conditions of the Interim Operations Plan during this period.

- 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

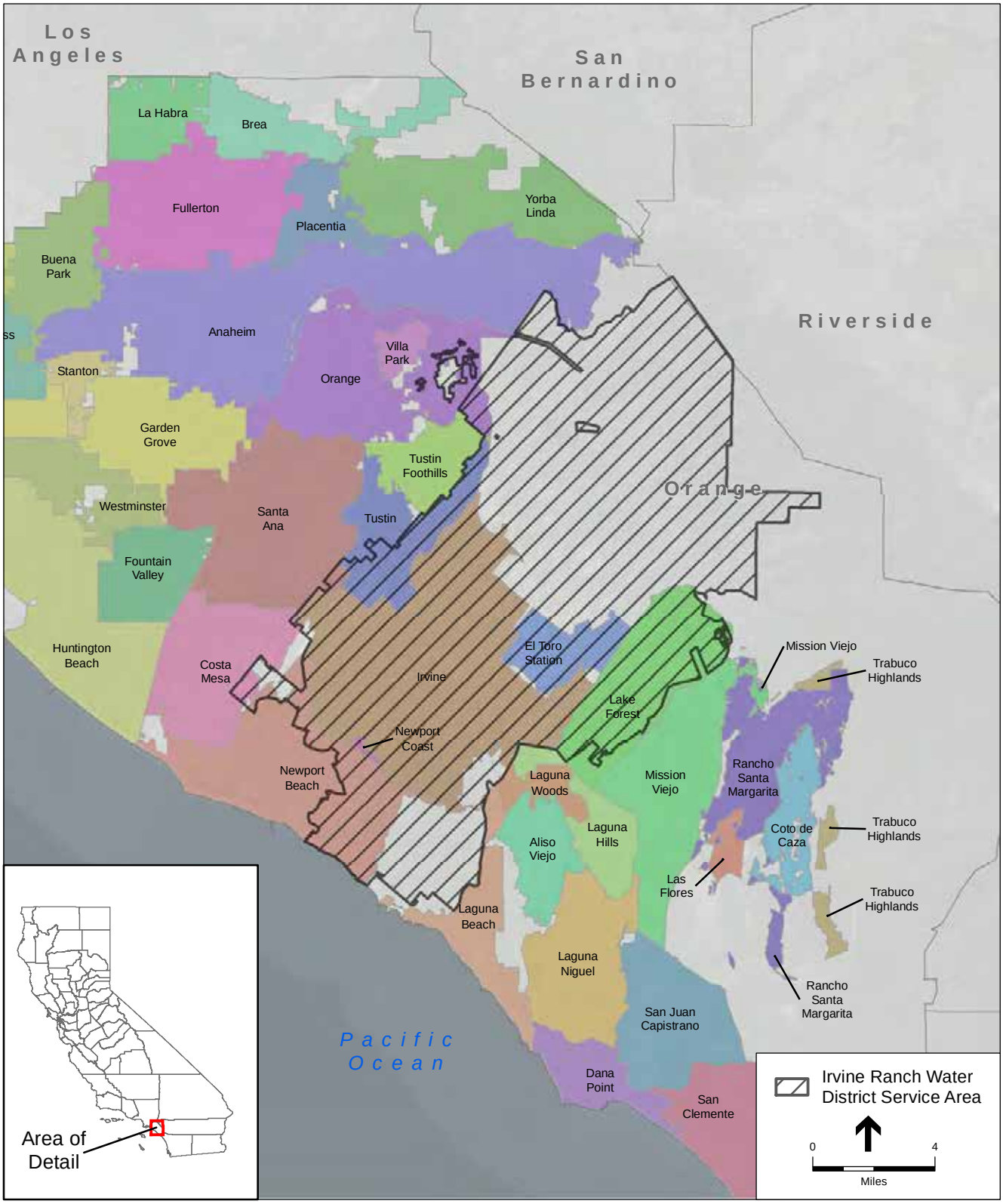
- Mitigation measures will be implemented when a NPI is triggered in years when average water levels at specified wells[2] are more than 140 feet from the surface as measured on March 31 each year. It is expected that water levels will not decline to an extent resulting in a NPI when water levels are less than 140 feet from the surface.
- A 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 (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 a NPI is triggered for an operational agricultural well:
    - When the Model predicts a NPI outside the current operating range of the pump but within the potential operating range of the well, then Rosedale will provide compensation to lower the well pump to meet the landowner's needs.
    - When the Model predicts a NPI outside the current and potential operating range of the well, then Rosedale 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 a NPI is triggered for a domestic well:
    - When the Model predicts a NPI such that production ceases or is likely to cease, then Rosedale 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, Rosedale will provide interim in-home water supplies until one of these actions is completed.

[2] Wells 29S/25E-27N1&2, 29S/25E-25M1&2, 29S/26E-31H1&2, and 29S/25E-35G01 are the wells that will be used to monitor groundwater levels. These wells have been determined to be best suited for detecting fluctuations in groundwater levels due to project operations.

1.5.3 Irvine Ranch Water District

IRWD was established in 1961 as a California Water District pursuant to the California Water District Law (California Water Code, Division 13). IRWD provides potable and recycled water, sewage collection and treatment, and urban runoff treatment to municipal and industrial (M&I), and agricultural customers within an 115,531-acre service area in Orange County, California (**Figure 1-3**). Along with the implementation of numerous water use efficiency programs, IRWD continues to develop a diverse mix of supplies including the use of high quality groundwater, impaired groundwater, and recycled water. Currently, 78 percent of the water IRWD provides for its customers comes from local sources, including groundwater (produced from the Orange County Groundwater Basin managed by Orange County Water District), recycled water, and surface water. The remaining 22 percent of IRWD's water supply is imported by the Metropolitan Water District of Southern California (Metropolitan or MWD) and purchased by IRWD through the Municipal Water District of Orange County (MWDOC).

IRWD is further improving its water supply reliability by developing water banking facilities in Kern County. As stated above, groundwater banking allows for storage of surplus water during wet hydrologic periods for use during periods when other supply sources may be reduced or interrupted. To enhance IRWD's ability to respond to drought conditions or potential supply interruptions, IRWD is developing long-term contingency storage for the purpose of recharging and banking supplemental water which can be called upon for delivery when needed. To-date, IRWD has implemented the Strand Ranch Project and the Stockdale West Pilot Recharge Project and Emergency Project, as described below.



SOURCE: ESRI 2013; IRWD 2015

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Figure 1-3

Irvine Ranch Water District - Service Area

Strand Ranch Integrated Banking Project

IRWD currently participates in Rosedale's Conjunctive Use Program through its Strand Ranch Project. Strand Ranch is located in western Kern County and borders Rosedale's service area (see Figures 1-1 and 1-2). The Strand Ranch Project includes approximately 502 acres of groundwater recharge basins; seven production wells that have been completed onsite; and joint-use wells offsite that are currently being constructed by Rosedale. In the Strand Ranch Project, IRWD has the ability to store up to 50,000 AF and recover up to 17,500 AFY in accordance with its banking project terms with Rosedale. IRWD has priority rights to use the recharge basins when Rosedale is not recharging Kern River floodwaters and has first priority rights to the use of the recovery facilities. Rosedale has second priority use of Strand Ranch facilities. The water that Rosedale stores on its own behalf does not count against the 50,000 AF of storage dedicated to IRWD. Rosedale manages operation of the Strand Ranch Project on behalf of IRWD.

The Strand Ranch Project, including both the onsite components that have been completed and the above-described offsite components currently being constructed, were evaluated in the Strand Ranch Project Final EIR (Rosedale, 2008) and subsequent addenda. The evaluation included conveyance of the groundwater recovered from the Strand Ranch Project offsite wells to the CVC through existing or new pipelines connected to the Rosedale West Intake Canal. Construction and operation of these off-site recovery pipelines were evaluated in Rosedale's Final Master EIR for the Conjunctive Use Program (Rosedale, 2001) as well as the Strand Ranch Project Final EIR (Rosedale, 2008).

In addition, IRWD has obtained approval for a Coordinated Operating, Water Storage, Exchange & Delivery Agreement with Metropolitan and the MWDOC. The agreement facilitates the recovery and delivery of banked SWP water into IRWD's service area in Orange County. The recovery and delivery of non-SWP water into IRWD's service area will occur in compliance with the wheeling provisions of Metropolitan's Administrative Code.

IRWD secures and acquires the recharge water for the Strand Ranch from various sources including from the SWP, pre-1914 Kern River water, and Kern River flood water. To-date, IRWD has entered into six-year Pilot Exchange Program agreements with Antelope Valley-East Kern Water Agency (AVEK) and Carpinteria Valley Water District (CVWD) for delivery of SWP water to Strand Ranch for storage as an unbalanced exchange on a two-for-one basis. CVWD is a member agency of the Central Coast Water Authority, the State Water Contractor from which it receives rights to the use of SWP entitlement. The unbalanced exchange requires that for every 2 AF of water recharged at Strand Ranch, 1 AF is stored and available for the exchange partner and 1 AF of water is transferred to IRWD (recharge losses are accounted for). The current agreement with AVEK is for up to 5,000 AF, and the current agreement with CVWD is for up to 1,500 AF. The Pilot Exchange Program agreements have been approved by DWR, Metropolitan, Kern County Water Agency (KCWA), and the respective State Water Contractors. Recharge water was also made available through an Exchange Program with Buena Vista Water Storage District (BVWSD) for pre-1914 Kern River water. The long-term agreement for this BVWSD/IRWD Exchange Program provides for storage of high-flow Kern River water on a 2-for-1 basis (Krieger & Stewart, 2009).

In addition, IRWD owns 884 acres of Jackson Ranch in unincorporated Kings County within Dudley Ridge Water District (DRWD), which is a State Water Contractor. IRWD's land includes the associated rights to use of a SWP Table A allocation of 1,748 AF. It also includes allocation of other SWP water supplies secured by DRWD and made available to the land owners from time-to-time including but not limited to SWP Article 21 water and Turn-Back Pool water. IRWD has obtained approvals from DWR, DRWD, KCWA and MWD to store its SWP water at Strand Ranch on a two-for-one unbalanced exchange basis. Although the water belongs to IRWD, one-half of all SWP supplies stored need to be returned to and used in DRWD.

Stockdale West Pilot Recharge Project

In 2011, IRWD implemented a one-year Pilot Recharge Project on Stockdale West, which is directly adjacent to Strand Ranch (see Figure 1-1). The purpose of the Pilot Recharge Project was to determine the recharge capabilities of Stockdale West, which would assist in determining the feasibility and physical limits of a long-term water banking project at the property.

The Pilot Recharge Project facilities that were built on site include basins, earthen berms, and pre-cast concrete transfer structures to move water between the ponds. The basins were constructed to avoid the edges of the Pioneer Canal and the Cross Valley Canal (CVC), and piezometers were installed for purposes of monitoring shallow groundwater levels near the CVC. In addition, a siphon, intake structure and pipelines were constructed to convey water from the Strand Ranch recharge basins under the Rosedale West Intake Canal to the Stockdale West basins. Dirt roads were built along the perimeter of and in between all basins to provide access to facilities during operation and maintenance activities. Basin elevation generally slopes downward from southeast to northwest.

The Pilot Recharge Project operated under the terms and conditions of the existing long-term Water Banking and Exchange Agreement between Rosedale and IRWD that established the Strand Ranch Project. The one-year Pilot Recharge Project was limited to recharge of 10,000 AF of water over a one year period of time, which augmented the 17,500 AF of recharge allowed on Strand Ranch by IRWD. The water recharged was pre-1914 Kern River water made available through the Exchange Program with BVWSD. Water recharged during the Pilot Recharge Project was stored in IRWD's 50,000 AF storage account at the Strand Ranch. Water recharged during the Pilot Recharge Project will be recovered from Strand Ranch. The Pilot Project also operated under the terms and conditions of *the Operating Guidelines During Shallow Groundwater Conditions* that Rosedale and IRWD established with KCWA. The Operating Guidelines were developed to monitor for shallow groundwater conditions and to identify groundwater recharge management actions that would ensure protection of CVC facilities.

Stockdale West Ranch Emergency Project

In response to the declared State of Emergency in California due to prolonged drought conditions (January 17, 2014; April 25, 2014), IRWD implemented the Stockdale West Ranch Emergency Project in February 2015 (Notice of Exemption, February 17, 2015), which will allow for recharge of up to 10,000AF at Stockdale West using the existing recharge basins. Similar to the Pilot Project, the Emergency Project will be limited to recharge of 10,000 AF of water over a one

year period of time, which will augment the 17,500 AF of recharge allowed on Strand Ranch by IRWD. Water recharged during the Emergency Project will be stored in IRWD's 50,000 AF storage account at the Strand Ranch. Water recharged during the Emergency Project will be recovered from Strand Ranch within the 17,500 AF per year recovery limits.

References – Introduction and Project Background

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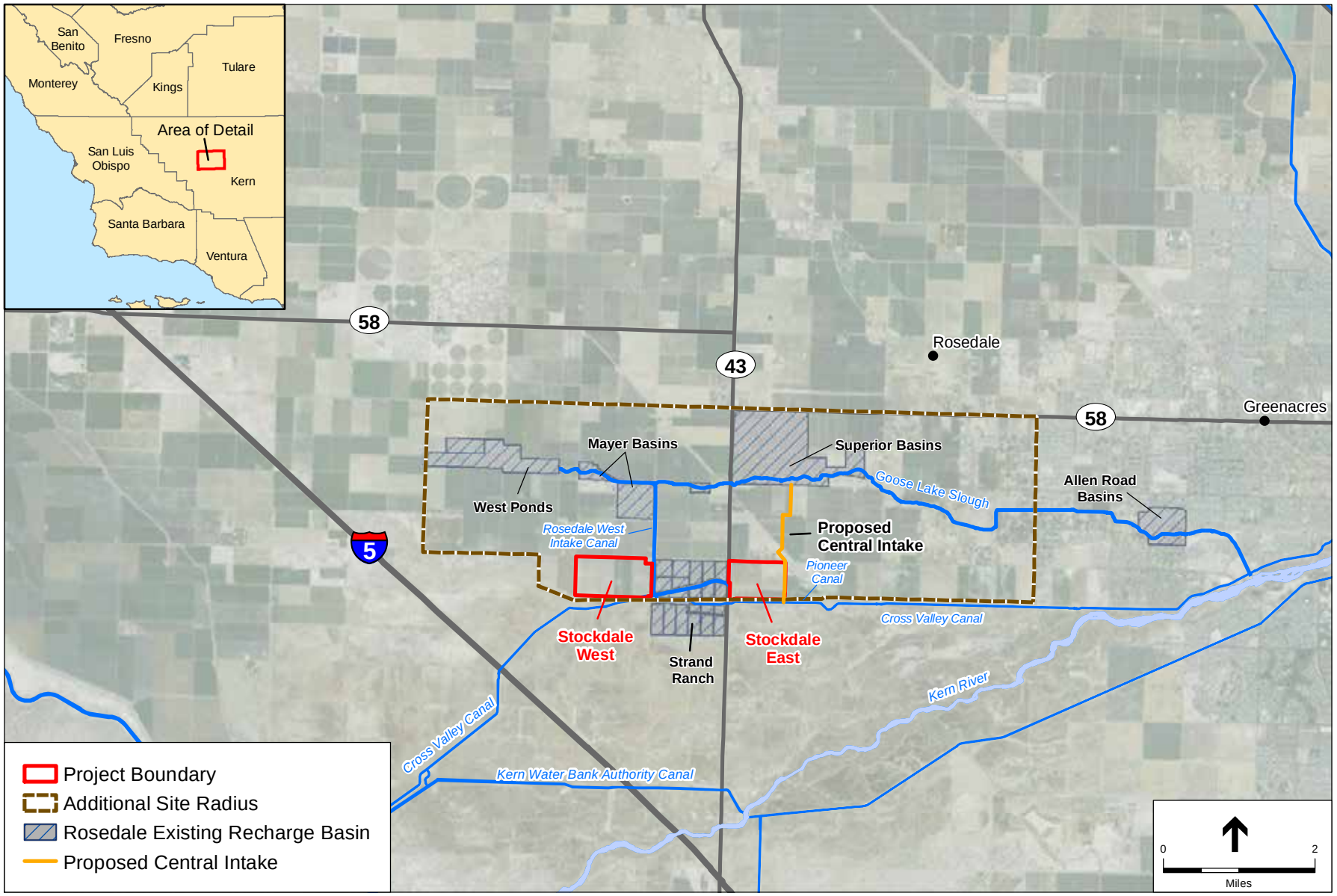
CHAPTER 2
Project Description

2.1 Overview and Project Location

The proposed project would allow both Rosedale and IRWD to more effectively utilize available storage in the local San Joaquin Valley Groundwater Basin by developing groundwater banking facilities on the Stockdale Properties. The proposed facilities would be integrated with Rosedale's existing Conjunctive Use Program, which is described in Chapter 1. The Stockdale East property is owned by Rosedale; the Stockdale West property is owned by IRWD; and the third project site would be acquired by either agency within a site radius as shown in **Figure 2-1**. Rosedale will secure an easement between and through agricultural parcels for the Central Intake Pipeline. Stockdale East and Stockdale West would be located immediately adjacent to IRWD's existing Strand Ranch Integrated Banking Project (Strand Ranch Project), which also is integrated with Rosedale's Conjunctive Use Program.

The Stockdale Properties are located in western Kern County, approximately six miles west of the City of Bakersfield, 10 miles southwest of the Friant-Kern Canal, 10 miles south of the City of Shafter, and six miles east of the California Aqueduct. Combined, Stockdale East and West are approximately 553 acres. Specifically, the Stockdale West parcel consists of approximately 323 acres of agricultural land that has been converted to groundwater recharge basins for IRWD's Pilot Recharge Project (see Chapter 1) and is located north of the Pioneer Canal and the Cross Valley Canal (CVC). The Stockdale East property also is located north of the CVC and consists of approximately 230 acres of agricultural land and an active oilfield (Ram Environmental, 2009) (Figure 2-1). Currently the crop grown on Stockdale East is alfalfa. There is a pilot groundwater banking facility on Stockdale East as well. The proposed Central Intake Pipeline alignment north of Stockdale East primarily runs between and through fields currently cultivated as almond orchards or alfalfa. The third project site has yet to be identified; however it would likely be comprised of parcels that may or may not be contiguous up to 640 acres and be characterized by agricultural land use or vacant lands. If and when the third Stockdale project site is identified, subsequent project-level environmental review will be conducted prior to implementation of project facilities.

The proposed project would result in the construction and operation of groundwater recharge and recovery facilities at each project site. The proposed project would provide for the coordinated operation of facilities at the Stockdale Properties. IRWD would have priority use of all recharge and recovery facilities and capacities located at Stockdale West. Rosedale would have priority use



SOURCE: ESRI 2013

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Figure 2-1

Project Location

of all recharge and recovery facilities and capacities located at Stockdale East. The first priority user at the third Stockdale project site has yet to be determined. As described in greater detail in this chapter, IRWD and Rosedale would have second priority use of each other's facilities and capacities to the extent available given defined annual recharge and recovery capacities of the project. To ensure access to an equivalent amount of second priority recharge and recovery capacity, IRWD could recharge and recover water from other Rosedale facilities in addition to Stockdale East. Rosedale would operate and maintain all project facilities in a manner similar to existing facilities within the Conjunctive Use Program. In addition, IRWD would have access to 50,000 acre-feet (AF) of Rosedale's groundwater storage capacity in Rosedale's Conjunctive Use Program.

2.2 Project Objectives

The objectives of the proposed project are as follows:

- Integrate the proposed project facilities and coordinate the proposed project operations with Rosedale's Conjunctive Use Program, including the Strand Ranch Project, to provide for maximum operational flexibility between the various programs and facilities.
- Provide additional groundwater recharge, storage, and recovery capacity in the Kern River Fan region to augment and provide operating flexibility for Rosedale's existing and future programs.
- Develop recharge and recovery capacities for each of IRWD's and Rosedale's respective properties to be available for its priority use and for the other agency's use to the extent unused capacity may be available.
- Develop additional groundwater recharge, storage, and recovery capacity to provide IRWD customers with increased water supply reliability through redundancy and diversification during periods when other supply sources may be reduced or interrupted.

2.3 Purpose and Need for the Project

There is approximately 1.7 million AF of storage available within the aquifer underlying the Rosedale service area (Sierra Scientific Services, 2009). Rosedale has sufficient storage capacity for its agricultural landowners and banking partners and also has considerable unused storage capacity. The proposed project would augment the recharge, storage, and extraction capabilities of the Conjunctive Use Program and provide greater operational flexibility assisting Rosedale in fulfilling its mission of maintaining groundwater levels within its service area.

In addition, the proposed project would enhance water supply reliability for IRWD by providing contingency storage to augment supplies during periods when other supply sources may be limited or unavailable. IRWD currently has 50,000 AF of storage associated with the neighboring Strand Ranch Project. IRWD's use of unbalanced exchange programs at Strand Ranch has effectively reduced the amount of storage available to IRWD from 50,000 AF to 25,000 AF, given the need to share storage space with exchange partners. IRWD desires to maintain a storage capacity of approximately 88,000 AF for its own use (IRWD, 2013), and therefore it is necessary

to develop or acquire additional storage and associated recharge and recovery capacity. The proposed project would augment IRWD's contingency storage allowing it to achieve its storage goals to provide the desired amount of reliability for its water supply portfolio.

Utilizing existing storage capacity in the underlying aquifer avoids the need to construct extensive surface water storage facilities elsewhere to perform the same function. In addition, the proposed project avoids overdraft conditions by eliminating the unbalanced extraction of groundwater for agricultural production. Stockdale East and West are currently not within the boundaries of a public water agency, and thus water extracted historically for agricultural irrigation has not been replenished. The proposed project is consistent with Department of Water Resources (DWR) water management goals. In the *California Water Plan Update 2013*, DWR has renewed its commitment to integrated water management as a means to provide reliable, sustainable and secure water resources and management systems, which includes improving water supply reliability, reducing groundwater overdraft and land subsidence, and protecting water quality and environmental conditions.

On January 17, 2014, Governor Jerry Brown declared a State of Emergency due to the grossly diminished statewide supply of water. Again on April 25, 2014, the Governor proclaimed a continued State of Emergency due to prolonged drought conditions, and identified statewide directives to bolster California's efforts to manage and conserve water efficiently under prolonged drought conditions. In his directives, the Governor highlighted the imperativeness of supporting conservation measures pertaining to groundwater resources. By augmenting the recharge, storage and future extraction capacities of Rosedale and IRWD, the proposed project supports Governor Jerry Brown's conservation initiatives by providing water supply reliability for future conditions. As the residual impacts of the California drought continue into the future, the proposed project will assist in providing a reliable water source to ameliorate effects of the 2014 drought.

2.4 Description of Proposed Project

The proposed project sites consist of the following: Stockdale East; Stockdale West; a third project site that may be made up of non-contiguous parcels and that has yet to be specifically located; and the Central Intake Pipeline alignment. There is approximately 26,000 AF of available storage under Stockdale West and approximately 18,400 AF of available storage under Stockdale East (Thomas Harder & Co., 2015). This is additive to Rosedale's existing 1.7 million AF of storage that underlies its services area, given that Stockdale East and Stockdale West are outside of Rosedale's boundary. However, Rosedale would manage the Stockdale Properties and their associated storage along with the Conjunctive Use Program. Once the third Stockdale project site has been identified, the associated storage underlying the site would be determined. Based on characteristics of Stockdale East and West, a third proximate site of up to 640 acres may have storage of approximately 51,200 AF. In addition to storage under Stockdale West, IRWD will have access to an additional 50,000 AF of storage in Rosedale's Conjunctive Use Program ("Acquired Storage Account"). Water put into storage under the Acquired Storage

Account would be recharged either through the proposed project or Strand Ranch Project or coordinated use of other Rosedale facilities.

Recharge capacities for the Stockdale Properties are estimated to be approximately 27,100 acre-feet per year (AFY) for Stockdale West and approximately 19,000 AFY for Stockdale East (Thomas Harder & Co., 2015). Recharge capacity is based on an estimated infiltration rate of 0.28 feet per day for 365 days (Thomas Harder & Co., 2015). Recovery facilities would be designed to extract approximately 11,250 AFY at Stockdale West and approximately 7,500 AFY at Stockdale East. Once the third Stockdale project site has been identified, the associated recharge and recovery capacities would be determined. Based on characteristics of Stockdale East and Stockdale West, a third proximate site of up to 640 acres may have recharge capacities of approximately 52,200 AFY and recovery of approximately 22,500 AFY. All groundwater banking facilities on Stockdale West would be owned by IRWD and operated and maintained by Rosedale for the duration of the proposed project. All groundwater banking facilities on Stockdale East would be owned, operated, and maintained by Rosedale.

The proposed Central Intake Pipeline would connect the Goose Lake Slough to the CVC and will serve as a conveyance for delivery of recharge water to Stockdale East and the existing Superior Basins, and for delivery of water pumped from Stockdale East wells and other Rosedale wells on the Superior Basins to regional conveyance facilities via the CVC. The Central Intake Pipeline would generally run along and between existing agricultural parcels, along the eastern edge of the Stockdale East property, and up to a new pump station and CVC turnout/turn-in facility. The Central Intake Pipeline will be owned and operated by Rosedale. The following sections describe the proposed facilities in greater detail.

2.4.1 Recharge Facilities

As described in Chapter 1, in 2011, IRWD constructed four recharge basins that total approximately 265 acres (or 82 percent) over approximately 323 acres of the Stockdale West property as part of the one-year Pilot Recharge Project. The Pilot Recharge Project facilities include basins and earthen berms consisting of varying shape, size and depth. The existing basin layout avoids the edges of the Pioneer Canal and the CVC as shown in **Figure 2-2**. The proposed project would utilize the existing recharge basins on Stockdale West and other recharge basins located offsite within Rosedale's service area, including Stockdale East and other existing basins as described below. No other recharge basins would be constructed on Stockdale West. However, embankments and additional transfer structures may be constructed to divide the existing basins into smaller impoundments or to enhance performance as may be necessary in the future. Certain conveyance improvements may be constructed to facilitate interconnection with Rosedale's conveyance system, the CVC, the Pioneer Canal and the Strand Ranch (see Section 2.4.4 below).

On Stockdale East, there is an existing groundwater banking pilot facility that consists of a 15 to 20 acre recharge basin. This basin would likely remain unchanged and would be integrated with additional facilities developed onsite. Stockdale East would be further developed with recharge facilities, including basins and berms, occupying as much as 200 acres (or 87 percent) of the property. Recharge facilities would consist of up to eight recharge basins of varying shape, size,

and depth. The proposed preliminary layout of the basins is shown in Figure 2-2, although the actual configuration of basins could vary. Basins would be formed by excavating and contouring existing soils and using excavated soils to form earthen berms. Typical basin berms would be three to five feet and extend up to six feet above ground level. Water depth in each basin would be approximately three feet; there would be a minimum of one foot of freeboard when the basins are filled to capacity.

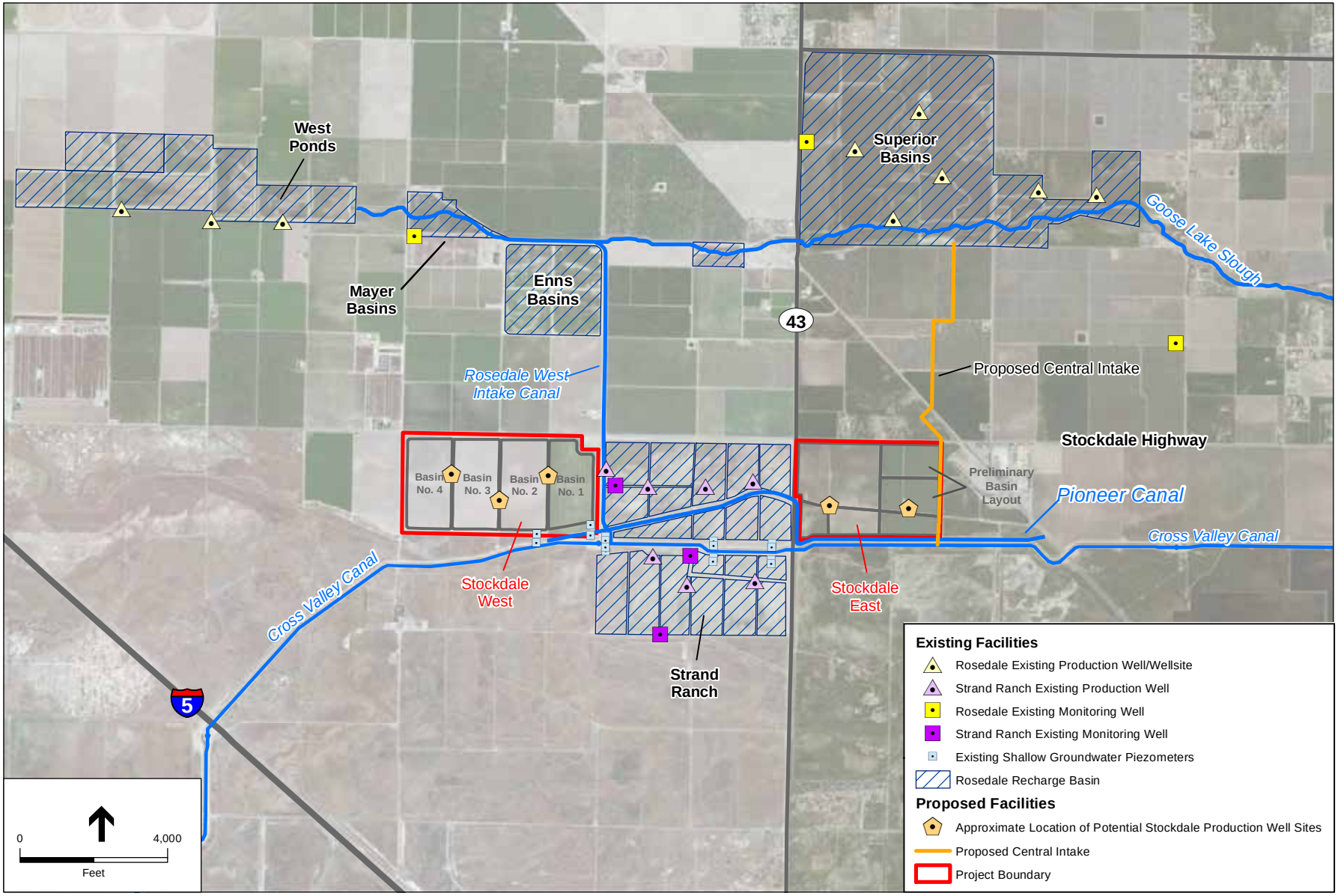
Dirt roads would run along the perimeter of and in between all basins to provide access to facilities during operation and maintenance activities. Dirt roads would be up to 20 feet wide. Basin elevations would generally slope downward from east to northwest. The bottom elevations of the basins would range from approximately 328 feet above mean sea level (AMSL) on the eastern edge to 322 feet AMSL in the northwest corner of Stockdale East. Recharge water would enter the basins through a new CVC turnout and pump station associated with the Central Intake Pipeline (see Section 2.4.4 below). The basins would be connected by check structures to allow recharge water to flow by gravity among basins, flowing generally from east to northwest, using the elevation gradient.

The Stockdale East property currently is actively cultivated for agricultural purposes but also contains an active oilfield (Ram Environmental, 2009). The oilfield may remain active during project implementation and operation. As such, the basins also would accommodate existing and future drill islands to maintain access to underlying mineral rights. The oilfield facilities include five active oil wells with pumping units, one tank farm, one produced water injection well, and one idle and two plugged wellheads onsite. The typical construction of the oil wells in the area includes an upper casing and outer cement seal from the ground surface to approximately 500 feet below ground surface (ft bgs) (Thomas Harder & Co., 2014; see **Appendix H**). Of the two plugged oil wells on Stockdale East, one has a cement plug between 959 and 1,005 ft bgs, and the other has two plugs between 1,694 and 1,926 ft bgs and 6 and 40 ft bgs (Thomas Harder & Co., 2014).

The third Stockdale project site also may be developed with new recharge facilities, similar to those described for Stockdale East and Stockdale West. It is anticipated that recharge rates at the third property would be comparable to neighboring banking projects. The basins at all three Stockdale property sites would be managed to allow agricultural land uses to continue, such as annual farming or grazing.

Other Existing Recharge Facilities

The proposed project would integrate the operation of facilities at all three Stockdale Properties with Rosedale's other existing facilities and the Strand Ranch facilities, and operations would be coordinated with Rosedale's Conjunctive Use Program. As part of the Conjunctive Use Program, IRWD would be able to recharge water offsite at Rosedale's other existing facilities.



SOURCE: ESRI, 2014.

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Figure 2-2

Proposed Project Facilities

2.4.2 Recharge Water Supplies

Recharge water for the proposed project would be secured and acquired by Rosedale and IRWD from various sources, potentially including federal, state, and local supplies through transfers, balanced and unbalanced exchange agreements, purchase or temporary transfers, or other means as available. Sources could include the Central Valley Project (CVP), the State Water Project (SWP), high-flow Kern River water depending on annual availability and appropriative (pre-1914 and post-1914) water rights. It is the intent of this EIR to evaluate impacts of recharging water from the sources described below to the extent that they are reasonably foreseeable. Should water from other sources not suggested below be acquired for recharge, additional analysis may be required subject to the discretion of Rosedale and IRWD.

Central Valley Project

The Central Valley Project (CVP) is a network of dams, power plants, and canals that provides water supply reliability to the Central Valley in periods of drought. The Bureau of Reclamation makes excess non-storable CVP Section 215 flood water available during wet years. If conveyance is available, this surplus CVP water could be delivered to the proposed project from the Friant-Kern Canal through the CVC. Rosedale is a fourth priority non-CVP South of Delta Contractor that can take CVP water under certain conditions. IRWD does not have priority to CVP water, and would not be able to export recharged Section 215 water to its customers in Orange County without a consolidated place of use, including any necessary agreements, or implementation of an exchange.

State Water Project

DWR delivers water to 29 State Water Contractors, including 21 south of the Sacramento River Delta, that are served from the California Aqueduct. State Water Contractors can order water up to their Table A allocation under a given allocation set by DWR, 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. Rosedale currently receives SWP water for its Conjunctive Use Program through a water supply contract with Kern County Water Agency (KCWA), one of the State Water Contractors.

During wet hydrologic years, DWR may declare Article 21 water available, which is uncontrolled water that cannot be stored in State reservoirs. Article 21 supplies are available in short duration, and, if conveyance capacity exists, can be purchased and stored for future use. Rosedale or IRWD would purchase excess Article 21 water through its State Water Contractor for delivery to existing project recharge facilities using the CVC when such water is available, subject to CVC capacity and as permitted by Rosedale, KCWA and IRWD's State Water Contractors.

Under certain contracts and/or guidelines, DWR allows for the exchange of stored water on an even or unbalanced basis. Unbalanced exchanges are permissible by DWR on a maximum unbalanced rate of two-for-one, such that in return for storage the original water contractor leaves behind up to half of the water stored. SWP water available for exchange could be acquired for the proposed project. The banking of water through the execution of even or unbalanced exchanges

or other transactions approved by DWR would require the cooperation and agreement of the exchange State Water Contractor, DWR, KCWA, and MWD.

Metropolitan Water District of Southern California

IRWD currently receives water supplies for its service area from MWD. Water is provided to IRWD through Municipal Water District of Orange County (MWDOC), the regional wholesale member agency of MWD. MWD sells water under a variety of terms and conditions and at different prices reflecting these conditions. For example water can be delivered to IRWD as either treated potable water or untreated raw water. Water may also be delivered for agricultural use or groundwater replenishment. MWD has also entered into a variety of cooperative delivery and storage conjunctive use arrangements with many of its member agencies who have groundwater storage assets, including the coordinated operating agreement with IRWD and MWDOC described below in Section 2.6.4, relating to the Strand Ranch.

With MWD approval, IRWD could take delivery of water purchased from MWD through MWDOC for storage and later conveyance to IRWD. Delivery would be made from the California Aqueduct via the CVC to Stockdale West, Stockdale East, the third Stockdale site, the Strand Ranch Project, or other Rosedale facilities and could be delivered through exchange. The delivery would be subject to supply and conveyance capacity availability and approval by MWD and KCWA. IRWD could also purchase surplus water supplies when approved and available from MWD through MWDOC for delivery to the proposed project.

Appropriative Water Rights

Surface water rights, including pre-1914 and post-1914 appropriative water rights, are held by water districts and parties throughout California. These water rights can be transferred to other parties as long as legal users of water are not injured (per Water Code Sections 1706 and 1702). The SWRCB supervises such changes to post-1914 appropriative water rights, but not pre-1914 appropriative water rights. In addition, for transfers of post-1914 appropriative water rights, the SWRCB must make a finding that the transfer will not result in unreasonable effects on fish or wildlife or other in-stream beneficial uses (SWRCB, 1999). The “no unreasonable effect” test is not the same as the evaluation of significant impacts under CEQA (SWRCB, 1999). Should the use of such appropriative water rights require evaluation of impacts to legal users and other environmental considerations, additional analysis may be required.

Rosedale currently receives Kern River water when it is available for groundwater recharge through water service agreements with the City of Bakersfield and from Buena Vista Water Storage District and other Kern River interests through banking and temporary water service agreements. IRWD currently receives pre-1914 Kern River water at the Strand Ranch Project through an Exchange Program from Buena Vista Water Storage District through the Buena Vista Water Storage District Water Management Program. This Exchange Program may be extended to provide for the recharge of pre-1914 Kern River water on the Stockdale Properties.

Kern River water is also available during wet years when the U.S. Army Corps of Engineers (USACE) mandates release of water from Isabella Reservoir for flood control purposes. The Kern

River Watermaster records the amount of water released daily from the Isabella Reservoir into the Kern River.[3] During periods of mandatory release, releases from the Isabella Reservoir may be available for diversion.

Kern River water that may be available for Rosedale and/or IRWD under this project could occur when water (1) is offered to all takers willing to sign a "Notice/Order"; or (2) is offered to the Kern River/California Aqueduct Intertie for disposal; or (3) is expected to flood farm acreage; or (4) is expected to be delivered into the Kern River Flood Channel for disposal out-of-county. Kern River water would be conveyed to the proposed project through the CVC, Pioneer Canal or the Goose Lake Slough, or any other facility available to Rosedale, subject to any necessary approvals or agreements.

2.4.3 Recovery Facilities

The proposed recovery facilities would be designed and located to minimize potential impacts to wells pumping on adjacent properties. The project design proposes constructing three wells on Stockdale West for an anticipated annual recovery capacity of 11,250 AF and two wells on Stockdale East for an anticipated annual recovery capacity of 7,500 AF (see **Appendix E**; Thomas Harder & Co., 2015). Once the third Stockdale project site is identified, extraction capacity and the number of wells would be identified for the third site. However, based on characteristics of Stockdale East and Stockdale West, a third proximate site of up to 640 acres may have recovery capacity of approximately 22,500 AFY.

Each well would be designed to pump groundwater at a recovery rate of approximately 2,800 gallons per minute (6.2 cubic feet per second (cfs)). Actual recovery rates for each well may be slightly more or less based on aquifer conditions at each well site. If higher rates are achieved for the first few wells installed, fewer wells may be needed. Conversely, if less favorable production is realized, additional wells may be needed.

All production wells would be large-diameter (18 to 24 inches) steel-cased wells with completion intervals between approximately 200 and 700 feet below ground surface (bgs) and could be deeper depending on water quality and expected aquifer yield. Wellheads would consist of riser pipes, discharge pipes, wellhead motors, pumps, and other appurtenances. Wellheads would be protected by lockable, roofed, metal-mesh pump houses that are up to approximately 12 feet in height and constructed on square concrete pads. Typical wellhead facilities are shown in **Figure 2-3**. The existing agricultural wells on Stockdale East and Stockdale West could be used as production wells or monitoring wells in addition to the proposed new wells. The agricultural wells could contribute to operational flexibility by providing additional recovery capacity and could be used for water quality blending purposes, if needed.

[3] Kern County Planning Department, Kern River Valley Specific Plan, July 2011, available on-line at: http://www.co.kern.ca.us/planning/pdfs/KRVSP/Chp1Introduction2.pdf. Accessed on October 19, 2012.

SOURCE: Irvine Ranch Water District

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Figure 2-3
Sample Wellhead and Housing
at Strand Ranch

The wells would have approximately 1/4 to 1/3 mile (1,320 to 1,760 feet) normal spacing and the wells located on Stockdale East and Stockdale West would be located at a minimum of an 880-foot setback from the southern property lines, which form a boundary with the Kern Water Bank Authority (KWBA). Figure 2-2 identifies potential and approximate well locations on both Stockdale West and Stockdale East properties. Location of wells on all three Stockdale Properties may change during final design.

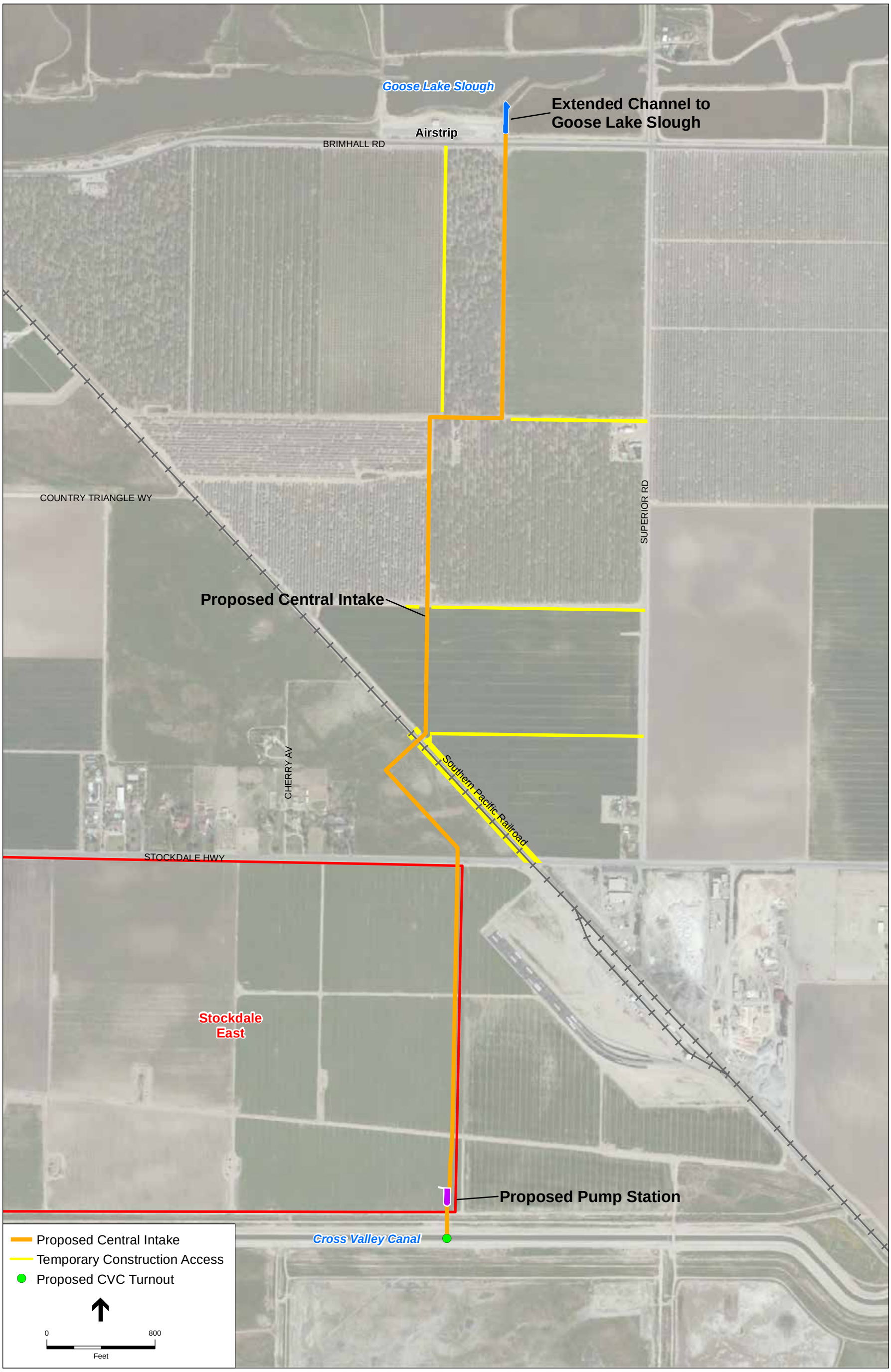
Integrated Operation with Other Existing Extraction Facilities

The proposed project provides flexibility for IRWD and Rosedale to integrate the operation of the project recovery facilities at all three Stockdale Properties with other recovery facilities in Rosedale's Conjunctive Use Program, including other existing Rosedale facilities and the Strand Ranch Project onsite and offsite facilities. As part of this integration, to optimize operational flexibility of groundwater and facility management, Rosedale could recover groundwater on behalf of itself and/or IRWD, at any facility available to Rosedale within its Conjunctive Use Program.

2.4.4 Conveyance Facilities

Water would be conveyed to the proposed project via the CVC, Rosedale's West Intake Canal, Goose Lake Slough, or the proposed Central Intake Pipeline. In addition, other regional facilities may be used to move water to/from the project, such as the Pioneer Canal, subject to any necessary approvals. Once the third Stockdale project site is identified, conveyance options would be determined for the third site. If the third Stockdale project site requires additional conveyance facilities, those facilities would be identified and evaluated in subsequent CEQA evaluations.

Water would be conveyed to Stockdale East through the proposed Central Intake Pipeline, which would be a bi-directional underground pipeline, up to 72 inches in diameter. The pipeline alignment would run from Goose Lake Slough, south across Brimhall Road, along, between and through existing agricultural parcels, across the Southern Pacific Railroad and Stockdale Highway, and along the eastern edge of Stockdale East, connecting to a new pump station and Central Intake Turnout at the CVC (**Figure 2-4**).. The permanent right-of-way for the pipeline would range between 30 and 60 feet. The inlet structure at Goose Lake Slough would include rip-rap for erosion protection. The Central Intake pump station would be located on Stockdale East and would connect to the proposed Central Intake Turnout through a pipeline under the Pioneer Canal. The pump station footprint would be approximately 60 feet by 50 feet with an approximate height of 14 feet. The pump station would be necessary to lift water a few feet for conveyance purposes. The pump station would include an outlet to the Stockdale East recharge basins, which also would include rip-rap for erosion protection. The proposed Central Intake Turnout at the CVC would include up to a 72-inch electrically-actuated slide gate and other appurtenances. Construction of the turnout would require approval from KCWA; approval may also be required from the KWBA for constructing the pipeline under the Pioneer Canal.



SOURCE: ESA

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Figure 2-4

Proposed Central Intake Pipeline

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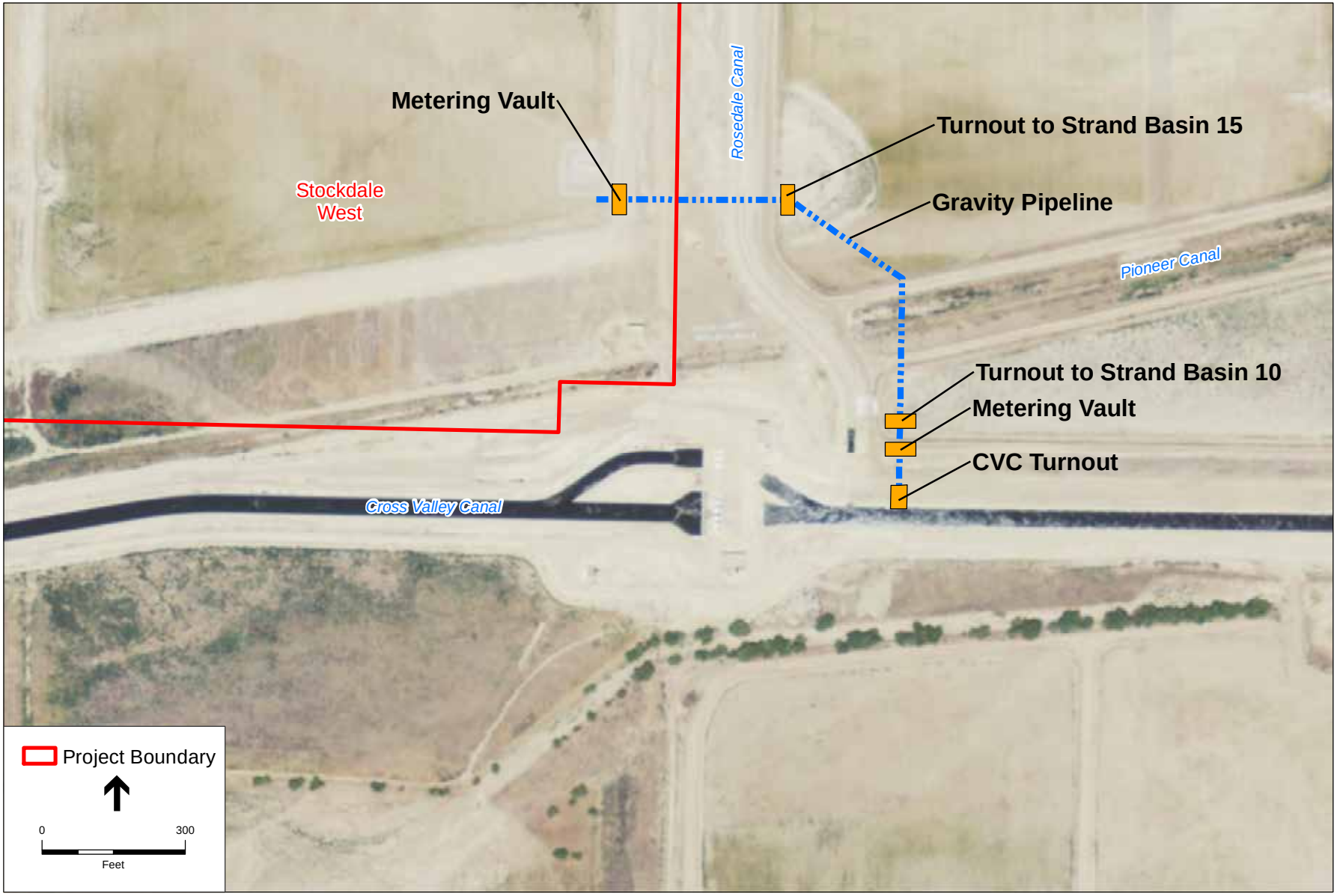
The conveyance capacity of the Central Intake Pipeline would be sufficient to convey water to/from Stockdale East for recharge/recovery, with additional capacity available to Rosedale for its other Conjunctive Use Program partners and to IRWD. The Central Intake Pipeline would provide conveyance capacity to support recovery operations for IRWD and Rosedale from the offsite well component of the Strand Ranch Project and for Castaic Lake Water Agency (CLWA) from the wells in the Superior Basins as part of the 2014 Drought Relief Project.[2] In addition, the Central Intake Pipeline would have capacity to pump water north to Rosedale's recharge facilities along Goose Lake Slough, up to approximately 10,000 AFY.

Water could be conveyed to Stockdale West through the existing Strand Ranch facility using an existing siphon and intake structure that connects the two properties. This conveyance strategy would utilize the existing CVC Strand Ranch North Turnout and water would flow by gravity to Stockdale West. In addition, a new CVC turnout would be constructed to convey water directly to the Stockdale West recharge basins and to the Strand Ranch recharge basins. This proposed Stockdale West Turnout facility would be located at the CVC just east of the existing CVC Pump Station #2 at the Strand Ranch property and run adjacent to the Rosedale West Intake Canal (**Figure 2-5**). The proposed turnout would consist of an approximately 60-inch electrically-actuated slide gate and other appurtenances. From the Stockdale West Turnout, a 60-inch reinforced concrete pipe would be installed on IRWD-owned land, running beneath the Pioneer Canal, Strand Ranch basins, and Rosedale's West Intake Canal, and connecting to the easternmost recharge basin on Stockdale West and to the closest recharge basin on Strand Ranch. Conveyance of water from the CVC to Stockdale West would be completely gravity driven. Construction of the Stockdale West Turnout would require approval from KCWA; approval may also be required from the KWBA for constructing the pipeline under the Pioneer Canal. Other improvements to the Rosedale West Intake Canal, Pioneer Canal or CVC turnouts may be made to improve the ability to deliver water to Stockdale West and Strand Ranch.

Groundwater recovered from the production wells on Stockdale East and Stockdale West would be conveyed to the CVC through new recovery pipelines that would be below ground, running along the dirt roads between recharge basins or buried in the basin bottoms, with exact locations subject to final well placement and design. The recovery pipelines on Stockdale East would connect to the proposed Central Intake pump station; recovery pipelines on Stockdale West could connect to the Rosedale West Intake Canal through a new turn-in structure adjacent to the southeast corner of Stockdale West.

[2] CLWA has evaluated the 2014 Drought Relief Project under separate CEQA proceedings per CLWA's Notice of Determination dated October 22, 2014. The offsite well component of the Strand Ranch Project also is evaluated under separate CEQA proceedings per IRWD's Notice of Determination dated November 1, 2010.



SOURCE: ESRI

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Figure 2-5

Proposed Stockdale West Gravity Turnout

2.5 Project Construction

2.5.1 Recharge Facilities

Recharge facilities would be constructed on Stockdale East and likely the third Stockdale project site. Construction of the proposed recharge facilities would include the following phases: site clearing and demolition; excavation and stockpiling; construction of earthen berm levees and basins, cut-off walls, conveyance and transfer channels, rip-rap protection, and pipelines; and site restoration. The site clearing and demolition phase would include demolition of existing irrigation piping systems onsite, as necessary. Up to twenty workers would be required on-site at one time to implement each construction phase. The staging areas, including construction parking, would be located on-site within the boundaries of the Stockdale Properties.

Recharge basins would be constructed by excavating and contouring each basin to a depth of approximately five feet (**Figure 2-6**). The excavated soils would be used to form earthen berm levees to contain each basin. The basins would be connected by welded steel or concrete transfer structures with 24- to 72-inch diameter pipe culverts **(Figure 2-7)**.Supply channels would be constructed by excavating below existing ground surface. Any necessary supply channels would be earthen or lined channels, and turnout structures between the supply channels and recharge basins would consist of 24- to 72-inch culverts.

The recharge basins and supply channels would be designed in an effort to balance earthwork on site, such that all excavated soils are redistributed and utilized to construct the project facilities, requiring no imported materials and leaving no excess materials. If excess soils are produced, they would be either sold or transported to an appropriate location. Demolition and construction debris would be removed from the project site and transported to an appropriate landfill facility that accepts construction waste material.

2.5.2 Recovery Facilities

Three new recovery wells would be constructed on Stockdale West; and two new recovery wells would be constructed on Stockdale East. In addition, the number of wells to be constructed on the third Stockdale project site will be determined once the location is identified. On-site materials would be used to construct earthen well pads. Wells would be drilled and constructed using a standard drill rig. The aboveground wellheads, motor control centers and pump houses would be installed and connected to transformers installed on the project sites. The recovery wells would be connected to a conveyance system of underground pipelines to deliver pumped groundwater to the CVC. Installation of the recovery well conveyance system would require trenching to a depth of about seven feet below existing ground surface. Construction staging would be located on-site within the boundaries of the Stockdale Properties.

SOURCE: IRWD

Stockdale Integrated Banking Project . 211181

Figure 2-6
Construction of Recharge Basins

SOURCE: IRWD

Stockdale Integrated Banking Project . 211181

Figure 2-7

Examples of Basin Transfer Structures

2.5.3 Conveyance Facilities

The Central Intake Pipeline and pump station would be constructed using typical open trench construction methods, with the exception of crossing Stockdale Highway and the Southern Pacific Railroad, where jack and bore methods would be used to tunnel under and avoid disruption of surface features. Excavation up to 12 feet deep would be required; and excess soils would be either sold or transported to an appropriate location for disposal or reuse. Construction staging would be located on-site within the boundaries of the Stockdale Properties and/or the temporary construction easement for the pipeline (Figure 2-4).

The proposed Stockdale West Turnout and Central Intake Turnout would be constructed within the CVC right-of-way and subject to approval by KCWA. To avoid disruptions to CVC operations, cofferdams would be required during turnout construction. Cofferdams are temporary watertight structures that would allow for a portion of the CVC to be dewatered during construction of the turnouts and allow flows to continue passing through the CVC channel. The pipelines leading from both turnouts would be installed using open trench construction. Crossing the Pioneer Canal would be subject to approval by KWBA.

2.5.4 Construction Equipment

Construction of the proposed project would require heavy equipment onsite at the Stockdale Properties. The final equipment requirements would be determined by the construction contractor but may include the following:

- Back hoes
- Front-end loaders
- 10-wheel dump trucks
- Cranes
- Compactor
- Water trucks
- Flat-back delivery truck
- Earth movers
- Bulldozers
- Excavators
- Drill rigs and tanks

2.5.5 Project Construction Schedule

Construction of the proposed facilities on Stockdale East and Stockdale West is anticipated to begin in summer 2015 and continue in approximately six-month phases, with a total of four to six sequential phases. Stockdale East could be ready to receive water for recharge by fall 2015, subject to variation of the construction schedule. Construction of facilities on the third Stockdale project site would follow similar phasing but would occur at a later date, subsequent to Stockdale East and Stockdale West.

2.6 Project Operation

2.6.1 Recharge

Reciprocal Use

IRWD and Rosedale shall have reciprocal use of the project and Conjunctive Use Program recharge facilities, subject to mutually agreeable terms and conditions. It is expected that IRWD would have priority use of all recharge facilities and capacities located at Stockdale West. Rosedale would have the use of these same facilities and unused recharge capacities at Stockdale West to the extent that it is available after IRWD's use. Similarly, Rosedale would have priority use of all recharge facilities and capacities located at Stockdale East. IRWD would have the use of the facilities and unused recharge capacities at Stockdale East and other Rosedale recharge facilities to the extent that it is available after Rosedale's priority use, subject to approval of Rosedale and other third parties as required. The priority and reciprocal use of the recharge facilities at the third Stockdale project site is yet to be determined and would be subject to Rosedale and IRWD developing mutually agreeable terms and conditions.

General Operations

Rosedale would operate all recharge basins at the Stockdale Properties in a manner similar to existing basins in the Conjunctive Use Program. The recharge basins would be filled when water supplies become available, which could be highly variable from year to year, as evidenced by fluctuations in water deliveries to the Conjunctive Use Program in the recent past. For example, in 2008, there were no water deliveries for banking in Rosedale's existing program, while in 2011, banking water deliveries totaled approximately 245,000 AF for recharge. In years when water is available, it is estimated that active recharge operations could occur for as few as one to as many as twelve months per year.

Since the proposed project facilities would be integrated into Rosedale's Conjunctive Use Program, both Rosedale and IRWD would be able to recharge water offsite at other existing facilities to facilitate effective resource management within Rosedale's service area.

2.6.2 Recovery

Reciprocal Use

IRWD and Rosedale shall have reciprocal use of the Conjunctive Use Program recovery facilities, subject to mutually agreeable terms and conditions. It is expected that IRWD would have priority use of all recovery facilities and capacities located at Stockdale West. Rosedale would have use of these same facilities and unused recovery capacities at Stockdale West to the extent that they are available after IRWD's use. Rosedale would have priority use of all recovery facilities and capacities located at Stockdale East. IRWD would have use of these same facilities and unused recovery capacities at Stockdale East and other Rosedale facilities to the extent that they are available after Rosedale's use, subject to approval of Rosedale and other third parties as required. The priority and reciprocal use of recovery facilities at the third Stockdale Property project site is

yet to be determined and would be subject to Rosedale and IRWD developing mutually agreeable terms and conditions.

General Operations

The proposed project would provide flexibility for Rosedale to pump from any combination of wells on the Stockdale Properties and other wells within the Conjunctive Use Program (including the Strand Ranch Project onsite and offsite wells) to meet recovery obligations for both IRWD and Rosedale. Extraction would be limited to the amount previously recharged less losses and will be specified in agreements between IRWD and Rosedale.

In-Lieu Recovery by Exchange

In addition to direct recovery through extraction, Rosedale could recover the banked water by way of exchange. An exchange in-lieu of recovery may be accomplished through the use of SWP or other supplies through various water management programs and/or other surface supplies available. The exchange of surface supplies shall be subject to the approval of those entities with discretionary authority over such supplies.

2.6.3 Recovery Scenarios

Rosedale would recover water from the proposed project as needed to meet existing or future commitments under its Conjunctive Use Program. It is expected that banked supplies would be conveyed to IRWD when needed to return water to its program partners and potentially during times when IRWD's imported and/or local supplies are interrupted or curtailed. IRWD's participation in the proposed project recognizes IRWD's need, in the event of an interruptible or short-term water shortage, for additional storage and recovery capacity to provide for improved reliability and redundancy in its supplies.

2.6.4 Conveyance

Water recovered from the proposed production wells would be conveyed via the CVC for subsequent conveyance to IRWD, IRWD's program partners, and Rosedale's program partners. Before introduction of pumped groundwater into the California Aqueduct, IRWD and Rosedale would comply with any existing CVC as well as DWR's water quality policy provisions for introduction of local water into the California Aqueduct and the current water quality criteria in effect at the time of delivery.

The State Water Contractor that imports water to IRWD's service area is MWD. MWD would access water from the California Aqueduct at Lake Perris where it could be conveyed to IRWD through a turnout approved by MWD. For example, water could be delivered to MWD's Diemer Filtration Plant located north of Yorba Linda or delivered untreated to Irvine Lake through the Santiago Lateral. The two major pipelines that deliver water from the Diemer Filtration Plant to the IRWD service area are the Allen McColloch Pipeline and the East Orange County Feeder No. 2. Water delivered to IRWD by MWD could occur by exchange.

Imported water is provided to IRWD through Municipal Water District of Orange County (MWDOC), the regional wholesale member agency of MWD. In 2011, IRWD, MWD and MWDOC entered into a Coordinated Operating, Water Storage, Exchange and Delivery Agreement to facilitate delivery of SWP water banked at Strand Ranch to IRWD's service area. The Agreement could be amended, as needed, to include the proposed project as well. Under the Agreement, IRWD can provide banked water to MWD at a Kern County delivery point into the California Aqueduct (via the CVC). In exchange, MWD would provide IRWD with an equal amount of water at a delivery point in its service area. IRWD and MWD would execute a wheeling agreement to facilitate the recovery and delivery of non-SWP water from the Strand Ranch Project and the Stockdale Integrated Banking Project to IRWD's service area. Such deliveries would occur through the wheeling service provisions of MWD's Administration Code.

2.6.5 Energy Consumption

The majority of project operational activity would be passive, gravity driven movement of water through pipes and basins. For example, the delivery of water via the CVC to Stockdale West would be gravity driven, such that no additional energy consumption for pumping would be required. However, the Central Intake Pipeline includes a pump station to lift water a few feet for conveyance from the CVC to Stockdale East. Recharge capacities for the Stockdale Properties are estimated to be approximately 27,100 AFY for Stockdale West and 19,000 AFY for Stockdale East. To achieve this amount of recharge, under conditions where source waters could not be conveyed via gravity, booster pumps operating at approximately 30 kwh/AF would result in approximately 813,000 kilowatt hours per year (kwh/year) at Stockdale West and 570,000 kwh/year at Stockdale East. This energy requirement would be as-needed and thus intermittent, rather than permanent and sustained.

In addition, the Central Intake pump station would lift up to 10,000 AFY of water from the CVC to Goose Lake Slough and other recharge facilities within Rosedale's Conjunctive Use Program. Rosedale expects this operational scenario may occur every three out of ten years. The pumps would operate at approximately 60 kwh/AF to lift water the distance between the CVC and Goose Lake Slough, resulting in approximately 600,000 kwh/year, when operating at full capacity.

Recovery wells also would be powered by the existing electrical grid. Recovery wells typically would operate between 300 and 550 kwh/AF. Based on this, to achieve recovery of approximately 11,250 AFY at Stockdale West and 7,500 AFY at Stockdale East, up to approximately 6,187,500 kwh/year would be required at Stockdale West and 4,125,000 kwh/year at Stockdale East. Recharge and recovery operations are not expected to occur simultaneously, and during some periods neither recharge nor recovery would be occurring.

2.6.6 Operating Plans

As described in Chapter 1, Section 1.5.2, the proposed project would be operated in accordance with the two Memoranda of Understanding Regarding Operation and Monitoring of the Rosedale-Rio Bravo Water Storage District Groundwater Banking Project (MOUs), Rosedale's Long Term

Operations Plan and Rosedale's and KWBA's Interim Operations Plan. These are described in Chapter 1 and provided in Appendix B.

2.7 Maintenance

The recharge and recovery facilities would require maintenance similar to the existing basins in Rosedale's Conjunctive Use Program. Rosedale would be responsible for the maintenance of all proposed facilities for the duration of the proposed project. Weed and pest control operations would be conducted as necessary, utilizing products approved for aquatic use in order to protect and preserve groundwater quality. Periodic earthwork operations would be required to maintain levees, enhance soil permeability, and remove vegetative growth. Earthwork would involve disking or scraping the basins to remove the top layer (e.g., one inch) of sediment, approximately once every three years. Earthwork equipment could include graders, loaders, and tractors (110-HP light motor). Maintenance would redistribute soils on-site and would not require off-site soil removal or disposal.

Agricultural land uses, such as annual farming, grazing, or fallowing, would be allowed within the basins at all three Stockdale property sites when the properties are not needed for water recharge or water management purposes. Grazing could be used to remove or control vegetative growth. The transport, use, and disposal of fertilizers and pesticides associated with agricultural activities at the Stockdale Properties would be done in accordance with applicable regulatory requirements, including the California Department of Pesticide Regulation's restrictions on pesticide use within artificial recharge basins and around wellheads. All agricultural users of the property would be prohibited from using chemicals that have been designated or suspected of having the potential to pollute groundwater, as determined by the manufacturer of the chemicals, California Department of Pesticide Regulation, California Environmental Protection Agency, the United States Environmental Protection Agency, or any other legal entity having jurisdiction over such matters. Use of pesticides and other chemicals in accordance with such regulatory restrictions would protect groundwater quality.

2.8 Project Approvals

As Lead Agency, Rosedale may use this EIR to approve the proposed project, make Findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts. The Rosedale Board of Directors has the authority to certify this EIR. This EIR evaluates the proposed project at the project level for facilities at Stockdale East and Stockdale West, including the Central Intake Pipeline and its associated pump station and turnout, and the Stockdale West Turnout. The third Stockdale Property is evaluated at a program level. The components of the proposed project evaluated at the project level would proceed upon certification of this EIR by the Rosedale Board of Directors, adoption of this EIR by IRWD's Board of Directors, and approval of the project by both agencies. Depending on identification of the third Stockdale project site, additional environmental analysis may be required before approved components of that site can proceed.

In addition, as a Responsible Agency, IRWD would have discretionary approval over the construction of facilities and operation of the project under the terms of a proposed cooperative agreement to be developed as stipulated in the banking project terms between Rosedale and IRWD. IRWD would also consider the EIR prior to approving discretionary actions associated with implementing the project.

Other approvals required may include the following:

- Appropriative Water Rights Holders: Use or transfer of pre-1914 or post-1914 appropriative water rights
- State Water Resources Control Boards: Use or transfer of post-1914 appropriative water rights
- Regional Water Quality Control Board: Storm Water Pollution Prevention Plans (SWPPP)
- Department of Water Resources: approval for use of the California Aqueduct to convey water
- Kern County Water Agency (on behalf of the CVC participants): approval for use and modifications required to the Cross Valley Canal; encroachment permit
- Kern Water Bank Authority: Approval for use and modification of the Pioneer Canal
- MWD: approval to deliver, exchange, and convey water
- Kern County Roads Department: Easements for pipeline crossings
- Central Intake Easements: Temporary and permanent easements for pipeline

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CHAPTER 3
Environmental Setting, Impacts, and Mitigation Measures

In compliance with *CEQA Guidelines* Sections 15125 and 15126, Chapter 3 of this Draft EIR provides an analysis of the environmental effects of the proposed project with respect to existing baseline conditions. Regional and local baseline conditions are considered to be the time the NOP was published, with the exception of the baseline used to evaluate impacts to groundwater. This groundwater baseline is described further in **Section 3.9 Hydrology and Water Quality**, which includes the analysis of project impacts to groundwater. The following environmental issue areas are assessed in this chapter in accordance with Appendices F and G of the *CEQA Guidelines*:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Transportation and Traffic
- Utilities and Energy

Environmental Issues not Addressed

The following environmental issues are not further analyzed in the Draft EIR as no impacts would occur as a result of project implementation.

Population and Housing

The proposed project involves the construction and operation of groundwater recharge basins on existing agricultural land. The proposed project would not displace existing housing or substantial numbers of people and would not require construction of replacement housing. The proposed project would not directly induce population growth by constructing new homes or businesses. Therefore, no impacts would occur. The potential for the proposed project to indirectly induce population growth is evaluated in Chapter 5, Growth Inducement.

Public Services

The proposed project would not affect service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities. As such, the proposed project would not require construction of new or altered government facilities in order to maintain acceptable performance objectives. No impacts would occur.

Recreation

The proposed project does not include recreational facilities and would not require construction or expansion of recreational facilities. In addition, the proposed project would not have direct local impacts to the growth or distribution of population in the project area. As such, the project would not increase the use of existing neighborhood and regional parks or other recreational facilities. There would be no physical deterioration of recreational facilities; no impacts would occur.

Format of the Environmental Analysis

The environmental analysis in Chapter 3 includes discussion of potential construction and operational impacts associated with the proposed facilities. Each environmental resource section includes the following subsections: Environmental Setting; Regulatory Framework; Impacts and Mitigation Measures; and References. The assessment of impacts for each resource area is provided at the project level for facilities and activities associated with Stockdale East and Stockdale West and the Central Intake Pipeline (*CEQA Guidelines* Section15161) and at the program level for facilities and activities associated with the third Stockdale project site (*CEQA Guidelines* Section15168). (Refer to Chapter 1, Section 1.2, Project-Level and Program-Level Analyses in this Draft EIR, for additional information.) Subsequent project-level environmental review will be conducted for impacts associated with the third Stockdale project site in accordance with CEQA prior to implementation of such project facilities, once the location has been identified. The analysis in this Draft EIR will provide the basis for any future project-level CEQA analysis for the third Stockdale site (*CEQA Guidelines* Section15168(c),(d)).

3.1 Aesthetics

Introduction

The purpose of this chapter is to analyze the potential impacts to aesthetics that could occur with project implementation. The analysis identifies visual character and scenic resources in the project area, including the existing landscape and built environment, and evaluates the potential for the project to affect such aesthetic features when viewed from public vantage points.

3.1.1 Environmental Setting

The proposed project consists of the Stockdale East property, the Stockdale West property, and a third Stockdale project site that would be located within a designated radius around both sites (collectively referred to as the "Stockdale Properties"). The third project site has yet to be identified; however it would likely be comprised of parcels that may or may not be contiguous up to 640 acres and be characterized by agricultural land use, similar to Stockdale East and Stockdale West as described below. The project also consists of the Central Intake Pipeline alignment, which would run within an easement along, between and through private agricultural property between Stockdale East and Goose Lake Slough. Regional views for the unincorporated area of Kern County are characterized by flat plains with low-density communities, water conveyance infrastructure, oil extraction facilities, and agricultural land. The nighttime lighting environment mainly consists of vehicle headlights and scattered street lighting from commercial, recreational, and residential development.

Project Sites

The Stockdale Properties are located in a rural area of western Kern County. Surrounding land uses primarily consist of agriculture, road-side commercial zones, and low-density rural residential communities. The Stockdale East property consists of approximately 230 acres used for agricultural production and petroleum extraction. Currently the crop grown on Stockdale East is alfalfa. Additionally, there is a pilot groundwater banking facility on Stockdale East. The Stockdale West property consists of approximately 323 acres that was formerly used for agricultural operation. The site has recently been developed with four recharge basins as part of a one-year Pilot Recharge Project to determine the functionality of recharge systems at that location. The recharge basins cover approximately 265 acres, and facilities consist of basins and earthen berms of varying shape, size, and depth. Immediately adjacent land uses include agriculture, groundwater recharge basins, and a pump station. **Figure 3.1-1** provides views of the project sites. Both Stockdale East and Stockdale West properties border the Pioneer Canal and the CVC to the south. The third Stockdale project site would be located within the radius depicted on Figure 2-1, which is characterized primarily by agricultural land and rural residential lands. The Central Intake Pipeline alignment would run primarily within dirt roads along, between and through agricultural fields, primarily orchards, and across the eastern edge of Stockdale East (Figure 2-4). The project sites are generally flat, as is the surrounding area.

View of alfalfa fields on the Stockdale East property

Pioneer Canal running along the southern boundary of the Stockdale East property

View of existing Stockdale West recharge basin

SOURCE: ESA, 2013

Stockdale Integrated Banking Project . 211181

Figure 3.1.1
Site Photos

Current views from the project sites are expansive areas of agricultural production. The project sites are adjacent to land that is characterized by irrigated agricultural fields in active cultivation and recharge basins. In addition, there is a cluster of residences and a pet boarding facility on Stockdale Highway, just east of Enos Lane and north of Stockdale East.

Views in all directions are dominated by flat expanses of agricultural land and oil recovery structures. Looking southwest, distant views of the Elk Hills are visible from the project site on clear days.

None of the roadways abutting the project site are considered scenic. Eligible State Scenic Highways within Kern County include State Route 58 between Mojave and Boron (70 miles from the project site), State Route 41 (55 miles), SR-14, and State Highway 395 beginning north of Mojave and continuing to the Inyo County Line (65.84 miles), none of which are in the vicinity of the project site. The Kern County General Plan does not identify any scenic resources in the project vicinity.

3.1.2 Regulatory Setting

Federal

National Scenic Byways Program

The National Scenic Byways program is part of the U.S. Department of Transportation, Federal Highway Administration. The program was established under the Intermodal Surface Transportation Efficiency Act of 1991, and was reauthorized in 1998 under the Transportation Equity Act for the 21st Century. Under the program, the U.S. Secretary of Transportation recognizes certain roads as National Scenic Byways or All-American Roads based on their archaeological, cultural, historic, natural, recreational, and scenic qualities.

State

California Scenic Highway Program

The California Department of Transportation (Caltrans) manages the California Scenic Highway Program, which was created in 1963 by the California legislature to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to highways. The program includes a list of highways that are eligible for designation as scenic highways or that have been designated as such. A highway may be designated as scenic based on certain criteria, including how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes on the traveler's enjoyment of the view. State laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 263.

There are no designated state scenic highways within Kern County. However, the California Scenic Highway Mapping System (Caltrans, 2011) identifies three highway segments which are potentially eligible for future designation as scenic highways:

- SR 41, in the far northwest corner of the County;
- SR 58, from SR 14 east; and
- SR 14/US 395, from SR 58 north.

Local

Kern County General Plan (June 2004)

The Kern County General Plan discusses specific goals and policies related to aesthetics and visual quality for areas within the Kern County area or its Sphere of Influence. The Kern County General Plan also has a Scenic Route Corridors Element that has been adopted. This General Plan Element does not identify the project site as a significant scenic resource. The following General Plan policies for visual resources and aesthetics are relevant to the proposed project:

1.10.7 Light and Glare

Policy 47: Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.

Policy 48: Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.

Chapter 19.81, Dark Skies Ordinance (Outdoor Lighting)

In November 2011, Kern County approved a Dark Skies Ordinance. The purpose of this ordinance is to maintain the existing character of Kern County by requiring a minimal approach to outdoor lighting, recognizing that excessive illumination can create a glow that may obscure the night sky and excessive illumination or glare may constitute a nuisance. The ordinance provides requirements for outdoor lighting within specified unincorporated areas of Kern County in order to accomplish the following objectives:

- Objective 1: Encourage a safe, secure, and less light-oriented night-time environment for residents, businesses and visitors.
- Objective 2: Promote a reduction in unnecessary light intensity and glare, and to reduce light spillover onto adjacent properties.
- Objective 3: Protect the ability to view the night sky by restricting unnecessary upward projections of light.
- Objective 4: Promote a reduction in the generation of greenhouse gases by reducing wasted electricity that can result from excessive or unwanted outdoor lighting.

Metropolitan Bakersfield General Plan (December 2002)

A portion of the project sites are located within the planning area of the Metropolitan Bakersfield General Plan. This General Plan discusses specific goals or policies related to aesthetics and visual quality for areas within the Metropolitan Bakersfield area or its Sphere of Influence. The General Plan also contains a specific section that discusses the existing scenic resources located in the area. The following General Plan policies for visual resources and aesthetics are relevant to the proposed project:

Policy 1: Promote the establishment, maintenance, and protection of the planning area's open space resources, including the following:

(a) Conservation of natural resources

- Kern River Corridor
- Management of hillsides

(b) Managed production of resources

- Agriculture
- Oil production

(c) Outdoor Recreation

- Parks
- Kern River Corridor

Policy 7: Consider the use of groundwater recharge lands for recreation, habitat, and alternate resource uses.

Metropolitan Bakersfield Draft General Plan Update: Existing Conditions, Constraints, and Opportunities Report (April 2009)

In April 2009 the City of Bakersfield published an Existing Conditions, Constraints, and Opportunities Report to highlight issues, challenges, and recommended changes to the existing General Plan. Related to the proposed project, the report recommends definition of "scenic resources" and the identification of existing or potential scenic resources in the Metropolitan Bakersfield area on a map. In addition, the report suggests preservation of groundwater banking and recharge areas to reduce overdraft, including providing buffer areas around water banks.

Metropolitan Bakersfield General Plan Update EIR (June 2002)

The Metropolitan Bakersfield General Plan Update EIR discusses specific issues related to aesthetics and visual quality for areas within the Metropolitan Bakersfield area or its Sphere of Influence. The General Plan EIR also contains a specific section that discusses the existing scenic resources located in the area. None of the specific scenic resources are located in the vicinity of the project area. The General Plan EIR mentions that generally the Kern River Corridor is a scenic resource within the Metropolitan Bakersfield area.

3.1.3 Impact Assessment

Thresholds of Significance

The following criteria from Appendix G of the *CEQA Guidelines* are used as thresholds of significance to determine the impacts of the proposed project as related to aesthetic resources. The proposed project would have a significant impact if it would:

1. Have a substantial adverse effect on a scenic vista.
2. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
3. Substantially degrade the existing visual character or quality of the site and its surroundings.

4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

The impact determination is based on several evaluation criteria, including the extent of project visibility from sensitive viewing areas such as designated state routes and public open space or vantage points; the degree to which the various project elements would contrast with or be integrated into the existing landscape; the extent of change in the landscape's composition and character; and the number and sensitivity of viewers.

Effects Found Not to be Significant

Threshold 1: Scenic Vista

Neither the Stockdale Properties nor the Central Intake Pipeline would be located within a designated scenic vista or scenic highway corridor. No impacts to scenic vistas would occur as a result of the proposed project.

Threshold 2. Scenic Resources

Scenic corridors consist of land that is visible from the highway right of way and are comprised primarily of scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor boundaries. There are no designated scenic highways in the project vicinity; therefore the proposed project would not affect any scenic resources within a scenic highway corridor. There would be no impact.

Impacts and Mitigation Measures

Threshold 3. Visual Character

Impact AES-1: The proposed project could alter the existing visual character of the sites by changing the land use from agricultural production to a combination of groundwater recharge, water conveyance, and agricultural production.

The proposed project would occur in an area dominated by agricultural land uses. Groundwater recharge projects, similar to the proposed project, have been implemented on neighboring properties, both in between and south of Stockdale East and Stockdale West and within the radius proposed for the third Stockdale project site. Figure 2-2 identifies preliminary locations of the extraction wells on the Stockdale West and Stockdale East properties.

Stockdale West

The Stockdale West property was formerly used for agricultural operation, but has recently been developed with recharge basins as part of a Pilot Recharge Project to determine the functionality of recharge systems at that location. Four recharge basins have been constructed that total approximately 265 acres (or 82 percent) of approximately 323 acres, including basins and earthen berms consisting of varying shape, size, and depth. The layout of the existing basins is shown in Figure 2-2. The basins were constructed to avoid the edges of the Pioneer Canal and the CVC. Dirt roads run along the perimeter of and in between all basins to provide access to facilities during operation and maintenance activities. Dirt road levee tops are approximately 20 feet wide. The proposed project would utilize the existing recharge basins, and no other onsite recharge basins would be constructed at the Stockdale West property. Three recovery wells would be

constructed at a minimum of 880-foot setback from the southern property lines, which form a boundary with Kern Water Bank Authority. Wellheads would consist of riser pipes, discharge pipes, wellhead motors, submersible pumps, and other appurtenances, and would be protected by lockable, roofed, metal-mesh pump houses that are approximately four feet in height and constructed on 12-foot square concrete pads. The Stockdale West Turnout would involve a new CVC turnout within the CVC right-of-way and an underground pipeline between the turnout and Stockdale West. Therefore, the majority of the facilities required to operate the banking facilities on Stockdale West are already constructed or would be underground, with the exception of the extraction wells and associated appurtenances, which are minimal in nature and would not alter the overall visual character of the site.

Stockdale East

The Stockdale East property is currently used for agricultural purposes and includes an active oilfield. Stockdale East would be developed with recharge facilities, including basins and berms, occupying approximately 200 acres (or 87 percent) of the 230-acre property. Recharge facilities would consist of approximately eight recharge basins of varying shape, size, and depth. Approximately two recovery wells may also be constructed. Basins would be formed by excavating and contouring existing soils and using excavated soils to form earthen berm walls. Basin depths would average approximately three feet, and basin berms would be three to five feet, extending up to six feet above ground level. Existing oil facilities associated with the oilfield activities would remain onsite and maintained for access to underlying mineral rights. The basins would be constructed to avoid the CVC. The berms would be managed to blend into the surrounding landscape and to allow agricultural land uses to continue, such as farming or grazing.

At the Stockdale East property, the proposed project would modify the character of the property by converting the agricultural fields to recharge basins and recovery facilities. Views from Stockdale Highway and the cluster of residences north of Stockdale East would change from the existing flat fields to contoured berms and basins. Existing oil facilities would remain onsite. The recharge basins constructed would be consistent with similar recharge facilities adjacent to the project site at Strand Ranch, which would make the character similar to surrounding land uses. Furthermore, after construction is complete, recharge basins would be used for agricultural purposes, such as farming, grazing, or fallowing, which also is similar to the existing land use at the property.

Third Stockdale Project Site

The third Stockdale project site has yet to be identified; however it would likely be comprised of parcels that may or may not be contiguous up to 640 acres and be characterized by agricultural land use. Recharge basins, recovery wells, access roads, and associated facilities would be constructed for the third Stockdale property. Similar modifications to immediate views of the property would result from project construction as described for Stockdale East and Stockdale West. The third Stockdale project site would be located within the site radius identified on Figure 2-1, which includes existing agricultural lands, recharge basins, and recovery and conveyance facilities. As such, although agricultural land would be converted to groundwater banking facilities, the nature of the site would be consistent with overall visual character of surrounding properties within the site radius. Agricultural land uses, such as annual farming, grazing, or

fallowing, would be allowed within recharge basins at the third Stockdale property when not needed for water recharge or water management purposes.

Conveyance Facilities

The Central Intake Pipeline would be constructed within Stockdale East and within an easement through private agricultural property between Stockdale East and Goose Lake Slough (Figure 2-4). The underground pipeline would be up to 72 inches in diameter, and the right-of-way would vary between 30 and 60 feet. The pipeline would be installed primarily within existing dirt roads that separate orchard plots. As such, although several trees from adjacent agricultural fields would be removed to ensure space for the pipeline right-of-way, this project component would be underground once constructed and consistent with the overall visual character of the project area. The associated Central Intake pump station and CVC turnout would be on Stockdale East, set back and minimally visible from Stockdale Highway. Similarly, the Stockdale West Turnout would be set back and minimally visible from Stockdale Highway. The pipeline connecting the Stockdale West Turnout to the Stockdale West recharge basins would be belowground and would not affect visual character of the Stockdale West site once constructed.

Impact Determination

The visual character of the Stockdale Properties and the Central Intake Pipeline alignment and their surroundings would not be substantially degraded by implementing recharge and recovery facilities onsite. Neighboring and surrounding properties include a mixture of agricultural, rural residential, and groundwater banking land uses and facilities. Conversion of the Stockdale Properties from agricultural production to include groundwater banking and water conveyance would not change the composition and character of the surrounding landscape. Impacts to visual character would be less than significant.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

Threshold 4: Light or Glare

Impact AES-4: The proposed project would create new sources of nighttime lighting.

The proposed project would require temporary nighttime construction, in particular 24-hour drilling for well construction. Three wells would be constructed on Stockdale West and two wells on Stockdale East. Once the third Stockdale project site is identified, the number of wells would be identified. The project sites are predominately surrounded by agricultural fields with sparse residential uses, such as the cluster or residences north of Stockdale East on Stockdale Highway. Nighttime construction would require security lighting in addition to construction lighting. In accordance with **Mitigation Measure AES-1**, all nighttime lighting would be shielded and directed downwards onto the construction work area and spillover into the surrounding properties

is not anticipated. Construction lighting would be temporary and short-term and would not create a new permanent source of nighttime light or glare.

Security lighting may be installed on new wellhead facilities; however such lighting would be attached to motion sensors and, in accordance with Mitigation Measures AES-1, would be directed downward to focus lighting to the immediate surroundings and avoid light spillover onto surrounding areas.

Impact Determination

Nighttime construction lighting and security lighting would be shielded and directed downward, away from neighboring properties and surrounding areas, in accordance with Mitigation Measures AES-1. Construction lighting would be temporary and permanent security lighting would be connected to motion sensors. As a result, the proposed project would minimize new nighttime light sources and would protect the ability to view the night sky by restricting unnecessary upward projection of light, in support of the Kern County Dark Skies Ordinance. Impacts related to light and glare would be less than significant with mitigation.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

AES-1: All nighttime construction lighting and security lighting installed on new facilities shall be shielded and directed downward to avoid light spill onto neighboring properties.

3.2 Agriculture and Forestry Resources

This chapter describes the environmental setting for agricultural and forestry resources, summarizes the applicable regulatory framework, and identifies impacts to agricultural resources that could occur as a result of implementation of the proposed project.

3.2.1 Environmental Setting

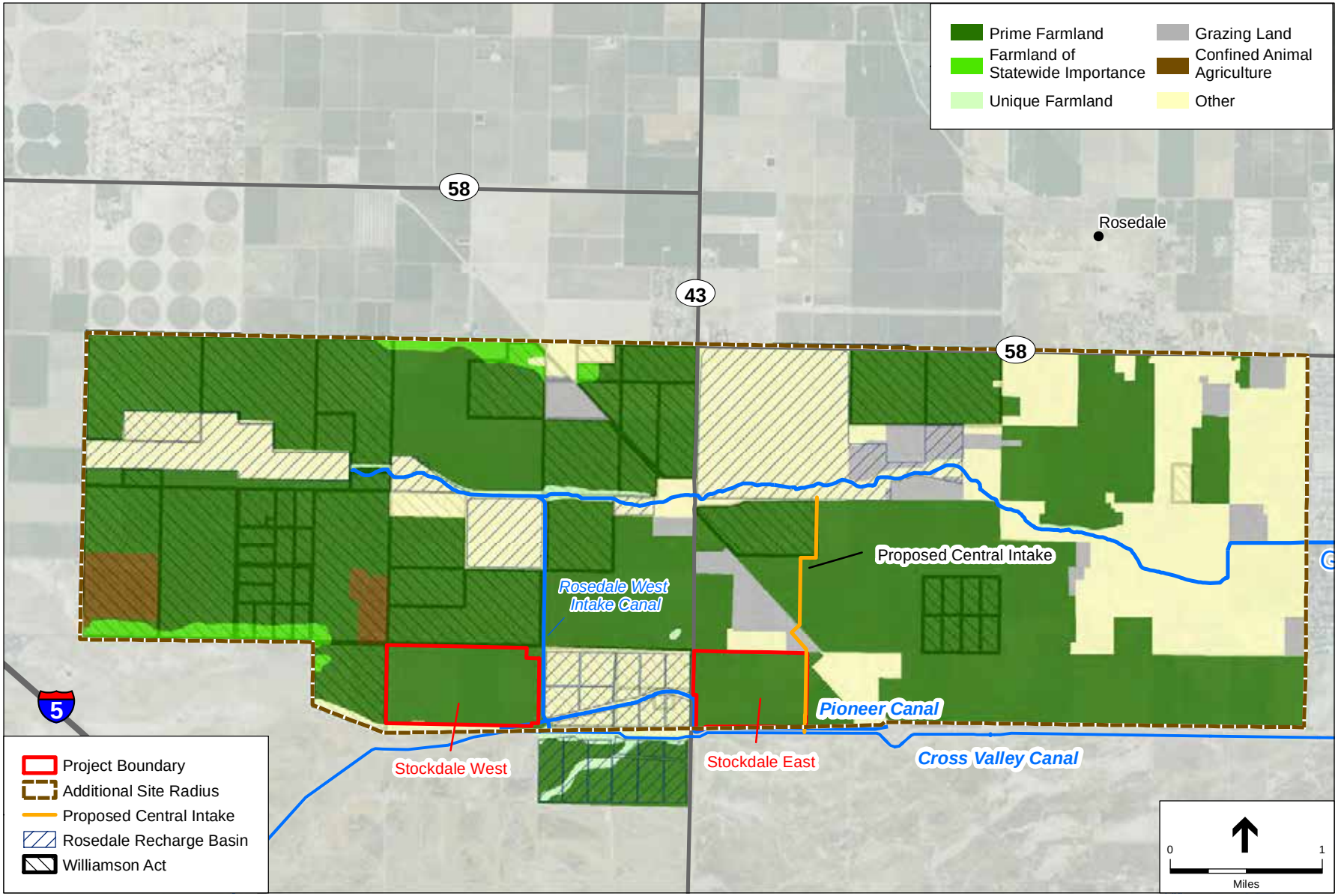
Regional

The project is located in the southern San Joaquin Valley in Kern County near the cities of Bakersfield, Wasco, McFarland, and Shafter. The San Joaquin Valley, along with the Sacramento Valley to the north, makes up the greater California Central Valley, which is a large, flat valley that dominates the central portion of the state. The San Joaquin Valley is bounded by the Sierra Nevada to the east, the Tehachapi Mountains to the south, the Coast Range to the west, and the Sacramento Valley to the north.

California is the nation's top agricultural producer, and Kern County is the fourth most productive county in the state after Fresno, Tulare, and Monterey Counties (CDFA, 2012). Kern County leads the state in grape, citrus, and milk production and other notable agricultural commodities such as almonds, cotton, and cottonseed (CDFA, 2012). Other important agricultural commodities for Kern County include carrots, pistachios, hay/alfalfa, potatoes, cattle, tomatoes, roses, bell peppers, silage/forage, wheat, fruit/nuts, turf, eggs, apples, and cherries (Kern County, 2012a).

Local

The proposed project consists of the Stockdale East property, the Stockdale West property, and a third Stockdale project site that would be located within a designated radius around both sites (collectively referred to as the "Stockdale Properties"). The project also consists of the Central Intake alignment, which would run within an easement along, between and through private agricultural property between Stockdale East and Goose Lake Slough, The Stockdale Properties and the Central Intake alignment are located in unincorporated Kern County. The Stockdale East property and the Stockdale West property are contiguous with and just south of Rosedale's service area boundary. According to Zoning Map 121 of Kern County, both Stockdale East and Stockdale West parcels are zoned as Exclusive Agriculture (A), and the Central Intake alignment is zoned as Exclusive Agriculture and Intensive Agriculture. Land uses surrounding Stockdale East and Stockdale West generally are limited to agricultural lands and rural residences on properties sized one acre or greater (see **Chapter 3.10 Land Use, Planning and Recreation** for more information).



SOURCE: ESRI 2013, California Department of Conservation 2010, Williamson Act 2009

Stockdale Integrated Banking Project . 211181

Figure 3.2-1

Designated Farmland in the Project Vicinity

The state Farmland Mapping and Monitoring Program maps and ranks important farmland in California. The Stockdale East and Stockdale West parcels are characterized entirely as Prime Farmland (California Department of Conservation, 2012) as shown in **Figure 3.2-1**. The Central Intake alignment is characterized by both Prime Farmland and Grazing Land (California Department of Conservation, 2012). See Subsection 3.2.2 below for definitions of these farmland types. The parcels within a two-mile radius of the proposed project site include lands classified as Prime Farmland, Unique Farmland, Farmland of Statewide Importance, Grazing Land., Vacant or Disturbed Land, and Nonagricultural and Natural Vegetation. These lands include the potential location of the third Stockdale project site as shown in Figure 3.2-1.

Kern County uses an Agricultural Preserve Program to designate all land in the agricultural spectrum within the county. The Agricultural Preserve Program intends to preserve agriculture land necessary to the State's economic vitality, and is enforced through provisions in the Williamson Act. The Stockdale East property and the Central Intake alignment are located in Agricultural Preserve 10 while the Stockdale West parcel is located in Agricultural Preserve 9 (Kern County, 2012b). Stockdale East and Stockdale West are not subject to a Williamson Act contract. There are lands under Williamson Act contract adjacent to the northern portion of the Central Intake alignment south of Brimhall Road.

The third Stockdale project site has yet to be identified; however it would likely be up to one square mile (640 acres) and be characterized by agricultural land. Within the radius for the additional site, Agricultural Preserves 9 and 10 take up much of the area, while Agricultural Preserve 11 skirts the northeast of the radius boundary (Kern County, 2012b). Specific zoning, Farmland Mapping and Monitoring Program classifications, and Kern County Agricultural Preserve Program designations, would be determined within a subsequent CEQA analysis, once the location has been identified.

Restrictive Use Agreement

Approximately 165 acres of Stockdale East is subject to a Restrictive Covenant and Equitable Servitude Agreement for Agricultural Land Preservation (Agreement). This Agreement is between SunEdison and Rosedale as part of SunEdison's effort to mitigate the loss of farmland classified as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland due to implementation of its Adobe Solar project. To fulfill its mitigation requirement, SunEdison has entered into the Agreement with Rosedale to protect the agricultural value of these 165 acres. The Agreement serves Conservation Purposes in order to retain the productive agricultural use and character of the property, and to prevent the development of land uses that would interfere with the property's agricultural productive capacity and value (RRBWSD, 2013).

The Agreement ensures that Rosedale will retain the right to use the property for agricultural purposes (or permit others to use the property for such purposes), in a manner that ensures the agricultural qualities of the land are not impaired. The Agreement requires that Rosedale (or its lessees) use the land for commercial agricultural purposes for seven months out of each twelve month period, subject to Rosedale's right to use the property for water management and water recharge purposes. The Agreement prohibits construction, erection, installation, or placement of buildings, structures, or other improvements on the land unless for agricultural purposes. The

Agreement allows water recharge ponds, drilling water wells, existing water wells, pumps, electrical service, and irrigation water distribution ditches, pipelines and other systems, and any other facilities for the production, generation, storage or transmission of water or related to the exercise of rights reserved by Rosedale.

3.2.2 Regulatory Setting

State

California Department of Conservation, Division of Land Resource Protection

The DOC applies the soil classifications created by the Natural Resources Conservation Service (NRCS) to identify and plan for California's agricultural land resources. The DOC has a minimum mapping unit of 10 acres, with parcels that are smaller than 10 acres being absorbed into the surrounding classifications.

The list below describes the categories mapped by the DOC. Collectively, lands classified as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are referred to as Farmland (DOC, 2004).

- **Prime Farmland.** Farmland that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Farmland of Statewide Importance.** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Unique Farmland.** Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been used for crops at some time during the four years prior to the mapping date.
- **Farmland of Local Importance.** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.
- **Urban and Built-up Land.** Land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes,

railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

- **Other Land.** Land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

Land Evaluation and Site Assessment Model (LESA)

The Land Evaluation and Site Assessment (LESA) is a point-based approach for rating the relative importance of agricultural land resources based upon specific measurable features.

The California LESA Model was developed to provide lead agencies with an optional methodology to ensure that potentially significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process (Public Resources Code Section 21095), including in California Environmental Quality Act (CEQA) reviews.

The California Agricultural LESA Model evaluates measures of soil resource quality, a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, the factors are rated, weighted, and combined, resulting in a single numeric score. The project score becomes the basis for making a determination of a project's potential significance.

Williamson Act

The California Land Conservation Act of 1965, also known as the Williamson Act, is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses. Williamson Act contracts, also known as agricultural preserves, create an arrangement whereby private landowners contract with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses. The vehicle for these agreements is a rolling term 10-year contract.[1] In return, restricted parcels are assessed for tax purposes at a rate consistent with their actual use, rather than potential market value. To cancel a Williamson Act contract, either the local government or the landowner can initiate the nonrenewal process. A "notice of nonrenewal" starts a 9-year nonrenewal period. During the nonrenewal process, the annual tax assessment gradually increases. At the end of the 9-year nonrenewal period, the contract is terminated. Contracts renew automatically every year unless the nonrenewal process is initiated. Williamson Act contracts can be divided into the following categories: Prime Agricultural Land, Non-Prime Agricultural Land, Open Space Easement, Built Up Land, and Agricultural Land in Non-Renewal.

[1] Information about the basic provisions of Williamson Act contracts can be found on the California Department of Conservation, Division of Land Resource Protection web site: http://www.consrv.ca.gov/DLRP/lca/basic_contract_provisions/Pages/index.aspx, accessed October 17, 2012.

The Williamson Act states that a board or council by resolution shall adopt rules governing the administration of agricultural preserves. The rules of each agricultural preserve specify the uses allowed. Generally, any commercial agricultural use will be permitted within any agricultural preserve. In addition, local governments may identify compatible uses permitted with a use permit. As described below, the Kern County Planning Department has adopted its own rules governing agricultural preserves and compatible uses.

Farmland Security Zone Act

The Farmland Security Zone Act is similar to the Williamson Act and was passed by the California State Legislature in 1999 to ensure that long-term farmland preservation is part of public policy. Farmland Security Zone Act contracts are sometimes referred to as "Super Williamson Act Contracts." Under the provisions of this act, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone classification automatically renews each year for an additional 20 years. In return for a further 35 percent reduction in the taxable value of land and growing improvements (in addition to Williamson Act tax benefits), the owner of the property promises not to develop the property into nonagricultural uses.

Public Resources Code Section 21060.1

Public Resources Code (PRC) Section 21060.1 defines agricultural land for the purposes of assessing environmental impacts using the Farmland Mapping and Monitoring Program (FMMP). The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and the conversion of these lands. The FMMP provides guidance for the analysis of agricultural and land use changes throughout California.

Local

Kern County Agricultural Preserve Standard Uniform Rules

The Kern County Planning Department has adopted *Agricultural Preserve Standard Uniform Rules*, which identify land uses that are compatible within agricultural preserves established under the Williamson Act (Kern County Planning Department, 2009). The rules are designed to restrict land uses to those compatible with agriculture, including crop cultivation, livestock breeding, grazing operations, and dairies. In addition, some non-agricultural land uses are considered compatible, including public utilities facilities (e.g., gas, electric, communication, water) and groundwater recharge facilities. Public water utility facilities are considered compatible uses when the following is proposed:

- The erection, construction, alteration, operation, and maintenance of gas, electric, water, and communication utility facilities and similar public service facilities by corporations and companies under the jurisdiction of the Public Utilities Commission of the State of California and by public agencies.

Water recharge facilities, as defined in Section 51201(b), Public Resources Code, are considered compatible uses when either:

- The affected land will continue to be used for commercial agricultural purposes for a minimum of seven (7) months out of each twelve (12) month period; or,

- The Land Use Contract is amended by the Board of Supervisors to allow water recharge as the primary purpose of an "open space" contract, as provided for in Section 51201, Public Resources Code. (included by Kern County Board of Supervisors Resolution 2007-017)

Kern County General Plan

The *Kern County General Plan* (County General Plan) states that agriculture is vital to the future of Kern County and sets the goals, policies, and procedures of protecting important agricultural lands for future use and to prevent conversion of prime farmland to other uses (Kern County Planning Department, 2009). Currently Stockdale East and West parcels are designated as Intensive Agriculture (Map Code 8.1) by the County General Plan (Kern County Planning Department, 2009). According to the County General Plan, permitted uses under this designation include water storage and groundwater recharge acres and facilities (Kern County Planning Department, 2009). Therefore, the proposed project is compatible with the County General Plan. Within the Land Use, Open Space, and Conservation Element Resource Section of the County General Plan, there are goals, policies, and implementation measures that are applicable to the proposed project regarding agricultural resources:

Goal 1: To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations which will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources, or diminish the other amenities which exist in the County.

Goal 2: Protect areas of important mineral, petroleum, and agricultural resource potential for future use.

Goal 5: Conserve prime agriculture lands from premature conversion.

Policy 7: Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.

Policy 10: To encourage effective groundwater resource management for the long-term economic benefit of the County the following shall be considered:

- Promote groundwater recharge activities in various zone districts.
- Support the development of future sources of additional surface water and groundwater, including conjunctive use, recycled water, conservation, additional storage of surface water and groundwater and desalination.

Implementation Measure F: Prime agricultural lands, according to the Kern County Interim-Important Farmland 2000 map produced by the Department of Conservation, which have Class I or II soils and a surface delivery water system shall be conserved through the use of agricultural zoning with minimum parcel size provisions.

Metropolitan Bakersfield General Plan

The Stockdale East parcel and the eastern portion of the area designated for the third Stockdale project site are located within the area governed by the *Metropolitan Bakersfield General Plan*

(Bakersfield General Plan) (City of Bakersfield and Kern County, 2002). Within the Conservation Element Soils and Agriculture Section of the Bakersfield General Plan, there is a goal, policies, and an implementation measure that are applicable to the proposed project regarding agricultural resources:

Goal 1: Provide for the planned management, conservation, and wise utilization of agricultural land in the planning area.

Policy 3: Protect areas designated for agricultural use, which include Class I and II agricultural soils having surface delivery water systems, from the encroachment of residential and commercial subdivision development activities.

Policy 14: When considering proposals to convert designated agricultural lands to non-agricultural use, the decision-making body of the City or County shall evaluate the following factors to determine the appropriateness of the proposal:

- Soil Quality;
- Availability of irrigation water;
- Proximity to non-agricultural uses;
- Proximity of intensive parcelization;
- Effect on properties subject to "Williamson Act" land use contracts;
- Ability to be provided with urban services (sewer, water, roads, etc.);
- Ability to affect the application of agricultural chemicals on nearby agricultural properties;
- Ability to create a precedent-setting situation that leads to the premature conversion of prime agricultural lands;
- Demonstrated project need; and
- Necessity of buffers as lower densities, setbacks, etc.

Implementation Measure 2: Evaluate discretionary projects for their impact on agricultural resources.

3.2.3 Impact Assessment

Thresholds of Significance

The following criteria from Appendix G of the *CEQA Guidelines* are used as thresholds of significance to determine the impacts of the proposed project as related to agricultural resources. The proposed project would have a significant impact if it would:

1. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

2. Conflict with existing zoning for agricultural use, or a Williamson Act contract.
3. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).
4. Result in the loss of forest land or conversion of forest land to non-forest use.
5. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

Effects Found Not to be Significant

Threshold 3. Conflict with Forest Land Zoning

The proposed project does not include lands zoned as forest land, timberland, or timberland zoned Timberland Production. There would be no conflict with forest land zoning. There would be no impact.

Threshold 4. Loss of Forest Land

The proposed project does not include forest land. Therefore, the proposed project would not result in the loss of forest land or conversion of forest land to non-forest use. There would be no impact.

Impacts and Mitigation Measures

Threshold 1. Convert Prime Farmland

Impact AGR-1: The proposed project would build groundwater banking and conveyance facilities on lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

Stockdale East and West Properties

As shown on **Figure 3.2-1**, Stockdale East and Stockdale West are designated as Prime Farmland by the FMMP (California Department of Conservation, 2012). On Stockdale West, recharge basins are already fully constructed; additional aboveground facilities to be installed include new wellheads for production wells and the outlet from the Stockdale West Turnout. On Stockdale East approximately 200 acres of existing agricultural fields would be affected by construction of aboveground facilities, including new recharge basins and earthen berms, wellheads, a portion of the Central Intake Pipeline and pump station, and the Central Intake Turnout.

Although Stockdale West would not be primarily used for active agricultural production, direct agricultural uses would not be precluded in the long-term future and would be implemented onsite in the short-term within the recharge basins. Agricultural land uses, such as annual farming, grazing, or fallowing, would be allowed within the basins at Stockdale West when not operated for water recharge or water management purposes. Groundwater recharge facilities are considered to be compatible agricultural land uses according to Kern County's *Agricultural*

Preserve Standard Uniform Rules, Kern County's General Plan Land Use designation of Intensive Agriculture, and Kern County's zoning designation for Exclusive Agriculture (see **Chapter 3.10 Land Use, Planning and Recreation** for more information).

Approximately 165 acres (72%) of Stockdale East is subject to a Restrictive Covenant Agreement that requires Rosedale to use the land for commercial agricultural purposes for seven months out of each twelve month period, subject to Rosedale's right to use the property for water management and water recharge purposes. Accordingly, the Restrictive Covenant Agreement allows for the construction of recharge ponds, wells, pumps, pipelines and any other facilities for the production, generation, storage or transmission of water. Therefore, implementation of the proposed project would maintain commercial agricultural uses at Stockdale east in accordance with the Restrictive Covenant Agreement. Agricultural land uses, such as annual farming, grazing, or fallowing, would be allowed within the basins at Stockdale East when not operated for water recharge or water management purposes.

Third Stockdale Project Site

The third Stockdale project site would be located within the radius identified on Figure 3.2-1 on land up to 640 acres. As shown on the figure, there is Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and other nonagricultural and built up lands within the proposed radius. Grazing could also occur at the site. Similar to activities described above, any existing structures may need to be demolished, and groundwater recharge and recovery facilities would be constructed onsite at the third Stockdale project site, which may include FMMP-designated farmland. Similar to Stockdale East and Stockdale West, groundwater recharge facilities built at the third Stockdale project site would be considered a compatible agricultural land use; would allow for agricultural uses while the basins are not used for recharge; and would not preclude future use of the parcel for direct agricultural production or grazing. Therefore, implementation of the proposed project is not expected not result in the conversion of FMMP-designated farmland to non-agricultural use.

Central Intake Pipeline

The Central Intake Pipeline would affect land between Stockdale East and the Goose Lake Slough that is designated as Prime Farmland by the FMMP (California Department of Conservation, 2012). Water conveyance facilities are considered to be compatible agricultural land uses according to Kern County's *Agricultural Preserve Standard Uniform Rules*, Kern County's General Plan Land Use designation of Intensive Agriculture, and Kern County's zoning designation for Exclusive Agriculture (see **Chapter 3.10 Land Use, Planning and Recreation** for more information). Construction of the Central Intake Pipeline would primarily occur within existing dirt roads between agricultural fields; however, almond trees along the edges of the orchard properties adjacent to the pipeline alignment would be removed. Approximately 6.8 acres would be removed from active agricultural production; however, the land would not be permanently converted to non-agricultural use, as the land could still be cultivated in the future.

A Land Evaluation and Site Assessment (LESA) was completed for the proposed disturbance associated with installation of the Central Intake Pipeline. The LESA assessed the agricultural viability of the land and soils to determine the potential impact of constructing the pipeline and

removal of the orchard trees. Utilizing the LESA Model, a final score of 55.125 (out of 100) was calculated (see **Appendix G**). According to the Model Scoring Thresholds of CEQA, the construction of the Central Intake Pipeline would be considered to have a less than significant impact on agricultural resources (See "Instruction Manual" in Appendix G for making significance determinations).

Impact Determination

The proposed project would support agricultural resources in the region through groundwater recharge and conveyance. The proposed project would be compatible with the goals and policies of the Kern County General Plan for protecting agricultural resources through the beneficial use of percolation basins and conveyance facilities and would reduce the potential for the Stockdale Properties and the Central Intake alignment to be converted to permanent non-agricultural land uses, such as residential, commercial, or industrial uses. The implementation of groundwater recharge, recovery, and conveyance facilities at the Stockdale Properties and the Central Intake alignment would not result in the conversion of Prime Farmland or other FMMP-designated farmland to non-agricultural uses. Agricultural land uses, such as annual farming, grazing, or fallowing, would be allowed within the basins at the Stockdale Properties when not operated for water recharge or water management purposes. The Stockdale Properties also would be managed in accordance with Kern County's rules for agricultural preserves as applicable. Rosedale and/or IRWD (or their respective lessees) shall supply any water necessary for irrigated agriculture or other overlying uses. Impacts would be less than significant.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

Threshold 2. Conflict with Williamson Act Contract

Impact AGR-2: The proposed project could build groundwater banking facilities on lands under a Williamson Act contract.

Neither the Stockdale East property nor the Stockdale West property are contracted as agricultural preserves under the Williamson Act, as shown in Figure 3.2-1 (Kern County, 2012b). There are lands under Williamson Act contract adjacent to the northern portion of the Central Intake alignment south of Brimhall Road. In addition, the third Stockdale project site has the potential to be located on lands under Williamson Act contract, given the presence of such lands within the designated site radius (Figure 3.2-1). Therefore, the potential exists for the proposed project to conflict with existing zoning for agricultural use or a Williamson Act contract.

Impact Determination

If the third Stockdale project site were to be located within a County-designated agricultural preserve and/or under an existing Williamson Act contract, then Kern County's *Agricultural*

Preserve Standard Uniform Rules may apply. The *Standard Uniform Rules* state that groundwater recharge operations are compatible land uses on agricultural preserves if the preserve is used for commercial agriculture for at least seven months out of a twelve month period (Kern County Planning Department, 2009). Farming and livestock grazing are considered compatible agricultural uses. Alternatively, groundwater recharge facilities are considered compatible land uses if the Land Use Contract is amended by the County Board of Supervisors to allow water recharge as the primary purpose of an "open space" contract.

Implementation of **Mitigation Measure AGR-1** would require compliance with the *Standard Uniform Rules* as applicable to avoid conflict with agricultural zoning or potential Williamson Act contracts. If the third Stockdale project site is not under a Williamson Act contract, then Mitigation Measure AGR-1 would not apply. Impacts would be less than significant with mitigation.

Although the Central Intake Pipeline would run alongside an orchard under a Williamson Act contract, the pipeline would be underground and would not preclude the use of the property for commercial agriculture for seven months per every twelve month period, as required by the County's *Agricultural Preserve Standard Uniform Rules*. Impacts would be less than significant, and no mitigation is required.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

AGR-1: If the third Stockdale project site is under a Williamson Act contract, then the use of the property would be managed as applicable in accordance with Kern County's *Agricultural Preserve Standard Uniform Rules*, which identify land uses that are compatible within agricultural preserves established under the Williamson Act.

Threshold 5. Convert Farmland to Non-agricultural Use

Impact AGR-3: The proposed project could convert farmland to a combined land use of groundwater recharge and agricultural production.

As stated above, the proposed project would involve construction of groundwater recharge facilities on the Stockdale Properties and water conveyance facilities including the Central Intake Pipeline and pump station, Central Intake Turnout, and Stockdale West Turnout. As Stockdale West recharge facilities are fully constructed, the features to be installed onsite include three new recovery wells and pump houses, recovery pipelines, and the Stockdale West Turnout. Current facilities at Stockdale East would be converted to recharge basins with earthen berms, two new recovery wells, on-site conveyance pipelines, a portion of the Central Intake Pipeline and pump station, and Central Intake Turnout. Offsite, the Central Intake Pipeline would involve construction of an underground pipeline and connection to Goose Lake Slough. Agricultural lands adjacent to the Central Intake alignment would be temporarily affected at the property edges, resulting in minor loss of productivity, but would not result in long-term conversion of

farmland to non-agricultural use. The third Stockdale project site would likely involve the construction of recharge facilities, recovery wells and associated facilities. The proposed project is compatible with land use on surrounding properties, which is primarily agriculture, groundwater recharge, and conveyance.

In addition, 165 acres of Stockdale East is under a Restrictive Use Agreement with SunEdison as offsite mitigation for loss of farmland due to the Adobe Solar project. The Agreement allows certain permitted uses, such as agricultural production and development of groundwater recharge facilities, as long as the land is used in a manner that ensures that the agricultural productive capacity of the restricted acreage is not significantly impaired. As stated previously, implementation of the proposed project would maintain potential for agricultural use at Stockdale East and would not conflict with the terms of this Restrictive Use Agreement.

Impact Determination

The proposed project would support agricultural resources in the region through groundwater recharge and conveyance facilities. The proposed project would be compatible with the goals and policies of the Kern County General Plan for protecting agricultural resources through the beneficial use of percolation basins and would reduce the potential for the Stockdale Properties and the Central Intake alignment to be converted to residential, commercial, and industrial uses. The proposed project would not indirectly induce further loss of farmland in the project area, as is typical of projects that convert agricultural lands to residential or commercial land uses.

The proposed project also would support agriculture in the Kern Fan area by reducing future overdraft conditions in the underlying groundwater basin. The proposed project would eliminate agricultural extractions that in the past have contributed to overdraft of the groundwater basin. Implementing a banking program requires that water be recharged and stored prior to extraction. Furthermore, agricultural land uses, such as annual farming, grazing, or fallowing, would be allowed within the basins at the Stockdale Properties when not operated for water recharge or water management purposes. In addition, Stockdale East would be used for commercial agricultural purposes as required by the Restricted Use Agreement. Depending on the location of the third Stockdale project site, farming or grazing also may be implemented in accordance with Kern County's *Standard Uniform Rules* and Mitigation Measure AGR-1. The proposed project would result in less than significant impacts to agricultural land uses.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

Implement **Mitigation Measure AGR-1**.

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3.3 Air Quality

This chapter provides an overview of the existing air quality at the project site and surrounding region, the regulatory framework, an analysis of potential impacts to air quality that would result from implementation of the project, and identification of mitigation measures.

3.3.1 Environmental Setting

Existing Air Quality Conditions

General Meteorology and Topography

The primary factors that determine air quality are the locations of air pollutant sources and the amounts of pollutants emitted. Meteorological and topographical conditions, however, also are important. Factors such as wind speed and direction, and air temperature gradients interact with physical landscape features to determine the movement and dispersal of criteria air pollutants.

The project lies within the San Joaquin Valley Air Basin (SJVAB), basically a flat area bordered on the east by the Sierra Nevada Mountains; on the west by the Coast Ranges; and to the south by the Tehachapi Mountains. Airflow in the SJVAB is primarily influenced by marine air that enters through the Carquinez Straits where the San Joaquin-Sacramento Delta empties into the San Francisco Bay (SJVAPCD, 2002). The region's topographic features restrict air movement through and out of the basin. As a result, the SJVAB is highly susceptible to pollutant accumulation over time (SJVAPCD, 2002). Frequent transport of pollutants into the SJVAB from upwind sources also contributes to poor air quality.

Wind speed and direction play an important role in dispersion and transport of air pollutants. During summer periods, winds usually originate from the north end of the San Joaquin Valley and flow in a south-southeasterly direction through the valley, through the Tehachapi pass and into the neighboring Southeast Desert Air Basin. During winter months, winds occasionally originate from the south end of the valley and flow in a north-northwesterly direction. Also, during winter months, the valley experiences light, variable winds, less than 10 miles per hour (mph). Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high concentrations of certain air pollutants.

The SJVAB has an inland Mediterranean climate that is characterized by warm, dry summers and cooler winters. Summer high temperatures often exceed 100 degrees Fahrenheit (°F), averaging from the low 90s in the northern part of the valley to the high 90s in the south. The daily summer temperature variation can be as high as 30 degrees °F. Winters are for the most part mild and humid. Average high temperatures during the winter are in the 50s, while the average daily low temperature is approximately 45 degrees °F.

The vertical dispersion of air pollutants in the valley is limited by the presence of persistent temperature inversions. Air temperatures usually decrease with an increase in altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion.

Air above and below an inversion does not mix because of differences in air density thereby restricting air pollutant dispersal.

Existing Air Quality in the Study Area Vicinity

The San Joaquin Valley Air Pollution Control District's (SJVAPCD) maintains a network of air quality monitoring stations located throughout the Basin. The monitoring stations record concentrations of various pollutants including: ozone; carbon monoxide (CO); nitrogen dioxide (NO_2); sulfur dioxide (SO_2); particulate matter less than 10 microns in diameter (PM_{10}); particulate matter less than 2.5 microns in diameter ($PM_{2.5}$); lead (Pb); and sulfates (SO_4). Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. The station closest to and most representative of air quality conditions at the project site is at 578 Walker Street in Shafter. This monitoring site is approximately ten miles south of the project. The nearest monitoring station for PM_{10} and $PM_{2.5}$ is located in Bakersfield at 5558 California Avenue, approximately 29 miles southeast of the project. As PM is a localized pollutant, data from the California Avenue station would not be representative of concentrations in the project area. Besides, the California Avenue station is located within an urban area unlike the project area, which is rural in nature. **Table 3.3-1** presents the most recent three-year summary of air pollutant (concentration) data collected at the nearest monitoring stations for the three pollutants for which the SJVAB remains "nonattainment", ozone, PM_{10}, and $PM_{2.5}$. In **Table 3.3-1**, these measured air pollutant concentrations are compared with state and national ambient air quality standards.

Sensitive Receptors

Land uses such as schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because infants and children, the elderly, and people with health afflictions, especially respiratory ailments, are more susceptible than the general public. Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Industrial and commercial districts are less sensitive to poor air quality because exposure periods are shorter and workers in these districts are, in general, the healthier segment of the public. The project site is located in a rural area characterized by agriculture uses. There are few sensitive land uses in the vicinity of the proposed project. The nearest residences are across Stockdale Highway, approximately 800 feet north of the Stockdale West site, as well as a cluster of residences approximately 200 feet north of the Stockdale East site, just east of Enos Lane. The only school in proximity of the proposed project is the Rio Bravo Greely School located adjacent to the northern boundary of the site radius for the third Stockdale project site, at the cross streets of Enos Lane and Rosedale Highway.

Criteria Air Pollutants

These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria set forth in the Federal Clean Air Act (FCAA). California has adopted more stringent ambient air quality standards for the criteria air pollutants (referred to as State Ambient Air Quality Standards, or state standards) and has adopted air quality standards for some pollutants for which there is no corresponding national standard.

TABLE 3.3-1
AIR QUALITY DATA SUMMARY (2010-2012)

Pollutant	Monitoring Data by Year		
	2011	**2012**	**2013**
Ozone – Walker St Station in Shafter			
Highest 1 Hour Average (ppm)[b]	**0.097**	**0.103**	**0.112**
Days over State Standard (0.09 ppm)[a]	1	5	1
Highest 8 Hour Average (ppm)[b]	**0.087**	**0.090**	**0.097**
Days over National Standard (0.075 ppm)[a]	18	30	6
Days over State Standard (0.07 ppm)[a]	43	64	21
Particulate Matter (PM_{10}) – California Ave Station in Bakersfield			
Highest 24 Hour Average – State/National ($\mu g/m^3$)[b]	**154.0**/97.4	**125.8**/99.6	**116.9**/120.7
Days (Measured) over National Standard (150 $\mu g/m^3$)[a,c]	0	0	0
Days (Measured) over State Standard (50 $\mu g/m^3$)[a,c]	113	55	16
State Annual Average (State Standard 20 $\mu g/m^3$)[a,b]	**44.2**	**41.4**	*
Particulate Matter ($PM_{2.5}$) – California Ave Station in Bakersfield			
Highest 24 Hour Average ($\mu g/m3$)[b] – National Measurement	**80.3**	**86.5**	**117.7**
Days (Measured) over National Standard (35 $\mu g/m^3$)[a,c]	30	22	44
State Annual Average (12 $\mu g/m3$)[b]	**18.1**	**17.9**	*

a Generally, state standards and national standards are not to be exceeded more than once per year.
b ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
c PM10 and PM2.5 is not measured every day of the year. Number of estimated days over the standard is based on 365 days per year.
* = Insufficient data available to determine value; NA = Not Available. Values in **Bold** exceed the respective air quality standard.
SOURCE: California Air Resources Board, 2015.

Ozone

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

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROG) and nitrogen oxides (NOx). The time period required for ozone formation allows the reacting compounds to spread over a large area, producing a regional pollution problem. Ozone problems are the cumulative result of regional development patterns rather than the result of a few significant emission sources. Once formed, ozone remains in the atmosphere for one or two days. Ozone is then eliminated through chemical reaction with plants (reacts with chemicals on the leaves of plants); rainout (attaches to water droplets as they fall to earth) and washout (absorbed by water molecules in clouds and later falls to earth with rain).

Carbon Monoxide

Ambient carbon monoxide concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic. Wind speed and atmospheric mixing also influence carbon monoxide concentrations. Under inversion conditions, carbon monoxide concentrations may be distributed more uniformly over an area that may extend some distance from vehicular sources. When inhaled at high concentrations, carbon monoxide combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses.

Carbon monoxide concentrations have declined dramatically in California due to existing controls and programs and most areas of the state including the Station Area Plan region have no problem meeting the carbon monoxide state and federal standards. CO measurements and modeling were important in the early 1980's when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, less emissions from new vehicles and improvements in fuels. The clear success in reducing CO levels is evident in the first paragraph of the executive summary of the California Air Resources Board *2004 Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan for Ten Federal Planning Areas* (ARB, 2004), shown below:

> "The dramatic reduction in carbon monoxide (CO) levels across California is one of the biggest success stories in air pollution control. Air Resources Board (ARB or Board) requirements for cleaner vehicles, equipment and fuels have cut peak CO levels in half since 1980, despite growth. All areas of the State designated as non-attainment for the federal 8-hour CO standard in 1991 now attain the standard, including the Los Angeles urbanized area. Even the Calexico area of Imperial County on the congested Mexican border had no violations of the federal CO standard in 2003. Only the South Coast and Calexico continue to violate the more protective State 8-hour CO standard, with declining levels beginning to approach that standard."

Suspended Particulate Matter (PM10 and PM2.5)

PM_{10} and $PM_{2.5}$ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter). PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Some sources of particulate matter, such as wood burning in fireplaces, demolition, and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates also can damage materials and reduce visibility. Large dust particles (diameter greater than 10 microns) settle out rapidly and are easily filtered by human breathing passages. This large dust is of more concern as a soiling nuisance rather than a health hazard. The remaining fraction, PM_{10} and $PM_{2.5}$, are a health concern particularly at levels above the federal and state ambient air quality standards. $PM_{2.5}$ (including diesel exhaust particles) is thought to have greater effects on health, because these particles are

so small and thus, are able to penetrate to the deepest parts of the lungs. Scientific studies have suggested links between fine particulate matter and numerous health problems including asthma, bronchitis, acute and chronic respiratory symptoms such as shortness of breath and painful breathing. Recent studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. Children are more susceptible to the health risks of PM_{10} and $PM_{2.5}$ because their immune and respiratory systems are still developing.

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

Nitrogen Dioxide (NO_2)

NO_2 is a reddish brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, nitrogen dioxide can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Sulfur dioxide (SO_2)

SO_2 is a combustion product of sulfur or sulfur-containing fuels such as coal and diesel. SO_2 is also a precursor to the formation of atmospheric sulfate, particulate matter and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain. The maximum SO_2 concentrations recorded in the project area are well below federal and state standards. Accordingly, the region is in attainment status with both federal and state SO_2 standards.

Lead

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

Non-Criteria Air Pollutants

Toxic Air Contaminants (TACs)

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

as Hazardous Air Pollutants (HAPs). The state list of TACs identifies 243 substances and the federal list of HAPs identified 189 substances.

Diesel particulate matter (DPM) is the most complex of diesel emissions. Diesel particulates, as defined by most emission standards, are sampled from diluted and cooled exhaust gases. This definition includes both solids and liquid material that condenses during the dilution process. The basic fractions of DPM are elemental carbon, heavy hydrocarbons derived from the fuel and lubricating oil and hydrated sulfuric acid derived from the fuel sulfur. DPM contains a large portion of the polycyclic aromatic hydrocarbons (PAH) found in diesel exhaust. Diesel particulates include small nuclei mode particles of diameters below 0.04µm and their agglomerates of diameters up to 1µm. Ambient exposures to diesel particulates in California are significant fractions of total TAC exposure levels in the State.

Odorous Emissions

Because offensive odors rarely cause any physical harm and no requirements for their control are included in state or national air quality regulations, the SJVAPCD has no rules or standards related to odor emissions, other than its nuisance rule. Any actions related to odors are based on citizen complaints to local government agencies including the SJVAPCD. The SJVAPCD uses screening distances to determine the potential for odor impacts from various land uses.

3.3.2 Regulatory Setting

Regulation of air pollution is achieved through both national and state ambient air quality standards and through emissions limits on individual sources of air pollutants. Local Air Quality Management Districts (AQMD's) and Air Pollution Control Districts (APCD's) are responsible for demonstrating attainment with state air quality standards through the adoption and enforcement of Attainment Plans.

Federal

The FCAA requires the U.S. Environmental Protection Agency (EPA) to identify National Ambient Air Quality Standards (NAAQS), or (national standards) to protect public health and welfare. National standards have been established for ozone, CO, NO_2, SO_2, respirable particulate matter (PM10 and PM2.5), and lead. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria set forth in the FCAA. California has adopted more stringent ambient air quality standards for the criteria air pollutants (referred to as State Ambient Air Quality Standards, or state standards) and has adopted air quality standards for some pollutants for which there is no corresponding national standard. **Table 3.3-2** presents current national and state ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant.

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

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

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm	---	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NO_X) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hours	0.07 ppm	0.075 ppm		
Carbon Monoxide	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Nitrogen Dioxide	1 hour	0.18 ppm	100 ppb	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Avg.	0.030 ppm	0.053 ppm		
Sulfur Dioxide	1 hour	0.25 ppm	75 ppb	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	---	0.5 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Avg.	---	0.030 ppm		
Respirable Particulate Matter (PM_{10})	24 hours	50 ug/m^3	150 ug/m^3	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Avg.	20 ug/m^3	---		
Fine Particulate Matter ($PM_{2.5}$)	24 hours	---	35 ug/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
	Annual Avg.	12 ug/m^3	12 ug/m^3		
Lead	Monthly Ave.	1.5 ug/m^3	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 ug/m^3		
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)	Geothermal Power Plants, Petroleum Production and refining
Sulfates	24 hour	25 ug/m^3	No National Standard	Breathing difficulties, aggravates asthma, reduced visibility	Produced by the reaction in the air of SO2.
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, discourages tourism.	See PM2.5.

ppm = parts per million; ug/m^3 = micrograms per cubic meter.

SOURCE: California Air Resources Board, 2013. *Ambient Air Quality Standards.* http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Standards last updated June 4, 2013; California Air Resources Board, 2009b. *ARB Fact Sheet: Air Pollution Sources, Effects and Control*. http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm. Page last reviewed by ARB December 2009.

TABLE 3.3-3
SAN JOAQUIN VALLEY ATTAINMENT STATUS

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone – one hour	No Federal Standard[1]	Nonattainment/Severe
Ozone – eight hour	Nonattainment/Extreme[2]	Nonattainment
PM_{10}	Attainment[3]	Nonattainment
$PM_{2.5}$	Nonattainment[4]	Nonattainment
CO	Unclassified/Attainment	Unclassified/Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified/Attainment	Attainment
Lead	No Designation	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Vinyl Chloride	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

1 Effective June 15, 2005, the U.S. Environmental Protection Agency (EPA) revoked the federal 1-hour ozone standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.
2 Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).
3 On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM10 National Ambient Air Quality Standard (NAAQS) and approved the PM10 Maintenance Plan.
4 The Valley is designated nonattainment for the 1997 PM2.5 NAAQS. EPA designated the Valley as nonattainment for the 2006 PM2.5 NAAQS on November 13, 2009 (effective December 14, 2009.

SOURCE: SJVAPCD, 2013a, *Ambient Air Quality Standards and Valley Attainment Status*, www.valleyair.org/aqinfo/attainment.htm, accessed December 16, 2013.

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

Regulation of TACs, termed HAPs under federal regulations, is achieved through federal, State and local controls on individual sources. The SJVAPCD regulates toxic air contaminants in District Policies 1905 and 1910, and in regulation VII. The district recognizes all TAC's as defined by the State. The district recognizes federal Maximum Achievable Control Technology (MACT) standards for HAP's in District Rule 4002. The 1977 Clean Air Act Amendments required the EPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to protect public health and welfare. These substances include certain volatile organic chemicals,

pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals.

State

The ARB manages air quality, regulates mobile emissions sources, and oversees the activities of county APCDs and regional AQMDs. ARB establishes state ambient air quality standards and vehicle emissions standards.

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

Toxic Air Contaminants (TACs)

The State Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). A total of 243 substances have been designated TACs under California law; they include the 189 (federal) HAPs adopted in accordance with AB 2728. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings.

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

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

Local

The SJVAPCD is the primary local agency responsible for protecting human health and property from the harmful effects of air pollution in the SJVAB, and has jurisdiction over most stationary

source air quality matters in the SJVAB, including the NSPS program. The SJVAPCD includes all of Merced, San Joaquin, Stanislaus, Madera, Fresno, Kings and Tulare counties, and the Valley portion of Kern County.

The SJVAPCD is responsible for developing attainment plans for the SJVAB, for inclusion in California's SIP, as well as establishing and enforcing air pollution control rules and regulations. The attainment plans must demonstrate compliance with federal and state ambient air quality standards, and must first be approved by ARB before inclusion into the SIP. The SJVAPCD regulates, permits, and inspects stationary sources of air pollution. Among these sources are industrial facilities, gasoline stations, auto body shops, MSW landfills and dry cleaners to name a few. While the state is responsible for emission standards and controlling actual tailpipe emissions from motor vehicles, the SJVAPCD is required to regulate emissions associated with stationary sources such as agricultural burning and industrial operations. The SJVAPCD also works with eight local transportation planning agencies to implement transportation control measures, and to recommend mitigation measures for new growth and development designed to reduce the number of cars on the road. The SJVAPCD promotes the use of cleaner fuels, and funds a number of public and private agency projects that provide innovative approaches to reducing air pollution from motor vehicles.

While all criteria pollutants are a concern of the SJVAPCD, a project's air quality impacts are considered significant if they would violate any of the state air quality standards. Ozone precursors, PM10 emissions and toxic air contaminants are emphasized in the review of applications for an Authority to Construct / Permit to Operate. Federal and state air quality regulations also require regions designated as nonattainment to prepare plans that either demonstrate how the region will attain the standard or that demonstrate reasonable improvement in air quality conditions. As noted, the SJVAPCD is responsible for developing attainment plans for the SJVAB for inclusion in California's SIP.

The SJVAPCD's primary means of implementing air quality plans is by adopting and enforcing rules and regulations. Stationary sources within the jurisdiction are regulated by the District's permit authority over such sources and through its review and planning activities. In 2001, the SJVAPCD revised its Regulation VIII-Fugitive PM Prohibitions, in response to commitments made in the 1997 PM_{10} Attainment Plan to incorporate best available control measures (BACM). The revision also includes new rules for open areas and agricultural operations. The provisions of the revised regulation took effect in May 2002. Regulation VIII consists of a series of dust control rules that emphasize reducing fugitive dust as a means of achieving attainment of the federal standards for PM_{10}.

Regulation VIII specifically addresses the following activities:

- Rule 8011: General Requirements;
- Rule 8021: Construction, Demolition, Excavation, Extraction and other Earthmoving Activities;
- Rule 8031: Bulk Materials;
- Rule 8041: Carryout and Trackout;

- Rule 8051: Open Areas;
- Rule 8061: Paved and Unpaved Roads; and
- Rule 8071: Unpaved Vehicle/Equipment Traffic Areas.

Also, District Rule 9510 Indirect Source Review (ISR) was adopted December 15, 2005. ISR was adopted to fulfill the District's emission reduction commitments in the PM_{10} and Ozone Attainment Plans. ISR requires submittal of an Air Impact Assessment (AIA) application no later than the date on which application is made for a final discretionary approval from the public agency. The AIA will be the information necessary to calculate both construction and operational emissions of a development project. The Project would be likely be required to comply with Rule 9510 since it includes 9,000 square feet of space not identified in District Rule 9510 section 2.0 (Applicability)[1] and would qualify as a "Development Project" under section 3.13 of Rule 9510.

Section 6.0 of the Rule outlines general mitigation requirements for developments that include reduction in construction emissions of 20 percent of the total construction NOx emissions, and 45 percent of the total construction PM_{10} exhaust emissions. Section 6.0 of the Rule also requires the project to reduce operational NOx emissions by 33.2 percent and operational PM_{10} emissions by 50 percent. Section 7.0 of the Rule includes fee schedules for construction or operational excess emissions of NOx or PM_{10}; those emissions above the goals identified in Section 6.0 of the Rule. Section 7.2 of the Rule identifies fees for excess emissions that are $9,350/ton for NOx emissions for year 2008 and beyond, and $9,011/ton for PM_{10} emissions for year 2008 and beyond.

Other SJVAPCD Rules and Regulations that may apply to the project, but not limited to, Rule 4102 (Nuisance), Rule 4641(Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations), Rule 2010 (Permits Required), and Rule 2201 (New and Modified Stationary Source Review).

The SJVAPCD's Governing Board has also recently adopted the 2008 $PM_{2.5}$ Plan. This plan highlights a variety of measures designed to achieve all the $PM_{2.5}$ standards - the 1997 federal standards, the 2006 federal standards, and the state standard - as soon as possible.

Kern County General Plan

The Kern County General Plan Land Use/ Conservation /Open Space chapter contains the County's Air Quality Element (Kern County Planning Department, 2009). The following policies that would be relevant to the project:

> **Policy 1.10.2.19:** In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the California Environmental Quality Act, the appropriate decision making body, as part of its deliberations, will ensure that:

[1] The "9,000 square feet of space not identified" is a District Rule 9510 category that captures development projects that do not include the following uses identified in Rule 9510: residential units, commercial space, light industrial space, heavy industrial space, medical office space, general office space, educational space, government space, or recreational space.

- All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and
- The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the California Environmental Quality Act.

Policy 1.10.2.20: The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.

Policy 1.10.2.21: The County shall support air districts' efforts to reduce PM_{10} and $PM_{2.5}$ emissions.

Policy 1.10.2.22: Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with Federal, State, and local standards.

Policy 1.10.2.23: The County shall continue to implement the local government control measures in coordination with the Kern Council of Governments and the San Joaquin Valley Unified Air Pollution Control District.

3.3.3 Impact Assessment

Thresholds of Significance

According to Appendix G of the CEQA *Guidelines*, a project would have a significant effect 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;
- Result in a cumulatively considerable net increase of any nonattainment pollutant (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Criteria Pollutants

For construction impacts, the pollutant of greatest concern to the SJVAPCD is PM_{10}.[2] The SJVAPCD recommends that significance be based on a consideration of the control measures to be

[2] Construction equipment also emits carbon monoxide and ozone precursors. The SJVAPCD has determined that these emissions would cause a significant air quality impact only in the case of a very large or very intense construction project (SJVAPCD, 2002).

implemented during project construction (SJVAPCD, 2002). The SJVAPCD *Guide for Assessing and Mitigating Air Quality Impacts* (*GAMAQI*) contains a list of feasible control measures for construction-related PM_{10} emissions. The SJVAPCD's *GAMAQI* also includes significance criteria for evaluating operational-phase emissions from direct and indirect sources associated with a project. Indirect sources include motor vehicle traffic resulting from the project and do not include stationary sources covered under permit with the SJVAPCD.

For this analysis, the project would be considered to have a significant effect on the environment during short-term construction or long-term operations if it would exceed the following thresholds:

- Cause a net increase in pollutant emissions greater than 10 tons per year of ROG, 10 tons per year of NOx, or 15 tons per year of PM_{10}. These thresholds are recommended by the SJVAPCD (SJVAPCD, 2013b) and Kern County (Kern County, 2006).
- Cause a violation of state CO concentration standards. The level of significance of CO emissions from mobiles sources is determined by modeling the ambient concentration under project conditions and comparing the resultant 1- and 8-hour concentrations to the respective state CO standards of 20.0 and 9.0 parts per million.
- Cause "visible dust emissions" due to onsite operations and thereby violate SJVAPCD Regulation VIII.[3]

Stationary sources that comply, or that would comply, with SJVAPCD Rules and Regulations are generally not considered to have a significant air quality impact.

Toxic Air Contaminants

The operation of any project with the potential to expose sensitive receptors to substantial levels of TACs would be deemed to have a potentially significant impact. More specifically, proposed development projects that have the potential to expose the public to TACs in excess of the following thresholds would be considered to have a significant air quality impact:

- Probability of contracting cancer for the Maximally Exposed Individual[4] (MEI) exceeds 10 in one million.
- Ground-level concentrations of non-carcinogenic TACs would result in a Hazard Index greater than 1 for the MEI.

Methodology

Construction and operational emissions were calculated by using California Emissions Estimator Model (CalEEMod) version 2013.2.2. CalEEMod is the SJVAPCD-recommended computer program that can be used to estimate anticipated emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts.

3 Visible dust is defined by the SJVAPCD as "visible dust of such opacity as to obscure an observer's view to a degree equal to or greater than an opacity of 40 percent, for a period or periods aggregating more than three minutes in any one hour."

4 MEI represents the worst-case risk estimate based on a theoretical person continuously exposed for 70 years at the point of highest compound concentration in air.

The Kern County – San Joaquin database was used for the proposed project. The model calculates criteria pollutant emissions, including CO, PM_{10}, $PM_{2.5}$ and the ozone precursors ROG and NOx.

For project construction, it was assumed that the majority of earthwork would be conducted at the Stockdale East site and that the Stockdale East and Stockdale West properties and the Central Intake would be built out in six phases (six months per phase) rather than all at once. The phases, which were assumed to start in late summer 2015, included the following: construction of the basins and CVC turnouts; construction of the wells (two phases);construction of the wellheads and pipelines (two phases); and construction of the Central Intake Pipeline. As described in the Project Description, there is also a third Stockdale project site that has yet to be identified. However, it is likely that annual construction activities and emissions would be similar to those analyzed below.

Operational emissions were modeled for the worse-case year in which maintenance earthwork could occur on two of the project sites within the same year. Periodic earthwork operations would be required to maintain levees, enhance soil permeability, and remove vegetative growth. Earthwork would involve disking or scraping the basins to remove the top layer (e.g., one inch) of sediment, approximately once every three years for a maximum of four weeks per year on each property. Otherwise, the typical year operations would consist of only periodic on-road trips for periodic inspection and minor maintenance.

For this analysis, the results are expressed in tons per year and are compared with the SJVAPCD and Kern County mass thresholds to determine impact significance. **Appendix C** of this Draft EIR provides detailed emission calculations used in this analysis.

Impacts and Mitigation Measures

Threshold 1. Air Quality Plan

Impact AQ-1: The proposed project could conflict with or obstruct implementation of SJVAPCD air quality plan.

If a City or County's General Plan is consistent with the most recently adopted clean air plan, a project that is consistent with the General Plan's land use designation is considered consistent with applicable air quality plans and policies. As stated in Chapter 3.10, Land Use and Planning, the proposed project would be consistent with the Kern County land use designations and zoning for the project area. In addition, the County General Plan is consistent with the applicable air quality plan because data and projections from the General Plans are incorporated into the clean air plans. Development of the proposed project would not interfere with population and long-term vehicle-miles-traveled (VMT) projections used to develop the air quality plan projections as it would not increase the population of the area and operational VMT traveled would be negligible. Therefore, the proposed project would result in a less-than-significant impact because it would not conflict with the applicable air quality management plan.

Significance Determination

Less than Significant.

Mitigation Measures

None required.

Threshold 2. Air Quality Standard Violation

Impact AQ-2: Construction and/or operation of the project could generate emissions of criteria air pollutants that could contribute to existing nonattainment conditions.

Construction

Construction related emissions arise from a variety of activities including (1) grading, excavation, and other earth moving activities; (2) travel by construction equipment and employee vehicles, especially on unpaved surfaces; (3) exhaust from construction equipment; (4) architectural coatings; and (5) asphalt paving.

PM_{10} and $PM_{2.5}$ emissions from construction would vary greatly from day to day depending on the level of activity, the equipment being operated, silt content of the soil, and the prevailing weather. Larger-diameter dust particles (i.e., greater than 30 microns) generally fall out of the atmosphere within several hundred feet of construction sites, and represent more of a soiling nuisance than a health hazard. Smaller-diameter particles (e.g., PM_{10} and $PM_{2.5}$) are associated with adverse health effects and generally remain airborne until removed from the atmosphere by moisture. Therefore, unmitigated construction dust emissions could result in significant local effects. The SJVAPCD recommends that determination of significance with respect to fugitive dust be based upon inclusion of feasible control measures for PM_{10} and compliance with Regulation VIII, Rule 8011, of the District's Rules and Regulations.

For all construction projects, implementation of all Regulation VIII fugitive dust control measures are required by law. Implementation of the Regulation VIII fugitive dust control measures and all additional feasible measures would reduce construction PM_{10} emissions associated with the project to a less-than-significant level, based on the short-term exposure of any single sensitive receptor to residual fugitive dust emissions.

In addition, construction equipment and construction-worker commute vehicles would also generate criteria air pollutant emissions. Criteria pollutant emissions of ROG and NOx from these emissions sources would incrementally add to regional atmospheric loading of ozone precursors during the construction period. In addition, the project would need to comply with District Rule 9510, which would reduce emissions of NOx and PM_{10} during project construction. Construction emissions were modeled using CalEEMod, and are depicted below in **Table 3.3-4**. For the third Stockdale project site that has yet to be identified, it is likely that annual construction activities and emissions would be similar to those described below.

As depicted in Table 3.3-4, the estimated emissions from construction would not exceed applicable significance thresholds. However, as discussed above, the project applicant would still need to comply with all applicable SJVAPCD rules and regulations, including Rule 8011 (fugitive dust control measures) and Rule 9510 (indirect source review). No additional mitigation measures would be required.

TABLE 3.3-4
UNMITIGATED PROJECT CONSTRUCTION EMISSIONS (TONS PER YEAR)

Pollutant	Significance Thresholds (tons/yr)	Unmitigated Project Construction Emissions (tons/yr)[a] Year 1 (2015)	Year 2 (2016)	Year 3 (2017)	Year 4 (2018)
ROG	10	0.45	0.52	0.50	0.11
NOx	10	5.03	4.46	3.89	0.99
PM_{10}	15	4.09	6.35	6.30	3.12
$PM_{2.5}$	NA[c]	0.86	0.88	0.85	0.37
CO	NA[c]	3.50	3.07	2.98	0.94

a The same thresholds of significance are established by the SJVAPCD and Kern County. CO and $PM_{2.5}$ do not have an established emissions threshold of significance.
b **Bold** values are in excess of applicable standard. Emission factors were generated by CalEEMod for Kern County – San Joaquin portion. These emission estimates do not account for the reductions achieved in compliance with Rule 8011 and Rule 9510. Construction was assumed to begin in 2015 and progress over a period of six phases (six months per). Excavated soil was assumed to be balanced on-site. Up to 20 workers were assumed to be needed for each phase of construction. Additional information is provided in Appendix C.
c No Applicable thresholds have been established for the emission of these pollutants.

Operations

Over the long-term, the project would result in an increase in emissions primarily due to triennial earthwork activities and routine inspection on-road trips. Operational emissions were calculated using CalEEMod for the worse-case scenario, assuming that maintenance earthwork could occur on two of the project sites within the same year. As this is an unlikely scenario, the assessment below would encapsulate the potential operational emissions for all sites, including the third Stockdale project site that has yet to be identified. Earthwork activities would occur for a duration of four weeks and would include the operation of a grader, loader, and tractor. Operational emissions are shown in **Table 3.3-5**. Notably, for the typical year, operations would consist of only minimal on-road trips for periodic inspection and maintenance and the associated emissions would be substantially less than those presented below.

As depicted in Table 3.3-5, the estimated emissions from operations would not exceed the applicable significance thresholds. However, as discussed above, the project applicant would still need to comply with all applicable SJVAPCD rules and regulations. No additional mitigation measures would be required.

TABLE 3.3-5
PROJECT OPERATIONAL EMISSIONS (TONS PER YEAR)

		Unmitigated Operation Emissions (tons/yr)[b]	
Pollutant	**Significance Thresholds (tons/yr)**	**Unmitigated Year 4 (2018)**	**Significant (Yes or No)?**
ROG	10	0.0	No
NO_x	10	0.3	No
PM_{10}	15	0.6	No
$PM_{2.5}$	NA[c]	0.1	NA
CO	NA[c]	0.2	NA

a The same thresholds of significance are established by the SJVAPCD and Kern County. CO and $PM_{2.5}$ do not have an established emissions threshold of significance.
b **Bold** values are in excess of applicable standard. Emission factors were generated by CalEEMod for Kern County – San Joaquin portion. These emission estimates do not account for the reductions achieved in compliance with Rule 8011 and Rule 9510. Additional information is provided in Appendix C.
c No Applicable thresholds have been established for the emission of these pollutants.

Significance Determination

Less than Significant.

Mitigation Measures

None required.

Threshold 3. Cumulative Air Quality

Impact AQ-3: Construction and operation of the project could result in cumulatively considerable increases of criteria pollutant emissions.

According to the SJVAPCD *GAMAQI*, a cumulative impact occurs when two or more individual effects, considered together, are considerable or would compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant impacts, meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects. According to the Kern County *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports*, the established thresholds of significance (10 tons per year ROG or NOx and 15 tons per year PM_{10}) determine whether or not a project would result in individual as well as cumulatively considerable impacts. Thus, any project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact and any project that would individually have a less than significant air quality impact would also be considered to have a less than significant cumulative air quality impact.

Construction emissions from the project would result in the generation of air pollutants in the project area and in the immediate vicinity, and would incrementally add to cumulative emissions. The project would also add to ozone precursor emissions on a regional basis and would

incrementally add to PM_{10} and CO emissions on a local basis. For operations, on-road traffic would be minimal and would result in a negligible increase in criteria pollutant emissions. Triennial earthwork operations would also result in minor increases in criteria pollutant emissions. As described in Impact AQ-2, short-term project construction and long-term project operations would result in a less-than-significant individual project impact. The project would not result in cumulatively considerable increases of criteria air pollutants.

Significance Determination

Less than Significant.

Mitigation Measures

None required.

Threshold 4. Sensitive Receptor Exposure

Impact AQ-4: Construction and/or operation of the project could expose sensitive receptors to substantial pollutant concentrations.

Carbon Monoxide (CO) Hotspots

CO is a localized pollutant of concern. Due to the distance between construction activities and sensitive receptors, construction would not emit CO in quantities that could pose health concerns. Also, due to the existing low concentrations of CO in the area that are projected to further decline in the future[5], project operations would not result in or contribute to CO concentrations that exceed the California 1-hour or 8-hour ambient air quality standards. Long-term operations would result in minimal CO emissions associated with routine inspection vehicle trips and triennial earthwork activities. Thus, mobile-source emissions of CO would not result in or contribute substantially to an air quality violation. The short-term construction and long-term operational mobile-source impact of the project on CO concentrations would be less-than-significant and no mitigation is required.

Toxic Air Contaminants

Construction of the proposed project would result in short-term diesel exhaust emissions (DPM), which are TACs, from on-site heavy-duty equipment. Project construction would generate DPM emissions from the use of off-road diesel equipment required for site grading and excavation, and other construction activities. The dose to which sensitive receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities

[5] See air quality setting information above that discusses the current success statewide in reducing CO levels.

associated with the project. Thus, the duration of the proposed construction activities (3 year) would only constitute approximately 4 percent of the total 70-year exposure period. In addition, the majority of project construction activity would occur at a substantial distance from sensitive receptors. Because the use of mobilized equipment would be temporary and there are no sensitive receptors located immediately adjacent to areas where construction would occur for prolonged periods, DPM from construction activities would not be anticipated to result in the exposure of sensitive receptors to levels that exceed applicable standards. Development of the third Stockdale project site would be similar, but would likely expose different receptors to DPM based on the land uses in the area and the size of the sites.

In addition, the long-term operation of the project would result in minimal TAC emissions associated with routine inspection vehicle trips and triennial earthwork activities. Earthwork would involve disking or scraping the basins to remove the top layer (e.g., one inch) of sediment, approximately once every three years for a maximum of four weeks per year on each property. Typical year operations would consist of only on-road trips for periodic inspection and minor maintenance. As a result, exposure of sensitive receptors to substantial toxic air emissions from the project would be less-than-significant.

Significance Determination

Less than Significant.

Mitigation Measures

None required.

Threshold 5. Odors

Impact AQ-5: Operation of the project could create objectionable odors affecting a substantial number of people.

Types of land uses that typically pose potential odor problems include agriculture, wastewater treatment plants, food processing and rendering facilities, chemical plants, composting facilities, landfills, waste transfer stations, and dairies. In addition, the occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they can still be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

The proposed project does not include any of the above-mentioned land use activities, with the exception of agriculture. However, agricultural land uses are part of the baseline conditions for the project sites and surrounding area. Therefore, the proposed project would not change baseline conditions to introduce new land uses that would create objectionable odors. Occasionally, diesel exhaust from heavy equipment used during construction activities or during operational maintenance activities can generate objectionable odors, but these dissipate very quickly. Thus, neither construction nor the operation of the project would create objectionable odors affecting a substantial number of people, and odor impacts would be less-than-significant.

Significance Determination

Less than Significant.

Mitigation Measures

None required.

References – Air Quality

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3.4 Biological Resources

This chapter describes the environmental setting for biological resources, the applicable regulatory framework, potential impacts of the proposed project, and mitigation measures to reduce those impacts to a level of less than significant. The analysis is supported by the *Biological Resources Technical Report for the Stockdale West Banking Project*, included as **Appendix D-1**. The Technical Report includes a reconnaissance level survey at Stockdale East, Stockdale West and surrounding areas, to identify vegetation and wildlife, and to delineate potential wetlands and waters of the United States (U.S.) that occur at the project site.

3.4.1 Environmental Setting

Methodology

The setting and analysis of biological resources is based on consultation with resource agencies, extensive field surveys within the project study area, and review of available literature as listed below.

- *Biological Resources Technical Report for the Stockdale West Banking Project* (ESA, 2013); Included with this EIR as Appendix D-1
- *Final Environmental Impact Report for the Strand Ranch Integrated Banking Project* (ESA 2008)
- *Metropolitan Bakersfield Habitat Conservation Plan* (City of Bakersfield and Kern County 2002)
- California Department of Fish and Wildlife California Natural Diversity Data Base (CNDDB) (CDFW 2012a)
- State and federally listed endangered and threatened animals of California (CDFW 2011)
- Inventory of Rare and Endangered Vascular Plants of California (online edition, v7-09a). (CNPS 2012)
- Review of relevant literature on biological resources on and around the project site
- Review of maps and aerial photographs of the project and the project vicinity
- United States Fish and Wildlife Service Critical Habitat Mapper online (USFWS 2012a)
- United States Fish and Wildlife Service National Wetlands Inventory online wetlands mapper (USFWS 2012b)
- United States Fish and Wildlife Service Species Reports (Environmental Conservation Online System)
- United States Department of Agriculture Soil Survey Geographic Data Base online (USDA 2012)

Regional Setting

The project site is located in the San Joaquin Valley and in Kern County near the cities of Bakersfield, Wasco, McFarland and Shafter and within the Pacific Flyway.[1] This area is also located within the California Floristic Province (CA-FP), Great Central Valley (GV) Region, San Joaquin Valley (SnJV) Subregion (Hickman, 1993). The CA-FP is the largest geographic unit in California and comprises much of the state west of the dry regions of the Great Basin (GB) and Desert (D) Provinces in northern and southern California (Hickman, 1993). The GV Region is entirely contained within the CA-FP, is roughly the same area as the California Central Valley, and was once comprised of grassland (California prairie), marshes, extensive riparian woodlands, and islands of valley-oak savanna, but is now predominantly agricultural (Hickman, 1993). The GV Region is divided into two subregions: the Sacramento Valley (ScV) Subregion to the north and the SnJV Subregion to the south (Hickman, 1993). The SnJV Subregion is the larger subregion and is hotter and drier than the ScV Subregion with desert elements in the south (Hickman, 1993). Land use within the vicinity of the proposed project is primarily agriculture.

The climate of the project area is characterized by hot, dry summers with daytime temperatures frequently above 100 degrees Fahrenheit (NOAA, 2012). The winter months are cool and foggy with temperatures seldom below freezing and, on average, there are between 250 and 300 frost-free days per year. Average rainfall is less than 10 inches per year with the heaviest rains occurring between January and March (NOAA, 2012).

Local Setting

The proposed project consists of the Stockdale East property, the Stockdale West property, and a third property that would be located within a designated radius around both sites (collectively referred to as the "Stockdale Properties"). The project also includes the Central Intake Pipeline alignment, which runs between Stockdale East and the Goose Lake Slough. The Stockdale East property is currently used for agriculture supporting crops such as onion (*Allium* sp.), alfalfa (*Medicago sativa*), and cotton (*Gossypium* sp.). The southwest corner of the property has been left fallow. Several structures and open storage areas comprised of bare ground have been developed for the operation and maintenance of the fields. There is also a small vegetated recharge basin in the northwest corner of the property. Residential houses and buildings associated with surrounding agricultural land uses occur to the north of the property, across Stockdale Highway. Agriculture, as well as a railroad track and loading station associated with a local business, occur to the east of the property. The Pioneer Canal directly abuts the southern boundary and is dry during the summer months. The canal consists of an unpaved channel comprised of dirt and sandy soils dominated by weedy plant species, such as Russian thistle (*Salsola tragus*), which is typically found in disturbed areas. Its sandy berms provide habitat (breeding and foraging) for numerous local and migratory species of wildlife. South of the Pioneer Canal is the CVC, a lined canal with consistent, year-round water flow. The land south of the CVC is open land and includes recharge basins owned and maintained by the Kern Water Bank Authority (KWBA). The alignment for the Central Intake Pipeline north of Stockdale East

[1] The Pacific Flyway is an established air route of waterfowl and other birds migrating between wintering grounds in Central and South America and nesting grounds in Pacific Coast and provinces of North America.

would cross existing agricultural and vacant lands and would connect to the south levee of Goose Lake Slough, north of Brimhall Road. The habitat along the Central Intake alignment consists of developed agriculture dominated by almond (*Prunus* sp.) orchards, disturbed non-native grasslands, and developed roads and a railroad. Portions of the Central Intake alignment will occur within disturbed bare ground within the understory of the orchards. The northern extent of the Central Intake alignment will connect with the Goose Lake Slough which conveys freshwater from the Kern River to agricultural lands and groundwater recharge facilities.

The recharge basins at the Stockdale West property are dominated by intentionally planted safflower (*Carthamus tinctorius*). The recharge basins are separated by elevated roads with culverts installed underneath each road, allowing water to flow between the basins. Adjacent lands north and west of the property are comprised mainly of agricultural fields. The area adjacent to the southwest corner of the property is undisturbed native Saltbush (*Atriplex* ssp.) Scrub (Holland, 1986). A small area within the southwest portion of the western property boundary consists of non-native grassland (Holland, 1986). Directly south of the property is the Pioneer Canal and CVC, however a gap exists between the property and the canals that mostly consists of disturbed areas dominated by Russian thistle, but becomes the aforementioned undeveloped non-native grassland as it progresses west.

Soils and Topography

In general, the topography of the Stockdale East and West properties and the Central Intake is flat at approximately 310 feet above mean sea level (amsl). Soils on the project site are deep to very deep, well drained, with slow to moderately rapid permeability (NRCS, 2012). Soils on the project site generally consist of fine, sandy loams associated with agricultural uses when irrigated, and can support annual grasses and forbes when not actively irrigated. Descriptions of the four soil types found within the project site are discussed below.

Excelsior Series

Excelsior sandy loam is mapped as occurring within the project site. The Excelsior series consists of very deep, well-drained soils on alluvial fans and bars and channels on flood plains with slopes ranging from 0 to 2 percent. These soils allow negligible to medium runoff and moderate to slow permeability. The Excelsior series is used for irrigated cropland growing alfalfa, barley, cotton, and grapes; and for dairy and cattle production and building site development.

Granoso Series

Granoso loamy sand is mapped as occurring within the project site, along the alignment of the Central Intake. The Granoso series consists of very deep, somewhat excessively drained soils that formed in alluvium derived from rocks of mixed mineralogy. These soils typically occur on alluvial fans and floodplains with slopes from 0 to 5 percent. The Granoso series is used for irrigated crops such as cotton, alfalfa, dry beans, onions, carrots, lettuce, wheat, and pasture land.

Kimberlina Series

Kimberlina fine sandy loam, 0 to 2 percent slopes, and Kimberlina sandy loam, 2 to 5 percent slopes are mapped as occurring within the project site. The Kimberlina series consists of deep, well drained soils on flood plains and recent alluvial fans on slopes from 0 to 9 percent. These soils allow negligible to medium runoff, and moderately rapid and moderate permeability. The Kimberlina series is used for growing irrigated field, forage, and row crops. Some areas are also used for livestock grazing. When not irrigated, the soils support annual grasses, forbs, and *Atriplex* ssp. in the San Joaquin Valley.

Wasco Series

Wasco fine sandy loam and Wasco sandy loam are mapped as occurring within the project site. The Wasco series consists of very deep, well-drained soils on recent alluvial fans and flood plain on 0 to 5 percent slopes. These soils allow negligible or very low runoff, and moderately rapid permeability. The Wasco series is used for growing field, forage, and row crops. Some areas are used for livestock grazing, wildlife habitat, recreation, and residential sites. Native vegetation supported by this series includes *Atriplex* spp., annual grasses, and forbs.

Westhaven Series

Westhaven fine sandy loam is mapped as occurring within the project site. The Westhaven series consists of very deep, well drained soils that formed in stratified mixed alluvium weathered from sedimentary and/or igneous rocks, on 0 to 5 percent slopes. These soils allow low runoff and moderately slow permeability. The Westhaven series is used for irrigated cropland to grow wheat, lettuce, cotton, tomatoes, almonds, grapes, and peaches. Native vegetation supported by this series includes *Atriplex* spp., and annual grasses and forbs.

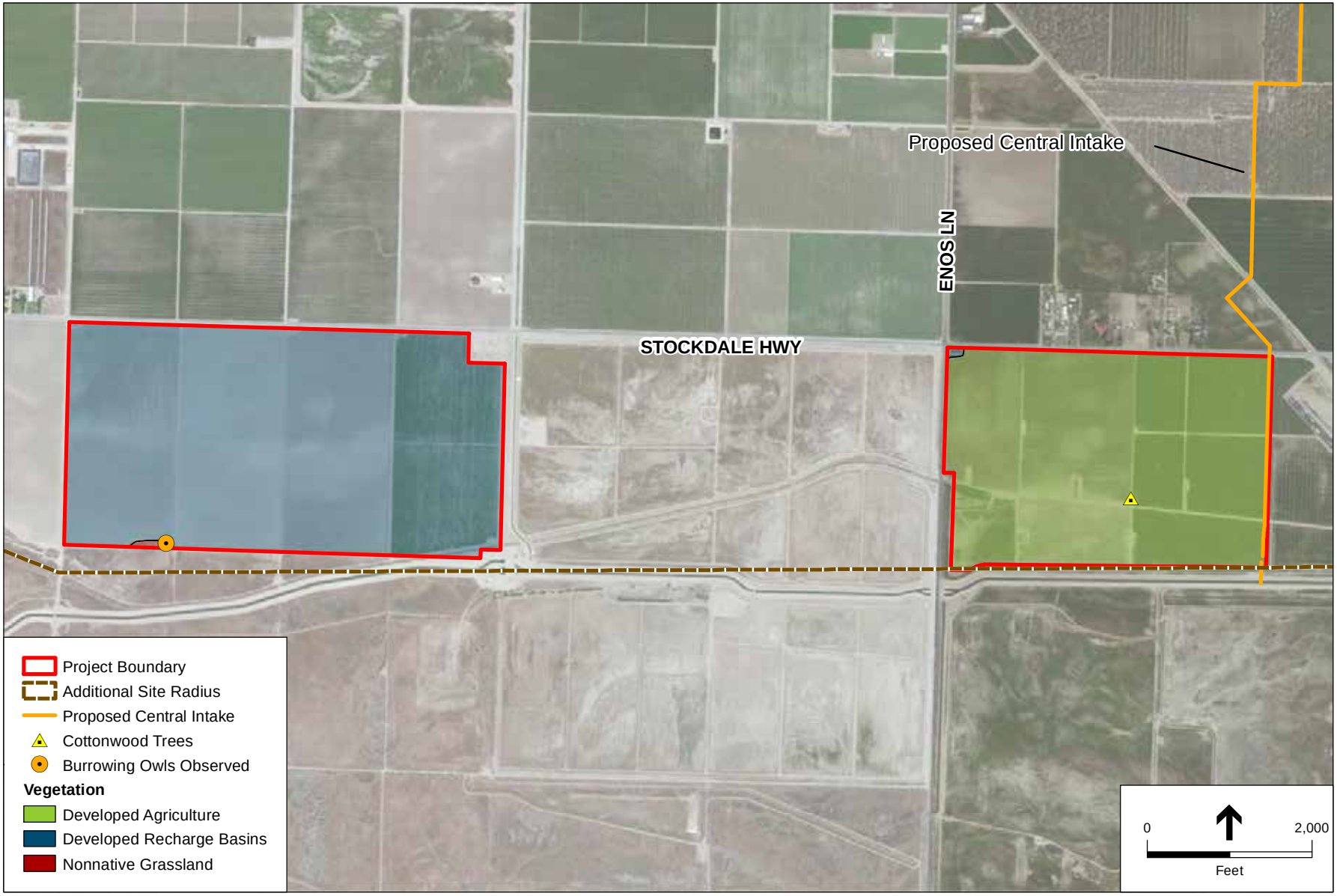
Vegetation Communities and Habitat Types

Vegetation communities are assemblages of plant species that occur together in the same area. Three distinct plant communities are found on the project site: Developed Agriculture, Developed Recharge Basins, and non-native grassland (Holland, 1986) (See **Figure 3.4-1**).

Developed Agriculture

Developed Agriculture is not a vegetation community defined by Holland (1986). However, the majority of the Stockdale East property, and the parcels surrounding both properties, including those to the north where the Central Intake alignment is located, are agricultural land supporting orchards, row crops, and fallow land. Crops found within this vegetation community include cotton, alfalfa, onions, safflower, almonds, carrots, and grapes divided by dirt access roads.

Several small areas of bare ground occur along the edges of the access roads where equipment and materials are being stored. Two cottonwood trees (*Populus fremontii*) and one unidentified ornamental tree occur in the southwestern portion of the Stockdale East property.



SOURCE: ESRI 2013

Stockdale Integrated Banking Project . 211181

Figure 3.4-1

Project Area Vegetation

The total area for Developed Agriculture within the project boundaries equates to approximately 230 acres on Stockdale East and 6.8 acres within the Central Intake alignment north of Stockdale East. This includes alfalfa, almonds, onions, squash, and fallow fields.

Developed Recharge Basins Land Cover

Developed Recharge Basin is not a vegetation community defined by Holland (1986). However, the majority of the Stockdale West property has been developed similar to neighboring Strand Ranch; it has been converted from agricultural fields into recharge basins planted with safflower. Raised access roads run between the basins with large culverts under each road to connect the basins. The culverts are reinforced with rip rap comprised of large rocks/boulders on both ends and around the road. There is also a small vegetated recharge basin in the northwest corner of the Stockdale East property.

The total area for Developed Recharge Basins within the project boundaries equates to approximately 323 acres on Stockdale West. This area is dominated by a monoculture of safflower but has weedy, ruderal species such as Russian thistle in areas that are disturbed along the basin and road edges.

Non-native Grassland (Holland Code 42200)

A small sliver of non-native grassland occurs near the southwestern edge of the Stockdale West property and was elevated slightly above the rest of the landscape and adjacent access road. This area had sparse vegetation dominated by Arabian schismus (*Schismus arabicus*). The total area for Nonnative Grassland within the project boundaries equates to approximately 0.91 acre.

Wildlife

Wildlife species observed at the project site are typical for the region. Nomenclature for wildlife species observed or expected to occur in the project area follow Jameson & Peeters (2004) for mammals, Jennings & Hayes (1994) and Stebbins (1985) for amphibians and reptiles, and Sibley (2003) for birds. Surveys conducted previously at Strand Ranch (ESA, 2008) identified many common wildlife species that would be expected to occur at the project site because of the close proximity and similar habitat types found there. These are discussed below.

No amphibians or reptiles were observed during the survey. Reptiles not observed but expected to be present include California kingsnake (*Lampropeltis getula californiae*), long-tailed brush lizard (*Urosaurus graciosus*), glossy snake (*Arizona* elegans), and western diamondback (*Crotalus* atrox). Though a vegetated recharge basin occurs in the northwest corner of Stockdale East, it is likely that this feature does not hold water perennially; therefore no suitable habitat for amphibians occurs and no amphibians were observed or are expected to occur at the project site.

Mammals observed include, California ground squirrel (*Spermophilus beechyi*), and desert cottontail (*Sylvilagus audubonii*). A potential San Joaquin kit fox (*Vulpes macrotis mutica*) burrow was found in the canal wall just south of Stockdale East during the 2012 survey. The burrow occurs where the north-south road that bisects Stockdale East intersects the canal on the southern border just outside of the project boundaries. Other mammals not observed but expected to be present include mule deer (*Odocoileus hemionus*), desert kit fox (*Vulpes macrotis*), Gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), round-tailed ground squirrel (*Spermophilus*

tereticaudus), desert woodrat (*Neotoma lepida*), and other species of common mice and rats typical of the western Mojave Desert region.

The vegetation communities within the project site and immediate vicinity support a wide variety of resident, nesting, and migratory song birds typical of the region and habitat types present. The proposed project area also supports suitable foraging and hunting habitat for a number of raptors, including burrowing owl, red-tailed hawk (*Buteo jamaicensis*), and Swainson's hawk (*Buteo swainsoni*). Bird activity was low during the reconnaissance survey; observed avian species included burrowing owl and red-tailed hawk.

Jurisdictional Resources

The Stockdale East property abuts the Pioneer Canal on the southern boundary. The canal was dry during the reconnaissance survey. The canal consists of an unpaved channel comprised of dirt and sandy soils dominated by weedy plant species, such as Russian thistle. Its sandy berms provide habitat (breeding and foraging) for numerous local and migratory species of wildlife. Just south of the Pioneer Canal is the CVC; a paved canal with consistent, year-round water flow. There is also a small, shallow, vegetated recharge basin (0.5 acres) in the northwest corner of the Stockdale East property.

The Stockdale West property was recently converted from agricultural fields into recharge basins planted with safflower. Raised access roads run between the basins with large culverts under each road to connect the basins. The culverts are reinforced with rip rap comprised of large rocks and boulders on both ends and around the road, allowing water to flow between the basins. Directly south of the western property is the Pioneer Canal and CVC, however a gap exists between the property and the canals that mostly consists of a disturbed buffer area dominated by Russian thistle and non-native grassland.

The minimal hydrophytic vegetation within the onsite canals and water features are being maintained only by a man-made source of water and hydrology. Should these sources of water be terminated, the vegetation would no longer exist and, therefore the areas are not considered wetlands. The canals are man-made water supply conveyance facilities and thus are not considered waters of the U.S. or waters of the State. The shallow vegetated recharge basin on the Stockdale East property is used to store water for the adjacent agricultural fields. These three features are not under the jurisdiction of (or subject to regulation by) the United States Army Corps of Engineers (USACE) (per Section 404 of the Clean Water Act [CWA]), the California Department of Fish and Wildlife (CDFW) (per Section 1600 of the Fish and Game Code), or the Regional Water Quality Control Board (RWQCB) (per Section 401 of the CWA).

The Central Intake Pipeline would extend from the Goose Lake Slough south to the CVC. The pipeline would connect to the south levee of Goose Lake Slough, north of Brimhall Road, ending at an inlet structure that includes rip-rap for erosion protection. Goose Lake Slough may be considered waters of the U.S. and/or waters of the State since it is mapped as a blue-line stream on the Stevens USGS topographic quadrangle map and demonstrates upstream connectivity with the Kern River, a Relatively Permanent Water. However, the hydrology of the slough is completely controlled through a weir that diverts water from the Kern River; thus, the slough is

operated in a manner similar to other irrigation canals in the project area that are not considered jurisdictional features. The point at which it connects to the Kern River only has water intermittently. In the event that the slough falls under the jurisdiction of the USACE per Section 404 of the CWA, CDFW per Section 1600 of the Fish and Game Code, and/or the RWQCB per Section 401 of the CWA, permitting requirements may be required prior to construction of the proposed Central Intake Pipeline connection.

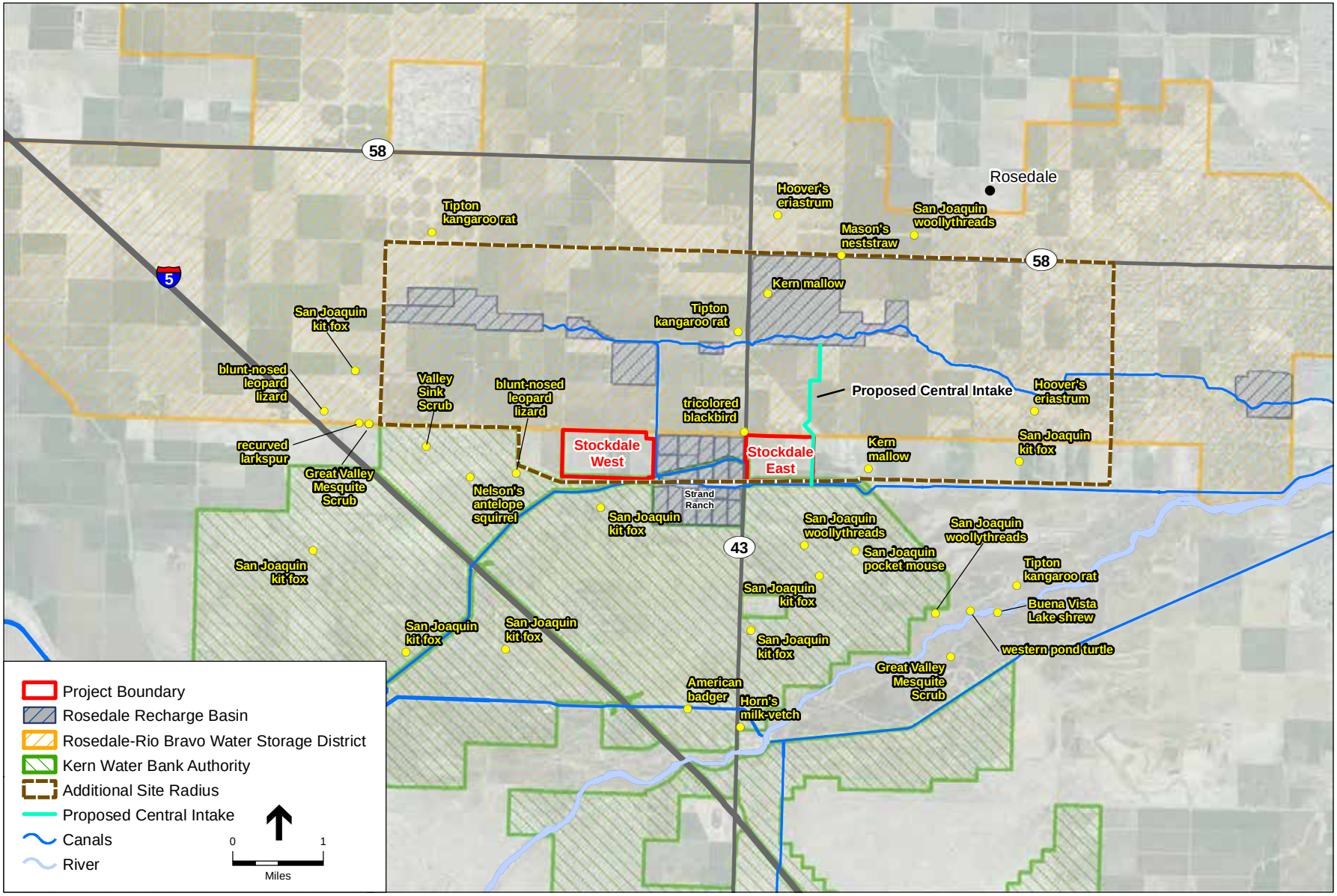
Special-Status Species and Natural Communities

Due to a general decline in population and habitat of certain species throughout California as a result of urbanization, agriculture, and industrial development, state and federal agencies, particularly the USFWS and CDFW, have listed a number of wildlife and plant species as threatened, endangered, or otherwise vulnerable to decline. Moreover, a number of state, federal, and local laws have been adopted to restrict and/or mitigate activities that could potentially impact a listed species or its habitat directly, indirectly, or cumulatively. Appendix D-1 provides tables describing each special-status wildlife and plant species and their potential to occur within the proposed project sites or vicinity, based on a 9-quadrangle radius, which includes 7.5-minute topographic quadrangles: Tupman, Buttonwillow, Rio Bravo, Rosedale, Stevens, Millux, Mouth of Kern, Taft, and East Elk Hills. The following sections focus on those species with a Medium to High Potential to occur within any of the proposed project areas or which have been confirmed to be Present on-site. Appendix D-1 also describes the Natural Communities of Special Concern within the nine quads listed above. **Figure 3.4-2** provides a more localized depiction of previously recorded species occurrence data per the CNDDB within a 3-mile radius of the proposed project areas.

Potential to occur was calculated based on the following criteria:

- **Low Potential:** The project site and/or immediate area only provide limited habitat for a particular species. In addition, the known range for a particular species may be outside of the immediate project area.
- **Medium Potential:** The project site and/or immediate area provide suitable habitat for a particular species, and proposed development may impact this species.
- **High Potential:** The project site and/or immediate area provide ideal habitat conditions for a particular species and/or known populations occur in the immediate area.
- **Present:** The species is know from the project site or was observed onsite during surveys.

The following is a brief description of the special-status wildlife species that are known to occur, or have a medium to high potential to occur on or in the vicinity of the proposed project site, and the status of their presence based on field surveys and documented references as discussed in Table 1 of Appendix D-1. For a more detailed description of each species refer to Appendix D-1.



SOURCE: ESRI 2013; CNDDB; Kern County GIS, 2012.

Figure 3.4-2

CNDDB Records within 3 miles of Project Site

Reptiles

Blunt-Nosed Leopard Lizard

The blunt-nosed leopard lizard (*Gambelia sila)* is a federally endangered and state endangered/fully protected species. It is endemic to the San Joaquin Valley of central California. This species typically inhabits open, sparsely vegetated areas of low relief on the San Joaquin Valley floor and in the surrounding foothills. Holland (1986) described the vegetative communities that blunt-nosed leopard lizards are most commonly found in as non-native grassland and Valley Sink Scrub communities. Other suitable habitat types on the Valley floor for this species include Valley Needlegrass Grassland (Holland, 1986), Alkali Playa (Holland, 1986), and Atriplex Grassland (USFWS, 2010a). The blunt-nosed leopard lizard is considered to have a medium potential to occur on-site.

There is one CNDDB occurrence record for the species within the vicinity of the proposed project (CDFW, 2012a). Suitable habitat does occur on the proposed project sites within the non-native grassland and fallow agricultural fields, and many of the earthen berms along the access roads on Stockdale West contain many small mammal burrows that could be utilized by the species; however, the habitat on the proposed project sites is marginal at best and these areas are unlikely to support a population of the species. No blunt-nosed leopard lizards were observed on the project site during the 2012 reconnaissance surveys.

San Joaquin Whipsnake

The San Joaquin whipsnake (*Masticophis flagellum ruddocki)* is a California Species of Special Concern. The range of this species extends from west of Arbuckle in the Sacramento Valley southward to the Kern County portion of the San Joaquin Valley and westward into the inner South Coast Ranges. San Joaquin whipsnake habitat includes open dry valley grassland with little or no tree cover and sandy or rocky soils. It occurs in open terrain and is most abundant in grassland, desert scrub, chaparral, and pasture habitats. The San Joaquin whipsnake is considered to have a medium potential to occur on-site.

There are 5 occurrences of the species in the vicinity of the proposed project sites that are recorded to the CNDDB (CDFW, 2012a). Suitable habitat does occur on the proposed project site within the non-native grassland and fallow agricultural fields, and many of the earthen berms along the access roads on the Stockdale West property contain small mammal burrows that could be utilized by the species; however, the habitat on the proposed project sites is marginal at best and these areas are unlikely to support a population of the species. This species was not observed onsite during the reconnaissance-level survey in 2012.

Birds

Swainson's Hawk

The Swainson's hawk (*Buteo swainson*) is a state threatened species and protected by the federal Migratory Bird Treaty Act. They nest in strands with few trees in juniper-sage flats, riparian areas, and in oak savannahs. They require suitable adjacent foraging areas such as grasslands or alfalfa and grain fields which support rodent populations (PPA, 2006). Based on habitat requirements, the Swainson's hawk is considered to have a medium potential to occur on-site.

The species has been observed foraging in the vicinity of the proposed project. CDFW indicates there are known occurrence records documenting Swainson's hawk within 3.5 miles of the project site. The species generally forage within 10 miles of their nest tree. However, the species is unlikely to nest in the immediate vicinity of the proposed project sites due to the lack of suitable nesting substrate. Although two cottonwood trees exist on Stockdale East, no raptor nests were observed during the 2012 reconnaissance.

Burrowing Owl

Burrowing owl (*Athene cunicularia*) is a California Species of Special Concern. This small, ground-dwelling owl lives in ground squirrel and other mammal burrows that it appropriates and enlarges for its purposes. It typically is found in short-grass grasslands, open scrub habitats, and a variety of open, human-altered environments, such as golf courses, airport runways and agricultural fields. The burrowing owl is considered to be present on-site.

No focused burrowing owl surveys were conducted; however, the reconnaissance-level habitat assessment found that the project area contains suitable burrowing owl habitat within the non-native grassland, fallow agricultural fields, earthen berms that line the agricultural fields and access roads, and the adjacent Saltbush Scrub. Many of the earthen berms along the access roads on the Stockdale West property also contain small mammal burrows that could be utilized by the species in the future. Three burrowing owls were observed utilizing two separate burrows within the non-native grassland on the Stockdale West property during the reconnaissance (see Figure 3.4-1).

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) prefers wetland and grassland habitats, although most native types of these habitats have been lost. Within the San Joaquin Valley, breeding colonies live mainly in the pasturelands, but can also be found in chaparral, orange and avocado groves, sagebrush grasslands, and salt-marsh habitat. Nesting takes place in native emergent marshes, grain fields, thickets of Himalayan blackberry, and other flooded and upland habitats (NatureServe, 2012a). The tricolored blackbird is considered to have a high potential to occur on-site.

The open water canals and agricultural fields on and near the proposed project sites can support this species. Tricolored blackbirds have been observed foraging in the region and a CNDDB occurrence record for the species is located adjacent to the Stockdale East property. No tricolored blackbirds were observed during the 2012 reconnaissance.

Mammals

Nelson's Antelope Squirrel

Nelson's antelope squirrel (*Ammospermophilus nelson*) is a state threatened species. It is a permanent resident of the western San Joaquin Valley from 60-360 meters in elevation on dry, sparsely vegetated, loam soils. It can be found from southern Merced County south to Kern, Kings, and Tulare Counties. The species also occurs in portions of eastern San Luis Obispo and Santa Barbara Counties. Suitable habitat has widely scattered alkali scrub vegetation and shrubs,

annual forbs and grasses, and is distributed over broken terrain with small gullies and dry washes with sandy loam soils (Zeiner *et al.*, 1988-1990). The Nelson's antelope squirrel is considered to have a medium potential to occur on-site.

Suitable habitat for the species exists on the proposed project sites within the non-native grassland and fallow agricultural fields, and many of the earthen berms along the access roads on the Stockdale West property contain many small mammal burrows that could be utilized by the species; however, the habitat on the proposed project site is marginal at best and these areas are unlikely to support a population of the species. Occurrence records for the species have also been recorded to the CNDDB within a mile of the proposed project site (CDFG, 2012a). No Nelson's antelope squirrels were observed during the 2012 survey.

Tipton Kangaroo Rat

The Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*) is a California and federally listed endangered species. Tipton kangaroo rats eat mostly seeds, with small amounts of green, herbaceous vegetation and insects supplementing their diet when available. Burrow systems are usually in open areas but may occur in areas of thick scrub. Current occurrences are limited to scattered, isolated areas. In the southern San Joaquin Valley this includes the Kern National Wildlife Refuge, Delano, and other scattered areas within Kern County. The Tipton kangaroo rat is considered to have a medium potential to occur on-site.

Suitable habitat for the species exists on the proposed project site in the non-native grassland and fallow agricultural fields, and many of the earthen berms along the access roads on the Stockdale West property contain many small mammal burrows that could be utilized by the species; however, the habitat on the proposed project site is marginal at best and these areas are unlikely to support a population of the species. An occurrence record for the species is documented in the CNDDB within one mile of the proposed project site (CDFW, 2012a). The Tipton kangaroo rat or kangaroo rat signs were not observed during the 2012 reconnaissance.

San Joaquin Kit Fox

The San Joaquin kit fox (*Vulpes macrotis mutica*) is a state threatened and federally listed endangered species. They feed primarily on ground squirrels, kangaroo rats, desert cottontails, mice, insects, carrion and ground-nesting birds. Their habitat includes the San Joaquin Valley and Kern County area (USFWS, 2010b). Based on such habitat requirements, San Joaquin kit fox is considered to have a high potential to occur on-site.

An occurrence record for the species is documented in the CNDDB within three miles of the proposed project sites (CDFW, 2012a). In addition, CDFW indicates there are known occurrence records of kit fox within the project vicinity (CDFW, 2013). No kit fox were observed during the 2012 reconnaissance; however, a potential kit fox burrow was found in the canal wall just south of the Stockdale East property during the 2012 survey. The burrow occurs where the north-south road that bisects the property intersects the canal on the southern border just outside of the boundaries of the proposed project site. No kit fox sign was observed at or near the burrow. Only one entrance to the burrow was observed so the potential for the den to be used for pupping is low; however, due to the species' known presence in the region and the existence of suitable

habitat in the immediate vicinity of the proposed project, there is a high probability that kit fox utilize the proposed project site.

The perimeter fencing installed on Stockdale West as part of the Stockdale West Ranch Pilot Project meets the criteria of CDFW and USFWS San Joaquin Kit Fox Minimization Measures (see **Appendix D-2**), which were implemented as part of the Pilot Project. The fencing allows for passage of kit fox by providing 8" x 12" openings near the ground every 100 yards along the solid wire mesh fence.

American Badger

The American badger (*Taxidea taxus*) is a California Species of Special Concern. The range of the American badger includes most of the State, with the exception of the northwestern forests. Badgers occupy a variety of habitats, including grasslands, savannas, and mountain meadows where soils are suitable for digging for their preferred prey, large rodents such as ground squirrels, gophers, and kangaroo rats (NatureServe, 2012b). The American badger is considered to have a high potential to occur on-site

Ideal habitat for this species exists on the proposed project sites and a potential active badger den has been observed in the immediate vicinity of the project sites. However, no badgers, badger sign or potential badger burrows were observed during the 2012 reconnaissance.

Special-Status Plant Species

Precipitation for 2011-2012 was typical in the project region as well as throughout most of the State (NOAA, 2012). Therefore, floristic representation at the time of the survey would have been typical for the month of July.

Based on the database search results, special-status plant species known to occur in the vicinity of the project site included 16 annual species, three perennial herbaceous, bulbiferous, or stem succulent species, and one moss.

Stockdale East and Stockdale West

Although none of the 16 annual special-status plant species identified in the database search would have likely been blooming during the July 2012 habitat assessment, all are considered to have a low potential for occurrence or are unlikely to occur on the proposed project site due to the lack of suitable habitat. Please refer to Table 2 of Appendix D-1 for a detailed description of each species and their potential to occur on the proposed properties.

No special-status plant species were found within the proposed project site and none are expected to occur based on the database search and habitat assessment.

Central Intake Pipeline

The Central Intake alignment extends north from the Stockdale East property to the Goose Lake Slough, occurring through similar habitat as the Stockdale East and West properties, consisting of disturbed and developed land associated with agricultural fields and recharge basins. The 16

annual special-status plant species identified in the database search have a low potential for occurrence or are unlikely to occur along the Central Intake alignment.

Third Stockdale Site

The exact location of the third Stockdale site is currently unknown. Based on the CNDDB occurrence data as depicted on Figure 3.4-2, the following is a brief description of the special-status plant species that are known to occur on or in the vicinity of the proposed third Stockdale site. For a more detailed description of each species refer to Appendix D-1.

Kern mallow (*Eremalche kemensis*) is a federally listed endangered species with a CNPS status of 1B.1.[2] This species is an annual herb with a flowering period between March and May. Kern mallow is found within chenopod scrub and valley and foothill grassland habitat.

Hoover's eriastrum (*Eriastrum hooveri*) has been federally de-listed and has a CNPS status of 4.2.[3] This species is an annual herb with a blooming period between March and July. Hoover's eriastrum prefers gravelly soils supporting chenopod scrub, pinyon and juniper woodland, and valley and foothill grasslands.

Natural Communities of Special Concern

Based on the database search, five natural communities of special concern can be found within the study area: Great Valley Cottonwood Riparian Forest, Great Valley Mesquite Scrub, Valley Sacaton Grassland, Valley Saltbush Scrub, and Valley Sink Scrub. However, none of these communities were found to be present within the proposed Stockdale West and Stockdale East properties, and the Central Intake alignment. As seen on Figure 3.4-2, there are no recorded occurrences of these communities within the additional site radius designated for the third Stockdale site.

Wildlife Movement Corridors

Habitat linkages provide a connection between two or more habitat areas that are often larger or superior in quality to the linkage. Such linkages can be quite small or constricted, but can be vital to the long-term health of connected habitats. Wildlife movement corridors are features that allow wildlife movement between patches of habitat, allowing for dispersal and genetic interchange. The Pioneer Canal and CVC to the south of the project areas, and Goose Lake Slough to the north of the Central Intake, provide opportunities for wildlife movement. In addition, the project area connects to an adjacent area of open space, the KWBA, along the southern borders of the properties, and thus linkage value is deemed high quality.

[2] CNPS Status: List 1B (Plants Rare, Threatened, Endangered in California and elsewhere), Threat rank: .1 (serious Endangered in California).
[3] CNPS Status: 4 (Plants of Limited Distribution – A Watch List), Threat Rank: .2 (fairly Endangered in California)

3.4.2 Regulatory Setting

Federal

Federal Endangered Species Act

Under the federal Endangered Species Act (FESA), the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as threatened or endangered (16 USC 1533(c)). Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed or proposed species may be present in the project region and determine whether the proposed project would have a potentially significant impact on such species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536(3), (4)). Project-related impacts to these species or their habitats would be considered "significant." Section 7 of FESA contains a "take" prohibition which prohibits any action conducted, funded, or approved by a federal agency that adversely affects a member of an endangered or threatened species without prior formal consultation with the USFWS. Formal consultation with the USFWS would result in the issuance of a Biological Opinion (BO) that includes either a jeopardy or non-jeopardy decision issued by the USFWS to the consulting federal agency. The BO would also include the possible issuance of an "incidental take" permit. If such authorization is given, the project proponent must provide the USFWS with a Habitat Conservation Plan (HCP) for the affected species and publish notification of the application for a permit in the Federal Register.

Section 4(a)(3) and (b)(2) of the FESA requires the designation of critical habitat to the maximum extent possible and prudent based on the best available scientific data and after considering the economic impacts of any designations. Critical habitat is defined in section 3(5)(A) of the FESA as (1) areas within the geographic range of a species that are occupied by individuals of that species and contain the primary constituent elements (physical and biological features) essential to the conservation of the species, thus warranting special management consideration or protection, and (2) areas outside of the geographic range of a species at the time of listing but that are considered essential to the conservation of the species.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, domestically implements a series of treaties between the United States and Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds; the act provides that it shall be unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird…" (U.S. Code Title 16, Section 703). This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species protected by the MBTA includes several hundred species and essentially includes all native birds. Permits for take of nongame migratory birds can be issued only for specific activities, such as

scientific collecting, rehabilitation, propagation, education, taxidermy, and protection of human health and safety and personal property.

Clean Water Act

Section 404 and Wetlands

In accordance with Section 404 of the federal CWA, the USACE regulates discharge of dredged or fill material into waters of the U.S. Waters of the U.S. and their lateral limits are defined in Title 33, Part 328.3(a) of the Code of Federal Regulations to include navigable waters of the United States, interstate waters, all other waters subject to the ebb and flow of the tide, and all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries.

Wetlands are a subset of "waters of the United States" and receive protection under Section 404 of the CWA. Wetlands are defined by the federal government (CFR, Section 328.3(b), 1991) as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with U.S. Environmental Protection Agency (EPA) (328.3(a)(8) added 58 FR 45035, August 25, 1993).

The USACE regulates the discharge of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act. The jurisdictional delineation performed for the Stockdale East and Stockdale West study area determined that no USACE jurisdictional wetlands are present on or adjacent to these properties (see Appendix D). However, the Central Intake alignment is proposing to connect with the Goose Lake Slough, a potentially jurisdictional feature that may require regulatory permitting prior to construction.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, waters of the state fall under the jurisdiction of the appropriate RWQCB. Under the act, the RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Projects that affect wetlands or waters must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under Section 401 of the CWA. The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for impacts to wetlands and/or waters of the state. The RWQCB also has jurisdiction over waters deemed 'isolated' or not subject to Section 404 jurisdiction under *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*

(SWANCC).[4] Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the state and prospective dischargers are required obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and comply with other requirements of Porter-Cologne Act.

State

CEQA Guidelines Section 15380

Although threatened and endangered species are protected by specific federal and state statutes, *CEQA Guidelines* Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected, and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the *CEQA Guidelines* for addressing impacts. Local planning documents such as general plans often identify these resources as well.

California Endangered Species Act (CESA)

Under CESA, the CDFW is responsible for maintaining a list of threatened and endangered species (California Fish and Game Code 2007), candidate species, and species of special concern. Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state listed endangered or threatened species may be present on the project region and determine whether the proposed project would have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may impact a candidate species. If there were project-related impacts to species on the CESA threatened and endangered list, they would be considered "significant." Impacts to "species of concern" would be considered "significant" under certain circumstances, discussed below.

[4] Based on the Supreme Court ruling (SWANCC) concerning the Clean Water Act jurisdiction over isolated waters (January 9, 2001), non-navigable, isolated, intrastate waters based solely on the use of such waters by migratory birds are no longer defined as waters of the United States. Jurisdiction of non-navigable, isolated, intrastate waters may be possible if their use, degradation, or destruction could affect other waters of the Unites States, or interstate or foreign commerce. Jurisdiction over such other waters are analyzed on a case-by-case basis. Impoundments of waters, tributaries of waters, and wetlands adjacent to waters should be analyzed on analyzed on a case-by-case basis.

State Fish and Game Code

Section 2080 - Threatened and Endangered Species

Section 2080 of the State Fish and Game Code states, "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to Section 2081 of the Code, the CDFW may authorize individuals or public agencies to import, export, take, or possess, any state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding if: (1) the take is incidental to an otherwise lawful activity; (2) impacts of the authorized take are minimized and fully mitigated; (3) the permit is consistent with any regulations adopted pursuant to any recovery plan for the species; and (4) the applicant ensures adequate funding to implement the measures required by CDFW. The CDFW makes this determination based on available scientific information and considers the ability of the species to survive and reproduce. Due to the potential presence of state-listed rare, threatened, or endangered species on the project site, Sections 2080 and 2081 of the Code were considered in this evaluation.

Section 3503 – Nesting Birds and Raptors

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations of these codes include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of Section 3503.5 could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction. This statute does not provide for the issuance of any type of incidental take permit.

Section 1600 – Lake and Streambed Alteration

CDFW regulates activities that would interfere with the natural flow of, or substantially alter, a channel, bed, or bank of a lake, river, or stream. These activities are regulated under the California Fish and Game Code Sections 1600-1616. Under Section 1602, it is unlawful for any person, governmental agency, or public utility to do the following without first notifying CDFW: substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. Requirements may include avoidance or minimization of the use of heavy equipment, limitations on work periods to avoid impacts on wildlife and fisheries resources, and measures to restore degraded sites or compensate for permanent habitat losses. A Streambed Alteration Agreement may be required by CDFW for construction activities that could result in an accidental release into a jurisdictional area.

A stream is defined as a body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A CDFW streambed alteration agreement must be obtained for any project that would result in an impact on a river, stream, or lake.

Unlike the federal government, California has adopted the Cowardin, et al. (1979) definition of wetlands. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes (at least 50 percent of the aerial vegetative cover); (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.

Under normal circumstances, the federal definition of wetlands requires all three wetland identification parameters to be met, whereas the Cowardin definition requires the presence of at least one of these parameters. For this reason, identification of wetlands by state agencies consists of the union of all areas that are periodically inundated or saturated, or in which at least seasonal dominance by hydrophytes may be documented, or in which hydric soils are present.

Both state and federal wetland laws require that the biological and hydrological functions, which are lost when a wetland or water is altered or filled, be replaced as part of the respective permit processes. Compensatory actions include replacement of lost wetland acreage, usually in amounts substantially greater than the amount lost.

Sections 3511, 4700, 5050 and 5515 – Fully Protected Species

Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species. CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species. CDFW has informed nonfederal agencies and private parties that they must avoid take of any fully protected species in carrying out projects.

Native Plant Protection Act

The Native Plant Protection Act includes measures to preserve, protect, and enhance rare and endangered native plants. The list of native plants afforded protection pursuant to the Native Plant Protection Act includes those listed as rare and endangered under the CESA. The Native Plant Protection Act provides limitations on take as follows: "No person will import into this State, or take, possess, or sell within this State" any rare or endangered native plant, except in compliance with provisions of the act. Individual landowners are required to notify the CDFW at least 10 days in advance of changing land uses to allow the CDFW to salvage any rare or endangered native plant material. Due to the absence of state-listed rare, threatened, or endangered plant species on the project site, the Native Plant Protection Act was not considered in this evaluation.

Local

Metropolitan Bakersfield Habitat Conservation Plan

The Metropolitan Bakersfield Habitat Conservation Plan (MBHCP) addresses the effect of urban growth on federally and State protected plant and animal species within the Metropolitan Bakersfield 2010 General Plan area. The MBHCP is a joint program of the City of Bakersfield and Kern County that was undertaken to assist urban development applicants in complying with State and federal endangered species laws. The MBHCP utilizes a mitigation fee paid by applicants for local grading or building permits to fund the purchase and maintenance of habitat land to compensate for the effects of urban development on endangered species habitat. Half of the proposed project falls within the MBHCP area.

3.4.3 Impact Assessment

Thresholds of Significance

The following criteria from Appendix G of the *CEQA Guidelines* are used as thresholds of significance to determine the impacts of the proposed project as related to biological resources. The proposed project would have a significant impact if it would:

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

Effects Found Not to be Significant

Threshold 4. Migratory Wildlife Corridors

The Pioneer Canal and CVC to the south of Stockdale East and Stockdale West, and Goose Lake Slough to the north of the Central Intake, provide opportunities for wildlife movement. In

addition, the project area connects to an adjacent area of open space along the southern borders of the properties, and thus linkage value is deemed high quality; however, the project is not anticipated to affect the continued movement of any fish or wildlife species in this agriculture-dominated landscape. Similarly, the third Stockdale site is not expected to conflict with wildlife migration corridors as it would be located within a similar area dominated by agriculture, and construction of the proposed project would not impede wildlife movement. No impact would occur, and no mitigation measures are required.

Threshold 5. Local Policies and Ordinances

No local policies or ordinances governing biological resources would be affected by the proposed project. No impact would occur and no mitigation measures are required.

Impacts and Mitigation Measures

Threshold 1. Sensitive and Special-Status Species

Impact BIO-1: Construction of the proposed project could result in adverse impact to special-status species.

Stockdale East, Stockdale West, and Central Intake Pipeline

Reptiles. Based on the conditions at Stockdale East, Stockdale West, and the Central Intake alignment, CNDDB records, and the 2012 reconnaissance survey, no suitable habitat exists for the blunt-nosed leopard lizard and the San Joaquin whipsnake; no impacts would occur, and no mitigation is required.

Birds. Activities associated with the construction of the proposed project on Stockdale East and Stockdale West and within the Central Intake alignment could result in adverse impacts to migratory birds protected under the MBTA and special-status bird species, including Swainson's hawk, burrowing owl and tricolored blackbird.

Direct impacts to migratory birds and special-status bird species, including raptors and the State Species of Special Concern tricolored blackbird, would involve the removal/disturbance of the non-native grassland, fallow and active agricultural fields, almond trees, and two cottonwood trees, which have the potential to provide nesting opportunities for resident birds. Removal of nesting habitat during the breeding season could result in the direct mortality of birds. Vegetation and tree removal, construction noise, vibrations, and human disturbance could cause nest abandonment, death of the young, or loss of reproductive potential at active nests located near proposed project activities. Implementation of **Mitigation Measure BIO-1** would reduce potential impacts to special-status nesting and migratory birds to less than significant levels.

The State threatened Swainson's hawk has been observed foraging in the vicinity of Stockdale East, Stockdale West, and the Central Intake alignment. The project sites provide potential foraging habitat for this species. Foraging habitat includes grasslands or alfalfa and grain fields that support rodent populations. The Stockdale East property would continue to be used for agricultural activities when not used for recharge and thus development of aboveground facilities at this site (e.g., recharge basins, well housing, pump station) would not preclude the use of the

site for foraging. At Stockdale West, development of three new wells with aboveground well housing would occupy a small portion of the site and allow for continue use of the site for foraging when not used for recharge, similar to existing conditions. The Central Intake alignment would temporarily affect the edges of neighboring alfalfa fields but would not result in permanent loss of foraging habitat. Although the potential for Swainson's hawk to nest in the immediate vicinity of the project sites is low, the species generally forage within 10 miles of their nest tree. In accordance with CDFW recommendations (CDFW, 2013), to avoid impacts to the species, preconstruction surveys would be conducted as described in **Mitigation Measure BIO-2**, with additional measures implemented to avoid disturbance in the event the species is detected. With implementation of **Mitigation Measure BIO-2**, any impacts to Swainson's hawk would be less than significant.

Burrowing owls and/or suitable burrowing owl habitat was observed at both Stockdale East and Stockdale West properties. Potential suitable habitat may exist in the agricultural fields along the Central Intake alignment. As a State Species of Special Concern, displacement of burrowing owls would be considered a significant impact. Burrowing Owl Surveys would be required prior to project implementation and would be conducted according to the *Staff Report on Burrowing Owl Mitigation* prepared by CDFW (2012). With implementation of **Mitigation Measure BIO-3**, any impacts to the burrowing owl would be less than significant.

Mammals. Based on the conditions at the Stockdale East and Stockdale West properties and along the Central Intake alignment, CNDDB records, and the 2012 reconnaissance, no suitable habitat exists for the Nelson's Antelope squirrel and Tipton kangaroo rat. Therefore, no impact to these species is expected and no mitigation is required. While the sites contains ideal habitat for badger, no sign was found; the species is highly mobile and therefore it is not likely that the species would be impacted. No mitigation is required.

Activities associated with the construction of the proposed project on Stockdale East could result in adverse impacts to the San Joaquin kit fox. A potential San Joaquin kit fox burrow was found in the canal wall just south of Stockdale East during the 2012 reconnaissance survey. In addition, there are known occurrences of kit fox within three miles of the project sites. Thus, there is potential for project construction at Stockdale East, Stockdale West, and along the Central Intake alignment to affect San Joaquin kit fox. Any impact to this State threatened and federally endangered species on any of the Stockdale Properties would be significant. With implementation of **Mitigation Measure BIO-4,** potential impacts to the San Joaquin kit fox would be reduced to a less than significant level. Mitigation Measure BIO-4 requires the USFWS "early evaluation" be completed in accordance with its most recent *San Joaquin Kit Fox Survey Protocol*, and, if necessary, subsequent surveys and consultation with CDFW and USFWS to determine measures for avoidance, minimization, restoration, preservation, or compensation.

Plants. No special-status plant species are known to occur or could potentially occur at the Stockdale East or Stockdale West properties, or along the Central Intake alignment. There is potential for special-status plant species to be present within the area of disturbance at Goose Lake Slough. Implementation of **Mitigation Measure BIO-5** will identify any special-status

plants that occur within the area of disturbance at the slough, and if necessary require implementation of avoidance measures, or if avoidance is not feasible then implementation of a Revegetation/Restoration Mitigation Plan.

Third Stockdale Site

Wildlife. The location of the third Stockdale site has not yet been determined. Once locations have been confirmed and finalized, respectively, pre-construction surveys would be required to determine suitability for special-status species to occur on-site. The overall composition of the area designated within the additional site radius is mainly composed of agricultural lands similar to the ones proposed for the Stockdale East and Stockdale West properties. It is assumed that similar impacts and species would occur at most potential sites within the additional site radius. Figure 3.4-2 shows existing point data occurrences of species recorded within the CNDDB for the area and Figure 3.4-1 shows an aerial view of the area which clearly demonstrates a majority of the area is dominated by agricultural land. **Mitigation Measures BIO-6** and **BIO-1** through **BIO-4** would reduce potential impacts to special-status wildlife species to a less than significant level.

Plants. Special-status plant species have the potential to occur within the proposed site radius for the third Stockdale site. Once the exact location of the third Stockdale site has been determined, pre-construction surveys, per **Mitigation Measure BIO-5**, would be required to determine the presence of special-status plant species and required steps to avoid or mitigate for impacts to such species.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

BIO-1: The following measures would reduce potential impacts to nesting and migratory birds and raptors to less than significant levels:

- Within 15 days of site clearing, a qualified biologist shall conduct a preconstruction, migratory bird and raptor nesting survey. The biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. This survey shall include species protected under the Migratory Bird Treaty Act including the tricolored blackbird. The survey shall cover all reasonably potential nesting locations for the relevant species on or closely adjacent to the proposed project site.
- Nesting habitat should be removed prior to the bird breeding season (February 1 – September 30).
- If an active nest is confirmed by the biologist, no construction activities shall occur within 250 feet of the nesting site for migratory birds and within 500 feet of the nesting site for raptors. The buffer zones around any nest within which project-related construction activities would be avoided can be reduced as determined acceptable by a qualified biologist. Construction activities may resume once the breeding season ends (February 1 – September 30), or the nest has either failed or the birds have fledged.

BIO-2: If construction activities are scheduled to take place outside of the Swainson's hawk nesting season (which runs from March 1 – September 15), then no preconstruction clearance surveys or subsequent avoidance buffers are required. If construction activities are initiated within the nesting season then preconstruction nesting surveys shall be conducted by a qualified biologist prior to ground disturbance, in accordance with the guidance provided in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee, 2000). The required windshield surveys shall cover a one-half mile radius around the project sites. If a nest site is found, the qualified biologist shall determine the appropriate buffer zone around the nest within which project-related construction activities would be avoided. In addition, the qualified biologist shall consult with Rosedale and/or IRWD to determine whether consultation with CDFW is necessary.

BIO-3: A pre-construction survey shall be conducted for burrowing owls 14 to 30 days prior to clearing of the site by a qualified biologist in accordance with the most recent CDFW protocol, currently the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Surveys shall cover suitable burrowing owl habitat disturbed by construction including a 500-foot buffer. The survey would identify adult and juvenile burrowing owls and signs of burrowing owl occupation. This survey shall include two early morning surveys and two evening surveys to ensure that all owl pairs have been located. If occupied burrowing owl habitat is detected on the proposed project site, measures to avoid, minimize, or mitigate impacts shall be incorporated into the proposed project and shall include, but not be limited to, the following:

- If owls are identified on or adjacent to the site, a qualified biologist shall provide a pre-construction Worker's Environmental Awareness Program to contractors and their employees that describes the life history and species protection measures that are in effect to avoid impacts to burrowing owls. Construction monitoring will also occur throughout the duration of ground-disturbing construction activities to ensure no impacts occur to burrowing owl.
- Construction exclusion areas shall be established around the occupied burrows in which no disturbance shall be allowed to occur while the burrows are occupied. Buffer areas shall be determined by a qualified biologist based on the recommendations outlined in the most recent *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).
- If occupied burrows cannot be avoided, a qualified biologist shall develop and implement a Burrowing Owl Management Plan. The biologist shall develop the Plan in consultation with Rosedale and/or IRWD and shall coordinate with CDFW as necessary.

BIO-4: IRWD and Rosedale shall conduct a USFWS-approved "early evaluation" of the project area to determine if the project sites represent San Joaquin kit fox habitat. If the evaluation shows that the San Joaquin kit fox does not utilize the project sites, and the project will not result in take, then no further mitigation shall be required for this endangered species. If the "early evaluation" finds potential for the presence of kit fox, USFWS may require a San Joaquin kit fox survey to be conducted by a qualified biologist, in accordance with the most

recent USFWS *San Joaquin Kit Fox Survey Protocol*. If it is determined that the San Joaquin kit fox has the potential to utilize the property then the following measures are required to avoid potential adverse effects to this species:

- Rosedale and/or IRWD shall initiate discussions with the USFWS to determine appropriate project modifications to protect kit fox, including avoidance, minimization, restoration, preservation, or compensation.
- If evidence of active or potentially active San Joaquin kit fox dens is found within the area to be impacted by the proposed project, compensation for the habitat loss shall be determined and provided in consultation with USFWS and CDFW.

BIO-5: Prior to ground disturbing activities at the Goose Lake Slough and third Stockdale site, a qualified biologist shall conduct a pre-construction floristic survey and, if deemed necessary, focused rare plant survey of project areas to determine and map the location and extent of special-status plant species populations and natural communities of special concern within disturbance areas. Focused rare plant surveys shall occur during the typical blooming periods of special-status plants with the potential to occur. The plant surveys shall follow the CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (November 24, 2009).

If a special-status plant species is found to be present, and avoidance of the species and/or habitat is not feasible, the implementing agency shall retain a qualified botanist to prepare and implement a Revegetation/Restoration Mitigation Plan.

BIO-6: Prior to ground disturbing activities at the third Stockdale site, a habitat assessment shall be conducted by a qualified biologist to determine the potential for special-status wildlife species to occur within affected areas. If the habitat assessment determines that a special-status species has the potential to be present within a minimum of 500 feet of the construction zone, a qualified biologist shall determine whether subsequent focused surveys are required prior to project implementation to determine presence or absence.

If a special-status wildlife species is found to be present, and avoidance of the species and/or habitat is not feasible, then Mitigation Measures BIO-1 through BIO-4 shall be implemented as appropriate, or Rosedale and/or IRWD shall consult with a qualified biologist to prepare a species-specific mitigation plan and determine whether consultation with wildlife agencies are recommended.

Threshold 2. Sensitive Natural Communities

Impact BIO-2: The proposed project could have a substantial adverse effect on sensitive natural communities.

Stockdale East, Stockdale West, and Central Intake Pipeline

No sensitive natural communities were found within the Stockdale East or Stockdale West properties during the 2012 reconnaissance. In addition, no sensitive natural communities exist

along the Central Intake alignment. No impact would occur, and no mitigation is required for those properties.

Third Stockdale Site

There are no previously recorded sensitive natural communities within the additional site radius where the third Stockdale site would be located (see Figure 3.4-2). In addition, due to the composition of the surrounding areas being mainly agricultural land, it is unlikely that any sensitive natural communities would be present within the potential third Stockdale site. However, once the properties have been confirmed/selected, pre-construction surveys of the area as described in **Mitigation Measure BIO-5** would be required, which would identify any sensitive natural communities and ensure that potential impacts are reduced to a less than significant level.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

Implement **Mitigation Measure BIO-5**.

Threshold 3. Wetlands

Impact BIO-3: The proposed project could have a substantial adverse effect on federally protected wetlands.

Stockdale East and Stockdale West

No waters of the U.S., waters of the State, or any other additional jurisdictional riparian habitat or wetlands occur in or around the Stockdale East or Stockdale West properties. The local canals (e.g., CVC and Pioneer Canal) are man-made water supply conveyance facilities and thus are not considered waters of the U.S. or waters of the state. There would be no impact to jurisdictional features such as wetlands.

Central Intake Pipeline

Goose Lake Slough may be considered waters of the U.S. and/or waters of the State since it demonstrates upstream connectivity with the Kern River, a Relatively Permanent Water. However, the hydrology of the slough is completely controlled through a weir that diverts water from the Kern River; thus, the slough is operated in a manner similar to other irrigation canals in and surrounding the project area that are not considered jurisdictional features. Connecting the Central Intake Pipeline to the Goose Lake Slough may result in potential impacts to a potentially jurisdictional feature, depending on the methods and degree of impact during construction.

Implementation of **Mitigation Measure BIO-7** would reduce potential impacts to a less than significant level by requiring preparation of a jurisdictional delineation, and if jurisdictional features are identified, that requires mitigation and compensation requirements to be implemented prior to construction. If wetlands are present on-site, the implementing agency would be required

to obtain a Section 404 Permit from the USACE or written documentation that one is not required.

Third Stockdale Site

Once the location of the third Stockdale site has been determined, a jurisdictional delineation of the area may be required to determine the presence of wetlands, riparian habitat, or jurisdictional waters. Implementation of **Mitigation Measure BIO-7** would reduce potential impacts to a less than significant level by requiring preparation of a jurisdictional delineation, and if jurisdictional features are identified, that requires mitigation and compensation requirements to be implemented prior to construction. If wetlands are present on-site, the implementing agency would be required to obtain a Section 404 Permit from the USACE or written documentation that one is not required.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

BIO-7: For project components that have potential to impact jurisdictional features, prior to ground disturbing activities, a qualified biologist shall be retained to conduct a jurisdictional delineation in areas that may be affected by the project. If jurisdictional resources are identified, the qualified biologist shall prepare a jurisdictional delineation report outlining the potential acreage of jurisdictional features that may be impacted. The jurisdictional delineation report will be submitted to USACE for a jurisdictional determination. If the delineation report determines that jurisdictional waters and/or wetlands are present within the project site, regulatory permits may be required prior to project impacts which include mitigation and/or compensation to reduce impacts to jurisdictional features to a less than significant level. Based on the results of the delineation report, permits required may include a 404 or Nationwide Permit from USACE, a 401 Certification from RWQCB and/or a Streambed Alteration Agreement from CDFW. Project impacts under 0.10 acre may not require a permit from USACE but only a notification of impact. The appropriate permits required to reduce impacts to jurisdictional features will be determined through initial consultation with the resource agencies.

Threshold 6. HCP and NCCP

Impact BIO-4: The proposed project could conflict with the Metropolitan Bakersfield Habitat Conservation Plan.

The Stockdale East property and the alignment for the Central Intake Pipeline fall within natural and agricultural lands in the MBHCP area. The third Stockdale site has not yet been determined, and could fall within the jurisdiction of the MBHCP as shown on Figure 3.10-3 in **Chapter 3.10, Land Use and Planning**. The MBHCP's primary focus is on lands converted to urban uses (MBHCP, 1994). The MBHCP sets forth a program for the preservation and protection of habitat for several rare or endangered species found in the HCP study area in exchange for the loss of some

existing habitat from urban development. The MBHCP permit only applies to City or County actions, or actions by others, which involve City or County permits. Special agencies, such as Rosedale, that are exempt from local permitting have other options with regard to endangered species issues, including resolving endangered species issues directly with USFWS and CDFW (MBHCP, 1994). Given that the proposed project would not result in the conversion of land to urban uses, and that mitigation measures have been included to reduce project impacts to threatened and endangered species to less than significant levels (Mitigation Measures BIO-1 though BIO-6), the proposed project would not conflict with the MBHCP. No mitigation is required.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

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3.5 Cultural Resources

This chapter addresses the potential impacts of the proposed project to cultural resources in the project vicinity in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines.* This chapter is based on the report *IRWD Stockdale West Ranch Joint Banking Project Phase I Cultural Resources Study* (Ehringer et al., 2013) and *Stockdale Integrated Banking Project – Addendum to IRWD Stockdale West Ranch Joint Banking Project: Phase I Cultural Resources Study* (Ehringer and Gonzalez, 2015).

Cultural resources are defined as prehistoric and historic sites, structures, districts, and landscapes, or any other physical evidence associated with human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious or any other reason. Under CEQA, paleontological resources, although not associated with past human activity, are grouped within cultural resources. For the purposes of this analysis, cultural resources may be categorized into four groups: archaeological resources, historic resources, including architectural/engineering resources, contemporary Native American resources, and paleontological resources.

Archaeological resources are places where human activity has measurably altered the earth or left deposits of physical remains. Archaeological resources may be either prehistoric-era (before European contact) or historic-era (after European contact). The majority of such places in California are associated with either Native American or Euro-American occupation of the area. The most frequently encountered prehistoric or historic Native American archaeological sites are village settlements with residential areas and sometimes cemeteries; temporary camps where food and raw materials were collected; smaller, briefly occupied sites where tools were manufactured or repaired; and special-use areas like caves, rock shelters, and rock art sites. Historic-era archeological sites may include foundations or features such as privies, corrals, and trash dumps.

Historic resources include standing structures, infrastructure, and landscapes of historic or aesthetic significance that are generally 50 years of age or older. In California, historic resources considered for protection tend to focus on architectural sites dating from the Spanish Period (1529-1822) through World War II (WWII). Some resources, however, may have achieved significance within the past 50 years if they meet the criteria for exceptional significance. Historic resources are often associated with archaeological deposits of the same age.

Contemporary Native American resources, also called ethnographic resources, can include archaeological resources, rock art, and the prominent topographical areas, features, habitats, plants, animals, and minerals that contemporary Native Americans value and consider essential for the preservation of their traditional values. These locations are sometimes hard to define and traditional culture often prohibits Native Americans from sharing these locations with the public.

Paleontology is a branch of geology that studies the life forms of the past, especially prehistoric life forms, through the study of plant and animal fossils. Paleontological resources represent a limited, non-renewable, and impact-sensitive scientific and educational resource. As defined in this section, paleontological resources are the fossilized remains or traces of multi-cellular

invertebrate and vertebrate animals and multi-cellular plants, including their imprints from a previous geologic period. Fossil remains such as bones, teeth, shells, and leaves are found in the geologic deposits (rock formations) where they were originally buried. Paleontological resources include not only the actual fossil remains, but also the collecting localities, and the geologic formations containing those localities.

3.5.1 Environmental Setting

Natural Setting

The proposed project is located in the southern San Joaquin Valley, within California's Central Valley, which extends from the Siskiyou Mountains in the north to the Tehachapi Mountains in the south and covers an area 450 miles long and 250 miles wide. The Central Valley is bound by the Cascade Ranges and Sierra Nevada Mountains in the east and the Coast Ranges in the west.

Historically, the valley supported a treeless plain with patches of alkali-tolerant annual forbs and grasses (Fagan, 2003; Rosenthal et al., 2007). Dominant vegetation in the wetlands consisted of large growths of tules. In drier spots, sage, greasewood, and bunchgrass flourished. Trees, such as cottonwoods, sycamores, and willows, lined river channels and sloughs, but were absent from the valley floor (Wallace, 1978). The wetlands supported a huge number of aquatic fowl, including migratory ducks and geese, abundant fish, turtles, and freshwater mussels. Antelope, deer, and elk wintered on the plains. Other wildlife included jackrabbits, ground squirrels, and quail (Wallace, 1978).

The proposed project is approximately 2.5 to 3 miles north of the main channel of the Kern River, which naturally carries snowmelt south through Bakersfield out of the Sierra Nevada. Due largely to the negligible gradient across the valley floor, in the past, water from the Kern River tended to exhibit a distributary pattern at lower elevations, splitting into smaller channels (ECORP, 2007). These distributaries created a network of sloughs (Goose Lake Slough, Buena Vista Lake Slough), streams, marshes, and shallow lakes. Water tended to collect in Goose Lake, Kern Lake, and Buena Vista Lake, the last being the most seasonally stable. During overflow conditions, water flowed from Kern and Buena Vista Lakes along Buena Vista Slough towards Tulare Lake (ECORP, 2007). The environment of the sloughs and surrounding areas would have been intermittently to seasonally inundated, creating marshy/swampy conditions that would have provided important resources, such as tules, cat-tail, and sedges, as well as animal habitat. Diversion of the Kern and channelization (canalization) of distributary streams and sloughs since the end of the 19th century, as well as construction of Lake Isabella Dam in 1953, has significantly altered the hydrology and natural setting of the project area, resulting in more arid conditions than would have existed at certain times prehistorically.

The southern San Joaquin Valley is characterized by a surface geology consisting of young (Holocene-age) alluvium and flood basin deposits (DWR, 2003). These consist of interstratified and discontinuous beds of clay, silt, sand, and gravel, and are approximately 150 feet thick at the margins of the valley. These younger deposits overlie older alluvium.

Prehistoric Setting

The Central Valley prehistoric record is divided into three basic periods: Paleo-Indian (11,550 to 8550 cal B.C.), Archaic (8550 cal B.C. to cal A.D. 1100), and Emergent (cal A.D. 1100 to Historic). The Archaic period is subdivided into three sub-periods: Lower Archaic (8550 to 5550 cal B.C.), Middle Archaic (5550 to 550 cal B.C.), and Upper Archaic (550 cal B.C. to cal A.D. 1100) (Rosenthal et al., 2007).

Evidence of human occupation of the Central Valley during the Paleo-Indian period comes primarily from the San Joaquin Valley. Basally thinned and fluted projectile points dating to between 11,550 and 9550 cal B.C. have been found in three San Joaquin Valley localities: Tracy Lake, the Woolfsen mound, and the Tulare Lake basin.

Lower Archaic occupation of the Central Valley is known mainly from isolated finds located along the ancient shorelines of lakes. One archaeological site dating to the Lower Archaic has been identified in the Central Valley floor. Site CA-KER-116, located on the ancient shoreline of Buena Vista Lake in the southern San Joaquin Valley, dates between 7175 and 6450 cal B.C. based on radiocarbon dates obtained from freshwater mussels (Rosenthal et al., 2007). The degree of variation and interaction between valley floor and foothill groups is presently unknown. In fact, Lower Archaic sites from foothill and valley sites may not represent divergent adaptations, but may instead be seasonal expressions of the same group (Rosenthal et al., 2007).

By the Middle Archaic, foothill and valley floor groups were distinct and separate adaptations. Subsistence patterns of the late Middle Archaic reflect an increasing exploitation of river corridors in the Sacramento and San Joaquin Valleys. Sites were occupied year-round and technological assemblages suggest a growing reliance on fishing. Gorge hooks, composite bone hooks, and spears all appear in the archaeological record during the late Middle Archaic. Tule elk, mule deer, pronghorn sheep, rabbits, and waterfowl are also represented in faunal assemblages and indicate exploitation of freshwater marshes, riparian forests and grasslands.

Regional trade was widespread during the Middle Archaic. Obsidian, shell beads and ornaments are commonly recovered from sites. The earliest appearance of grooved-rectangle beads is in the southern San Joaquin valley and generally date to 3050 cal B.C or earlier (Rosenthal et al., 2007).

The start of the Upper Archaic roughly coincides with climactic changes during the Late Holocene. These changes resulted in a cooler, wetter, more stable environment. Freshwater flow increased in the Sacramento/San Joaquin watershed at this time. During the Upper Archaic, regional variations were more common and focused on resources which could be processed in bulk, such as acorns, salmon, shellfish, rabbits, and deer. Shell bead trade and technological specialization increased. Polished and ground stone plummets, sometimes recovered as caches, are commonly recovered from riparian environments and marshlands in the delta and southern San Joaquin Valley. Use of mortars and pestles for food processing was prevalent, except for the valley margins where handstones and millingslabs remained dominant (Rosenthal et al., 2007).

While the archaeological record is well-known for most of the Central Valley during the Upper Archaic period, very little information is available for Upper Archaic traditions in the southern

San Joaquin Valley. Two known Upper Archaic deposits, at CA-KER-116 and CA-KER-39 on Buena Vista Lake, suggest year-round settlements as represented by house floors and significant food remains indicating resource exploitation of riverine, wetland, and terrestrial environments (Rosenthal et al, 2007).

During the Emergent Period (cal A.D. 1100 to Historic), many Archaic Period technologies and cultural traditions disappeared throughout the Central Valley. Practices very similar to those observed by later European explorers appeared at this time. The bow and arrow replaced the dart and atlatl in hunting. Manufacturing centers were decentralized. Raw materials, in the form of obsidian cobbles and shell bead blanks, were transported from their sources to areas where the finished product would be completed. Increasingly complex burial practices, as indicated by grave goods and variation in burial type, developed. Cremation became widespread during the Upper Emergent (Rosenthal et al., 2007).

Central Valley sites during this time period exhibit faunal assemblages characterized by large quantities of fish bone and a diversity of bird and mammal bones, with some regional variations. In the southern San Joaquin Valley, pottery was not manufactured but was obtained by trade with groups from the foothills. Cottonwood points are commonly found in the Tulare and Buena Vista basins (Rosenthal et al., 2007).

Ethnographic Setting

At the time of contact, the Central Valley was occupied by speakers of the California Penutian language family, specifically the Yokuts. The Yokuts entered the San Joaquin Valley sometime prior to A.D. 1400, perhaps by force. Cemeteries to the north contain skeletal remains with fatal wounds inflicted by projectile points. Historically, Yokuts have been divided into three cultural-geographical groupings: Northern Valley, Southern Valley, and Foothills. The Southern Valley Yokuts resided in the areas surrounding the proposed project at the time of contact, with populations concentrated around three lakes in the southern San Joaquin Valley: Tulare Lake, Buena Vista Lake, and Kern Lake (Arkush, 2003; Fagan, 2003).

Subsistence and raw materials were provided by local water resources. Abundant tule, growing in the marshes and along riverbeds, provided the Yokuts with natural materials to build reed canoes and basketry. Their diet consisted mainly of fish, waterfowl, shellfish, roots, and seeds. Preferred fish included lake trout and, when available, steelhead, salmon and sturgeon. Chub, perch, and suckers were less desirable and caught in smaller numbers. Fish were caught by trolling with nets, diving with hand nets, spearing, basketry traps, with bare hands, or with a bow and arrow. Available waterfowl included geese, ducks, and mud hens. Methods for capturing birds included snares, nets, bow and arrow, and throwing tule mats over their prey. Stuffed decoys were employed to assist in capture. The Yokuts also acquired eggs from nests (Wallace, 1978; Fagan, 2003).

Other foodstuffs included freshwater mussel, turtles, wild seeds and roots, which were all consumed in large quantities. Grassnut roots were roasted whole or made into a paste. The absence of oak trees in the valley floor meant that acorns, a staple of many other California Indian groups, were only available by trade. Land mammals comprised an insignificant percentage of the

Yokut diet. On occasion, wild pigeons, jackrabbits, ground squirrels, and burrowing rodents were acquired. Larger game, such as antelope and elk, were rarely hunted (Wallace, 1978).

Yokuts were uniquely egalitarian in their political organization. Local groups were self-governing and all members received equal ownership and access to most resources (Arkush, 2003). The Southern Valley Yokut groups maintained trade relationships with the Chumash, who lived to the southwest (Fagan, 2003).

Historic Setting

Spanish explorers first encountered the Southern Valley Yokuts in 1772 when a small contingent of soldiers, led by Pedro Fages, passed through the Tejon Pass and into the southern San Joaquin Valley. After a stop at a village on Buena Vista Lake, the party headed west toward San Luis Obispo. The area was visited again in 1776 by Francisco Garces. In 1806, Franciscans made a futile attempt to missionize the Southern Valley Yokuts. While a few members of some Southern Valley Yokut groups (such and the Tachi and Telamni) were absorbed into the mission system, the majority of Central Valley Native Americans avoided this fate (Wallace, 1978).

The Southern San Joaquin valley became, instead, a haven for runaway neophytes. These runaways introduced their own customs, as well as some learned from the Spanish, including a desire for horses. The Yokuts began to raid missions and ranchos and became known as the "Horsethief Indians" (Wallace, 1978). After Mexico won its independence from Spain, Mexican rancheros began to retaliate, trying to recover their lost livestock. Their efforts included punishing and enslaving the Yokut raiders. An epidemic in 1833 decimated the Southern Valley Yokuts, killing roughly 75 percent of the population.

Other intrusions in the Central Valley included American and British-Canadian fur trappers, who entered the valley as early as 1827, and John C. Fremont, who conducted scientific expeditions into the southern San Joaquin Valley in 1844 and 1845 (JRP Historical Consulting, 2009). However, sustained contact with Europeans did not occur until after 1850, when California became part of the United States. The remaining population of Yokuts gave up rights to their lands in exchange for goods in an 1851 treaty with the United States government. The Southern Valley Yokuts were subsequently moved onto either the Tejon or Fresno reservations (Wallace, 1978).

Early American interest in southwestern Kern County focused on its use as a transportation corridor. In 1854, Fort Tejon was established to protect strategic mountain routes between the San Joaquin Valley and Southern California (Kyle, 1990). Many Euro-Americans traveled from the south to the gold country to the north by way of the Central Valley. The Central Valley was also used for cattle ranching and agriculture. The wetlands of the Valley were reclaimed and irrigation canals built to facilitate agriculture.

Water Conveyance

The proposed project is located in an area of Kern County which has historically been exploited for its natural resources, including petroleum. The area was also at the center of one of the

defining moments in the history of United States water rights, and the conveyance and use of water for irrigation has been a dominant theme in local history.

Miller and Lux

Henry Miller and Charles Lux, both German immigrants, came to the area in the 1850s. The pair went into business together, becoming extremely successful cattle ranchers and some of the largest landowners in the United States. By 1879 Miller and Lux owned 78,908 acres along the Buena Vista Slough (Igler, 2001).

In an attempt to reclaim the swampland of the Buena Vista Slough, Miller and Lux formed the Kern Valley Water Company and built a system of drainage, irrigation, and flood control canals. Once the waters of the Kern River were diverted, the former slough would be available for cultivation. A main flood control canal, the Kern Valley Water Company Canal, was built along the west side of the swamp, extending 26 miles north from Buena Vista Lake (Morgan, 1914). Following this, sometime prior to the 1890s, the East Side and West Side canals were constructed for the distribution of water.

In 1879, Miller and Lux sued the rival Kern Land Company to prevent the consumption of the Kern River's flow before it reach Miller and Lux's lands. This litigation, *Lux v. Haggin*, was a seminal water rights case and led to the Miller-Haggin Compromise of 1878, which still shapes the division of water in Kern County. Miller and Lux's prosperity continued, and by 1919 the entire area from Buttonwillow south to Old Headquarters between East Side and West Side Canals was farmed by Miller and Lux (JRP Historical Consultation, 2009).

Pioneer Canal

The Pioneer Canal was constructed in 1873. The 11.5 mile long canal originated at the Pioneer Bridge on the Kern River and continued on a westerly course. The canal was originally 10 feet wide, but was enlarged to a bed width of 30 feet for 7 to 8 miles of its length, and again in 1879, when the canal was made 60 feet wide (Grunsky, 1898). The historic alignment of the Pioneer Canal ran through the southeast corner of the Stockdale West property and through the middle of the Stockdale East property. The construction of the Cross Valley Canal in 1975 split the Pioneer Canal, which had been in disrepair, rendering it "inoperable" (Bakersfield Californian, August 13, 1976). At some point between 1973 and 1984 (based on a review of historic maps and aerial photographs), the canal was diverted near the southwestern corner of the Stockdale East property and rerouted about ¼ mile to the south, parallel to the Cross Valley Canal. This likely occurred around the time of the construction of the Cross Valley Canal. In recent years, the canal has been used by the Kern Water Bank Authority to transport water to its recharge basins (ESA, 2008).

Oil Production

Kern County has a long history of oil production. In 1864, Buena Vista Petroleum Company incorporated and began drilling and refining oil near present-day McKittrick. Kerosene was the primary product and by 1866 the company was producing between 2,500 and 3,000 gallons of kerosene a day and shipping it down the San Joaquin River to Stockton and San Francisco (Burmeister, 2003). In the 1890s, oil companies began to realize the utility of asphaltum for street paving and began production and shipment of this product.

The top producing oil fields in Kern County include Midway-Sunset, Kern River, South Belridge, Elk Hills, and Buena Vista. The proposed project is located within the Northwest Area of the Strand Oil Field.

Strand Oil Field

The Strand Oil Field was opened in June 1939 by Tide Water Associated Oil Co. on land leased from the Kern County Land Company. The discovery well, KCL No. E-35-7, produced 750 barrels of crude oil (LAT, 1939). Production of the Strand Oil Field steadily declined over the next 16 years. Production had dropped to an average of 220 barrels per day by 1955. From 1950 to 1955, only three new wells were drilled, all of which were dry. In 1955-1956, Shell Oil Company began to explore deeper depths, hitting oil at 12,360-12,410 feet. At the same time, Shell was unsuccessful in the East Strand (The Bakersfield Californian, October 16, 1956). In 1971, the field's 23 wells produced about 1,000 barrels a day (Rintoul, 1971).

Extensions of the Strand Oil Field, known as the East Area, South Area, and Northwest Area, were subsequently discovered in January 1943, September 1956, and May 1956, respectively (Matthews, 1960; Shea, 1966). The Proposed project is located within the Northwest Area of the Strand Oil Field.

The Northwest Area of the Strand Oil Field

Both the Ohio Oil Company and Standard Oil Company of California had drilled in the vicinity of the proposed project in the past, but with little success (The Bakersfield Californian, 1951). In 1951, The Texas Company (Texaco) leased land from the Kern County Land Company immediately north of the Strand Oil Field, including all of Section 1, T30S, R25E (where the Stockdale East property is located) and the west half of Section 6, T30S, R26E. Texaco's efforts appear to have been futile (Shea, 1966).

Discovery of oil deposits in the Northwest Area did not occur until May 1956 when Union Oil Company of California drilled well No. "Smith" 73-2 (located just west of the proposed project in Section 2, T30S, R25E). The same year, Shell Oil Co. entered into an oil and gas exploration option agreement with the Kern County Land Company (KCL), which included Section 3, T30S, R25E (Stockdale East property) (Bakersfield Californian, March 30, 1956). However, "Smith" 73-2 remained the only producer for eight years, until 1964 when Standard Oil Company of California completed well No. KCL 13-1 (later known as KCL 56 13-1). This well may be the same as oil derrick "Strand Well #13" documented as part of resource IRWD-KRM-004-H during survey (see Survey Results section below) (Shea, 1966: Plate 11). The area was fully developed over the next two years (1964-1966) with the addition of 11 wells (Shea, 1966).

The Northwest Area of the Strand Oil Field was never a big producer and paled in comparison to other oil producing fields in Kern County. For example, from 1964 to 1966, the Northwest Area produced a total of 764,603 barrels of oil (Shea, 1966). The Stevens Pool of the Main Area of the McKittrick Oil Field produced 3,219,641 barrels of oil (Hardoin, 1966).

Rosedale

The nearby town of Rosedale, 3.5 miles to the northeast of the proposed project, was an offshoot of Bakersfield. At the end of the 19th century, the manager of the Kern Land Company, S.W. Fergusson, used the town as a "model" to show new clients from around the world the possibilities of the fertile soil in the area. The town was settled in the 1890s by English emigrants. A drought in the middle of the decade caused many farmers to default on their loans, the land reverted back to the Kern Land Company, and Fergusson was eventually fired due to lack of profits. In 1899, the Santa Fe Railroad went through the heart of town. In the early 1900s, oil was discovered, making private land owners and the Kern Land Company very wealthy. Now, Rosedale is essentially a suburb of Bakersfield (Lynch 2006).

McKittrick Branch of the Southern Pacific Railroad

Located immediately east (about 500 feet) of the Stockdale West property and within the Central Intake Pipeline alignment is the McKittrick Branch of the Southern Pacific Railroad (SPRR). The McKittrick Branch was constructed in 1892-1893 to serve the west side oil fields. The branch line was built by SPRR in partnership with Solomon Jewett and Hugh Blodget; Jewett and Blodget were to secure the rights of way and the SPRR would build the line. The branch line transported asphalt and other oil products from McKittrick (formerly Asphalto) to the main line of the SPRR in Bakersfield. Although the branch line was originally intended to extend south to Sunset (later renamed Hazelton), the Great Panic of 1893 limited demand for oil products and the branch line terminated at McKittrick. In 1901, the line was extended 2 miles northwest of McKittrick to Olig (Brewer, 2001). The portion of the branch line from McKittrick to Olig was abandoned in 1939 and the portion from McKittrick to Buttonwillow was abandoned in 1960 (abandonedrails.com, 2012). The portion of the branch line within the proposed project appears to be currently in use.

History of the Project Area

The proposed project was once part of a land patent granted to the SPRR in 1876 (BLM Serial Number CACAAA 123427). The area later came under the ownership of the KCL. The KCL was formed in the late 19th century when James Haggin and Lloyd Tevis combined their extensive land holdings and incorporated the KCL, which focused on colonization and development. By 1960 the KCL held more than 1 million acres. In 1968 the company was acquired by Tenneco, Inc. (Brewer, 2001).

The Stockdale East property was placed into use for agriculture sometime between 1946 and 1956 (RAM, 2009). As discussed above, oil exploration and production began in this parcel in the 1960s. Stockdale West has been in use for agriculture since at least 1956 (Childers, 2010). The parcel contains an old underground irrigation distribution system of unknown date. The Pioneer Canal runs though both parcels, although some of the associated irrigation laterals (ditches) on the property have been filled in since 1967.

Geoarchaeological Review

The geomorphic setting of the project area suggests that fluvial activity associated with alluvial fan building and remodeling has been the dominant geomorphic process since the Pleistocene. A cursory visual inspection of historical aerial imagery between 1994 and 2011 reveals ground

surface patterns that appear to represent relict stream channels within the project area. If these features are relict channels, it not only suggests that Pioneer Canal may have been developed along a naturally-occurring channel, but also that the project area once contained water and probably other resources that might have attracted prehistoric people.

Given the extremely flat landscape and distance from uplands, the project area does not appear to have been susceptible to gravity-induced processes such as landslides. Eolian processes, resulting in windblown erosion and deposition, have probably played an important geomorphic role at various times in the past. In particular, removal of natural vegetation and plowing for agriculture over the last century would have made the landscape more susceptible to wind erosion. The practical effect of agricultural plowing/discing has been to churn, expose, and eventually rebury archaeological remains within the depth of plowing.

Mapped soils within the project area consist of closely-related types of sandy loams and fine sandy loams (Cajon, Excelsior, Kimberlina, Wasco, and Westhaven) formed in granitic parent material on alluvial fans and/or floodplains (NRCS, 2012). These soil types are generally moderately well drained to somewhat excessively well drained, and are well suited to agriculture. The typical profiles of these soil types do not contain significant quantities of gravel, and may exhibit stratified sands and loams between approximately 40 and 60 inches of ground surface. This stratification is evidence for long-term, repeated flooding that has led to aggradation within the valley.

The relatively small grain-size of the alluvial parent material (clay, silt, and fine sand) within the upper 60 inches of the soil solum implies the dominance of relatively low-power fluvial processes within the project area. Clays and silts in particular indicate slackwater conditions consistent with standing water characteristic of a marsh or overbank flooding of a floodplain. The absence of significant quantities of gravel suggests that the fluvial regime probably lacked the competence needed to transport items, such as lithic flakes and other artifacts, into the project area; if artifacts are present within the project area, it is unlikely that they have been substantially transported and redeposited by fluvial processes.

Parr and Osborne's (1992) broad surface survey of four proposed highway alignments in southern San Joaquin resulted in recording 33 prehistoric archaeological sites, including lithic scatters and campsites, and 14 prehistoric isolates, primarily on agricultural lands. The majority of these finds are at least 3 miles to the north and west of the proposed project; the vicinity of the current project area was surveyed, but revealed only one site (and not within the proposed project). The site distribution pattern is generally consistent with the results of archaeological work from the late-19th /early-20th century, which identified extensive archaeological remains, including intact burials, along permanent sources of water, such as Buena Vista Slough and Lake, and Goose Lake Slough, suggesting that prehistoric people favored occupation in areas with reliable water and other resources. However, Parr and Osborne's results nevertheless demonstrate that prehistoric sites, while sparse, may be found in Valley locations more distant from these water bodies.

Indeed, surveys of agricultural lands less than 1 mile from the proposed project have resulted in the discovery of a broken mano (Pruett, 1997), and stone tools/flakes (including obsidian, chert, chalecedony, and basalt), as well as fresh water clam (Sinopoli et al., 1991) at the ground surface. Geomorphically, the proposed project is within a virtually identical setting as these earlier finds which occurred within agriculturally-modified granitic soils on the same flat alluvial fan. Given the proximity of previously recorded archaeological remains, and similar geomorphic setting, it is plausible that buried prehistoric archaeological remains exist within the proposed project.

The project area itself has been modified in recent decades by agriculture, and oil production to a lesser extent. Decades of plowing and discing are likely to have obscured some stratigraphic relationships within the plowzone (depth of plowing), as archaeological remains passed through cycles of being churned, exposed and eventually reburied. Some leveling of localized topographic highs also may have occurred as a result of plowing and grading, as well as wind erosion. The combined effects of plowing and deflation has the potential to make it difficult to determine whether archaeological remains at the ground surface are within primary depositional context or have passed through one or more cycles of churning.

Evidence for stratified sand and loam deposits beneath the plowzone (Childers, 2010; NRCS, 2012) suggest that stratigraphy deeper than 1-2 feet below surface remains largely intact. If these stratified deposits formed during the Holocene, there exists a potential for intact buried archaeological remains.

Cultural Resources Research Methods and Results

Archival Research

Records Search

A records search for the proposed project was conducted on June 20, 2012 and on March 13, 2015 _by staff at the Southern San Joaquin Valley Information Center (SSJVIC) housed at California State University, Bakersfield. The records search included a review of all recorded archaeological sites within a 1-mile radius of the proposed project, as well as a review of cultural resource reports on file. In addition, the California Points of Historical Interest (PHI), the California Historical Landmarks (CHL), the California Register of Historical Resources (California Register), the National Register of Historic Places (National Register), and the California State Historic Resources Inventory (HRI) listings were reviewed for properties within or adjacent to the proposed project.

The records search indicated that a total of 23 cultural resources studies have been conducted within a 1-mile radius of the proposed project. Of these 23 studies, three included portions of the project area. Approximately 40% the project area appears to have been included in past cultural resources studies.

A total of five cultural resource sites have been previously recorded within 1 mile of the proposed project (Table 1). Three of the resources are prehistoric archaeological resources (dispersed lithic scatter, mano isolate, and lithic isolate), and two of the resources are historic structures (a “Parkersburg” brand oil well pumping unit and the Strand ranch house with associated out-buildings). None of these resources are located within or immediately adjacent to the project area.

The nearest resource (P-15-15199, Strand ranch house) is mapped approximately 280 feet outside of the project area. The nearest prehistoric archaeological resource (P-15-9292, mano isolate) is located approximately 4,000 feet outside of the project area.

TABLE 3.5-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1 MILE OF THE PROJECT AREA

Permanent Trinomial (CA-KER-)	P-Number (P-15-)	Other Designation	Description	Date Recorded
3160	3160	BEEHIVE	Prehistoric dispersed lithic scatter with 1 locus	1991
-	9292	PBM-IF-4	Prehistoric mano isolate	1998
-	12769	Glentis 9	Historic "Parkersburg" brand oil well pumping unit, not operating	2007
-	15199	-	Historic ca. 1930s one-story Strand ranch house with detached "mother-in-law" house, a pole garage, a pole barn, and a metal clad work building	2008
-	15818	-	Prehistoric chert flake isolate	2009

Historic Map and Aerial Review

Historic topographic maps (1932 and 1954 [photorevised 1973] Stevens; and 1929, 1933, and 1954 [photorevised 1973] Tupman 7.5-minute; 1942 Button Willow and 1942 Bakersfield West 15-minute; and 1912 Buena Vista Lake 30-minute USGS topographic maps) and aerial photographs (1946, 1956, 1967, 1984, 1994, 2002, 2005 [RAM, 2009; Childers, 2010]) were reviewed. All maps indicate that the property has historically consisted of undeveloped land (possibly agricultural land) with the exception of the Pioneer Canal. The canal is depicted running generally east/west through the project area. In the 1954/1973 maps, dirt roads are indicated to the south of the canal and some wells are indicated north of the canal. By 1993, the aerial photographs show that the Pioneer Canal had been abandoned while a new canal had been constructed to the south, bordering the southern boundary of the project area. The Pioneer Canal drainage ditch had been diverted around the southern portion of the eastern project parcel between 1973 and 1993. Oil derricks appear on aerial photographs beginning in 1967, but are not depicted on any of the historic maps.

Native American Contact

A Sacred Lands File search conducted by the Native American Heritage Commission (NAHC) on July 11, 2012 and on March 13, 2015 did not indicate the presence of Native American cultural resources within ½ mile of the proposed project. Follow-up contact was made by letter with all individuals and groups indicated by the NAHC as having affiliation with the project area to solicit further information concerning cultural resources in vicinity of the proposed project. Contact letters to all individuals and groups indicated by the NAHC as having affiliation with the project area were prepared and mailed on July 17, 2012 and on March 17, 2015. The letters described the proposed project and included a map indicating the location of the project area. Recipients were requested to reply with any information they are able to share about Native American resources that might be affected by the proposed project. To date, no responses have been received.

Field Reconnaissance

Survey Methodology

Stockdale East and Stockdale West were surveyed on July 11 and 12, 2012. The Central Intake Pipeline alignment (including the inlet/outlet area, pump station, and Temporary Construction Access areas) was surveyed on January 13, 2015. There were no additional surveys made within the radius for the additional third Stockdale site at this time. The Stockdale East property and Central Intake Pipeline alignment were systematically surveyed in transects spaced 50-foot (15-meter) apart. The Stockdale West parcel consisted of holding/recharge basins, constructed in 2011 by IRWD. Because of this previous disturbance, the Stockdale West property was subjected to a reconnaissance-level survey. Archaeological sites were defined as consisting of one or more cultural features or three or more artifacts (45 years old or older) within an approximate 25 square meter area. Fewer than three artifacts within 25 square meter area would be considered isolates. Archaeological resources encountered during the survey were documented and photographed. Resources were assigned temporary field designations and were recorded on appropriate Department of Parks and Recreation (DPR) 523 forms. No subsurface investigation was performed and no artifacts were collected during the survey.

Survey Results

Both Stockdale East and Stockdale West contained agricultural fields with some non-agricultural elements within the parcel. The Stockdale West property contained eight, near-equal sized basins divided by raised levees that also served as access roads. The basins are 1-2 meters below ground surface. The dirt from the ponds was apparently used to build the surrounding levees. The southeastern field contained alfalfa and the remaining fields contained a type of thistle. The surface visibility in the alfalfa was 30 to 60 percent, while the fields of thistle had a surface visibility of 80 to 100 percent. An electrical substation is in the northeastern corner of the project area. One resource, a segment of the Pioneer Canal (IRWD-KRM-003-H), was recorded within this parcel.

The Stockdale East property contains nine fields of various sizes divided by dirt roads. The eastern five fields contained four fields of alfalfa surrounding one field of onion, the southwestern two fields were fallow with silty sand, and the northwestern two fields had cotton. The surface visibility within the cotton fields was 20 to 30 percent as they were actively harvesting the cotton. The surface visibility within the alfalfa fields was 10 to 30 percent. The onion field had a surface visibility of 30 to 50 percent. Visibility within areas containing derricks and tanks (see IRWD-KRM-004-H) was near 100 percent. Two resources, an abandoned portion of the Pioneer Canal (IRWD-KRM-003-H) and a complex of oil production related features (IRWD-KRM-004-H), were encountered during the survey within this parcel, both in the western portion of the parcel.

The Central Intake Pipeline alignment consists of dirt access roads and areas of future dirt access roads located between active agricultural fields and almond orchards. Ground visibility varied from 95 to 100 percent throughout the survey area. Areas that were obscured were due to the presence of parked agricultural vehicles and equipment, and the gravely area along the railroad. Approximately 90 percent of the survey area was subject to pedestrian survey. The portion that was not surveyed consists of private property where permission to enter could not be obtained. Sediments within the survey area consist of a light to dark brown and grey, fine, sandy loams

with some areas mixed with coarse sand. The survey area appears to have been previously disturbed by agriculture and previous grading. No prehistoric or historic-period archaeological resources were encountered in this area. One historic-period built resource was encountered during the survey: a segment of the McKittrick Branch of the SPRR, which is currently still in use.

Cultural Resources within the Project Area

IRWD-KRM-003-H

This resource consists of two discontiguous segments of the historic Pioneer Canal. The portion of the Pioneer Canal within the Stockdale West property is nearly 1000 feet long, while the segment of the canal within the Stockdale East property is about 440 feet long. The earthen canal is trapezoidal in profile, and measures approximately 70 feet wide at the top, 15 feet wide at the base, and 10 feet deep. The canal runs ENE/WSW and continues outside of the project area in both directions. The 440-foot section of the historic Pioneer Canal within the Stockdale East property was abandoned when the canal was diverted to the south. This abandoned section is similar in dimension and construction to the segment recorded within the Stockdale West property. Although historically the canal would have continued ESE through the Stockdale East property, the rest of the historic canal's alignment through the parcel was filled with earth and is now used as a road. Oil production activities have impacted the abandoned canal with a 12 inch steel pipe crossing around the mid-point and discarded debris at the east end of the canal.

Resource IRWD-KRM-003-H, the circa 1873 Pioneer Canal, is recommended as not eligible for listing in the California Register and does not otherwise meet CEQA's definitions for a historical resource. Although one of the earliest water conveyance canals constructed in Kern County, based on the research conducted for this current study, the resource cannot be tied to specific historically significant events or persons (California Register Criteria 1 and 2). The canal, which is a trapezoidal-shaped type common throughout California in the 19th and 20th century) does not represent a distinctive type, style, or manufacture technology (California Register Criterion 3). The canal does not have the potential to yield information important in history (California Register Criterion 4). Although the canal is still used to transport water to recharge basins, the canal ceased to be used for irrigation in the 1970s with the construction of the Cross Valley Canal. The segment of the Pioneer Canal in the Stockdale East property was realigned in the 1970s, and the remainder of the canal through the Stockdale East property has been filled in and serves as a road; therefore, this segment of the canal no longer maintains integrity. For these reasons, resource IRWD-KRM-003-H is recommended not eligible for listing in the California Register and is not otherwise significant under CEQA.

IRWD-KRM-004-H

This complex of 15 oil production related features was recorded within the Stockdale West property. The site is approximately 72 acres in area. The features include two steel tanks, a complex of compressor tanks and pipelines, three concrete machinery foundations, two vertical pipes, and asphalt access road, three oil derricks, and three oil well heads. These 15 features are likely associated with oil exploration and production in the Northwest Area of the Strand oil field. A "1963" date of manufacture was recorded on a plaque on a tank (Feature 4), and based on an examination of historic maps and aerial photographs, most features likely date to the 1960s. The

locations and designations of six of the features appear to correlate with the mapped location of six oil wells as depicted in Plate 11 of Shea, 1966.

Resource IRWD-KRM-004-H is a complex of built features and associated debris scatter that appears to be associated with oil exploration and production in the Northwest Area of the Strand Oil Field. The Northwest Area of the Strand Oil Field was never a big producer relative to other oil producing fields in Kern County. For example, from 1964 to 1966, the Northwest Area produced a total of 764,603 barrels of oil (Shea, 1966). During the same period, the Stevens Pool of the Main Area of the McKittrick Oil Field produced 3,219,641 barrels of oil (Hardoin, 1966). The largest producers of oil in Kern County, such as the Midway-Sunset and Kern River Oil Fields, have produced over two billion barrels of oil to date.

Although the resource is associated with oil production in the Northwest Area of the Strand Oil Field, the Northwest Area was never a major producer or historically important, and therefore the resource is not associated with historically significant events or persons (California Register Criteria 1 and 2). The features within the resource do not represent a distinctive type, style, or manufacture technology; similar oil infrastructure features are ubiquitous throughout California (California Register Criterion 3). The resource does not have the potential to yield information important in history (California Register Criterion 4). For these reasons, resource IRWD-KRM-004-H is recommended not eligible for listing in the California Register and is not otherwise significant under CEQA.

McKittrick Branch of the SPRR

A segment of the McKittrick Branch of the SPRR was documented in the Central Intake Pipeline alignment. The segment consists of two parallel rows of tracks oriented along a northwest-southeast axis and measures approximately 100 feet long and 5 feet wide. The McKittrick Branch of the SPRR was constructed in 1892-1893 to serve the west side oil fields. The segment of the branch line within the project area is in excellent condition and appears to be still in use. The segment of the McKittrick Branch of the SPRR has not been evaluated for listing in California Register since it will be avoided through the use of jack-and-bore or similar tunneling construction methods, and as a result there would be no direct impact to the resource.

Paleontological Resources Research Methods and Results

A paleontological literature search was conducted by staff at the Los Angeles County Natural History Museum (LACM) (McLeod, 2012, 2015). This included a review of regional geological maps and a search of the LACM's collections and fossil locality database in order to identify any paleontological resources known to exist within or near the project area.

The results of the literature search indicated that the majority of the project area appears to be underlain by younger Quaternary Alluvium. While significant vertebrate fossils are unlikely to be contained in the uppermost layers, deeper excavations into the underlying older Quaternary Alluvium retain the potential to uncover fossil vertebrates. No fossil localities have been previously recorded within the project area, but several fossil localities had been recorded nearby in the same type of sediments that underlie the project area. Nearby fossil recoveries were associated with Quaternary Alluvium south-southwest of the project area in brea deposits near

Bitter Creek, southeast of Maricopa, including a number of Quaternary vertebrate fossils (McLeod, 2012, 2015).

3.5.2 Regulatory Setting

Federal

National Register of Historic Places

The National Register was established by the National Historic Preservation Act (NHPA) of 1966, as "an authoritative guide to be used by federal, State, and local governments, private groups and citizens to identify the Nation's historic resources and to indicate what properties should be considered for protection from destruction or impairment" (Code of Federal Regulations [CFR] 36 Section 60.2). The National Register recognizes both historical-period and prehistoric properties that are significant at the national, state, and local levels.

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria (U.S. Department of the Interior, 1995):

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

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

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

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

Unless the property possesses exceptional significance, it must be at least fifty years old to be eligible for National Register listing (U.S. Department of the Interior 1995).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as "the ability of a property to convey its significance" (U.S. Department of the Interior 1995). The National Register recognizes seven qualities that, in various combinations, define integrity: location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance.

State

The State implements the NHPA through its statewide comprehensive cultural resources surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation (DPR), implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historic Resources Inventory. The

State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the State's jurisdictions.

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code § 5024.1[a]). The criteria for eligibility for the California Register are based upon National Register criteria (California Public Resources Code § 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historic-period property must be significant at the local, State, and/or federal level under one or more of the following four criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the California Register must meet one of the criteria of significance described above, and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally Determined Eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and,
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and,
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the State and is codified at PRC Section 21000 et seq. CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or archaeological resources.

Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. The *CEQA Guidelines* (Section 15064.5) recognize that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the *CEQA Guidelines* apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (*CEQA Guidelines* Sections 15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the criteria for a historical resource contained in the *CEQA Guidelines*, then the site may be treated in accordance with the provisions of Section 21083, which is a unique archaeological resource. As defined in Section 21083.2 of CEQA a "unique" archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and 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.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

The *CEQA Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (*CEQA Guidelines* Section 15064.5(c)(4)).

Local

Kern County General Plan

The Kern County General Plan (section 1.10.3) contains the following relevant cultural resources policies and measures:

Policy 25: The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measure K: Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.

Implementation Measure L: The County shall address archaeological and historical resources for discretionary projects in accordance with the California Environmental Quality Act (CEQA).

Implementation Measure N: The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

Implementation Measure O: On a project specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

Paleontological Resources

Federal

A variety of federal statutes specifically address paleontological resources. They are generally applicable to a project if that project includes federally owned or federally managed lands or involves a federal agency license, permit, approval, or funding. Federal legislative protection for paleontological resources stems from the Antiquities Act of 1906 (PL 59-209; 16 United States Code 431 et. seq.; 34 Stat. 225), which calls for protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal lands.

State

Paleontological resources are also afforded protection by CEQA. Appendix G (Part V) of the *CEQA Guidelines* provides guidance relative to significant impacts on paleontological resources, stating that a project will normally result in a significant impact on the environment if it will "…disrupt or adversely affect a paleontologic resource or site or unique geologic feature, except as part of a scientific study." Section 5097.5 of the Public Resources Code specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, the California Penal Code Section 622.5 sets the penalties for the damage or removal of paleontological resources.

Local

Kern County General Plan

The Kern County General Plan includes a Cultural Resources Element, which establishes a process for the early identification, consideration, and where appropriate, preservation of historical, archaeological, and paleontological resources (see above).

Professional Standards

The Society for Vertebrate Paleontology (SVP) has established standard guidelines for acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most practicing professional paleontologists in the nation adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most California State regulatory agencies accept the SVP standard guidelines as a measure of professional practice.

3.5.3 Impact Assessment

Thresholds of Significance

The following criteria from Appendix G of the *CEQA Guidelines* are used as thresholds of significance to determine the impacts of the proposed project as related to cultural resources. The proposed project would have a significant impact if it would:

1. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5.

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

Thresholds 1 and 2. Historical and Archaeological Resources

Impact CUL-1: The project could cause a substantial adverse change in the significance of a historical or archaeological resource, as defined in CEQA Guidelines Section 15064.5.

Three resources, IRWD-KRM-003-H (two segments of the Pioneer Canal), IRWD-KRM-004-H (complex of oil-related features), and a segment of the McKittrick Branch of the SPRR, were recorded within the project area. Resources IRWD-KRM-003-H and IRWD-KRM-004-H are not recommended eligible for listing in the California Register or otherwise considered a historical resource or unique archaeological resource under CEQA. The segment of the McKittrick Branch of the SPRR has not been evaluated for listing in California Register since it will be avoided through the use of jack-and-bore or similar tunneling construction methods, and as a result there would be no direct impact to the resource.

The project area has been highly impacted by agriculture and excavation. The Stockdale West property was observed to have been highly disturbed through the recent construction of recharge basins; little of the original ground surface remained. Given the lack of reliable water sources, it is unlikely that large, permanent prehistoric settlements would have occurred within the project area. However, based on the depositional environment and the number of prehistoric resources that have been recorded in the vicinity in similar conditions, although overall there is a low probability of significant archaeological resources existing within the project area, there is nevertheless some possibility that buried and previously unknown and undisturbed archaeological deposits may be encountered during project-related excavation, particularly below the plow zone.

Impact Determination

The proposed project would have no impact on known historical or unique archaeological resources located at Stockdale East, r Stockdale West, or Central Intake Pipeline alignment. However, the project area may be sensitive for buried and previously unknown archaeological resources. Inadvertent damage to significant buried archaeological deposits during construction would be a significant impact. Implementation of **Mitigation Measure CUL-1**, however, would reduce the impact to a less-than-significant level.

The proposed project includes a third Stockdale site located within the radius identified on Figure 2-2. The location of the third Stockdale site has yet to be determined. As such, a cultural survey has not been conducted for this project component. In accordance with **Mitigation Measure CUL-2**, once the third property has been identified, an additional Phase I cultural resources study shall be conducted to identify potential for impacts to historical or archaeological resources as defined in CEQA Guidelines Section 15064.5.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

CUL-1: In the event that prehistoric or historic subsurface cultural resources are discovered during ground-disturbing activities, all work within 50 feet of the resources will be halted and Rosedale or IRWD (as applicable) will consult with a qualified archaeologist to assess the significance of the find according to *CEQA Guidelines* Section 15064.5. If any find is determined to be significant, then Rosedale or IRWD and the archaeologist will meet to determine the appropriate avoidance measures or other appropriate mitigation. Rosedale or IRWD (as applicable) will make the final determination. All significant cultural materials recovered will be, as necessary and at the discretion of the consulting archaeologist, subject to scientific analysis, professional museum curation, and documentation according to current professional standards.

In considering any suggested mitigation proposed by the consulting archaeologist in order to mitigate impacts to historical resources or unique archaeological resources, Rosedale or IRWD will determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is infeasible, other appropriate measures (e.g., data recovery) will be instituted. Work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is being carried out.

CUL-2: For any project components not previously subject to archaeological survey (e.g., the third Stockdale site), prior to the initiation of ground disturbance, a qualified archaeologist shall be retained to carry out a Phase I Cultural Resources Survey of the project component. The Phase I Survey shall identify and evaluate the significance of any resources that may be directly or indirectly impacted by the proposed project. The Phase I Survey effort shall be documented in a Phase I Report. If as a result of the additional Phase I Survey any resource is found to be a historical or unique archaeological resource as defined in PRC Section 21084.1 and 21083.2(g), respectively, then **Mitigation Measure CUL-1** shall be implemented.

Threshold 3. Paleontological Resources

Impact CUL-2: The project could directly or indirectly affect a unique paleontological resource or site or unique geologic feature, as defined in CEQA Guidelines Section 15064.

The majority of the project area appears to be underlain by younger Quaternary Alluvium. While significant vertebrate fossils are unlikely to be contained in the uppermost layers, deeper excavations into the underlying older Quaternary Alluvium retain the potential to uncover fossil vertebrates. While the depth of the younger alluvium beneath the project area is unknown, thickness of Quaternary younger alluvial sediments varies in the southern San Joaquin Valley

area from a few inches to up to 30 feet. Therefore, there exists the possibility that paleontological resources may be impacted by the project.

Impact Determination

For implementation of facilities associated with Stockdale East, Stockdale West, and the Central Intake Pipeline alignment, the implementation of **Mitigation Measure CUL-3** would reduce impacts to paleontological resources to less than significant levels.

The proposed project includes a third Stockdale site, located within the radius identified on Figure 2-2. The location of the third Stockdale site has yet to be determined. In accordance with **Mitigation Measure CUL-4**, once the third property has been identified, an additional paleontological resources literature review shall be conducted along with recommendations for the need to implement **Mitigation Measure CUL-3**.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

CUL-3: In the event that paleontological resources are discovered, Rosedale or IRWD (depending upon the project component) will notify a qualified paleontologist. The paleontologist will document the discovery as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in *CEQA Guidelines* Section 15064.5. If fossil or fossil bearing deposits are discovered during construction, excavations within 50 feet of the find will be temporarily halted or diverted until the discovery is examined by a qualified paleontologist. The paleontologist will notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If Rosedale or IRWD determines that avoidance is not feasible, the paleontologist will prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important. The plan will be submitted to Rosedale or IRWD for review and approval prior to implementation.

CUL-4: Once the location of the third Stockdale site is determined (or any additional project components), prior to the initiation of ground disturbance, a paleontological literature, map, and museum locality review shall be conducted in order to assess the paleontological sensitivity of the project component. If the literature, map, and museum locality review identifies potentially sensitive paleontological resources, then a qualified paleontologist shall be retained to conduct a pedestrian survey and assessment of the project component. A report shall be prepared which summarizes the results of the survey and assessment and provides recommendations regarding implementation of mitigation, such as **Mitigation Measure CUL-3**.

Threshold 4. Human Remains

Impact CUL-3: The proposed project could result in adverse impacts to human remains.

Impact Determination

There is no indication, either from the archival research results or the archaeological survey, that any particular location in the project area has been used for human burial purposes in the recent or distant past. However, in the event that human remains are inadvertently discovered during project construction activities, the human remains could be inadvertently damaged, which could be a significant impact. Implementation of **Mitigation Measure CUL-5** would reduce impacts to human remains to a less-than-significant level.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

CUL-5: If human remains are uncovered during project construction, Rosedale or IRWD (as applicable) shall immediately halt work, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.4 (e)(1) of the *California Environmental Quality Act Guidelines*. If the Coroner determines the remains are Native American in origin, the Coroner shall contact the Native American Heritage Commission (NAHC). As provided in Public Resources Code Section 5097.98, the NAHC shall identify the person or persons believed to be most likely descended from the deceased Native American. The most likely descendent shall be afforded the opportunity to provide recommendations concerning the future disposition of the remains and any associated grave goods as provided in PRC 5097.98.

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3.6 Geology, Soils, and Seismicity

This chapter addresses the potential impacts of the proposed project associated with geology, soils, and seismicity in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines.* This chapter evaluates whether construction and operation of the proposed project would result in potential adverse impacts related to local geology, existing soil conditions, or seismicity.

3.6.1 Environmental Setting

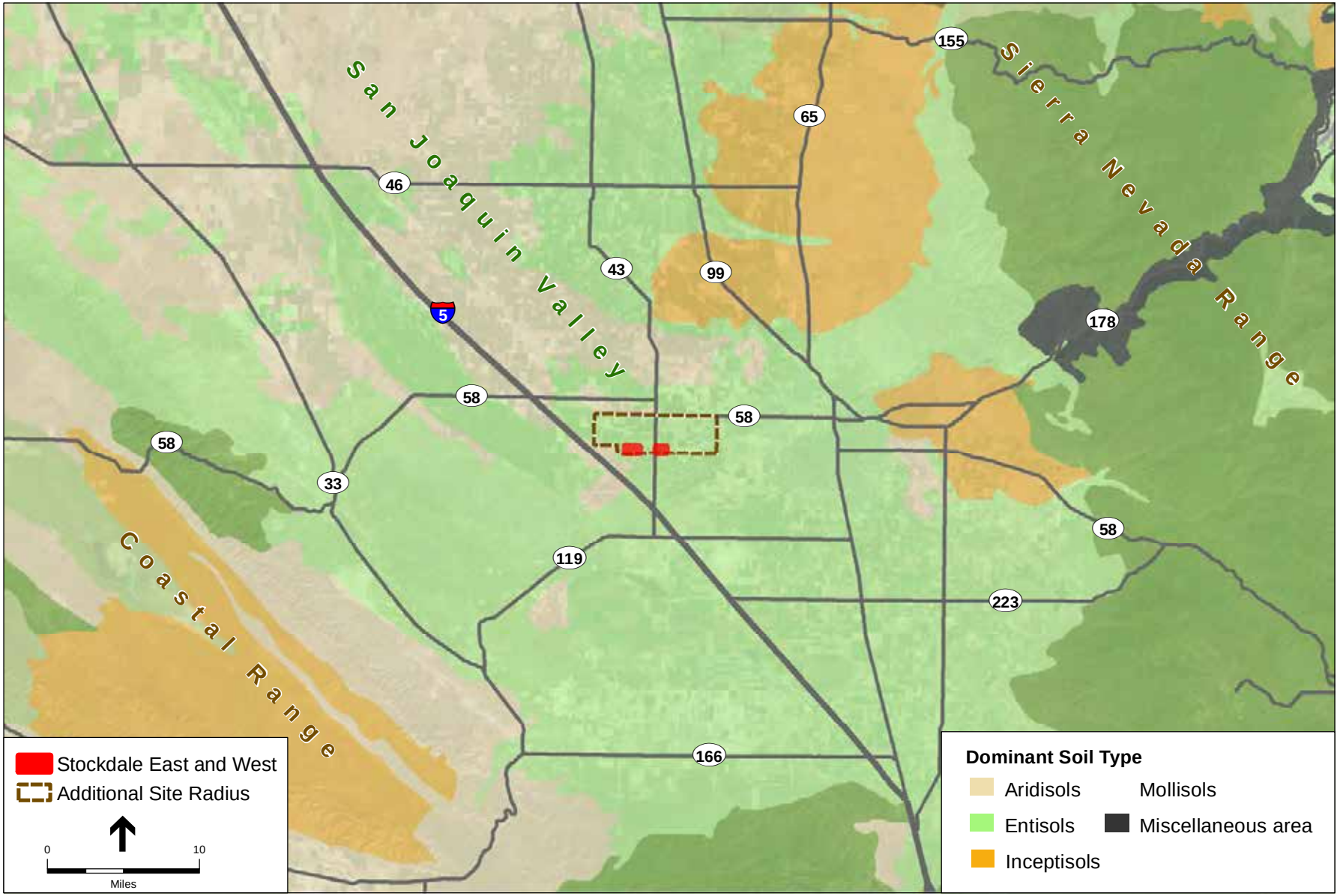
Regional Geology

The project site lies within the region of California referred to as the Great Valley geomorphic province.[1] The Great Valley geomorphic province is a long alluvial plain that runs approximately 400 miles through central California (CGS, 2002). The Great Valley can be further divided into the northern Sacramento Valley and the southern San Joaquin Valley. The project site is located within the San Joaquin Valley which is flanked by the Sierra Nevada Range to the east, and the Coast Range to the west as shown in **Figure 3.6-1**. Sediments located within the project area range in age from the Jurassic to Holocene period. Granitic and metamorphic rocks outcrop along most of the eastern and southern flanks of the Great Valley and marine rocks of pre-Tertiary age outcrop along most of the western flank. Post-Eocene-aged continental rocks and deposits found in this area contain most of the fresh groundwater and are underlain by or contain saline water at depth.

The Coast Range is dominated by the northwest trending San Andreas fault. Large coalescing alluvial fans have developed along each side of the valley (CGS, 2002). The larger and more gently sloping fans on the east side consist of deposits derived from the massive intrusive igneous rock sources of the Sierra Nevada; whereas, the smaller and more steeply sloping fans on the west side are built up by sediments originating from predominantly sedimentary rocks of the Coast Range. As a result, the valley floor consists mainly of two kinds of alluvial materials that differ widely in provenance and their respective engineering properties (CGS, 2002).

The Sierra Nevada block has been tilted westward, caused by faulting and uplifting of the eastern edge. The western side is depressed and overlain by the sedimentary deposits of the valley. The southern boundary of the Sierra Nevada block is the east-west running Garlock fault. The site is located on alluvial deposits derived from the Sierra Nevada Range near the southern boundary of the San Joaquin Valley.

[1] A geomorphic province is an area that possesses similar bedrock, structure, history, and age. California has 11 geomorphic provinces (CGS, 2002).



SOURCE: ESRI 2013, USDA Natural Resources Conservation Service (SSURGO)

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Figure 3.6-1

Geology of the San Joaquin Valley

Topography and Soils

The project area is located within the southern end of the San Joaquin Valley on the relatively flat Valley floor. The project area is generally covered with fine silty sand to sandy silt containing about 50 percent to 75 percent sand particles. The project sites are covered by Wasco fine sandy loam soils, Kimberlina fine sandy loam soils, Kimberlina sandy loam soils, and Westerhaven fine sandy loam soil. Wasco is characterized as deep and moderately deep, moderately well and well-drained soils with moderately coarse textures. Kimberlina fine sandy loam has a moderate infiltration rate, considered a moderately well to well-drained soil, and has a moderately coarse texture. Kimberlina sandy loam soils have a moderate infiltration rate, have a moderately well to well-drained soil, and consist of a moderately coarse texture. Westerhaven fine sandy loam has a moderate infiltration rates, is moderately well to well-drained soil, and has a moderately coarse texture.

The Stockdale West property is underlain by dense sands at a depth of 24 to 44 feet. Kimberlina sandy loam is found at the highland protruding into the southwest portion of the Stockdale West property and some encroachment of the Westhaven fine sandy loam along the extreme west and northwest border of the property. The Wasco, Kimberlina, and upper foot of the Westerhaven units are relatively similar (Kleinfelder West, 2010). The Stockdale East property soils have been classified as Wasco Sandy Loam, Wasco Fine Sandy Loam, and Excelsior Sandy Loam, all of which are characterized as deep and well drained soils resultant from alluvial fans.

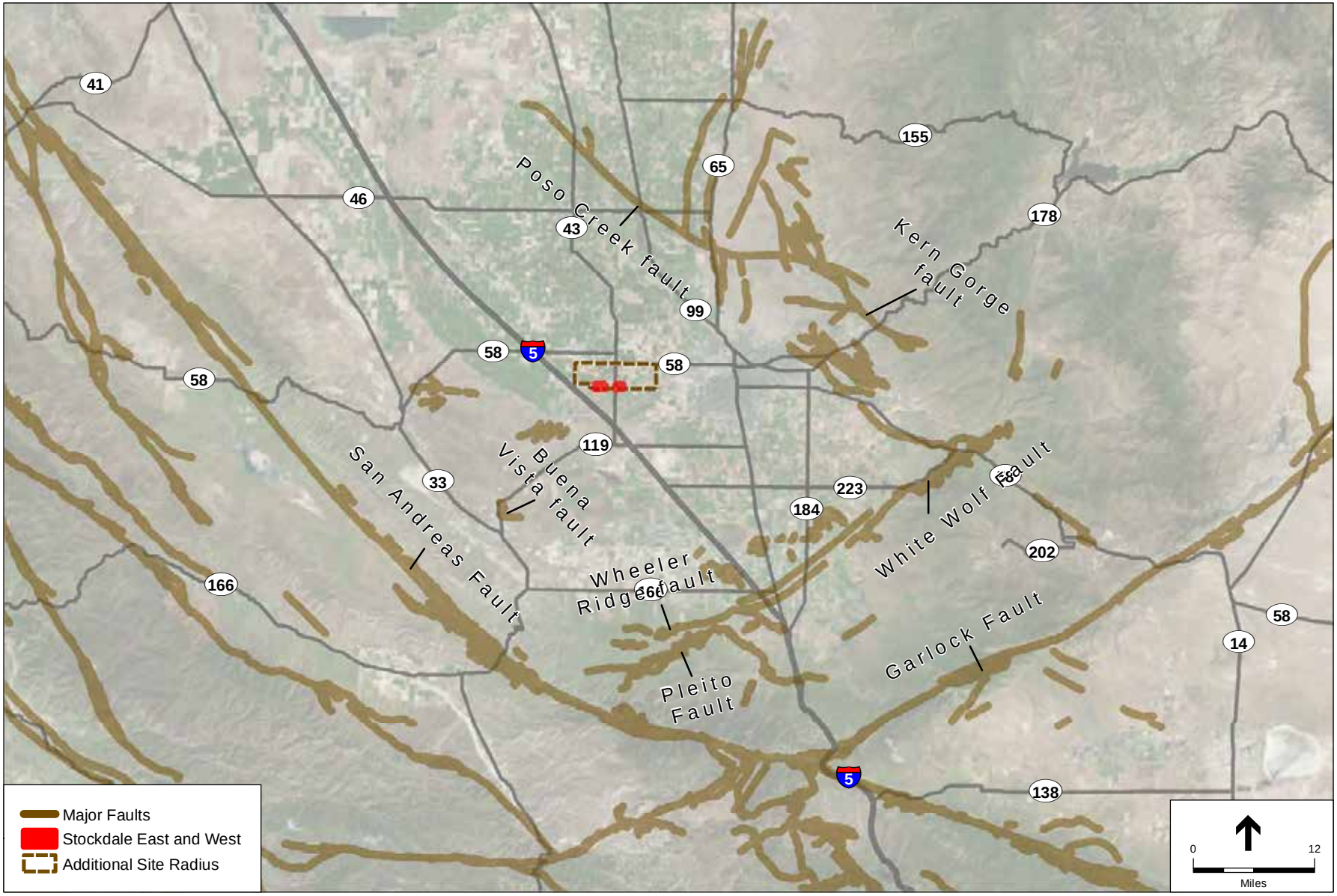
Due to the high permeability of these soils, there is very low surface runoff potential and, therefore, low susceptibility to fluvial erosion. However, each of these soil types is moderately susceptible to wind erosion when groundcover is not present. Additionally, the clay content of the Wasco fine sandy loam, the Wasco sandy loam, and the Kimberlina fine sandy loam may be moderately susceptible to shrinkage or swelling.

Regional Faults

Faults within the vicinity of the project area include the San Andreas, White Wolf, Kern Canyon, Garlock, and the Buena Vista fault as well as numerous unnamed faults and faults associated with these major faults. **Figure 3.6-2** illustrates the faults in the vicinity of the project area.

The San Andreas Fault, located approximately 25 miles southwest of the project area, is a right-lateral strike-slip fault[2] that follows the southwestern foothills of the Temblor Range within the vicinity of the project area before bending inland across the Tehachapi Mountains towards the Antelope Valley. The San Andreas is the major active fault in California and was formed due to the interaction between the Pacific Plate (to the west) and the North American Plate (to the east).

[2] "Right-lateral" movement in a fault is if you were to stand on the fault and look along its length, the right block moves toward you and the left block moves away. A "strike-slip" fault is a fault in which surfaces on opposite sides of the fault plane have moved horizontally and parallel to the strike of the fault.



SOURCE: ESRI 2013, USGS

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Figure 3.6-2

Regional Geologic Faults

The White Wolf Fault, located approximately 20 miles south of the project area, is a left-lateral oblique-reverse fault[3] that accommodates uplift caused by a compressional bend in the San Andreas Fault. The Kern Canyon Fault, located approximately 15 miles northeast of the site, is a right-lateral strike-slip fault similar to the San Andreas Fault and is generally regarded as a narrow, brittle fault zone.

The Garlock Fault, located approximately 40 miles southeast is a left-lateral strike-slip fault and intersects with the San Andreas Fault in Antelope Valley, California. The motion of the Garlock Fault causes deflection in the San Andreas, and deforms it slightly into a curve. The Garlock is the second largest fault in California behind the San Andreas.

The Buena Vista fault, located approximately 15 miles southwest of the site, is a relatively short segmented fault that has experienced active creep that is likely related to oil extraction.[4] All of these faults are currently active[5] and may cause significant ground shaking and surface fault rupture.

Seismicity

The proposed project is located in the highly seismic Southern California region where a large number of earthquakes are recorded each year. Thus, seismic hazards at the project sites would be consequences of ground shaking caused by events on nearby or distant, active or potentially-active faults. The proposed project is not located within a fault-rupture hazard zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act (CDC, 2012). The 2007 California Building Code locates the entire region within Seismic Risk Zone 4. Areas within Zone 4 are expected to experience maximum magnitudes and damage in the event of an earthquake. In the past 100 years, there have been a number of earthquakes of magnitude 5.0 or larger reported on the active San Andreas, Garlock, and White Wolf Faults as well as unknown or unspecified faults.[6] Richter scale magnitudes of less than 4.9 generally do not result in significant damage, but magnitudes of 5.0 or greater can cause minimal to major damage to buildings depending on quality of construction and magnitude of the earthquake. **Table 3.6-1** shows historic earthquakes of magnitude 5.0 or greater in the vicinity of Kern County. The last earthquake to approach magnitude 8.0 in the vicinity of Kern County was the Fort Tejon Earthquake of 1857 about 75 miles northwest of the City of Bakersfield,, which was estimated at a magnitude 7.9 and originated from the San Andreas Fault. A magnitude 8.0 earthquake can cause serious damage in areas several hundred miles across.

3 "Left-lateral" movement in a fault is if you were to stand on the fault and look along its length, the left block moves toward you and the right block moves away. An "oblique-reverse fault" is a type of fault formed when the hanging wall fault block moves up along a fault surface relative to the footwall and its trend is oblique to the strike.

4 Fault creep is the slow continual deformation of bedrock across a fault without evidence of displacement from a single earthquake event.

5 An active fault is defined by the state of California as a fault that has had surface displacement within Holocene time (approximately the last 10,000 years). A potentially active fault is defined as a fault that has shown evidence of surface displacement during the Quaternary (last 1.6 million years), unless direct geologic evidence demonstrates inactivity for all of the Holocene or longer. This definition does not, of course, mean that faults lacking evidence of surface displacement are necessarily inactive. Sufficiently active is also used to describe a fault if there is some evidence that Holocene displacement occurred on one or more of its segments or branches (DOC, 1994).

6 Southern California Earthquake Data Center at http://www.data.scec.org, October 2013.

TABLE 3.6-1
HISTORIC EARTHQUAKES MAGNITUDE 5.0 OR GREATER IN KERN COUNTY AREA

Name	Date/Time	Fault	Location	Magnitude
Walker Pass Earthquake	March 15, 1946/5:49 am PST	Unknown	5 miles NNW of Walker Pass, CA	6.0
Kern County Earthquake	July 21, 1952/4:52 am PST	White Wolf	23 miles S of Bakersfield, CA	7.5
Parkfield Earthquake	June 27, 1966/9:26 pm PST	San Andreas	6 miles NW of Parkfield, CA	6.0
Tejon Ranch Earthquake	June 10, 1988/4:06 pm PST	Unknown	32 miles SSE of Bakersfield, CA	5.4
Mojave Earthquake	July 11, 1992/11:14 am PST	Garlock	50 miles E of Bakersfield, CA	5.7
Wheeler Ridge Earthquake	May 27, 1993/9:47 pm PST	Unknown	15 miles SSW of Bakersfield, CA	5.2
Wheeler Ridge Earthquake	April 16, 2005 / 12:18pm PDT	Unknown	26 miles SSW of Bakersfield, CA	5.2

SOURCE: Southern California Earthquake Data Center at http://www.data.scec.org, October 2013.

Seismic Hazards

Surface Fault Rupture

Seismically-induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. The magnitude, sense, and nature of fault rupture can vary for different faults or even along different segments of the same fault. Ground rupture is considered more likely along active faults.

The Stockdale Properties and the Central Intake Pipeline are not within an Alquist-Priolo Fault Rupture Hazard Zone, as designated through the Alquist-Priolo Earthquake Fault Zoning Act, and no mapped active faults are known to pass through the immediate project vicinity (Hart, 1994). Therefore, the risk of ground rupture at the sites is considered very low.

Ground Shaking

Areas most susceptible to intense ground shaking are those located closest to an earthquake-generating fault, and areas underlain by thick, loosely unconsolidated and saturated sediments. Ground movement during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material.

While the earthquake magnitude is a measure of the energy released in an earthquake, intensity is a measure of the ground shaking effects at a particular location. Areas underlain by bedrock typically experience less severe ground shaking than those underlain by loose, unconsolidated materials. Unconsolidated materials, even when located relatively distant from faults, can intensify ground shaking. The Modified Mercalli Intensity (MMI) scale (**Table 3.6-2**) is commonly used to measure earthquake effects due to ground shaking. The MMI values range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from IV to X could cause moderate to significant structural damage.

TABLE 3.6-2
MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description
I	Not felt except by a very few persons under especially favorable circumstances.
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	Felt quite noticeably indoors, especially on upper floors of buildings, but many persons do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration similar to a passing of a truck.
IV	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rock noticeably.
V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motorcars.
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motorcars disturbed.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.

SOURCE: Bolt, 1988.

Ground shaking intensity in the project area is anticipated to be approximately equivalent to MMI VII to IX (strong to very strong) ground shaking. This MMI range is assumed because MMI for the Bakersfield area was modeled for the magnitude 7.9 Fort Tejon Earthquake of 1857 (the largest recorded earthquake in the area) and this range is what the model produced (Cal OES, 2013). Ground shaking of this range of intensity would likely cause some degree of damage to project facilities; however, well-designed structures are not anticipated to experience serious damage or collapse.

Liquefaction

Liquefaction is a phenomenon whereby unconsolidated and/or near saturated soils lose cohesion and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil shear strength during strong earthquake shaking results in the temporary fluid-like

behavior of the soil. Soil liquefaction causes ground failure that can damage roads, pipelines, buildings with shallow foundations, and levees. Liquefaction can occur in areas characterized by water-saturated, cohesionless, and granular materials at depths less than 40 feet, especially in areas with a shallow water table. Saturated unconsolidated alluvium with earthquake intensities greater than VII on the MMI Scale may be susceptible. Detailed liquefaction mapping does not exist within Kern County (KCFD, 2012). According to the Kern County Fire Department Office of Emergency Services, the project area is not in an area with a shallow water table and is not likely to be susceptible to liquefaction (KCFD, 2012). However, the groundwater table does fluctuate greatly in association with banking operations. During years of high groundwater recharge efforts, the groundwater table could potentially be shallow enough to present a liquefaction hazard, although there has been no evidence of previous liquefaction (KCFD, 2012).

Seismically Induced Landslide

A landslide is a mass of rock, soil, and debris displaced down-slope by sliding, flowing, or falling. The susceptibility of land (slope) failure is dependent on the slope and geology as well as the amount of rainfall, excavation, or seismic activities. Factors that decrease resistance to movement in a slope include pore water pressure, material changes, and structure. Removing the lower portion (the toe) of a slope decreases or eliminates the support that opposes lateral motion in a slope. Shaking during an earthquake may lead materials in a slope to lose cohesion and collapse. Due to the relatively level topography in the vicinity of the project sites, there is between a one and ten percent chance of occurrence (KCFD, 2012).

Geologic Hazards

Erosion

Erosion is the detachment and movement of soil materials through natural processes or human activities. The detachment of soil particles can be initiated through the suspension of material by wind or water. Silt-sized particles are the most easily removed particles, due to their size and low cohesiveness. Erosion problems in Kern County are prevalent on steep slopes, alluvial fans, earthquake fault zones, and urban drainage systems (KCFD, 2012). In general, the project sites do not contain steep slopes or alluvial fan soils and are not located near an earthquake fault zone. The project sites are located near urban drainage systems and contain soils with a moderate to slight potential for erosion. Therefore, the project sites could be susceptible to wind erosion.

Expansive Soils

Expansive soils possess a shrink-swell characteristic[7] that can result in structural damage over a long period of time. Expansive soils are largely comprised of silicate clays, which expand in volume when water is absorbed and shrink when dried. Highly expansive soils can cause damage to foundations and roads. There is currently no comprehensive catalog of expansive soils in Kern County, but problems with swelling soils could occur if not properly identified and mitigated prior to construction (KCFD, 2012).

[7] "Shrink-swell" is the cyclical expansion and contraction that occurs in fine-grained clay sediments from wetting and drying. Structures located on soils with this characteristic may be damaged over a long period of time, usually as the result of inadequate foundation engineering.

Land Subsidence/Fissures

Subsidence is occurring in the San Joaquin Valley. Subsidence from groundwater withdrawal affects the San Joaquin Valley, particularly in the northern portion of the Valley near El Nido, in the central portion of the Valley near Tulare and Kettleman City, and the southwest end of the Valley in the vicinity of the Buena Vista Lake Bed (KCFD, 2012; Groundwater Voices Coalition; 2014). Land subsidence can occur as a result of groundwater extraction where underlying soils can compact when water is removed. The extraction of mineral or oil resources can also result in subsidence. The usual remedial action for land subsidence is that of raising the water table by injecting water or by reducing groundwater pumping (KCFD, 2012). This increases the fluid pressure in the aquifer and, in most instances, subsidence decreases or stops after a period of time. Permanent subsidence can result due to inelastic compaction, which occurs when the structure of the substrate is compromised during compaction such that it is unable to expand to its original thickness even when groundwater levels rise again. According to the County General Plan Land Subsidence map, land subsidence has occurred in the project area (Kern County Planning Department, 2009). A recent assessment determined that total subsidence during 2007 to 2011 was between 0.0 to 0.5 feet throughout the Central Valley, including the project area (Groundwater Voices Coalition, 2014). The Kern Fan Monitoring Committee uses extensometers to monitor subsidence in the project area. Between 1994 and 2013, water surface elevation has increased by 0.7736 feet, based on the extensometer at State Well 30S/25E-16L005M just south of the project area (DWR SCRO, 2013). This increase denotes swelling rather than subsidence in the project area.

Hyrdocompaction

Hydrocompaction is a form of land subsidence that occurs when unsaturated soils, low density fine grained soils with small pores and voids, are subjected to increased moisture content. The moisture alters the cementation structure of the normally arid soils. The rearrangement of the soil structure causes collapse and differential settlement to occur under relatively light loading. To avoid hydrocompaction, contractors have hydrocompacted soils prior construction. For example, soils in many areas crossed by the California Aqueduct were intentionally hydrocompacted before aqueduct construction to avoid subsidence problems and subsequent subsidence due to hydrocompaction in these areas has been minimal.[8] The project sites could be susceptible to hydrocompaction.

3.6.2 Regulatory Setting

State

California Building Code (CBC)

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety and

8 *Ibid.*

general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The CBC is based on the International Building Code. The 2010 CBC is based on the 2009 International Building Code (IBC) published by the International Code Conference. In addition, the CBC contains necessary California amendments which are based on reference standards obtained from various technical committees and organizations such as the American Society of Civil Engineers (ASCE), the American Institute of Steel Construction (AISC), and the American Concrete Institute (ACI). ASCE Minimum Design Standards 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients which are used to determine a Seismic Design Category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was passed in 1990 following the Loma Prieta earthquake to reduce threats to public health and safety and to minimize property damage caused by earthquakes. The act directs the Department of Conservation to identify and map areas prone to the earthquake hazards of liquefaction, earthquake-induced landslides, and amplified groundshaking. For structures intended for human occupancy, the act requires site-specific geotechnical investigations to identify potential seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy within the Zones of Required Investigation.

Local

Kern County Code

The Kern County Code of Ordinances would require issuance of a well drilling permit prior to construction of proposed project wells (Kern County Code, Title 14, Chapter 14.08). Other permits, such as grading, construction, and building permits would not be required because the proposed water facilities are considered exempt under Government Code Section 53091.

Kern County General Plan

The Stockdale Properties and the Central Intake Pipeline are located within the area governed by the *Kern County General Plan* (County General Plan) (Kern County Planning Department, 2004a). Within the Land Use, Conservation, and Open Space and Safety Elements of the County

General Plan, there is a goal, policies, and implementation measures that are applicable to the proposed project regarding geology and soils:

Safety Element, Induced Surface Rupture, Ground Shaking, and Ground Failure Section

Implementation Measure B: Require geological and soils engineering investigations in identified significant geologic hazard areas in accordance with the Kern County Code of Building Regulations.

Implementation Measure C: The fault zones designated in the Kern County Seismic Hazard Atlas should be considered significant geologic hazard areas. Proper precautions should be instituted to reduce seismic hazard, whenever possible in accordance with State and County regulations.

Implementation Measure H: Require that plans and permits for installation of major lifeline components such as highways, utilities, petroleum or chemical pipelines to incorporate design features to accommodate potential fault movement in areas of active faults without prolonged disruption of essential service or threat to health and safety.

Safety Element, Landslide, Subsidence, Seiche, and Liquefaction Section

Policy 1: Determine the liquefaction potential at sites in areas of shallow groundwater (Map Code 2.3) prior to discretionary 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 2: Route major lifeline installations around potential areas of liquefaction or otherwise protect them against significant damage from liquefaction in an earthquake.

Implementation Measure D: Discretionary actions will be required to address and mitigate impacts from inundation, land subsidence, landslides, high groundwater areas, liquefaction and seismic events through the CEQA process.

Bakersfield General Plan

The project site is also located within the area governed by the *Metropolitan Bakersfield General Plan* (Bakersfield General Plan) (City of Bakersfield and Kern County, 2002). Within the Safety Element of the Bakersfield General Plan, there are goals, policies, and implementation measures that are applicable to the proposed project regarding geology and soils:

Goal 1: Substantially reduce the level of death, injury, property damage, economic and social dislocation and disruption of vital services that would result from earthquake damage.

Goal 5: Protect essential lifelines and prevent casualties and major social and economic disruption due to liquefaction in an earthquake.

Policy 1: Ensure that earthquake survival and efficient post-disaster functions are a primary objective in the siting, design, and construction standards for discretionary essential facilities or the expansion of such facilities.

Policy 13: Determine the liquefaction potential at sites in areas of high groundwater prior to the 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 14: Route major lifeline installations around potential liquefaction areas or otherwise protect them against significant damage from liquefaction in an earthquake.

Implementation Measure 2: Require detailed studied 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 the city and county discretionary approval.

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 part of the Uniform Building Code.

3.6.3 Impact Assessment

Thresholds of Significance

The following criteria from Appendix G of the *CEQA Guidelines* are used as thresholds of significance to determine the impacts of the proposed project as related to geology, soils, and seismicity. The proposed project would have a significant impact if it would:

1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    a. 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.);
    b. Strong seismic ground shaking;
    c. Seismic-related ground failure, including liquefaction; and/or
    d. Landslides.
2. Result in substantial soil erosion or the loss of topsoil.
3. 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.
4. 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.

5. 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

Effects Found Not to be Significant

Threshold 1a. Fault Rupture

The faults most susceptible to earthquake rupture are active faults, which are faults that have experienced surface displacement within the last 11,000 years. There are no active faults that cross the project site properties, and the nearest active fault is more than 15 miles away. Therefore, the potential for fault rupture to affect the proposed project is very low. No impact would occur.

Threshold 1d. Landslides and Lateral Spreading

The proposed project is located within an area that is relatively flat with very little topographic relief. Therefore, there is very little potential for landslides or lateral spreading. No impact would occur.

Threshold 4. Expansive Soils

The proposed project does not include the construction of any permanent structures that would require a foundation that could be adversely affected by surface soils with expansive properties. Therefore, there would be no impact associated with expansive soils.

Threshold 5. Septic Tanks

The proposed project does not involve the construction or use of septic tanks or alternative wastewater disposal systems. Therefore, there would be no impacts related to soils supporting such structures.

Impacts and Mitigation Measures

Threshold 1. Seismic Hazard

Impact GEO-1: The proposed project could expose new structures to adverse effects related to strong seismic ground shaking, ground failure, and liquefaction.

The project vicinity has experienced and would likely continue to experience strong seismic ground shaking due to its proximity to a number of active faults, including the San Andreas Fault and the Garlock fault. If such an event were to occur during a time of a relatively shallow depth to groundwater or otherwise saturated soil conditions from recharge activities, the site soils could be susceptible to seismically-induced liquefaction hazards.

In the event that ground shaking caused damage to a recharge basin and/or conveyance structure, released water would likely infiltrate into the permeable soils that comprise the project sites. The recharge basins would be constructed primarily below grade with berms constructed above grade, which, coupled with the relatively flat topography, would hinder movement of water offsite. The

Central Intake Pipeline would be constructed completely below ground. Therefore, the potential risk of loss, injury, or death from strong seismic shaking is considered low.

At the Stockdale Properties, shallow depth to groundwater is not expected to cause liquefaction during seismic events because the proposed project includes requirements to monitor shallow groundwater levels and make operational changes to avoid shallow depth to groundwater as part of **Mitigation Measure HYDRO-2** (see Chapter 3.9).

Impact Determination

Potential adverse effects associated with ground shaking and seismically-induced liquefaction include damage to proposed water-bearing structures such as recharge basins and conveyance structures. Given the project design features and relatively flat topography, the potential for water to move offsite is low. Given the limited improvements associated with the proposed project, the potential risk of loss, injury or death is considered low and any structural damage would be reparable. Plus, Mitigation Measure HYDRO-2 would monitor shallow groundwater and minimize conditions that would contribute to potential liquefaction hazards. Impacts are considered less than significant with mitigation.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

Implement **Mitigation Measure HYDRO-2** (see Chapter 3.9).

Threshold 2. Soil Erosion

Impact GEO-2: The proposed project could result in soil erosion or the loss of topsoil.

Construction activities at Stockdale West would require drilling activities for the construction of recovery wells as well as construction of the Stockdale West Turnout. Construction activities at Stockdale East and the third Stockdale project site would include site clearing and demolition; excavation and backfill; construction of basins, conveyance channels and pipelines, a pump station and CVC turnout; and recovery facilities; and site restoration. Grading activities associated with the construction of the recharge basins would involve earthmoving, excavation, stockpiling, and grading; all of which could expose soils to erosion processes. The Central Intake Pipeline would be constructed using typical open trench construction methods, with the exception of crossing Stockdale Highway and the Southern Pacific Railroad, where jack and bore methods would be used to tunnel under and avoid disruption of surface features. Excavation up to 12 feet would be required; and excavated soils would be redistributed and utilized to cover the embedded pipeline, and to create berms around the recharge basins, to the extent feasible. The extent of erosion that would occur would vary depending on slope steepness/stability, vegetation/cover, concentration of runoff, and weather conditions.

To prevent water and wind erosion during the construction period, a Storm Water Pollution Prevention Plan (SWPPP) would be developed and implemented for the proposed project as required for all projects that disturb more than one acre. (See Chapter 3.9, Hydrology and Water Quality for more information about the SWPPP.) The SWPPP would specify BMPs to prevent construction pollutants, including eroded soils (such as topsoil), from moving off-site and provide erosion control measures to protect the topsoil. **Mitigation Measure HYDRO-1** in Chapter 3.9 requires establishment of an erosion control perimeter around active construction and contractor layout areas. The recharge basins and supply channels would be designed in an effort to balance earthwork on site in which all excavated soils would be redistributed and utilized to construct the project facilities. Topsoil materials would be stripped from the ground surface and used for construction of the earthen berms of the recharge ponds. Mitigation Measure HYDRO-1 also requires stockpiled soils to be watered and/or covered to prevent loss due to wind erosion as part of the SWPPP. As a result of these efforts, loss of topsoil and substantial soil erosion during the construction period are not anticipated.

During operation of the groundwater recharge basins, the recharge basins would contain water, which would inhibit erosion; during periods of non-recharge, the recharge basins would be subject to wind erosion. Plant cover at the project site would minimize wind erosion. Operation of the Central Intake Pipeline would not contribute to wind erosion since the pipeline would be underground running along the edge of Stockdale East and then primarily beneath an existing dirt road between existing agricultural parcels. The dirt road is already denuded of vegetation and would be restored back to existing conditions, resulting in no change in erosion potential.

Impact Determination

To minimize soil erosion and loss of topsoil during construction, Rosedale would be required to develop and implement a SWPPP, which would provide water and wind erosion control measures to protect the topsoil, including the BMPs required by Mitigation Measure HYDRO-1. During project operation, the groundwater recharge basins would contain water, which would inhibit erosion, and plant cover would minimize wind erosion during non-recharge periods. With implementation of the SWPPP and Mitigation Measure HYDRO-1, and the operational design of the proposed project, impacts related to soil erosion and topsoil loss would be less than significant with mitigation.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

Implement **Mitigation Measure HYDRO-1** (see Chapter 3.9).

Threshold 3. Unstable Soils

Impact GEO-3: Operation of the proposed project could affect groundwater levels and result in on-site or off-site subsidence from compaction.

Recent studies estimate approximately 0.0 to 0.5 feet of subsidence has occurred between 2007 to 2011 throughout the Central Valley, including in the project area (Groundwater Voices Coalition, 2014). Such widespread land subsidence in the Central Valley is primarily caused by compaction (USGS, 1995). The western and southern margins of the San Joaquin Valley have historically been impacted by land subsidence due to hydrocompaction (USGS, 1995). Hydrocompaction occurs when formerly unsaturated soils become saturated, which allows the soil particles to reorient into a more compact form (USGS, 1995). However, subsidence in the rest of the San Joaquin Valley is primarily associated with long-term withdrawal of groundwater in excess of recharge (USGS, 1995) particularly when withdrawal occurs within fine-grained sediments such as silts and clays. Extraction of groundwater from clay beds reduces pore pressure in the clay, and the weight of overlying sediments compact the clay. Compaction tends to happen more readily when wells are open only to the confined part of the aquifer system than when they are open to the shallow water-table aquifer as well. There appears to be no uniform confining layer beneath the proposed project sites. As described in Chapter 3.9, the hydrogeology of the Kern Fan region is characterized by an upper unconfined aquifer that reaches to a depth of approximately 200 to 400 feet and a lower semi-confined aquifer that extends to a depth between approximately 500 to 750 feet (THC, 2015).

In addition, the proposed project is a groundwater banking project that would require water to be recharged prior to extraction. Groundwater banking programs benefit water levels in the local aquifer because the amount of water available for recovery is less than the amount recharged; this difference can raise groundwater levels. The proposed project would be integrated with Rosedale's Conjunctive Use Program, which has served to correct for declining groundwater levels, one of the primary causes of compaction and subsidence, and therefore has served to mitigate additional subsidence to some degree. The proposed project would provide additional recharge capacity in excess of recovery and as such should not cause additional subsidence relative to existing conditions.

Impact Determination

The project area does not have a history of substantial subsidence or hydrocompaction relative to that which is occurring throughout the Central Valley. The proposed project would not extract any groundwater beyond what has been recharged into the groundwater table, and therefore, the proposed project would not change the existing conditions associated with subsidence due to groundwater extraction. Impacts would be less than significant, and no mitigation is required.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

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3.7 Greenhouse Gas Emissions

This chapter provides an analysis of the current environmental and regulatory framework related to climate change in California. Impacts related to greenhouse gases (GHGs) and climate change are analyzed and mitigation measures are provided for any potentially significant impacts.

3.7.1 Environmental Setting

Climate Change Overview

Various gases in the earth's atmosphere, classified as GHGs, play a critical role in determining its surface temperature. Solar radiation enters earth's atmosphere from space, and a portion of the radiation is absorbed by the earth's surface. Earth re-radiates this energy back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. GHGs, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation (that otherwise would have escaped back into space) is now retained in the atmosphere, and results in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Much of the scientific literature suggests that human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of earth's climate, known as global climate change or global warming. While there is some debate regarding this issue, it is unlikely that global climate change of the past 50 years can be explained without contribution from human activities (IPCC, 2007).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration.

As discussed previously, impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and toxic air contaminants. While the quantity of GHGs that it takes to ultimately result in climate change is not precisely known, it is clear that no single project would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates. Thus, from the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

Greenhouse Gas Emission Sources

According to much of the scientific literature on this topic, emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural sectors (ARB, 2014a). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation. Emissions of CO_2 are byproducts of fossil fuel combustion. Methane, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Nitrous oxide is also largely attributable to agricultural practices and soil management. Carbon dioxide sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, two of the most common processes of CO_2 sequestration.

California produced approximately 459 million gross metric tons of CO_2 equivalent (CO_2e) in 2012 (ARB, 2014a). CO_2e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. Expressing emissions in CO_2e takes the contributions to the greenhouse effect of all GHG emissions and converts them to the equivalent effect that would occur if only CO_2 were being emitted. This measurement, known as the global warming potential (GWP) of a GHG, is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2012, accounting for 36 percent of total GHG emissions in the state. This sector was followed by the electric power sector (including both in-state and out-of-state sources) (21 percent) and the industrial sector (19 percent) (ARB, 2014a).

3.7.2 Regulatory Setting

Federal

Clean Air Act and the United States Environmental Protection Agency

The federal Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to define national ambient air quality standards to protect public health and welfare in the U.S. The CAA does not specifically regulate GHG emissions; however, on April 2, 2007, the U.S. Supreme Court in *Massachusetts v. U.S. Environmental Protection Agency*, determined that GHGs are pollutants that can be regulated under the CAA. Currently, there are no federal regulations that establish ambient air quality standards for GHGs.

On December 7, 2009, EPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding). The Endangerment Finding is based on Section 202(a) of the CAA, which states that the administrator (of EPA) should regulate and develop standards for "emission[s] of air pollution from any class or classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." The rule addresses Section 202(a) in two distinct findings. The first addresses whether the concentrations of the six

key GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and, therefore, contribute to the threat of climate change.

The Administrator of EPA found that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wildfires, droughts, sea level rise, and higher intensity storms) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations.

The Administrator of EPA also found that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHGs fit within the CAA definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements but, rather, allow EPA to finalize the GHG standards proposed earlier in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation. These standards would are described in detail in the next section.

Specific GHG regulations that the EPA has adopted to-date are as follows:

40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule. This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO_2e emissions per year. Additionally, reporting of emissions is required for owners of SF_6- and PFC-insulated equipment when the total nameplate capacity of these insulating gases is above 17,280 pounds.

40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule. This rule sets GHG emissions thresholds that define when permits under the EPA's New Source Review Prevention Significant Deterioration (PSD) and Title V Operating Permit programs would be required for new and existing industrial facilities. The first step of the EPA's tailoring rule, which took effect Jan. 2, 2011, required sources that were already subject to PSD requirements to obtain permits for their GHG emissions if they emit 75,000 tons of CO_2e per year. Beginning July 1, 2011, the second phase applied permitting requirements to all stationary sources with GHG emissions of at least 100,000 tons of CO_2e annually or that made modifications increasing their emissions by at least 75,000 tons per year. The requirements applied to sources even if they were not previously subject to permitting for other pollutants.

State

California Air Resources Board

The California Air Resources Board (ARB) is the agency responsible for coordination and oversight of state and local air pollution control programs in California. Various statewide and

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

There are currently no state regulations in California that establish ambient air quality standards for GHGs. However, California has passed laws directing ARB to develop actions to reduce GHG emissions, and several state legislative actions related to climate change and GHG emissions have come into play in the past decade.

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493. AB 1493 requires that ARB develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the State."

To meet the requirements of AB 1493, in 2004, ARB approved amendments to the California Code of Regulations (CCR) adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1) require automobile manufacturers to meet fleet-average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily for the transportation of persons), beginning with the 2009 model year. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for the 2016 model year are approximately 37 percent lower than the limits for the first year of the regulations, the 2009 model year. For light-duty trucks with LVW of 3,751 pounds to gross vehicle weight (GVW) of 8,500 pounds, as well as medium-duty passenger vehicles, GHG emissions would be reduced approximately 24 percent between 2009 and 2016.

On September 15, 2009, EPA and the Department of Transportation's National Highway Safety Administration (NHTSA) proposed a national program to reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States. The combined EPA and NHTSA standards that make up the proposed national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon (mpg). Under the proposed national program, automobile manufacturers would be able to build a single light-duty national fleet that satisfies all requirements under both the national program and the standards of California and other states, while ensuring that consumers still have a full range of vehicle choices. In order to promote the adoption of the national program, ARB has adopted amendments to the GHG emissions standards

for new passenger vehicles from 2009 through 2016. In December 2011, NHTSA and EPA issued a joint proposal to extend the National Program to further improve fuel economy and reduce GHG emissions for passenger and light-duty vehicles for model years 2017 to 2025. This would be accomplished through new proposed Corporate Average Fuel Economy (CAFE) standards by NHTSA and new GHG emission standards by EPA. The proposed CAFE standards are projected to require, on an average industry-fleet-wide basis for cars and trucks combined, 40.1 mpg in model year 2021, and 49.6 mpg in model year 2025. EPA's proposed GHG standards, which would be harmonized with NHTSA's CAFE standards, are projected to require 163 grams/mile (54.5 mpg) of CO_2 in model year 2025. All mobile sources, including trips generated by the proposed project, would be required to comply with these regulations as they are phased in.

Executive Order S-3-05

Executive Order S-03-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the Secretary of California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary will also submit biannual reports to the Governor and State Legislature describing progress made toward reaching the emission targets, impacts of global warming on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of CalEPA created the California Climate Action Team (CCAT) made up of members from various state agencies and commissions. CCAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government, and community actions, as well as through State incentive and regulatory programs.

Assembly Bill 32 (California Global Warming Solutions Act of 2006)

In September 2006, Governor Arnold Schwarzenegger signed the California Global Warming Solutions Act (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires ARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and

develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. According to ARB's *Climate Change Scoping Plan* (ARB, 2008), the 2020 target of 427 million metric tons (MMT) of CO_2e requires the reduction of 169 $MMTCO_2e$, or approximately 28.4 percent, from the state's projected 2020 business-as-usual (BAU) emissions level of 596 $MMTCO_2e$. However, ARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. In August 2011, the *Scoping Plan* was re-approved by the Board and includes the *Final Supplement to the Scoping Plan Functional Equivalent Document* (ARB, 2011). This document includes expanded analysis of project alternatives as well as updates the 2020 emission projections in light of the current economic forecasts. Considering the updated 2020 BAU estimate of 507 $MMTCO_2e$, a 16 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels by 2020. The document also excludes one measure identified in the 2008 *Scoping Plan* that has been adopted and one measure that is no longer under consideration by ARB (ARB, 2011).

As required by AB 32, the Scoping Plan must be updated at least every five years to evaluate the mix of AB 32 policies to ensure that California is on track to meet the targets set out in the legislation. As such, a draft Update to the initial Scoping Plan was developed by ARB in collaboration with the CCAT and was presented to ARB's Board for discussion at its February 20, 2014 meeting. The draft Update builds upon the initial Scoping Plan with new strategies and expanded measures, and identifies opportunities to leverage existing and new funds to drive GHG emission reductions through strategic planning and targeted program investments. The first update to the AB 32 Scoping Plan was approved on May 22, 2014 by ARB (ARB, 2014b).

Senate Bill 1368

SB 1368 (Perata, Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities. CPUC adopted a GHG Emissions Performance Standard in January 2007. The California Energy Commission (CEC) adopted consistent regulations for implementing and enforcing SB 1368 for the state's publicly-owned utilities in August 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

Executive Order S-1-07

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

On April 23, 2009, ARB approved the proposed regulation to implement the LCFS. The LCFS will reduce GHG emissions from the transportation sector in California by about 16 MMT in 2020. The LCFS is designed to reduce California's dependence on petroleum, create a lasting market for clean transportation technology, and stimulate the production and use of alternative, low-carbon fuels in California. The LCFS is designed to provide a durable framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011. One standard is established for gasoline and the alternative fuels that can replace it. A second similar standard is set for diesel fuel and its replacements.

However, the issuance of regulations by California under the LCFS has resulted in several lawsuits that were brought on by industry trade organizations representing ethanol producers, refiners, and truckers. These lawsuits allege that California acted in violation of the U.S. Constitution because the LCFS are inherently discriminatory against commerce taking place outside of the state of California, since more carbon emissions would always result from the transportation of fuels to California from areas outside of the state when compared to the carbon emissions generated by fuel producers in California who would be able to transport their fuel over shorter distances. In addition, the lawsuit also alleged that California was making an attempt to impermissibly regulate conduct outside of the state and contended that California's LCFS should be preempted by the Renewable Fuel Standards passed on the federal level. In response, the state has indicated that the provisions found within the CCAA provide the authority for California to control air pollution and that its regulation is a permissible act of state sovereignty. Nonetheless, a federal judge issued a preliminary injunction in December 2011, that prevented California from implementing the LCFS on the grounds that California's regulations were in violation of the Commerce Clause in the United States Constitution. ARB appealed the decision and is currently allowed to enforce the LCFS while the appeal is pending. On September 18, 2013, the Ninth Circuit Court of Appeals reversed the U.S. District Court opinion that held that California's LCFS violated the dormant Commerce Clause of the U.S. Constitution.

Senate Bill 97

SB 97, signed August 2007 (Chapter 185, Statutes of 2007; PRC Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. The bill directed the California OPR to prepare, develop, and transmit to the California Natural Resources Agency, guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the *CEQA Guidelines* for GHG emissions, as required by SB 97. On February 16, 2010, the Office of Administrative Law approved the amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The amendments became effective on March 18, 2010.

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

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date

to 2010. In November 2008, then-Governor Schwarzenegger signed Executive Order S-14-08, which expands the State's Renewables Energy Standard to 33 percent renewable power by 2020. In April 2011, Governor Jerry Brown signed SB 2X, that created a legislative mandate codifying the 33 percent Renewables Portfolio Standard into law.

Senate Bill 375

SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPOs regional transportation plan (RTP). ARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects may not be eligible for funding programmed after January 1, 2012.

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

ARB Early Action Measures

In June 2007, ARB directed staff to pursue 37 early actions for reducing GHG emissions under AB 32 (California Health and Safety Code Division 25.5, Sections 38500 - 38599). The broad spectrum of strategies to be developed—including a LCFS, regulations for refrigerants with high global warming potential, guidance and protocols for local governments to facilitate GHG reductions, and green ports—reflects the government's responsive actions to immediately address GHGs. In addition to approving the 37 GHG reduction strategies, ARB directed staff to further evaluate early action recommendations made at the June 2007 meeting, and to report back to ARB within six months. ARB's approach suggested a desire to try to pursue greater GHG emissions reductions in California in the near-term. ARB staff evaluated all recommendations submitted by several stakeholders and several internally-generated staff ideas, and published a draft list of early action measures in September 2007. The list was expanded to 44 measures in October 2007 (ARB, 2007). The Board has also identified nine Discrete Early Action measures to date, including potential regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations, and other sources.

ARB Climate Change Scoping Plan

On December 11, 2008, ARB adopted its Scoping Plan, which functions as a roadmap of ARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations (ARB, 2008). ARB's Scoping Plan contains the main strategies California will implement to reduce CO_2e emissions by 169 MMT, or approximately 28.4 percent, from the

state's projected 2020 emissions level of 596 MMT of CO_2e under a BAU scenario. In August 2011, the Scoping Plan was re-approved by the Board and includes the Final Supplement to the Scoping Plan Functional Equivalent Document. This document includes expanded analysis of project alternatives as well as updates the 2020 emission projections in light of the current economic forecasts. Considering the updated 2020 BAU estimate of 507 MMT CO_2e, a 16 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels by 2020. The document also excludes one measure identified in the 2008 Scoping Plan that has been adopted and one measure that is no longer under consideration by ARB (ARB, 2011).

ARB's Scoping Plan (ARB, 2008) calculates 2020 BAU emissions as the emissions that would be expected to occur in the absence of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors, i.e., transportation, electrical power, commercial, residential, industrial etc. ARB used three-year average emissions, by sector, for 2002-2004 to forecast emissions to 2020. At the time ARB's Scoping Plan process was initiated, 2004 was the most recent year for which actual data was available. The measures described in ARB's *Sc*oping Plan are intended to reduce the projected 2020 BAU to 1990 levels, as required by AB 32.

ARB's Scoping Plan also breaks down the amount of GHG emissions reductions ARB recommends for each emissions sector of the state's GHG inventory. ARB's Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- Improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e);
- The LCFS (15.0 MMT CO_2e);
- Energy efficiency measures in buildings and appliances, and the widespread development of combined heat and power systems (26.3 MMT CO_2e); and
- A renewable portfolio standard for electricity production (21.3 MMT CO_2e).

ARB has identified a GHG reduction target of 5 MMT (of the 174 MMT total) for local land use changes (Table 2 of ARB's Scoping Plan), by Implementation of Reduction Strategy T-3 regarding Regional Transportation-Related GHG Targets. Additional land use reductions may be achieved as SB 375 is implemented. ARB's Scoping Plan states that successful implementation of the plan relies on local governments' land use, planning, and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large effects on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. ARB's Scoping Plan does not include any direct discussion about GHG emissions generated by construction activity.

ARB's Scoping Plan expands the list of nine Discrete Early Action Measures to a list of 39 Recommended Actions contained in Appendices C and E of ARB's Scoping Plan. These measures are presented in **Table 3.7-1**.

As discussed previously, a draft Update to the initial Scoping Plan was developed by ARB in collaboration with the CCAT to address the requirement by AB 32 that the Scoping Plan be updated at least every five years. The draft Update to the initial Scoping Plan developed by ARB in collaboration with the CCAT was presented to ARB's Board for discussion at its February 20, 2014 meeting. The draft Update builds upon the initial Scoping Plan with new strategies and expanded measures, and identifies opportunities to leverage existing and new funds to drive GHG emission reductions through strategic planning and targeted program investments. The first update to the AB 32 Scoping Plan was approved on May 22, 2014 by ARB.

As part of the proposed update to the Scoping Plan, the emissions reductions required to meet the 2020 statewide GHG emissions limit were further adjusted. The primary reason for adjusting the 2020 statewide emissions limit was based on the fact that the original Scoping Plan relied on the IPCC's 1996 Second Assessment Report (SAR) to assign the GWPs of greenhouse gases. Recently, in accordance the United Nations Framework Convention on Climate Change (UNFCCC), international climate agencies have agreed to begin using the scientifically updated GWP values in the IPCC's Fourth Assessment Report (AR4) that was released in 2007. Because ARB has begun to transition to the use of the AR4 100-year GWPs in its climate change programs, ARB recalculated the Scoping Plan's 1990 GHG emissions level with the AR4 GWPs. As the recalculation resulted in 431 $MMTCO_2e$, the 2020 GHG emissions limit established in response to AB 32 is now slightly higher than the 427 $MMTCO_2e$ in the initial Scoping Plan. Considering that the proposed update also adjusted the 2020 BAU forecast of GHG emissions to 509 $MMTCO_2e$, a 15 percent reduction below the estimated BAU levels was determined to be necessary to return to 1990 levels by 2020 (ARB, 2014b).

Carbon Credits: Mandatory and Voluntary

The AB 32 Scoping Plan identifies cap-and-trade as a key strategy for helping California reduce its GHG emissions. A cap-and-trade program sets the total amount of GHG emissions allowable for facilities under the cap and allows covered sources, including producers and consumers of energy, to determine the least expensive strategies to comply. On October 20, 2011, ARB adopted the final cap-and-trade regulation and Resolution 11-32. Under the program, in August and November 2012, the first auction of GHG emissions allowances will be held and on January 1, 2013 the compliance obligation for Covered Entities begins (the proposed Project is not a Covered Entity). The cap-and-trade program also allows for non-Covered Entities, including Voluntarily Associated Entities, to register with the program and purchase and hold GHG emission allowances.

TABLE 3.7-1
RECOMMENDED ACTIONS FROM ARB CLIMATE CHANGE SCOPING PLAN

ID #	Sector	Strategy Name
T-1	Transportation	Pavley I and II – Light-Duty Vehicle GHG Standards
T-2	Transportation	LCFS (Discrete Early Action)
T-3	Transportation	Regional Transportation-Related GHG Targets
T-4	Transportation	Vehicle Efficiency Measures
T-5	Transportation	Ship Electrification at Ports (Discrete Early Action)
T-6	Transportation	Goods-movement Efficiency Measures
T-7	Transportation	Heavy Duty Vehicle GHG Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)
T-8	Transportation	Medium and Heavy-Duty Vehicle Hybridization
T-9	Transportation	High Speed Rail
E-1	Electricity and Natural Gas	Increased Utility Energy efficiency programs More stringent Building and Appliance Standards
E-2	Electricity and Natural Gas	Increase Combined Heat and Power Use by 30,000GWh
E-3	Electricity and Natural Gas	Renewables Portfolio Standard
E-4	Electricity and Natural Gas	Million Solar Roofs
CR-1	Electricity and Natural Gas	Energy Efficiency
CR-2	Electricity and Natural Gas	Solar Water Heating
GB-1	Green Buildings	Green Buildings
W-1	Water	Water Use Efficiency
W-2	Water	Water Recycling
W-3	Water	Water System Energy Efficiency
W-4	Water	Reuse Urban Runoff
W-5	Water	Increase Renewable Energy Production
W-6	Water	Public Goods Charge (Water)
I-1	Industry	Energy Efficiency and Co-benefits Audits for Large Industrial Sources
I-2	Industry	Oil and Gas Extraction GHG Emission Reduction
I-3	Industry	GHG Leak Reduction from Oil and Gas Transmission
I-4	Industry	Refinery Flare Recovery Process Improvements
I-5	Industry	Removal of CH_4 Exemption from Existing Refinery Regulations
RW-1	Recycling and Waste Management	Landfill CH_4 Control (Discrete Early Action)
RW-2	Recycling and Waste Management	Additional Reductions in Landfill CH_4 – Capture Improvements
RW-3	Recycling and Waste Management	High Recycling/Zero Waste
F-1	Forestry	Sustainable Forest Target
H-1	High GWP Gases	Motor Vehicle Air Conditioning Systems (Discrete Early Action)
H-2	High GWP Gases	SF_6 Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)
H-3	High GWP Gases	Reduction in Perfluorocarbons in Semiconductor Manufacturing (Discrete Early Action)
H-4	High GWP Gases	Limit High GWP Use in Consumer Products (Discrete Early Action, Adopted June 2008)
H-5	High GWP Gases	High GWP Reductions from Mobile Sources
H-6	High GWP Gases	High GWP Reductions from Stationary Sources
H-7[a]	High GWP Gases	Mitigation Fee on High GWP Gases
A-1	Agriculture	CH_4 Capture at Large Dairies

a This original measure in the 2008 Scoping Plan was subsequently excluded by ARB in the Final Supplement to the Scoping Plan Functional Equivalent Document in 2011, as ARB staff concluded that implementation of this measure would not be feasible.

SOURCE: ARB, 2008.

Several registries of carbon offset credits have emerged in the United States in recent years. In the absence of mandatory GHG reduction requirements, these registries record and transfer ownership of offset credits for the voluntary market. The voluntary market has developed to serve those individuals, businesses, and institutions wishing to offset their own emissions, even in the absence of a regulatory requirement, or who are preparing for anticipated regulatory requirements. Registries facilitate and give legitimacy to carbon offset credit tracking and trading. One of the leading registries, the Climate Action Reserve (CAR), is expected to serve as a source of regulatory offsets under the future California cap-and-trade program; the CAR and its project protocols have been recognized as voluntary early actions under AB 32. CAR is respected as a national project registry that sets standards, accredits verifiers, and registers and tracks projects using sophisticated software to serialize and transfer emission reduction credits.

CEQA Guidelines Revisions

The State CEQA Guidelines are embodied in the California Code of Regulations (CCR), Public Resources Code, Division 13, starting with Section 21000. CEQA Guidelines Section 15064.4 specifically addresses the significance of GHG emissions, requiring a lead agency to make a "good-faith effort" to "describe, calculate or estimate" GHG emissions in CEQA environmental documents. Section 15064.4 further states that the analysis of GHG impacts should include consideration of (1) the extent to which the project may increase or reduce GHG emissions, (2) whether the project emissions would exceed a locally applicable threshold of significance, and (3) the extent to which the project would comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions." The CEQA Guidelines also state that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of greenhouse gas emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (State CEQA Guidelines Section 15064(h)(3)). The State CEQA Guidelines do not, however, set a numerical threshold of significance for GHG emissions.

The CEQA Guidelines also include the following direction on measures to mitigate GHG emissions, when such emissions are found to be significant:

> Consistent with Section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:
>
> (1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;
>
> (2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures;
>
> (3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;
>
> (4) Measures that sequester greenhouse gases; and

(5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or (Kern County, 2009) policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

(State CEQA Guidelines section 15126.4(a).)

Local

Kern County General Plan

The Kern County General Plan (Kern County, 2009), originally adopted on June 15, 2004, and last amended on September 22, 2009, contains the following policies with regard to GHGs.

Land Use, Conservation, and Open Space Element – Air Quality

Policy 19: In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the California Environmental Quality Act, the appropriate decision making body, as part of its deliberations, will ensure that:

(a) All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and

(b) The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the California Environmental Quality Act.

San Joaquin Valley Air Pollution Control District - District Policy

The San Joaquin Valley Air Pollution Control District (SJVAPCD) published the *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* (SJVAPCD, 2009) in December 2009. This *District Policy* applies to projects for which the District has discretionary approval authority over the project and serves as lead agency for CEQA purposes. The *District Policy* establishes an approach to streamline the determination of project GHG emissions significance through the incorporation of Best Performance Standards (BPS). According to the SJVAPCD, BPS are defined as the most effective means of reducing or limiting GHG emissions from a GHG emissions source. According to the SJVAPCD, projects implementing BPS would be determined to have a less than significant individual and cumulative impact on global climate change and would not require GHG quantification. Projects exempt from the requirements of CEQA, and projects complying with an approved GHG emission reduction plan or mitigation program would also be determined to have a less than significant individual and cumulative impact on global climate change and would not require project specific quantification of GHG emissions (SJVAPCD, 2009). Quantification of project specific GHG emissions would be required for projects not implementing BPS. Such projects must be determined to have reduced or mitigated operational GHG emissions by 29 percent from BAU, consistent with GHG reduction

targets established in AB 32, in order to be considered to have a less than significant individual and cumulative impact for GHGs.

3.7.3 Impacts Assessment

Significance Criteria

The following criteria from Appendix G of the *CEQA Guidelines* are used as thresholds of significance to determine the impacts of the proposed project as related to GHGs. The proposed project would have a significant impact if it would:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

GHG impacts are considered to be exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA, 2008). The project's construction-related (temporary, short-term) emissions of GHGs and whether they would result in a cumulatively considerable contribution to global climate change are described below. Pursuant to CEQA Guidelines Section 15064.7(c), the EIR is employing both quantitative and qualitative thresholds of significance.

The SJVAPCD's methodology described above is geared toward long-term operational activities of larger land use development projects. However, since 97 percent of the project's GHGs are associated with electricity use (pumps and water conveyance), and PG&E is covered by cap-and-trade, the BAU criterion was deemed inapplicable for this project. The electricity provider is already compliant with California's efforts to reduce GHGs. Therefore, it is important to evaluate the majority of the proposed project's GHG emissions using a more applicable threshold. In light of the lack of established GHG emissions thresholds that would apply to the proposed project, CEQA allows lead agencies to identify thresholds of significance applicable to a proposed project that are supported by substantial evidence. In the case of GHG emissions and pursuant to the Appendix G checklist question, thresholds should also be linked with the Scoping Plan, which is the adopted plan for the state to meet GHG reduction targets.

Therefore, to establish additional context in which to consider the order of magnitude of the proposed project's related GHG emissions, this analysis accounts for the following considerations by other government agencies and associations about what levels of GHG emissions constitute a cumulatively considerable incremental contribution to climate change:

- Under AB 32, facilities (stationary, continuous sources of GHG emissions) that generate more than 25,000 metric tons of CO_2e per year must report their GHG emissions to ARB.

- BAAQMD had previously adopted 10,000 metric tons of CO_2e per year as the significance threshold for operational GHG emissions from stationary-source projects (BAAQMD, 2011) [1].

Since the majority of project GHG emissions are associated with stationary-source electricity use, the 10,000 metric tons of CO_2e per year threshold will be applied to the impact assessment for the proposed project.

Methodology

Construction and operational emissions were calculated by using California Emissions Estimator Model (CalEEMod) version 2013.2.2. CalEEMod is the SJVAPCD-recommended computer program that can be used to estimate anticipated emissions associated with land development projects in California. As CalEEMod currently uses IPCC's 1996 SAR to assign the GWPs for CH_4 and N_2O, the emissions for these two GHGs were taken from the CalEEMod outputs and converted to CO_2e emissions outside of CalEEMod using the updated GWPs from IPCC's AR4. For project construction, it was assumed that the majority of earthwork would be conducted at the Stockdale East site and that the Stockdale East and Stockdale West properties and the Central Intake would be built out in six phases (six months per phase) rather than all at once. The phases, which were assumed to start in late summer 2015, included the following: construction of the basins and CVC turnouts; construction of the wells (two phases);construction of the wellheads and pipelines (two phases); and construction of the Central Intake Pipeline. As described in the Project Description, there is also a third Stockdale project site that has yet to be identified. However, it is likely that annual construction activities and emissions would be similar to those analyzed below.

Electricity use for the project was estimated at up to 10,312,500 kwh/year. Off-road equipment and on-road vehicle GHG emissions were modeled for the worse-case year in which maintenance earthwork could occur on two of the project sites within the same year. Earthwork would involve disking or scraping the basins to remove the top layer (e.g., one inch) of sediment, approximately once every three years for a maximum of four weeks per year on each property. Otherwise, the typical year would consist of only periodic on-road trips for periodic inspection and minor maintenance.

For this analysis, the results are expressed in metric tons per year and are compared with the applied mass thresholds to determine impact significance. **Appendix C** of this Draft EIR provides detailed emission calculations used in this analysis.

[1] On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the BAAQMD *CEQA Air Quality Guidelines.* The court did not determine whether the thresholds of significance were valid on their merits, but found that the adoption of the thresholds was a project under CEQA. BAAQMD appealed the court's decision and the Court of Appeal of the State of California, First District, reversed the trial court's decision. The Court of Appeal's decision was appealed to the California Supreme Court, which granted limited review, and the matter is currently pending there.

Impacts and Mitigation Measures

Threshold 1. Greenhouse Gas Emissions

Impact GHG-1: The proposed project could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

The following activities associated with the proposed project could contribute to the generation of GHG emissions:

- ***Off-road Equipment Activities.*** Construction equipment typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, methane, and N_2O. Furthermore, methane is emitted during the fueling of heavy equipment.
- ***Electricity.*** Electricity use can result in GHG production if the electricity is generated by combustion of fossil fuel. Default GHG emission factors for PG&E are included in CalEEMod.
- ***Motor Vehicle Use.*** Transportation associated with the project construction and operations would result in GHG emissions from the combustion of fossil fuels in automobile and truck trips.

Construction and operational emissions were modeled using CalEEMod software and compared to the 10,000 metric tons of CO_2e per year threshold, as described above. Construction emissions were amortized assuming a project life-time of 30 years and added to the worse-case annual operational emissions in order to determine the impact. Estimated GHG emissions associated with the proposed project are depicted in **Table 3.7-2** below. This impact would be less than significant without mitigation.

TABLE 3.7-2
ESTIMATED EMISSIONS OF GREENHOUSE GASES FROM OPERATION OF THE PROJECT

Source[a]	Emissions (metric tons of CO_2e per year)
Construction (Amortized)	48
Off-road Equipment – Operational Maintenance	26
Energy[b]	3,012
On-road Motor Vehicle Trips – Operational Maintenance	3
Total Project GHG Emissions (Construction + Operations)	3,089
Threshold	10,000
Significant (Yes or No)?	No

a GHG emissions were calculated using the CalEEMod model for the project site construction and operations. For the GHG emissions resulting from energy consumption by the project, the emissions were calculated using the emission factors from CalEEMod for the Pacific Gas & Electric Company and the project's anticipated annual electricity consumption. Additional assumptions and data are included in Appendix C.
b As recharge and recovery operations associated with the proposed project are not expected to occur simultaneously, the GHG emissions generated from the proposed project's annual energy consumption were estimated based on the recovery operations, which can consume up to 8.3 million kwh more energy annually than the recharge operations, to present a worst-case analysis.

Significance Determination

Less than significant.

Mitigation Measures

None required.

Threshold 2. Greenhouse Gas Emissions Plans

Impact GHG-2: The proposed project could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

California's Climate Scoping Plan calls for local governments to reduce GHG emissions through the adoption of local programs as an important strategy to reduce community scale GHG emissions. However, Kern County has not yet adopted a Climate Action Plan.

As discussed above, 97 percent of the project's GHGs are associated with electricity use (pumps and water conveyance) and the electricity provider for the project, PG&E, is covered by cap-and-trade and is already compliant with California's efforts to reduce GHGs. In addition, a number of Scoping Plan Recommended Actions targeted at the transportation sector would be applicable to construction equipment and maintenance vehicles associated with the proposed project. However, given that these Recommended Actions are based on ARB enforced standards, it can be assumed that the proposed project would not conflict with implementation of such standards.

In summary, the proposed project would not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This would be a less than significant impact.

Significance Determination

Less than significant.

Mitigation Measures

None required.

References – Greenhouse Gas Emissions

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3.8 Hazards and Hazardous Materials

This chapter assesses chemical usage and potential hazards at the project site and impacts that may occur as a result of implementing the proposed project. This chapter summarizes a hazardous materials database search conducted for the project area. Mitigation measures are developed to reduce potential impacts to less than significant levels.

3.8.1 Environmental Setting

Definitions

The California Code of Regulations (CCR) defines a hazardous material as a substance that, because of physical or chemical properties, quantity, concentration, or other characteristics, may either (1) cause an increase in mortality or an increase in serious, irreversible, or incapacitating, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed (CCR, Title 22, Division 4.5, Chapter 10, Article 2, Section 66260.10). Hazardous wastes are hazardous materials that no longer have practical use, such as substances that have been discarded, discharged, spilled, contaminated, or are being stored prior to proper disposal.

Hazardous materials and hazardous wastes are classified according to four properties: toxicity, ignitability, corrosivity, and reactivity (CCR, Title 22, Chapter 11, Article 3). Factors that influence the health effects of exposure to a hazardous material include the dose to which the person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility. In some cases, past industrial or commercial land uses on a site can result in spills or leaks of hazardous materials and petroleum to the ground, resulting in soil and groundwater contamination. Agricultural uses can result in contamination from pesticides, herbicides, pathogens, and high levels of nitrates from fertilizers and animal waste. Federal and state laws require that soils having concentrations of contaminants such as lead, gasoline, or industrial solvents that are higher than certain acceptable levels must be handled and disposed as hazardous waste during excavation, transportation, and disposal. The CCR, Title 22, §66261.20-24 contains technical descriptions of characteristics that would cause a soil to be classified as a hazardous waste.

Physical Settings

Stockdale East

A Phase 1 Environmental Site Assessment was conducted by RAM Environmental Engineering Services, Inc. for the Stockdale East parcel in 2009. The objective of the Phase 1 Environmental Site Assessment was to provide the client with information regarding potential areas of environmental concern that may be associated with past and/or current land use, both on and in the vicinity of the subject property. The Phase 1 Environmental Site Assessment was based on site inspections, literature reviews, review of aerial photographs, interviews with persons familiar

with the property, review of public records to identify known contaminated sites, and review of previous assessment of the property.

Stockdale East is approximately 237.5 acres and contains several drums and containers that are oilfield related located primarily on the western edge of the property, east of Enos Lane. Up to nine steel drums were identified onsite that were unlabeled and mostly empty. No below ground storage tanks were identified onsite; however, above ground tanks associated with oilfield operations were identified and typically contained oil, oil and water, and water from the oil wells. Additional chemicals were also identified onsite for agricultural production.

The Division of Oil, Gas, and Geothermal Resources (DOGGR) identified an oilfield within the property; in addition, current or historic oil and gas, and fluid injections were also found onsite. The oilfield operations have resulted in spillage, releases, and disposal onto the ground of oil, oil and water, and inert debris associated with oilfield production and storage. DOGGR has recently inspected the site (2013) and is remedying any outstanding regulatory issues. No evidence of hazardous substance releases was determined from agricultural operations.

The oilfield on Stockdale East includes nine wells: five are active; one is idle; two are plugged, and one is an active injection well (THC, 2014). Well construction records for the nine wells indicate that all are constructed with an upper casing and outer cement seal that extend to a minimum of 495 ft bgs. The depth of the oils wells range from 8,735 ft bgs to 12,673 ft bgs. The depth of the active injection well is 10,240 bgs (THC, 2014).

Approximately 0.23 miles east of Stockdale East is the Hondo Chemical site, which houses industrial activities relating to the creation of fertilizer and soil amendments. Hondo Chemical was ordered by Kern County to make changes to operations and clean-up procedures to ensure environmental safety. According to SWRCB's Geotracker the site is classified as a "Land Disposal Site" (Global ID L10008056166). The clean-up status of the site is classified as open, and there are no potential contaminants of concern listed. Preliminary groundwater testing on the site in 2011showed no signs of contamination; there is a continuing effort to monitor the groundwater wells on the site, and no groundwater concerns have been found (Kern County, 2015). In 2014, Kern County submitted a notice of violation to the property owners, and a remediation work plan has been submitted (Kern County Local Enforcement Agency (LEA), 2015).

Stockdale West

A Phase 1 Environmental Assessment has been prepared by Kleinfelder West, Inc. for the Stockdale West property in 2010. The Stockdale West property is approximately 323 acres and was developed as an agricultural property between 1946 and 1956 until recently. Two hundred acres of Stockdale West has been converted to groundwater recharge basins as part of IRWD's Pilot Recharge Project. The Pilot Recharge Project facilities include four recharge basins and earthen berms consisting of various sizes and depths.

Third Stockdale Site

The third Stockdale project site has not yet been determined but would be located within a radius that is populated with several active oilfields. Approximately 10 active oil and gas wells have been identified within the site radius (DOGGR, 2013). There is one site listed under the DTSC Cleanup Program within the site radius. Additional hazardous sites could be located within one mile of the site radius. Upon determination of the third Stockdale site, a Phase 1 Environmental Assessment of the project site will be prepared.

Central Intake

The Central Intake would be constructed along the eastern boundary of Stockdale East and within an easement through private property between Stockdale East and Goose Lake Slough. In addition to the conditions of Stockdale East as described above, approximately four inactive oil and gas wells and one active well are located in the vicinity of the alignment (DOGGR, 2014). DOGGR identified the active well as "idle" with the last activity recorded in 2011 (DOGGR, 2014). Neither the oil well nor others in the vicinity were listed as a hazardous materials site (NETROnline, 2015).

3.8.2 Regulatory Setting

Federal

Occupational Safety and Health Administration (OSHA)

The Occupational Safety and Health Administration (OSHA) was created by the Occupational Safety And Health Act, passed by congress in 1970. The Act was created to ensure safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance. OSHA is part of the United States Department of Labor. The administrator for OSHA is the Assistant Secretary of Labor for Occupational Safety Health. OSHA's administrator answers to the Secretary of Labor, who is a member of the cabinet of the President of the United States.

Resource Conservation and Recovery Act (RCRA)

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the U.S. Environmental Protection Agency (EPA) for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle to grave" system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by HSWA.

Toxic Substance Control Act (TSCA)

The Toxic Substances Control Act of 1976 (TSCA) provides US EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. Certain substances are generally excluded from TSCA, including, among others, food, drugs, cosmetics and pesticides. TSCA addresses the production,

importation, use, and disposal of specific chemicals including polychlorinated biphenyls (PCBs), asbestos, radon and lead-based paint.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for clean up when no responsible party could be identified. CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants or contaminants. The NCP also established the National Priorities List (NPL), which is a list of contaminated sites warranting further investigation by US EPA. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

General Pesticide Requirements for Agriculture

Pesticide use is regulated by the EPA and by the State of California Department of Pesticide Regulation (CDPR). USEPA sets broad restrictions on pesticide use; in general, California's laws are even more stringent than federal standards. Both federal and state laws require that pesticides be used according to their labels (CDPR, 2013). Agricultural operations also require the applicator to file a detailed report on monthly pesticide use with the local County Agricultural Commissioner's Office. County Agricultural Commissioners (CAC) serve as the primary local enforcement agents for pesticide laws and regulations. CDPR maintains pesticide usage data reported to the CAC in its Pesticides Use Reporting (PUR) Database.

State

California Code of Regulations (CCR)

The CCR is the official compilation and publication of the regulations adopted, amended or repealed by state agencies pursuant to the Administrative Procedure Act (APA). Properly adopted regulations that have been filed with the Secretary of State have the force of law.

The CCR is compiled into Titles and organized into Divisions containing the regulations of state agencies. Many of the regulations that pertain to hazardous materials are found in Title 22 (Social Security) Divisions 4 (Environmental Health) and 4.5 (Environmental Health Standards for the Management of Hazardous Waste).

California Hazardous Waste Control Law (HWCL)

The California Hazardous Waste Control Law (HWCL) is administered by the California Environmental Protection Agency (Cal/EPA) to regulate hazardous wastes. The HWCL is generally more stringent than RCRA. Under RCRA, individual states may implement their own

hazardous waste programs in lieu of RCRA, as long as US EPA has determined the state program is at least as stringent as Federal RCRA requirements. California's hazardous waste program has been federally approved. The HWCL lists 791 chemicals and about 300 common materials that may be hazardous; establishes criteria for identifying, packaging and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal and transportation; and identifies some wastes that cannot be disposed of in landfills.

California Hazardous Materials Release Response Plans and Inventory Law

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires preparation of Hazardous Materials Business Plans and disclosure of hazardous materials inventories. A business plan includes information such as an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an Emergency Response Plan (ERP), and a Site Safety Plan with provisions for employee training in safety and emergency response procedures including an annual refresher course (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Statewide, the Cal/EPA, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state. The laws and regulations are administered locally by the Kern County Environmental Health Services Department.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the work place. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings.

Hazardous Materials Transportation Uniform Safety Act

The Hazardous Materials Transportation Uniform Safety Act (HMTUSA) was enacted in 1990 to clarify confusing state, local, and federal regulations. The act includes provisions to encourage uniformity among different State and local highway routing regulations, to develop criteria for the issuance of federal permits to motor carriers of hazardous materials, and to regulate the transport of radioactive materials. HMTUSA is regulated under OSHA.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

In 1994, the Legislature created a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program to consolidate and coordinate the activities of six separate hazardous materials programs under one agency, a Certified Unified Program Agency (CUPA). The intent has been to simplify the hazardous materials regulatory environment and provide a single point of contact for businesses to address inspection, permitting, billing, and enforcement issues. The CUPA for the County of Kern is the Environmental Health Services Department.

Department of Toxic Substance Control (DTSC)

Under the California Hazardous Waste Control Act, California Health and Safety Code, Division 20, Chapter 6.5, Sections 25100, et seq., the Cal/EPA, Department of Toxic Substance Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste in California. Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA, as long as US EPA has determined the state program is at least as stringent as Federal RCRA requirements. California's hazardous waste program has been federally approved. Thus, in California, DTSC enforces hazardous waste regulatory requirements. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

DTSC is also the administering agency for the California Hazardous Substance Account Act, California Health and Safety Code, Division 20, Chapter 6.8, Sections 25300 et seq., also known as the State Superfund law, providing for the investigation and remediation of hazardous substances pursuant to State law. DTSC maintains a Hazardous Waste and Substances Site List for site cleanup. This list is commonly referred to as the Cortese List. Government Code Section 65962.5 requires the Cal/EPA to update the Cortese List at least annually. DTSC is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List.

California Accidental Release Prevention Program (CalARP)

California has developed an emergency response plan to coordinate emergency services provided by Federal, State, and local government and private agencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the California Emergency Management Agency (Cal EMA), which coordinates the responses of other agencies, including Cal/EPA, California Highway Patrol (CHP), CDFW, the RWQCB, and the local fire department. The Kern County Fire Department (KCFD) provides first response capabilities, if needed, for hazardous materials emergencies within the project area.

Cal EMA is also the State administering agency for the California Accidental Release Prevention Program (CalARP) and California's Hazardous Materials Release, Response and Inventory Law (California's Business Plan Law). State and Federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and in the event that such materials are accidentally released, to prevent or to mitigate injury to human health or the environment. These laws require hazardous materials users to prepare written plans, such as Hazard Communication Plans and Hazardous Materials Management Plans. Laws and regulations require hazardous materials users to store these materials appropriately and to train employees to manage them safely. Primary responsibility for enforcement of these laws has generally been delegated to local agencies.

California Department of Forestry and Fire Protection (Cal Fire)

The California Department of Forestry and Fire Protection (Cal Fire) is dedicated to fire protection and stewardship of over 31 million acres of California's privately-owned wildlands. Cal Fire's mission is includes management and protection of California's natural resources Cal Fire's firefighters, fire engines, and aircraft respond to an average of more than 5,600 wildland fires each year and oversees enforcement of California's forest practice regulations, which guide timber harvesting on private lands. Cal Fire also provides Fire Hazard Severity Zone (FHSZ) Maps for State Responsibility Area lands and separate draft Very High FHSZ Maps for Local Responsibility Area lands. Cal Fire also requires counties within the state to develop fire protection management plans that address potential threats of wildland fires. The Kern County Wildland Fire Management Plan identifies federal, state, and local responsibility areas for the entire County to facilitate coordination efforts for fire protection services.

California Department of Pesticide Regulation – Restricted Materials Permits and Pesticide Use Report (PUR)

The California Department of Pesticide Regulation (CDPR) is dedicated to protect human health and the environment by regulating pesticide sales and use, and by fostering reduced-risk pest management. The State of California maintains a list of pesticides that are especially dangerous to human health or the environment if used incorrectly, commonly called restricted materials. These pesticides are listed in 3 CCR 6400. CDPR puts special controls and limitations on these pesticides; furthermore, the purchase or use of restricted materials for agricultural purposes requires a permit from the CAC. Use requirements for these pesticides are given in 3 CCR 6445 through 6489.

CDPR maintains a list of registered pesticides known to cause groundwater contamination in California; these pesticides are listed in Title 3, California Code of Regulations (3 CCR), Section 6800(a): atrazine, bantazon, bromacil, diuron, norflurazon, prometon, simazine. Section 6800(a) pesticides have certain use restrictions. Section 6800(a) pesticides are prohibited below the high water mark inside artificial recharge basins, unless the pesticide is applied six months or more before the basin is used to recharge groundwater (3 CCR Section 6487.1).

CDPR also maintains a list of pesticides that have the potential to move to, but are not currently found in groundwater, listed in 3 CCR 6800(b). Section 6800(b) pesticides are not prohibited for use in artificial recharge basins (CDPR, 2009).

CDPR also has regulations pertaining to wellhead protection and the use of pesticides, as listed in 3 CCR 6609 (CDPR, 2009). These measures apply to all wells (irrigation, domestic, municipal, monitoring, abandoned, dry, or drainage wells) where pesticides are mixed, loaded, rinsed, or otherwise used within 100 feet of the well. The following management measures are given by CDPR to protect wellheads:

- Wells protected from runoff:
  - The well should be sited so that no surface water runoff can contact the wellhead including the concrete base, or;

  - A berm should be constructed adjacent to the wellhead to prevent movement of surface water to the wellhead. Preemergent herbicides from the 6800(a) and 6800 (b) lists are prohibited between the berm and the wellhead.

- Wells not protected from runoff: The following activities are prohibited within 100 feet of an unprotected well:
  - Mixing, loading, and storing pesticides,
  - Rinsing of spray equipment or pesticide containers,
  - Maintenance of spray equipment that could result in a pesticide or pesticide residue spill,
  - Application of preemergent herbicides from the 6800(a) and 6800 (b) lists.

California became the first state to require full reporting of agricultural pesticide use in response to demands for more realistic and comprehensive pesticide use data. Under the PUR program, all agricultural pesticide use must be reported monthly to county agricultural commissioners, who in turn, report the data to CDPR.

Division of Oil, Gas, and Geothermal Resources (DOGGR)

The Division of Oil, Gas, and Geothermal Resources (DOGGR) was formed in 1915 to address the needs of the state, local governments, and industry by regulating statewide oil and gas activities with uniform laws and regulations. The Division supervises the drilling, operation, maintenance, and plugging and abandonment of onshore and offshore oil, gas, and geothermal wells, preventing damage to: (1) life, health, property, and natural resources; (2) underground and surface waters suitable for irrigation or domestic use; and (3) oil, gas, and geothermal reservoirs. Division requirements encourage wise development of California's oil, gas, and geothermal resources while protecting the environment.

The Division's programs include: well permitting and testing; safety inspections; oversight of production and injection projects; environmental lease inspections; idle-well testing; inspecting oilfield tanks, pipelines, and sumps; hazardous and orphan well plugging and abandonment contracts; and subsidence monitoring. Division mandated responsibilities are in Section 3000 et seq. of the Public Resources Code and Title 14, Chapter 4 of the California Code of Regulations.

Local

Kern County General Plan

The goals, policies, and implementation measures in the Kern County General Plan for hazards and hazardous materials applicable to the project are found in the Circulation Element and Safety Element. The Circulation Element describes transportation-related accidents and spills of hazardous materials as serious threat to the traveling public and nearby sensitive land uses. The Safety Element presents general polices and implementation measures to ensure safety precautions are followed and conformance with applicable plans and codes.

Kern County Wildland Fire Management Plan

The Kern County Wildland Fire Management Plan documents the assessment of wildland fire situations throughout the State Responsibility Areas (SRAs) within the County. The Kern County Fire Department Wildland Fire Management Plan provides for systematically assessing the existing levels of wildland protection services and identifying high-risk and high-value areas that are potential locations for costly and damaging wildfires. The goal of the plan is to reduce costs and losses from wildfire by protecting assets at risk through focused pre-fire management prescriptions and increasing initial attack success. Based on this assessment, preventive measures are implemented, including the creation of wildfire protection zones.

Kern County and Incorporated Cities Hazardous Waste Management Plan

In response to the growing public concern regarding hazardous waste management, State Assembly Bill 2948 enacted legislation authorizing local governments to develop comprehensive hazardous waste management plans. The intent of each plan is to ensure that adequate treatment and disposal capacity is available to manage the hazardous wastes generated within the local government's jurisdiction.

The Kern County and Incorporated Cities Hazardous Waste Management Plan (Hazardous Waste Plan) was first adopted by Kern County and each incorporated city before September 1988 and was subsequently approved by the State Department of Health Services. The Hazardous Waste Plan was updated and incorporated by reference into the Kern County General Plan in 2004 as permitted by Health and Safety Code Section 25135.7(b), and thus must be consistent with all other aspects of the Kern County General Plan.

The Hazardous Waste 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. In addition, the Hazardous Waste Plan discusses hazardous waste issues and analyzes current and future waste generation in the incorporated cities, county, and state and federal lands. The purpose of the Hazardous Waste Plan is to coordinate local implementation of a regional action to effect comprehensive hazardous waste management throughout Kern County. The action program focuses on development of programs to 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 hazardous waste from small-quantity generators. An important component of the Hazardous Waste Plan is the monitoring of hazardous waste management facilities to ensure compliance with federal and state hazardous waste regulations.

Kern County Department of Agriculture and Measurement Standards

The State of California maintains a list of pesticides that are especially dangerous to human health or the environment if used incorrectly, commonly called restricted materials. These pesticides are listed in 3 CCR 6400. The purchase or use of restricted materials for agricultural purposes requires a permit from the CAC, which is the Kern County Agricultural Commissioner. The permit application must list the types of restricted materials to be used, the areas to be treated, their location and size, crops to which the pesticide will be applied, pest problems, and the type of pesticide application method. Surrounding areas that could be harmed by pesticide

application must also be described or shown on a map. The CAC reviews the permit to decide if pesticide application will have an impact on human health or the surrounding environment; if the CAC believes harm may be likely, he or she can request the applicant to evaluate pesticide alternatives or impose extra controls (i.e. permit conditions) in addition to those already on the pesticide label or in regulations. If the CAC determines a pesticide cannot be used safely, he or she may deny the permit (CDPR, 2013).

Restricted materials permits are generally issued for one year, and require applicants to notify the CAC 24 hours prior to the scheduled pesticide application each time they plan to apply a restricted material. The CAC may inspect a site if he or she deems it necessary. The CAC may determine for that area that a non-restricted pesticide may present a hazard to human health or the environment; the CAC can require an agricultural operator to get a permit for pesticide use in that area. The determination for requiring a permit for a non-restricted use permit is a lengthy process, which may involve local officials and requires public notice. If a pesticide is not on the restricted materials list (3 CCR 6400), a farmer does not need a permit to apply it unless a local permit is required. Pesticides Use Reporting (PUR) Database.

3.8.3 Impact Assessment

Thresholds of Significance

The following criteria from Appendix G of the *CEQA Guidelines* are used as thresholds of significance to determine the impacts of the proposed project as related to hazards and hazardous materials. The proposed project would have a significant impact if it would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
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.
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
4. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area.
6. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area.
7. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

8. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.
9. Cause an increase in airborne insect populations.

Effects Found Not to be Significant

Threshold 5. Airport Land Use Plan

The proposed project is not located within two miles of public airport or public use airport or located within an airport land use plan area. The Central Intake would be located adjacent to a private model airplane airfield north of Brimhall Road (approximately 650 feet in length). The nearest public commercial airport is Meadows Field Airport approximately 20 miles northeast of the project sites. The proposed project is not located within the Kern County ALUCP or within two miles of a public airport or public use airport. Therefore, no impact would occur.

Threshold 6. Airport Hazards

The project site is located within the vicinity of a private airstrip; Joe Gottlieb Field is located approximately 5.5 miles to the west. However, the private airfield is currently not operative. Therefore, no impacts would occur.

Threshold 7. Adopted Emergency Response Plan

The proposed project is not located within an adopted emergency response plan or emergency evacuation plan. In addition, all proposed project facilities would be located onsite at the Stockdale Properties and Central Intake alignment and would not impede access to any emergency responders. Therefore, no impacts would occur.

Threshold 8. Wildfires

According to the Cal Fire FHSZ Maps, the proposed project is not located within a high fire hazard zone or within a wildland area. Therefore, no impacts would occur.

Impacts and Mitigation Measures

Threshold 1. Transport, Use or Disposal of Hazardous Materials

Impact HAZ-1: The proposed project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Construction of the proposed project would require the transport, use, and disposal of hazardous materials including but not limited to petroleum products (i.e. oil, gasoline, and diesel fuels) and automotive fluids (i.e. antifreeze and hydraulic fluids). The use, handling, storage, and disposal of the hazardous materials would be regulated by local, state, and federal regulations. Fuels and lubricants used on field equipment would also be subject to local, state, and federal regulations.

The proposed project would also comply with the Caltrans requirements and regulations regarding hazardous materials transport.

During operation, maintenance activities at the recharge and recovery facilities on the Stockdale Properties and at the Central Intake would require weed and pest control operations, as necessary. Periodic earthwork operations would also be required to maintain levees, enhance soil permeability, and remove vegetative growth. The transport, use and disposal of hazardous materials during operation and maintenance would comply with applicable regulations. Therefore impacts related to maintenance activities would be less than significant.

In addition, conventional agricultural practices would be allowed at the Stockdale Properties during the interim periods when the recharge basins are not used for active recharge operations. Conventional farming would be in compliance with all applicable regulatory requirements of the USEPA, CDPR, and the Kern CAC. Farming operations could include the use of restricted or unrestricted materials, including pesticides that are listed in 3 CCR Section 6800(a) and/or 6800(b). IRWD and Rosedale would require all contract farmers to comply with regulations pertaining to application of pesticides within recharge basins and in proximity to wellhead. In accordance with CDPR regulations, Section 6800(a) pesticides would be restricted from application below the high water mark inside the recharge basins, unless the pesticide is applied six months or more before the basin is used for groundwater recharge. Section 6800(b) pesticides could be used within the recharge basins without restriction, also in accordance with CDPR regulations. All required measures pertaining to wellhead protection also would be implemented, such as prohibiting mixing, loading, spraying, storage or pesticides within 100 feet of an unprotected wellhead, and prohibiting application of pre-emergent herbicides from the 6800(a) and 6800(b) lists between the berm and the wellhead of a protected wellhead.

Rosedale and IRWD would require the contract farmer to obtain a permit from the CAC for application of restricted materials and to comply with all conditions of the permit in order to ensure the protection of human health and the environment. The contract farmer also would be required to notify the CAC 24 hours prior to application of any restricted materials on the Stockdale Properties. The contract farmer would be required to inform Rosedale and IRWD and the CAC in the event of any accidental spill or inappropriate application of pesticides onsite. The contract farmer would be required to remediate completely and dispose of properly all contaminated soil to prevent the transport of pesticides into the groundwater and protect public health. Compliance with regulatory requirements pertaining to pesticide use would ensure impacts would be less than significant.

The oilfield on Stockdale East includes an injection well that is subject to regulation by the DOGGR Class II Underground Injection Control (UIC) program, which enforces the requirements of the federal Safe Drinking Water Act. DOGGR has primary responsibility for regulating injection wells associated with oil and gas production pursuant to the UIC program which is subject to oversight by the U.S. Environmental Protection Agency (USEPA). Written approval from DOGGR is required before any subsurface injection associated with oil or gas production can begin (CCR, Title 14, Sections 1714 and 1724.6). The injection well on Stockdale East has been constructed to enable the injection of wastewater produced during oil production at

a depth of 10,200 feet bgs. The well also has a cement casing comprising the upper 515 feet bgs (THC, 2014; see **Appendix H**). In general, such oilfield injection wells have potential to include toxic fluids in the wastewater being injected. However, due to the depth of this injection well, it is unlikely that fluids injection would have any impacts on water banking operations, since the bottom depth of the usable aquifer below Stockdale East is approximately 667 feet bgs (THC, 2015), resulting in a separation of over 9,500 feet between the bottom of the aquifer and the bottom of the injection well. In addition, historic groundwater fluctuations have occurred in the upper approximate 290 feet bgs, which is well above the bottom of the cement seal at 515 feet bgs. The proposed project would potentially lower groundwater levels below Stockdale East by up to 27 feet (THC, 2015; see Chapter 3.9 for further detail). This modeled drawdown would not cause groundwater levels to reach 515 ft bgs and as such would not significantly change the hydraulic connection of the injection well with the usable aquifer system. Therefore, the proposed project would not result in the introduction of hazardous materials into the usable groundwater aquifer below the project site. Impacts are considered less than significant.

Impact Determination

All hazardous materials transported, used, and disposed of during construction and operation and maintenance activities would be done according to applicable regulations that would limit significant hazards to the environment. The transport, use, and disposal of pesticides would also be done in accordance with applicable regulatory requirements, including regulations specific to application of pesticides within recharge basins and in proximity to wellheads. Therefore impacts regarding the transport, use, and disposal of hazardous materials would be less than significant.

Operation of the oilfield injection well on Stockdale East would be regulated in accordance with the DOGGR UIC program. Due to the depth of the injection well relative to the usable groundwater aquifer, and the depth of the cement seal relative to groundwater level fluctuations, the proposed project would not introduce hazardous materials into the groundwater due to co-location of the proposed water banking facilities with the existing oilfield injection well. Impacts would be less than significant.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

Threshold 2. Accidental Upset of Hazardous Materials

Impact HAZ-2: The proposed project could 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.

Construction of the proposed project would require the transport, use, and disposal of hazardous materials including but not limited to petroleum products, lubricants, and fuels. During project construction, hazardous materials could accidently be spilled or otherwise released in the environment and expose construction workers, the public, and/or the environment to potentially hazardous conditions. The proposed project would be required to adhere to federal, state, and local safety regulations and implement best management practices (BMPs) related to hazardous materials use and handling that would minimize significant hazardous releases and prevent the release of hazardous materials to the environment.

According to DOGGR, the Stockdale East property is currently cultivated for agricultural purposes but also contains an active oilfield. The oilfield includes oil pads and oil drums associated with oilfield activities. The oilfield has resulted in surface spillage, releases, and disposal of oil, oil and water, and inert debris associated with oilfield production and storage. The oilfields would remain active during project implementation and operation, and proposed recharge basins, production wells, and conveyance structures would avoid the oilfield areas. The proposed recharge basin and conveyance structure layout would accommodate existing and future drill islands to maintain access to underlying mineral rights. However, hazardous materials that have been accidentally released at the current oilfield site could have migrated beyond the boundaries of the oilfield area, and as such could expose construction workers to potential hazardous substances and introduce hazardous substances to the groundwater during recharge operations.

In addition, historical use of the Stockdale East site also included agricultural production. This past agricultural land use may have resulted in contaminated soils due to the presence of persistent agricultural chemical residues from herbicide and pesticide applications. As a result, construction workers could be exposed to such contaminated soils, and hazardous chemicals could be introduced to groundwater during recharge operations. Construction of the recharge basins will involve scraping/excavating surface soils to create berms, such that the recharge basin floors are below grade. Any residual pesticides in the surface soils of the former agricultural areas would be scraped off the recharge basin floor. The potential for residual pesticides to be transported to the groundwater by the recharge water is minimal since the surface soils will be scrapped from the basin floors.

Implementation of **Mitigation Measure HAZ-1** would require that samples of soils onsite at the Stockdale East property are analyzed and appropriately remediated or removed if soils contain hazardous quantities of contaminants. This would reduce any potential impacts to construction workers due to encounters with hazardous materials to less than significant levels and reduce impacts to groundwater due to potential transport of hazardous substances during recharge activities.

In addition, as with many former agricultural properties, it is possible that irrigation lines on the property may contain asbestos or be wrapped in asbestos. If these irrigation lines are reused or demolished, asbestos materials may pose an adverse impact to the workers and the site. If asbestos-containing materials are uncovered during construction, **Mitigation Measure HAZ-2** would require all work at the project sites to halt so that a proper assessment can be made and

proper worker protection measures can be implemented. Implementation of Mitigation Measures HAZ-1 and HAZ-2 would reduce impacts related to accidental upset or encounter of hazardous materials at Stockdale East to a less than significant level.

According to the DOGGR database, approximately 10 active oil and well fields are located within the site radius boundaries where the third Stockdale project site would be located. Although the site has not yet been determined, it is anticipated that the third Stockdale site would be located within agricultural lands. In the event the third Stockdale site is located on a site that contains an active oilfield, impacts to the environment resulting from spillage, releases, and disposal of oil associated with oilfield production and storage may have occurred in the past or could occur during construction. This could potentially expose construction workers to potential hazardous substances or introduce hazardous substances to groundwater during recharge operations. According to DOGGR, one active but idle oil and gas well exists in the vicinity of the preliminary Central Intake alignment. This well could have also released hazardous materials that migrated beyond the boundaries of the oilfield area.

Mitigation Measure HAZ-3 would require the completion of a Phase I ESA to ensure hazards and appropriate mitigation measures are identified for the third Stockdale site and Central Intake Pipeline prior to construction. Implementation of these mitigation measures would reduce impacts to a less than significant level.

Impact Determination

The proposed project would adhere to applicable safety regulations and implement BMPs related to hazardous materials use and handling that would minimize significant hazardous releases and prevent the release of hazardous materials to the environment. In addition, all use, handling, and disposal of hazardous materials would comply with manufacturer directions and all applicable regulations. Mitigation Measure HAZ-1 would require that samples of soils at the Stockdale East property are analyzed and removed appropriately if soils contain hazardous quantities of contaminants. Mitigation Measure HAZ-2 would require that a proper assessment can be made of the potential to encounter asbestos-containing materials. Mitigation Measure HAZ-3 would require the completion of a Phase I ESA for the third Stockdale project site and Central Intake Pipeline are identified. Therefore, impacts related to the accidental upset or encounter of hazardous materials would be less than significant with mitigation.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

HAZ-1: Prior to construction at Stockdale East, Rosedale shall collect representative samples of soils remaining in place near the oilfield as identified in the Phase 1 Environmental Site Assessment. The samples shall be analyzed for total petroleum hydrocarbons and pesticides. Rosedale shall avoid if feasible or otherwise remove from the site soils identified as containing hazardous quantities of contaminants and dispose of such soils in accordance with applicable hazardous waste regulations.

HAZ-2: In the event that asbestos-containing materials are uncovered during project construction, work at the project sites shall immediately halt and a qualified hazardous materials professional shall be contacted and brought to the project sites to make a proper assessment of the suspect materials. All potentially friable asbestos-containing materials shall be removed in accordance with Federal, State, and local laws and the National Emissions Standards for Hazardous Air Pollutants guidelines prior to ground disturbance that may disturb such materials. All demolition activities shall be undertaken in accordance with California Occupational Safety and Health Administration standards, as contained in Title 8 of the CCR, Section 1529, to protect workers from exposure to asbestos. Materials containing more than one percent asbestos shall also be subject to San Joaquin Valley Air Pollution Control District regulations. Demolition shall be performed in conformance with Federal, state, and local laws and regulations so that construction workers and/or the public avoid significant exposure to asbestos-containing materials.

HAZ-3: A Phase I Environmental Site Assessment shall be prepared for the Central Intake Pipeline and third Stockdale project site to identify potential hazards and hazardous materials located within a one-mile radius. The construction contractor shall be informed of potential hazards and shall develop appropriate plans to avoid or remediate hazards.

Threshold 3. School Hazards

Impact HAZ-3: The proposed project could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

There are no schools located within a one-quarter mile radius of Stockdale West, Stockdale East, or the Central Intake alignment. The closest schools would be Rio Bravo Greeley School located approximately 3.5 miles north of the northernmost portion of the Central Intake (at Brimhall Road) and Del Rio Elementary School located approximately four miles east of Stockdale East and the Central Intake. Therefore, no impacts to schools would occur as a result of construction and operation at Stockdale West, Stockdale East, and the Central Intake alignment.

The third Stockdale site has not yet been determined but would be located within the additional site radius. The Rio Bravo Greeley School located at 6601 Enos Lane, is adjacent to the northern boundary of the additional site radius at the cross streets of Enos Lane and Rosedale Highway. In the event the third Stockdale site is to be located within a quarter mile of the school, impacts related to the construction and operation of the proposed project could occur. As discussed above, the proposed project would adhere to all required federal, state, and local safety regulations and implement BMPs related to hazardous materials use and handling that would minimize significant hazardous releases and prevent the release of hazardous materials to the environment. Implementation of **Mitigation Measure HAZ-4** would require coordination with the Rio Bravo-Greeley Union School District and the affected schools to determine a haul route that would not impact existing school safety routes. Implementation of the mitigation measure would ensure

impacts to the school facilities during construction are minimized. Therefore, impacts to schools would be less than significant with mitigation.

Impact Determination

Stockdale East, Stockdale West, and the Central Intake Pipeline are not located within a quarter mile of an existing or proposed school. The third Stockdale project site has not yet been determined but could potentially impact the Rio Bravo Greeley School located adjacent to the northern edge of the site radius boundary. Mitigation Measure HAZ-4 requires construction coordination with the Rio Bravo-Greeley Union School District and affected schools. Impacts would be less than significant with mitigation.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

HAZ-4: In the event the third Stockdale project site is located within a quarter mile of any school facilities, prior to construction, the contractors shall coordinate the proposed project construction route with the impacted school district and school facility to avoid school safety routes.

Threshold 4. Hazardous Materials Site

Impact HAZ-4: The proposed project could be located on a site which is included on a list of hazardous materials sites and could create a significant hazard to the public or the environment.

The Stockdale West property is not included on a list of hazardous material sites (NETROnline, 2015). In addition, although Stockdale East currently includes an active oilfield, this site also is not included on a list of hazardous material sites. The proposed alignment for the Central Intake Pipeline is located near an active but idle oil well; however this well does not appear on a list of hazardous material sites (NETROnline, 2015). Therefore, implementation of project facilities on Stockdale East and Stockdale West and the Central Intake alignment would not create an associated significant hazard to the public or the environment.

For the third Stockdale project site, according to DOGGR, there are approximately 10 active oilfields and well fields located within the site radius for this third project site. The location of the third Stockdale project site is anticipated to be on agricultural land but also may have an active oilfield or well field onsite. Such facilities could result in contaminated soils onsite.

Impact Determination

Stockdale East, Stockdale West, and the Central Intake are not included on lists of hazardous materials sites, and thus there would be no associated hazards associated with development of proposed project facilities at these sites. There is potential for the third Stockdale project site to be located on a property with an active oilfield or well field or other hazardous materials or

contamination. Mitigation Measure HAZ-3 would require a Phase I ESA to be completed once the third Stockdale project site is identified. Therefore, impacts would be less than significant with mitigation.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

Implement **Mitigation Measure HAZ-3**.

Threshold 9. Vector Control

Impact HAZ-5: The proposed project operation could cause an increase in airborne insect populations.

The proposed recharge basins at the Stockdale Properties would create new standing pools of water. If algae growth develops or insects such as midges or mosquitoes use the water as a breeding area, any standing pools of water could be considered a nuisance or a health threat to the surrounding community. Hatching midges can emerge in such tremendous numbers that they create nuisance problems. Midges often emerge simultaneously forming vast clouds of flying insects. They are especially attracted to lights. Large clouds of insects could form over local roadways creating a traffic hazard.

West Nile Virus, a disease transmitted by mosquitoes, has been detected in Kern County with approximately 25 human cases in 2013 and 13 human cases in 2014 (Kern County Public Health Services Department, 2015). The Kern County Department of Public Health Services has provided residents with tips for avoiding the West Nile Virus. The proposed project could contribute to a public health hazard if the standing water in the recharge basins contributed to an increase in the mosquito population in the project area.

Impact Determination

Mitigation Measure HAZ-5 would require coordination with the Kern County Department of Public Health Services and the Kern Mosquito and Vector Control District to ensure development of appropriate insect control measures that utilize abatement methods appropriate for recharge basins, such that groundwater quality is protected. Mitigation Measure HAZ-5 would minimize the potential effects associated with airborne insect populations by minimizing population increases. Impacts would be less than significant with mitigation.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

HAZ-5: IRWD and Rosedale shall coordinate with the Kern County Department of Public Health Services and the Kern Mosquito and Vector Control District prior to project operations to develop and implement, if necessary, appropriate insect abatement methods. Such methods shall not utilize any substances that may contaminate groundwater.

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3.9 Hydrology and Water Quality

This chapter of the document discusses potential impacts of the proposed project on hydrology, groundwater resources and water quality conditions. The setting section describes the existing hydrologic and hydrogeologic conditions within the project region including surface water features, groundwater resources, and water quality; and provides a discussion of the environmental regulations associated with surface water, groundwater, and water quality. The significance criteria follow the regulatory discussion are adapted from Appendix G of the *CEQA Guidelines*. Based on the significance criteria, the potential project-related impacts associated with hydrology, groundwater resources, and water quality are evaluated and appropriate mitigation measures are developed, where necessary.

3.9.1 Environmental Setting

As mentioned previously in Chapter 1, the *CEQA Guidelines* Section 15125(a) requires that a Draft EIR include a description of the physical environmental conditions as they exist when the NOP is published. This environmental setting typically constitutes the baseline against which the lead agency compares the physical environmental changes that may occur as a result of the project and determines whether such impacts are significant. The lead agency may, however, determine that a different baseline is appropriate, with justification. For example, a baseline may constitute a range of conditions over a representative time period for dynamic resources that have characteristics that can fluctuate greatly over temporal scales, such as river flow or groundwater levels. This ensures that an outlier or transitory condition is not used as the baseline condition out of context and that a representative range is established from which to analyze impacts of a project. For the analysis in this Draft EIR, the baseline for groundwater levels is based on historical hydrological conditions during a study period that includes the maximum historical high and low groundwater levels in the project area. This is further described and explained below.

Regional Setting

Climate

The project site is located in the southern portion of the Central Valley within the San Joaquin Valley. This region of Central California is characterized by a climate considered to be semi-arid, characterized by relatively low annual precipitation averages of fewer than ten inches and evaporation in excess of precipitation (Kern County Planning Department, 2004). During the recent twelve month period of February 1, 2014 through February 1, 2015, precipitation in Kern County was between 0.5 and 10 inches (High Plains Regional Climate Center, 2015). More than half of the annual rainfall occurs between December and February with scattered shower activity during the other nine months. Low dense fog known as Tule fog is common in the winter months. Summers are generally dry with low humidity and very warm with most days between June and September above 90 degrees Fahrenheit (WRCC, 2009).

Regional Topography

San Joaquin Valley makes up the southern two-thirds of the Central Valley which stretches across the central spine of California. San Joaquin Valley is generally characterized by a relatively flat topography associated with the wide valley floor. The valley is comprised of large coalescing alluvial fans that have developed along each side of the valley. The larger and more gently sloping fans on the east side consist of deposits eroded and carried down from the granitic Sierra Nevada mountains; whereas, the smaller and more steeply sloping fans on the west side are built up by sediments originating from marine sedimentary rocks of the Coast Range Temblor mountains. As a result, the valley floor consists mainly of two different kinds of alluvial materials that are derived from opposite sides of the basin and have different physical and geological properties. The project site is located along the Kern River Fan, which is comprised of unconsolidated sandy and silty sediments derived from the Sierra Nevada Mountains.

Surface Water Hydrology

The San Joaquin River is the major drainage for the San Joaquin Valley; however the southernmost portion of the valley is hydrologically separated from the San Joaquin River. This area of the valley is drained primarily by the Kern River. The Kern River originates on the eastern side of Tulare County west of Mount Whitney in the high Sierra Nevada Mountains. As it flows south through the Sierra Nevada, it emerges at Kernville into a widening valley before entering Lake Isabella, a reservoir formed on the river by the Isabella Dam. Downstream from the dam it flows southwest, through rugged canyons until emerging east of Bakersfield. Past Bakersfield, the river is highly diverted through a series of canals for agricultural and municipal water supply purposes. The Kern River Fan, referred to locally as the Kern Fan, covers an area of approximately 200 square miles and contains prolific subsurface water-bearing sedimentary deposits that make up the principal groundwater bearing units (Meillier, 2001). The fan deposits are heterogeneous but consist primarily of sand and gravel deposits along with some finer grained deposits. The sediments originate predominantly from weathered granitics from the Sierra Nevada Range.

Surface Water Quality

As part of the requirements of the Clean Water Act, beneficial uses for surface waters must be identified in the Central Valley Regional Water Quality Control Board's (RWQCB) Water Quality Control Plan (Basin Plan). The project site is located within the Tulare Lake Basin where the Kern River has a number of beneficial uses identified including municipal supply, agricultural supply, industrial supply, industrial process, hydropower generation, contact and non-contact recreation; warm freshwater habitat; wildlife habitat; rare, threatened or endangered species; and groundwater recharge (RWQCB, 2004). Water quality management for the Kern River is based on these identified uses.

The Basin Plan sets water quality objectives that are qualitative and quantitative in order to protect those uses. The water quality parameters for which numerical limits were selected from the sources listed above are: total alkalinity, total mercury, dissolved iron, dissolved copper, dissolved zinc, dissolved arsenic, dissolved lead, chloride, and ammonia. However, in some cases

the natural background level of a particular constituent is higher than the beneficial use protective numerical limit. In such instances, the natural background level is considered to comply with the water quality objective (RWQCB, 2004).

According to the requirements of the Clean Water Act, the Central Valley RWQCB has listed impaired water bodies due to elevated levels of contaminants. The Kern River is not listed as an impaired water body (RWQCB, 2010).

Regional Hydrogeology

The project site is located within the Kern County Subbasin of the San Joaquin Valley Groundwater Basin (DWR, 2006). The subbasin covers the western third of Kern County and includes Kern River and Poso Creek. The project area is located in the central part of the Kern County Subbasin. Geologically, San Joaquin Valley is a structural trough created by tectonic forces and filled with older marine and younger continental sediments that were eroded from the surrounding mountains. These continental sediments derived from the alluvial processes form a wedge of deposits that thicken toward the center of the valley.

The sedimentary deposits of the San Joaquin Valley have been estimated to range in thickness from 175 to 2,900 feet with an average of approximately 600 feet (DWR, 2006). Specific yield, the amount of water in storage in the ground that will drain under the influence of gravity and a measurement of water available for man's use, ranges from about 3 – 12% in silts, 15 – 27% in sands and as high as 31% for gravels in the interval from surface down to 300 to 600 feet deep (DWR, 2006). The highest specific yield measurements are associated with sediments of the Kern Fan west of Bakersfield. The well-sorted, sandy sediments have higher specific yields than finer grained silts and clays. For most of the subbasin, excluding the area of the Kern Fan, there are two water bearing units that are separated by an aquitard known as the Corcoran Clay, which restricts vertical groundwater flow between the overlying unconfined aquifer and the underlying confined aquifer. The hydrogeology of the Kern Fan region is characterized by thick alluvial deposits with an upper unconfined aquifer and areas where there are semi-confined conditions. A semi-confined aquifer is also referred to as a leaky aquifer where the confining layer is not continuous and vertical flow occurs between the upper unconfined aquifer and the lower aquifer. Some estimates indicate a total water storage capacity for the Kern County Subbasin of 40 million acre-feet (AF) (DWR, 2006).

The upper aquifer is considered to be unconfined and extends down to a depth of approximately 200 to 400 feet. The upper unconfined aquifer consists of interbedded silts, sands, with some minor deposits of clay (Meillier, 2001). In the Kern Fan area west of Bakersfield, the Corcoran Clay is not generally present although there are numerous discontinuous clay layers that can locally restrict vertical flow creating a separation between a shallow unconfined aquifer and a deeper semi-confined aquifer. The lower semi-confined aquifer, on average, extends to a depth of approximately 600 feet though in some areas can be quite deeper and generally considered to range between 535 and 750 feet (THC, 2015).

During the period of 1926 to 1970, groundwater recovery resulted in up to nine feet of land subsidence in the south-central area of the subbasin, which does not coincide geographically with the location of the proposed project in the central portion of the subbasin. Groundwater banking operations started as early as 1978 and began diverting surface water into the aquifer throughout the subbasin primarily in the Kern Fan area. Since 1970, groundwater levels within the subbasin experienced two complete cycles of rising then falling due to climatic wet/dry cycling and addition of conveyance and recharge facilities. By the year 2000, water levels generally equaled those that were observed in 1970 (DWR, 2006).

Groundwater Levels and Gradient

Groundwater levels in the Kern Fan area have historically been influenced by recovery and more recently are dominated by recharge and recovery operations. With the onset of increased groundwater banking and recharge operations in the late 1990s, water levels rose above historic levels but are still susceptible to the effects of groundwater pumping. According to data from monitoring wells in the project area, groundwater levels dropped to historic lows in 2010 and again in 2014 in the project area (THC, 2015; Kern Fan Monitoring Committee, 2015).

Despite fluctuating groundwater levels, over time the northwest direction of groundwater flow has remained relatively consistent in the region. However, local changes in aquifer use can cause shifting in gradient direction. Recharge and recovery activities will generally increase the gradient during the early period of a recharge event due to the effective mounding of the groundwater table and decrease, flatten, or even reverse during a recovery period.

Groundwater Banking

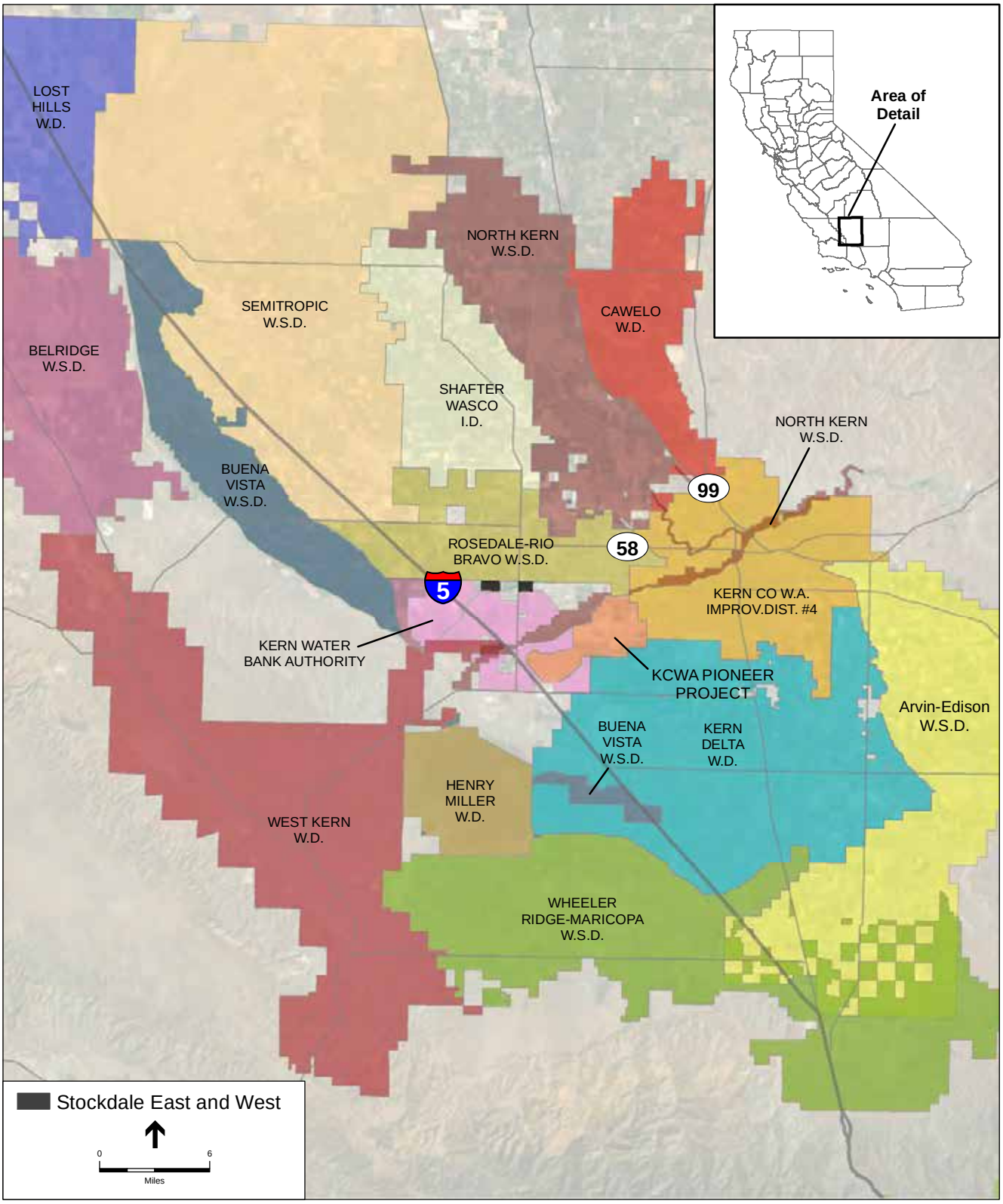
Groundwater banking involves recharging water, generally surface water, into an aquifer through wells or infiltration in ponds and channels and then pumping it out as necessary. The aquifer essentially functions as a water bank or underground reservoir. Deposits are made in times of surplus and withdrawals occur when available surface water falls short of demand. These groundwater banking programs have supplemented variable surface water supplies and increased reliability during drought years by providing for wet-year carryover. In addition, groundwater banking is accomplished by what is known as in-lieu banking where surface waters are provided in place of having a landowner pump groundwater for their water supply needs.

Because of the favorable conditions (e.g. large storage capacities and high permeable soils, etc.), numerous groundwater banking projects are operating in the Kern Fan region. Water districts and municipalities managing groundwater banking operations include the City of Bakersfield, Arvin-Edison Water Storage District (WSD), Semitropic WSD, Shafter Wasco Irrigation District (ID), North Kern WSD, Rosedale Ranch ID, Cawelo Water District, Improvement District 4, Kern Delta Water District, Henry Miller WD, Buena Vista WSD, Berrenda Mesa Water District, Kern County Water Agency (KCWA; Pioneer Project), Kern Water Bank Authority, West Kern Water District and the Rosedale-Rio Bravo WSD (Rosedale). **Figure 3.9-1** identifies the boundaries of the districts. Surface waters used for recharge are primarily from the Kern River, the State Water Project (SWP), or the Friant-Kern canal.

The City of Bakersfield was the first documented banking project with their property known as the 2,800-Acres Spreading Area. In the 1990s, banking programs were expanded with the construction of the Kern Water Bank, which includes 7,000 acres of recharge ponds and 13,000 acres of habitat/wildlife land, and the Kern County Water Agency's 2,200 acre Pioneer Banking Project, which was created for groundwater recharge and recovery operations (KCWA, 2007a). Many of these surrounding water districts have entered into a Memorandum of Understanding (MOU) that provides measures to protect the groundwater basin from overdraft, impairing water quality, or otherwise adversely affecting the basin or adjacent entities. The MOU includes details regarding minimum operating criteria, groundwater banking accounting practices, project monitoring responsibilities, and dispute resolution procedures. The MOU for the proposed project is briefly described in Chapter 1 and also included in Appendix B. In addition to the MOU, Rosedale has also developed the Long Term Operations Plan that implements the provisions of the MOU by designating specific measures to prevent, eliminate or mitigate significant adverse effects resulting from operation of the proposed project. The Long Term Operations Plan also is briefly described in Chapter 1 and included in Appendix B.

Groundwater Recovery

When a groundwater well is pumped, the aquifer surrounding the well responds with a pattern of drawdown known as a cone of depression. The radius and depth of the cone of depression depends on the hydrogeologic characteristics of the aquifer, pumping rate and duration of pumping in the pumping well. When pumping begins, the water level in the well initially begins to decline as water is removed from storage within the well and surrounding filter pack. For unconfined aquifers, the water level in the well then falls lower than the pre-pumping static condition, causing groundwater to begin to move towards the well. As pumping continues, the water level in the well continues to decrease until the rate of inflow equals the rate of withdrawal. Confined aquifers react a little differently, withdrawal from the well causes a reduction in aquifer pressure and because storage in a confined aquifer is small, the cone of depression expands rapidly and can be widespread. Area of influence formed by pumping an unconfined aquifer results in drainage of water from the sediments through which the water table declines as the cone of depression forms. In an unconfined aquifer, the cone of depression generally expands very slowly.



SOURCE: ESRI 2013, California Department of Water Resources

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Figure 3.9-1

Kern County Water Districts

A residual pumping depression due to drawdown of groundwater levels remains after pumping is discontinued and before the groundwater fully recovers. The shape of the residual pumping depression formed by groundwater recovery is influenced by the daily groundwater pumping schedule. Groundwater depressions change when groundwater wells are turned on and off to respond to varying demand. The residual pumping depression from cyclic pumping resembles the shape of a "pan" rather than a cone.

Regional Recovery Operations

Groundwater recovery in the Kern Fan area fluctuates from year to year and historically tends to be concentrated during the agricultural growing season of May to September. In some years such as 2006, no recovery operations associated with groundwater banking occurred for the region, and in 2005 only 4,740 AF were recovered. Going back to 1981, annual banking recovery operations for the Kern Fan region have fluctuated between zero and over 350,000 AF. Banking project operations have shifted the historic growing season pumping trend to often longer year-round operations.

Regional Recharge Operations

The Kern Fan has been identified as an excellent resource for groundwater banking operations due to its significant storage capacity and highly permeable overlying materials. The aquifer has been estimated to range in thickness from approximately 700 to 1,100 feet thick with some thicker areas in the east (KWBA, 2014). According to the Kern County Water Agency, the Kern County portion of the San Joaquin Valley's groundwater basin has about 10 million acre-feet of total available storage capacity (KWBA, 2014).

Volumetric recharge rates are controlled by the porosity and permeability of the subsurface materials and total pond area. Aquitards at depth can impede recharge efforts; however on the Kern Fan and in the project area, these layers impede but do not prevent recharge and recovery operations. The porosity of near surface soils tend to be very important to sustaining long term recharges operations. Pore spaces can eventually become clogged with finer grained material transported by the recharge water or by bio-growths found within the recharge water. Local project operators periodically scrape or treat their ponds to remove clogging deposits and encourage the growth of certain types of plants which keep the near-surface soil structure open and porous.

Groundwater Storage Capacity

For the purposes of artificial recharge projects, groundwater storage capacity is defined as the theoretical amount of groundwater that can be stored in an aquifer through surface recharge by direct or in-lieu means. The available aquifer storage capacity at any given time is estimated as the difference between the total storage capacity and the existing volume of groundwater storage. Groundwater levels in the Kern Fan Area have been observed to fluctuate significantly over time as a result of recharge and recovery operations. Thus, the available aquifer storage capacity in this area increases during periods of low groundwater levels and decreases during periods of high groundwater levels. As mentioned above, the total storage capacity of the San Joaquin Valley subbasin has been estimated by the Kern County Water Agency to be 40 million AF within the

Kern County portion of the subbasin, covering an area of approximately 1 million acres. Of this, approximately 10 million acre-feet of storage is available (KWBA, 2014).

Regional Groundwater Quality

The San Joaquin Valley Groundwater basin is generally characterized by calcium bicarbonate waters in the shallow zones in the eastern side of the subbasin with increasing sodium concentrations occurring with depth (DWR, 2006). Moving west, the bicarbonate levels are replaced by sulfate and chloride such that the west side of the subbasin contains primarily sodium sulfate and sodium sulfate characteristics. Total dissolved solids (TDS) concentrations average approximately 400 to 450 milligrams per liter (mg/L) with a total range of 150 to 5,000 mg/L (Kern County Water Agency as referenced in DWR, 2006). Shallow groundwater in some areas of the subbasin contains high TDS, sodium chloride, and sulfate concentrations. Areas typically associated with lakebed deposits show elevated concentrations of arsenic. Historic agricultural uses of the region have contributed to elevated concentrations of nitrate, 1,2-Dibromo-3-chloropropane (DBCP – a soil fumigant), and ethylene dibromide (EDB – a pesticide). Other natural concentrations found in the area of interest include α-particles, uranium, barium, boron, and zinc.

Most of the groundwater within the Kern Fan region originates as infiltration or recharge from Kern River surface water. The change in water chemistry between the surface waters of the Kern River and the groundwater occurs as a result of both natural and manmade factors. As the water naturally recharges through the sediments derived from the erosion of the granitic material from the Sierra Nevada mountain range, some constituents such as naturally occurring arsenic and radioactive elements are introduced into the water. Manmade sources of contaminants in the groundwater include agricultural practices, oilfield operations, and accidental spills from hazardous material use associated with commercial and industrial activity.

Project Setting

Topography

Stockdale East and Stockdale West are located approximately six miles west of Bakersfield. The two rectangle shaped project sites range in elevation from approximately 315 to 330 feet above mean sea level (amsl). Both sites are relatively flat with a very gentle slope towards the northwest. The third Stockdale site, to be identified within the radius shown in Figure 2-1, would be located at a similar elevation above mean sea level. The nearest natural surface water body to the project site is the Kern River which is located approximately two miles south. The CVC is located immediately south of Stockdale East and Stockdale West and the southern boundary of the third Stockdale site radius.

Project Site Hydrogeology

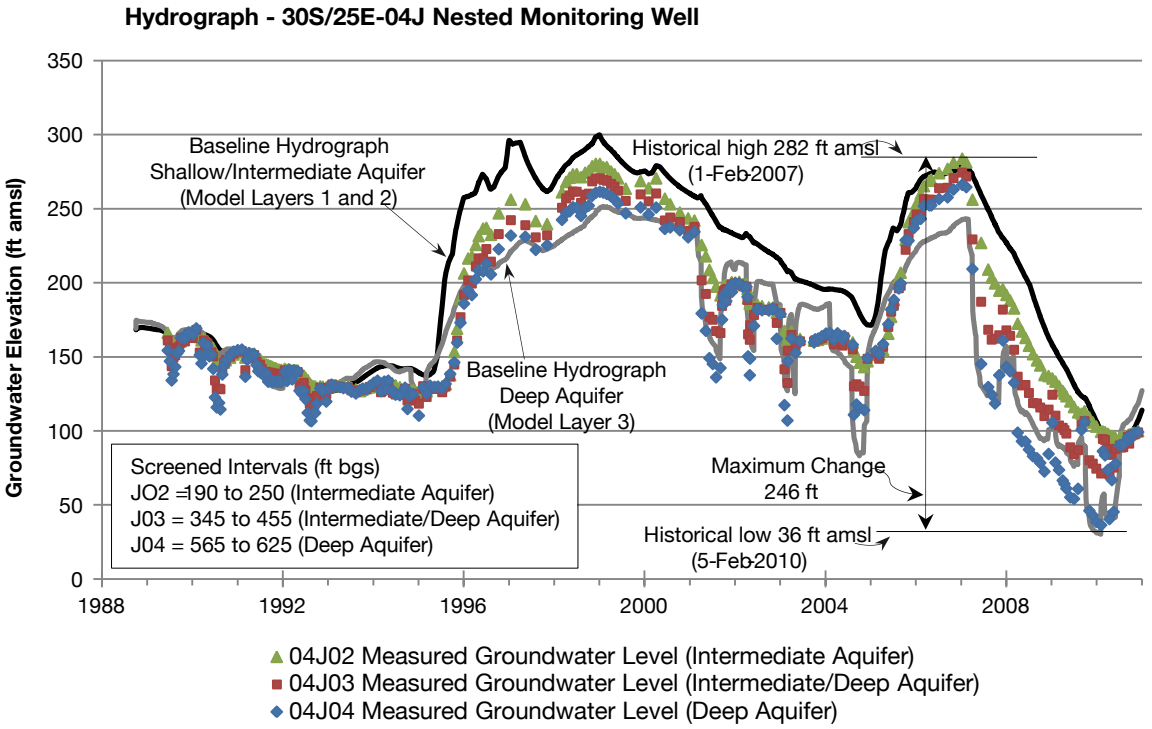
The aquifer characteristics of the project site are considered in general to be consistent with the Kern Fan region which is characterized by a stratified sequence of interbedded alluvial sand and silt that is approximately 700 feet thick. The 700-foot aquifer includes an approximate 100-foot thick shallow unconfined zone, a 250-foot middle zone, and a 350-foot deep semi-confined zone.

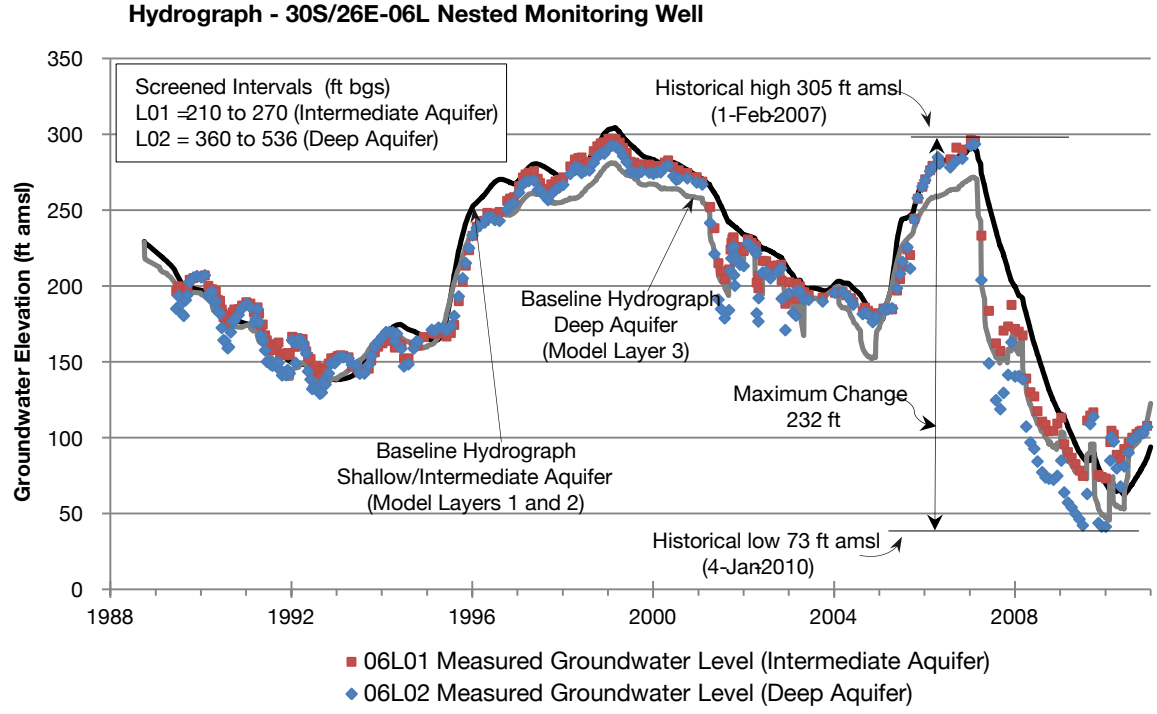
The Corcoran clay, which is present elsewhere in the valley, does not underlie the project area. The aquifer at depth is considered semi-confined due to the likely presence of finer-grained sediments which, where present, act to retard the vertical flow of groundwater. However, it should be emphasized that these sediments are not uniform across the area in terms of their grain size and hydrogeologic characteristics.

Significant changes in groundwater levels have occurred during the various recharge and recovery cycles in the project area since 1995 when the Kern Water Bank and Pioneer Project began operations. Extreme changes occurred between 2007 and 2010 when groundwater levels fluctuated as much as 246 feet between historical high levels in 2007 and historical low levels in 2010 (THC, 2015). These conditions have been recorded at nested monitoring wells in the project area where water levels fluctuated from highs of approximately 282 to 305 feet amsl to lows of approximately 36 to 73 feet amsl (**Figure 3.9-2**); given ground surface elevations are approximately 314 to 328 amsl at the monitoring well locations, this translates into high groundwater levels of approximately 31 to 32 feet below ground surface (bgs) and low groundwater levels of approximately 253 to 273 bgs. For the purpose of identifying the potential effects of the proposed project on a range of conditions, including historical low groundwater levels, the period from 2004 through 2010 is selected as the baseline on which to superimpose proposed recharge and recovery conditions in order to determine the greatest potential impacts on water levels, assuming the historical groundwater record represents the range of potential groundwater level conditions that could be expected in the future. The baseline historical groundwater conditions include recharge and recovery operations from nearby existing banking projects (e.g., Kern Water Bank, Pioneer Project, Rosedale-Rio Bravo Water Service District, etc.) including the more recently operating Strand Ranch Project.

Project Site Storage and Specific Yield

The Strand Ranch Project, located between Stockdale East and Stockdale West, has been operating as a groundwater recharge and recovery facility for the last few years. According to data for calendar year 2011, a total of 37,638 AF of water was delivered to the recharge basins (17,500 as part of IRWD and 20,138 for RRBWSD) (THC, 2015). For many of the months, the basins were filled to capacity and based on estimations, the recharge or infiltration rate for wetted conditions was 0.28 feet/day. Since 2011, approximately 53,800 AF of water has been delivered to the Strand Ranch Project. Analysis of pumping test data from extraction wells at the Strand Ranch facility also provided aquifer specific yield data that were used to estimate the total storage capacity directly beneath the Stockdale Properties. Specific yield is the ratio between the volume of water the aquifer will release from storage due to gravity drainage to the total volume of aquifer. As a result of the data derived from pumping tests on the Strand Ranch extraction wells, the total storage capacity for the Stockdale West site is estimated at 26,000 AF and 18,400 AF for Stockdale East (THC, 2015; see **Appendix E**) and approximately 51,200 AF for the third project site.





SOURCE: Thomas Harder & Co.

Stockdale Integrated Banking Project . 211181

Figure 3.9-2

Hydrographs - Nested Monitoring Wells

Project Site Groundwater Quality

Groundwater samples were collected from two existing agricultural wells on the Stockdale East and Stockdale West sites for analysis of different drinking water standards (THC, 2015; see Appendix E). One agricultural well is located in the southeast portion of Stockdale West, and one well is located in the south central portion of Stockdale East (see Figure 5 of Appendix E). Although the exact depths and perforation intervals of the wells are not known, they were assumed to be similar to other agricultural wells in the area which are generally 200 feet to 700 feet below ground surface (THC, 2015). Given their proximity to the identified radius of the third Stockdale site, they are also assumed to be reflective of quality constituents that would be experienced at the third site. According to laboratory results, the TDS concentrations ranged from 280 mg/L in the Stockdale East well to 400 mg/L in the Stockdale West well, both of which are below the regulatory guidance level of 500 mg/L otherwise known as the maximum contaminant level (MCL) for drinking water. Nitrate (as NO3-) was detected at concentrations ranging from 13.4 mg/L (Stockdale West) to 14.4 mg/L (Stockdale East) compared to an MCL of 45 mg/L. Arsenic was not detected in the samples and gross alpha was the only contaminant detected above its MCL; the sample from Stockdale West had a concentration of 18.9 picocuries per liter (pCi/L) and the sample from Stockdale East at 15 pCi/L compared to the MCL of 15 pCi/L. Of the total gross alpha, uranium accounted for approximately 10 to 11 pCi/L. However, the uranium concentration did not exceed its MCL of 20 pCi/L. Perchloroethene (PCE) and trichloroethene (TCE) were also detected in the sample from Stockdale East and EDB was detected in the sample from Stockdale West. However, these concentrations were all well below their respective MCLs.

Approximately 0.23 miles east of Stockdale East is the Hondo Chemical site, which houses industrial activities relating to the creation of fertilizer and soil amendments. Hondo Chemical was ordered by Kern County to make changes to operations and clean-up procedures to ensure environmental safety. According to SWRCB's Geotracker the site is classified as a "Land Disposal Site" (Global ID L10008056166). The clean-up status of the site is classified as open, and there are no potential contaminants of concern listed. Preliminary groundwater testing on the site in 2011showed no signs of contamination; there is a continuing effort to monitor the groundwater wells on the site, and no groundwater concerns have been found (Kern County, 2015). In 2014, Kern County submitted a notice of violation to the property owners, and a remediation work plan has been submitted (Kern County Local Enforcement Agency (LEA), 2015).

Erosion

Erosion and sedimentation are natural processes driven by surface runoff that can be accelerated by human activities such as construction earthwork activities. During construction, removal of vegetation or impervious areas (concrete, asphalt, etc.) expose soils to precipitation and surface runoff and can accelerate surface soil erosion. The process often results in loss of topsoil, creation of erosional features including rills and gullies, and sediment-filled streams and channels. Erosion potential is determined by four principal factors: the characteristics of the soil, extent of vegetative cover, topography, and climate. Soil texture and permeability determine the resistance of soil to entrainment by surface runoff. Vegetative cover plays a critical role in controlling

erosion by shielding and binding the soil. Slope influences the rate of runoff and is directly correlated with erosion potential where flatter topography has a much lower potential for erosion. The intensity and duration of rainfall determines the extent and the capacity for flowing water to detach and transport soil particles.

Excessive sedimentation may reduce channel or basin capacities and require increased dredging or cleaning of channels. Erosion along stream banks can erode nearby property, causing a loss of land or possibly increased flooding. Increased sedimentation can also restrict storm drains and channels and lead to flooding during storms that the drainage system should capably handle. In addition, development can increase the likelihood of erosion and sedimentation along unlined drainage channels as a result of increased storm water flows.

Flooding

A Flood Insurance Rate Map (FIRM) is the official map of a community prepared by the Federal Emergency Management Agency (FEMA) to delineate both the special flood hazard areas and the flood risk premium zones applicable to a community. FEMA has designated various 100-year and 500-year flood zones within the project area, which are generally associated with various creeks and drainages in the area. A 100-year flood has a one percent chance of occurring in a given year and while a 500-year flood has a 0.2 percent chance. FEMA designates flood zones using a series of letters, for example, Zone A indicate areas of the 100-year flood where base flood elevations are not known; Zone AE areas are those where 100-year flood elevations have been calculated; and Zone X areas that experience minimal flooding. Stockdale East and Stockdale West are located in a broad area that is designated as Zone X (FEMA, 2008). The radius for the third project site is also primarily Zone X, with one small areas designated as Zone A in the northwest corner of the radius boundary (FEMA, 2008).

3.9.2 Regulatory Setting

Federal

Clean Water Act

Regulatory authorities exist on both the state and federal levels for the control of water quality in California. The U.S. Environmental Protection Agency (EPA) is the federal agency, governed by the Clean Water Act (CWA), responsible for water quality management.

The purpose of the CWA is to protect and maintain the quality and integrity of the nation's waters by requiring states to develop and implement state water plans and policies. Section 303 of the CWA requires states to establish water quality standards consisting of designated beneficial uses of water bodies and water quality standards to protect those uses for all Waters of the United States. Under Section 303(d) of the CWA, states, territories and authorized tribes are required to develop lists of impaired waters. Impaired waters are the waters that do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for water on the lists and develop action plans to improve water quality. This process includes development of Total Maximum Daily Loads (TMDL) that set discharge limits for non-point

source pollutants. The recently passed Ducheny Bill (AB 1740) requires the SWRCB and its nine Regional Water Quality Control Boards to post this list and to provide an estimated completion date for each TMDL (SWRCB, 2003). The list is administered by the Regional Boards, in this case, Central Valley Regional Water Quality Control Board. The Kern River is not included in the 2010 California 303(d) List of Impaired Water Bodies (SWRCB, 2010).

Total Maximum Daily Load

California has identified waters that are polluted and need further attention to support their beneficial uses. These water bodies are listed under the CWA Section 303(d) list, which requires States to identify these polluted waters. Specifically, Section 303(d) requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., not meeting one or more of the water quality standards established by the state). Approximately 500 water bodies or segments have been listed in California. Once the water body or segment is listed, the state is required to establish "Total Maximum Daily Load" or TMDL for the pollutant causing the conditions of impairment. The TMDL is the quantity of a pollutant that can be safely assimilated by a water body without violating water quality standards. The EPA estimates that within the next 15 years, 40,000 TMDLs must be developed. At this time, the EPA has finalized only about eight TMDLs and four have been approved. Listing of a water body as impaired does not necessarily suggest that the pollutants are at levels considered hazardous to humans or aquatic life or that the water body segment cannot support the beneficial uses. The intent of the 303(d) list is to identify the water body as requiring future development of a TMDL to maintain water quality and reduce the potential for continued water quality degradation.

National Pollutant Discharge Elimination System

Part of the CWA provides for the National Pollutant Discharge Elimination System (NPDES), in which discharges into navigable waters are prohibited except in compliance with specified requirements and authorizations. Under this system, municipal and industrial facilities are required to obtain a NPDES permit that specifies allowable limits, based on available wastewater treatment technologies, for pollutant levels in their effluent. In California, the EPA has delegated the implementation of this program to the State Board and to the Regional Boards.

Storm water discharges are regulated somewhat differently. Storm water runoff from construction areas of one acre or more require either an individual permit or coverage under the statewide General Construction Storm Water Permit. In addition, specific industries, including waste water treatment plants that have direct storm water discharges to navigable waters are required to obtain either an individual permit issued by the Regional Board, or obtain coverage under the statewide General Industrial Storm Water Permit for storm water discharges.

A non-point source is a diffused source, such as land runoff, precipitation, deposit from the atmosphere, or percolation. Major non-point sources of water pollution are agriculture, mining, oil and gas extraction, pastureland and feedlots, land disposal, and urban runoff. For non-point sources, the Basin Plan outlines the approach that the Regional Board has taken to control non-point source pollution in its Urban Runoff Management scheme. Part of the strategy involves the

permitting of storm water discharges from all facilities associated with industrial activities and from all construction activities that result in the disturbance of land totaling one acre or more.

Federal Emergency Management Agency

Under Executive Order 11988, FEMA is responsible for the management and mapping of areas subject to flooding during a 100-year flood event (i.e., one percent chance of occurring in a given year). FEMA requires that local governments covered by federal flood insurance pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year flood plain, as depicted on FEMA maps.

State

State Water Resources Control Board

SWRCB, located in Sacramento, is the agency with jurisdiction over water quality issues in the State of California. The SWRCB is governed by the Porter-Cologne Water Quality Act (Division 7 of the California Water Code), which establishes the legal framework for water quality control activities by the SWRCB. The intent of the Porter-Cologne Act is to regulate factors which may affect the quality of waters of the State to attain the highest quality which is reasonable, considering a full range of demands and values. Much of the implementation of the SWRCB's responsibilities is delegated to its nine Regional Boards. The project site is located within the Central Valley Region.

Regional Water Quality Control Board, Central Valley Region

The Central Valley RWQCB is responsible for the protection of beneficial uses of water resources within the Central Valley Region. The RWQCB uses planning, permitting, and enforcement authorities to meet this responsibility, and adopted the Water Quality Control Plan for the Tulare Lake Basin (Basin Plan) second edition on January, 2004, which was approved by the SWRCB and the Office of Administrative Law. (The Tulare Lake Basin Plan covers only the southern portion of the Central Valley region. The Central Valley Regional Water Quality Control Board has produced a separate basin plan for the Sacramento and San Joaquin Valley regions.)This updated and consolidated plan represents the Regional Board's master water quality control planning document. The Basin Plan comprehensive program requirements are designed to be consistent with federal regulations (40 CFR Parts 122-124) and are implemented through issuance of NPDES permits to point source and non-point sources of pollutant discharges including construction activities. The Basin Plan identifies beneficial uses and establishes water quality objectives for surface waters in the Region, as well as effluent limitations and discharge prohibitions intended to protect those uses.

Construction Activity Permitting

The California Construction Stormwater Permit (Construction General Permit) (*General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities*, Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, National Pollutant Discharge Elimination System No. CAS000002), adopted by the SWRCB, regulates construction activities that include clearing, grading, and excavation resulting in soil disturbance of at least

one acre of total land area. The Construction General Permit authorizes the discharge of storm water to surface waters from construction activities. It prohibits the discharge of materials other than storm water and authorized non-storm water discharges and all discharges that contain a hazardous substance in excess of reportable quantities established at 40 Code of Federal Regulations 117.3 or 40 Code of Federal Regulations 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

The Construction General Permit requires that all developers of land where construction activities will occur over more than one acre do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three Risk Levels established in the General Permit;
- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the Nation;
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies best management practices (BMP) that will reduce pollution in storm water discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards; and
- Perform inspections and maintenance of all BMPs.

In order to obtain coverage under the NPDES Construction General Permit, the Legally Responsible Person must electronically file all Permit Registration Documents with the SWRCB prior to the start of construction. Permit Registration Documents must include:

- Notice of Intent;
- Risk Assessment;
- Site Map;
- SWPPP;
- Annual Fee; and
- Signed Certification Statement.

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials, and address post construction runoff quantity (volume) and quality (treatment). The SWPPP must also include a discussion of the program to inspect and maintain all BMPs.

California Toxics Rule

The EPA is responsible for implementing federal laws designed to protect air, water, and land. EPA has developed national water quality standards in accordance with the CWA and these standards are used to determine the amount and the conditions under which pollutants can be discharged. The EPA published the California Toxics Rule (CTR) in the Federal Register (FR) establishing water quality standards for toxic pollutants for California waters (FR 31681). On

April 28, 2000 the Office of Administrative Law approved the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan [SIP]). The State Water Resources Control Board (SWRCB) adopted the policy in March 2000. The SIP establishes the implementation policy for all toxic pollutants.

California Department of Pesticide Regulation – Restricted Materials Permits and Pesticide Use Report (PUR)

The California Department of Pesticide Regulation (CDPR) is dedicated to protect human health and the environment by regulating pesticide sales and use, and by fostering reduced-risk pest management. The State of California maintains a list of pesticides that are especially dangerous to human health or the environment if used incorrectly, commonly called restricted materials. These pesticides are listed in 3 CCR 6400. CDPR puts special controls and limitations on these pesticides; furthermore, the purchase or use of restricted materials for agricultural purposes requires a permit from the CAC. Use requirements for these pesticides are given in 3 CCR 6445 through 6489.

CDPR maintains a list of registered pesticides known to cause groundwater contamination in California; these pesticides are listed in Title 3, California Code of Regulations (3 CCR), Section 6800(a): atrazine, bantazon, bromacil, diuron, norflurazon, prometon, simazine. Section 6800(a) pesticides have certain use restrictions. Section 6800(a) pesticides are prohibited below the high water mark inside artificial recharge basins, unless the pesticide is applied six months or more before the basin is used to recharge groundwater (3 CCR Section 6487.1).

CDPR also maintains a list of pesticides that have the potential to move to, but are not currently found in groundwater, listed in 3 CCR 6800(b). Section 6800(b) pesticides are not prohibited for use in artificial recharge basins (CDPR, 2009).

CDPR also has regulations pertaining to wellhead protection and the use of pesticides, as listed in 3 CCR 6609 (CDPR, 2009). These measures apply to all wells (irrigation, domestic, municipal, monitoring, abandoned, dry, or drainage wells) where pesticides are mixed, loaded, rinsed, or otherwise used within 100 feet of the well. The following management measures are given by CDPR to protect wellheads:

- Wells protected from runoff:
  - The well should be sited so that no surface water runoff can contact the wellhead including the concrete base, or;
  - A berm should be constructed adjacent to the wellhead to prevent movement of surface water to the wellhead. Preemergent herbicides from the 6800(a) and 6800 (b) lists are prohibited between the berm and the wellhead.
- Wells not protected from runoff: The following activities are prohibited within 100 feet of an unprotected well:
  - Mixing, loading, and storing pesticides,

- Rinsing of spray equipment or pesticide containers,
- Maintenance of spray equipment that could result in a pesticide or pesticide residue spill,
- Application of preemergent herbicides from the 6800(a) and 6800 (b) lists.

California became the first state to require full reporting of agricultural pesticide use in response to demands for more realistic and comprehensive pesticide use data. Under the PUR program, all agricultural pesticide use must be reported monthly to county agricultural commissioners, who in turn, report the data to CDPR.

Sustainable Groundwater Management Act of 2014

The Sustainable Groundwater Management Act of 2014 (SGMA) is a three-bill package that collectively establishes a new structure for managing California's groundwater. A central feature of the SGMA is the recognition that groundwater management in California is best accomplished locally. The SGMA was signed by Governor Edmund G. Brown Jr. on September 16, 2014, and includes the provisions of Senate Bill (SB) 1168, Assembly Bill (AB) 1739, and SB 1319. The SGMA builds upon the existing groundwater management provisions established by AB 3030 (1992), SB 1938 (2002), and AB 359 (2011), as well as SBX7 6 (2009) which established the California Statewide Groundwater Elevation Monitoring (CASGEM) Program.

The SGMA requires the formation of locally-controlled Groundwater Sustainability Agencies (GSAs) which must develop Groundwater Sustainability Plans (GSPs) in groundwater basins or subbasins that DWR designates as medium or high priority. The proposed project is located in the Tulare Lake Basin of the San Joaquin Valley Groundwater Basin, which is classified as a high-priority basin (CASGEM, 2014). GSAs must be formed by June 30, 2017; GSPs must be developed by January 31, 2020 for high-priority basins that DWR determines to be in critical overdraft, and by January 31, 2022 for all other high-priority basins. Sustainability must be achieved in high-priority basins within 20 years from the date of GSP adoption.

A GSA may appropriate and acquire surface water or groundwater; may appropriate and acquire surface water or groundwater rights; may import surface water or groundwater; and may conserve and store within or outside the agency that water for any purpose necessary to carry out is obligations under the SGMA. "As part of this authority, the agency shall not alter another person's or agency's existing groundwater conjunctive use or storage program except upon a finding that the conjunctive use or storage program interferes with implementation of the agency's groundwater sustainability plan" (CWC Section 10726(b)). Additionally, the GSP must include, "where appropriate and in collaboration with the appropriate local agencies, [a]ctivities implementing, opportunities for, and removing impediments to, conjunctive use or underground storage" (CWC Section 10727.4(f)).

The SGMA defines sustainable groundwater management as "*the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.*" Undesirable results include, but are not limited to,

chronic lowering of groundwater levels, reduction of groundwater storage, seawater intrusion, degraded water quality, and land subsidence that interferes with surface land uses. The legislative intent of the SGMA is to achieve all of the following:

- To provide for the sustainable management of groundwater basins.
- To enhance local management of groundwater consistent with 1) rights to use or store groundwater and 2) Section 2 of Article X of the California Constitution.
- To establish minimum standards for sustainable groundwater management.
- To provide local groundwater agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater.
- To avoid or minimize subsidence.
- To improve data collection and understanding about groundwater.
- To increase groundwater storage and remove impediments to recharge.
- To manage groundwater basins through the actions of local governmental agencies to the greatest extent feasible, while minimizing state intervention.

Local

Kern County General Plan

The Kern County General Plan includes elements to protect the groundwater and surface water resources of the county through various goals and policies. The following policies would apply to the proposed project:

- Encourage the development of the County's groundwater supply to sustain and ensure water quality and quantity for existing users, planned growth, and maintenance of the natural environment.
- The Kern County Environmental Health Services Department will develop guidelines for the protection of groundwater quality which will include comprehensive well construction standards and the promotion of groundwater protection for identified degraded watersheds.
- Encourage effective groundwater resource management for the long-term benefit of the County through the following:
  - Promote groundwater recharge activities in various zone districts.
  - Support for the development of Urban Water Management Plans and promote Department of Water Resources grant funding for all water providers.
  - Support the development of Groundwater Management Plans.
  - Support the development of future sources of additional surface water and groundwater, including conjunctive use, recycled water, conservation, additional storage of surface water, and groundwater and desalination.

Kern County Code - Water Well Ordinance

Title 14 Section 14.08 of the Kern County Code covers Water Well Systems and includes well construction standards and permitting procedures. The well construction standards include reference to the adoption of State Department of Water Resources well construction standards found in Bulletin 74-81 which was amended with Bulletin 74-90.

Kern County Floodplain Management Ordinance

Kern County has adopted regulations designed to promote the public health, safety, and general welfare of its citizenry by minimizing public and private losses due to flood conditions. The Kern County Floodplain Management Ordinance (Kern County Code Section 17.48) restricts land use and development that are vulnerable to floods or water erosion hazards or that would divert flood waters or increase flood hazards in other areas. The Ordinance also requires that uses vulnerable to floods be protected against flood damage and controls the alteration of natural floodplains. The Ordinance requires a development permit prior to construction within any area of special flood hazards. The Ordinance prohibits the encroachment of new development into areas of special flood hazard, such as those classified on FEMA flood hazard maps, unless a registered professional engineer or architect certifies and demonstrates that no increase in flood levels will occur during a base flood discharge (Kern County Code Section 17.48.320).

3.9.3 Impact Assessment

Thresholds of Significance

The following criteria from Appendix G of the *CEQA Guidelines* are used as thresholds of significance to determine the impacts of the proposed project as related to hydrology and water quality. The proposed project would have a significant impact if it would:

1. Violate any water quality standards or waste discharge requirements.
2. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
3. Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site.
4. Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site.
5. 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.
6. Otherwise substantially degrade water quality.

7. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
8. Place within a 100-year flood hazard area structures that would impede or redirect flood flows.
9. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.
10. Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

Effects Found Not to be Significant

Threshold 4. Alter Drainage to Cause Flooding

The proposed project would be designed to provide infiltration of surface water within the recharge basins at the Stockdale Properties. Storm water runoff would be captured onsite and therefore would not cause or exacerbate any potential flooding on- or off-site. The Central Intake Pipeline would be underground and once installed there would be no change in surface runoff as the alignment would continue to be maintained primarily as a dirt roadway, similar to existing conditions. Therefore, there would be no impact.

Threshold 5. Exceed Capacity of Drainage System

The proposed project would not create or contribute new sources of runoff or polluted runoff. The proposed project would be designed to provide infiltration of surface waters within the recharge basins at the Stockdale Properties and as such would capture storm water runoff onsite. No drainage system would be necessary for storm water capture. The Central Intake Pipeline would be underground and once installed there would be no change in surface runoff as the alignment would continue to be maintained primarily as a dirt roadway, similar to existing conditions. Therefore, there would be no impact.

Threshold 7. Housing in a Flood Hazard Area

The proposed project does not include the construction or renovation of any housing units. Therefore, the proposed project would have no impact on housing or structures due to flood flow.

Threshold 9. Failure of a Levee or Dam

The project sites are not located within an inundation area for any levees or dams. The perimeter berms of the recharge ponds would be compacted and constructed to minimize any potential damage that may occur. In the event that damage occurs to the berms during times when the ponds are full, released water would likely infiltrate into the permeable soils that comprise the relatively flat area surrounding the project site. Therefore there would be no impact to people or structures related to potential risk of loss, injury or death involving flooding from the failure of a levee or dam.

Threshold 10. Seiche, Tsunami, or Mudflow

The project sites are not located in an area that is susceptible to the effects of a seiche, tsunami or mudflow. Therefore there would be no impact to people or structures related to potential risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

Impacts and Mitigation Measures

Threshold 1. Water Quality Standards

Impact HYDRO-1: The proposed project could violate water quality standards or waste discharge requirements during construction or project operation.

Construction

Construction of the proposed project would require excavation, grading and recontouring of the soils at the project sites. During these activities, soils could be become exposed to high winds or heavy precipitation causing a substantial increase in sedimentation in storm water run-off and loss of topsoil. In addition, construction activities would require the use of hazardous materials including but not limited to petroleum products (i.e. oil, gasoline, and diesel fuels) and automotive fluids (i.e. antifreeze and hydraulic fluids). Inadvertent spills or leaks of such pollutants could affect the quality of runoff water from the construction sites. However, because the project would disturb more than one acre, construction would be subject to the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). As part of this process, Rosedale would file a Notice of Intent with SWRCB, in compliance with the statewide NPDES General Construction Permit. Rosedale would be required to prepare and submit a SWPPP that would identify pollutant sources that may affect the quality of storm water discharge and identify BMPs, such as erosion control and pollution prevention measures, to be used during the course of construction.

Operation

Recharge water for the proposed project would be secured and acquired from various sources, potentially including high-flow Kern River water (depending on annual availability), pre-1914 and post-1914 appropriative water rights, the CVP, and the SWP. When available, this recharge water would be allowed to infiltrate into the underlying groundwater aquifer for later extraction. Once extracted, the groundwater would be introduced into the CVC and the California Aqueduct and would be subject to the pump-in water quality requirements imposed by the KCWA and DWR. Prior to pumping extracted groundwater into the CVC and California Aqueduct, it would be IRWD's and Rosedale's responsibility to ensure that the water quality was sufficient to meet KCWA and DWR requirements. 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 canals. Based on preliminary sampling results, the underlying groundwater is mostly within drinking water standards, and the only constituent that was found to be above the drinking water MCLs was gross alpha which is a known regional issue. However, the gross alpha concentrations detected were not substantially above the MCL of 15 pi/L and the underlying groundwater quality would likely benefit from the high quality surface water used for recharging (THC, 2015).

Impact Determination

The project SWPPP would include BMPs to minimize the impacts of construction activities to water quality. With implementation of the BMP requirements in **Mitigation Measure HYDRO-1**, the potential for pollutants and sediment to affect the water quality of runoff from construction sites would be minimized to less-than-significant levels.

The proposed recharge activities would likely improve underlying groundwater quality through the blending of high quality surface water such that no adverse effect on water quality would be anticipated. In addition, the pump-in water quality requirements would ensure that water introduced into the CVC and California Aqueduct would meet KCWA and DWR requirements.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

HYDRO-1: The SWPPP for the proposed project shall include the following BMPs:

- Establish an erosion control perimeter around active construction and contractor layout areas, using methods such as silt fencing, jute netting, straw waddles, or other appropriate measures to control sediment from leaving the construction area.
- Stockpiled soils shall be watered, covered, or otherwise managed to prevent loss due to water and wind erosion.
- Install containment measures at fueling stations and at fuel and chemical storage sites.
- Employ good house-keeping measures including clearing construction debris and waste materials at the end of each day.

Threshold 2. Groundwater Supplies

Impact HYDRO-2: The proposed project could deplete groundwater supplies and lower the groundwater table through extraction of banked groundwater.

The proposed project would affect existing groundwater levels through proposed water recharge and recovery activities. During periods when surface water is available for artificial recharge, water would be delivered to the recharge basins for infiltration and storage underground. Following recharge activities, stored groundwater would be pumped out and delivered for offsite water usage. Extraction would be limited to the amount previously recharged less losses, to be specified in agreements between IRWD and Rosedale.

A groundwater analysis was conducted for the proposed project to estimate the potential effects of the proposed recharge and recovery operations at Stockdale East and Stockdale West on groundwater levels (THC, 2015; see Appendix E). As discussed above, for the purpose of identifying the potential effects on a representative range of groundwater conditions, particularly the maximum potential effects, 2004 to 2010 was selected as the baseline on which to

superimpose proposed recharge and recovery conditions in order to determine the greatest potential impacts on water levels. Groundwater flow model simulations were developed for potential recharge efforts during high groundwater conditions, and potential pumping during both low (2004) and historical low (2009-2010) groundwater conditions (THC, 2015). The analysis was conducted using a calibrated three-dimensional numerical groundwater flow model previously developed for a large portion of the Kern River Fan area west of Bakersfield (THC, 2015). The project area boundaries are completely within the model area (see Appendix E, Figure 1). For this effort, estimated monthly artificial recharge and groundwater production associated with the project was superimposed on a portion of the historical groundwater record that is a representative range of potential groundwater level conditions that could be expected in the future. It is noted that preliminary information for groundwater elevations from 2014 indicates that these historic lows may have been met or exceeded, given the current and ongoing drought conditions (Kern Fan Monitoring Committee, 2015).

The analysis assumed groundwater pumping would occur on Stockdale East and Stockdale West at a rate of 2800 gpm, per the proposed project design, to achieve the proposed annual recovery at each site, which would be 7,500 AFY at Stockdale East and 11,250 AFY at Stockdale West. A summary table showing all model-predicted groundwater level changes that would result due to project recovery is shown in Table 6 of Appendix E, and is replicated below as **Table 3.9-1**.

During low groundwater conditions, as simulated based on conditions observed in 2004 (between February 2004 and November 2004), project groundwater pumping is predicted to result in a maximum drawdown of approximately 18 feet in the shallow/intermediate aquifer directly below Stockdale East and approximately 24 feet in the deep aquifer. Maximum drawdown of approximately 24 feet would occur in the shallow/intermediate aquifer directly below Stockdale West and approximately 34 feet in the deep aquifer. Maximum pumping interference at the nearest wells outside of the project sites would be represented by the modeled project-related drawdown at such wells. Maximum drawdown at the nearest production well, which would be the Kern Water Bank Well 6D03 just south of Stockdale West and north of the CVC, is predicted to be approximately 17 feet in the shallow/intermediate aquifer and 27 feet in the deep aquifer. Maximum drawdown at the nearest existing private wells to Stockdale East would be approximately 14 feet in the shallow/intermediate aquifer and 20 feet in the deep aquifer. For the nearest existing private wells to Stockdale West, maximum drawdown would be approximately 18 feet in the shallow/intermediate aquifer and 28 feet in the deep aquifer. Modeling results indicate that groundwater drawdown will recover relatively rapidly following a period of pumping to within five feet of pre-recharge levels within six months for the shallow and intermediate aquifers and only three months for the deep aquifer (THC, 2015).

Using the historical low conditions, as simulated based on conditions observed between September 2009 and June 2010, project-related groundwater pumping is predicted to result in only slightly greater drawdown in the deep aquifer below both sites; a greater change is predicted in the shallow/intermediate aquifer, with drawdown of approximately 27 feet below Stockdale East and 31 feet below Stockdale West. Maximum well interference would be approximately

TABLE 3.9-1
SUMMARY OF MAXIMUM MODEL-PREDICTED GROUNDWATER LEVEL CHANGE

			Maximum Change in Groundwater Level (ft)	
Scenario	**Project**	**Point of Reference Location**	**Shallow and Intermediate Aquifer**	**Deep Aquifer**
Scenario 1 (Recharge)	Stockdale West	Basin Center	34.9	6.9
		Cross Valley Canal	29.7	7.0
	Stockdale East	Basin Center	28.9	9.0
		Cross Valley Canal	24.2	9.0
	Strand Ranch	Basin Center	20.7	7.9
Scenario 2 (Pumping during Low Groundwater Conditions)	Stockdale West	Basin Center	-23.9	-33.5
		Nearest Production Well	-16.7	-26.9
		Nearest Private Well	-17.5	-28.0
	Stockdale East	Basin Center	-18.4	-24.3
		Nearest Production Well	-10.8	-16.6
		Nearest Private Well	-13.5	-19.6
	Strand Ranch	Basin Center	-12.6	-21.5
Scenario 3 (Pumping during Historical Low Groundwater Conditions)	Stockdale West	Basin Center	-31.3	-34.4
		Nearest Production Well	-21.4	-27.7
		Nearest Private Well	-20.7	-28.7
	Stockdale East	Basin Center	-27.2	-25.9
		Nearest Production Well	-15.3	-17.8
		Nearest Private Well	-15.7	-20.5
	Strand Ranch	Basin Center	-15.2	-22.6

SOURCE: Thomas Harder & Co., January 2015.

28 feet in the deep aquifer at the nearest production well offsite (Kern Water Bank Well 6D03); 21 feet in the deep aquifer at the nearest private wells to Stockdale East; and 29 feet in the deep aquifer at the nearest private wells to Stockdale West. Recovery after pumping would occur at similar levels to the low groundwater conditions scenario. Modeling results indicate that groundwater drawdown will recover relatively rapidly following a period of pumping to within eight feet of pre-recharge levels within six months for the shallow and intermediate aquifers; groundwater levels would recover to within five feet of pre-recharge levels within the deep aquifer within three months after pumping is stopped (THC, 2015).

Impact Determination

Based on the three-dimensional modeling results for the project under low conditions and historical low groundwater conditions, and relative to the baseline established using the historical groundwater record augmented with simulations of the Strand Ranch Project, the proposed groundwater recovery operations at Stockdale East and Stockdale West would have a maximum

drawdown at neighboring wells of approximately 21 and 29 feet, respectively. This interference would occur in the deep aquifer; effects of project-related pumping in the shallow/intermediate aquifer would be consistently less, with maximum drawdown of approximately 16 and 21 feet at the nearest wells to Stockdale East and Stockdale West, respectively (Table 3.9-1).

Considering that historical fluctuations in groundwater levels for the project area have been measured up to 246 feet, these model-predicted drawdowns associated with project operation are well within normal fluctuations. During certain years and groundwater conditions, additional drawdown between 16 and 29 feet may have no adverse effects on pre-existing nearby wells and their ability to produce water to support existing or planned land uses. Such would be the case if the additional drawdown resulted in groundwater levels at or above historic lows. Potentially significant impacts would occur if project operations lowered groundwater levels below historical low conditions. In this situation, the analysis of impacts depends on the depth of the affected wells and whether the project-related drawdown would further lower groundwater levels to a depth that affects the ability of neighboring wells to produce water.

Most wells owned by private landowners, such as those to the north of Stockdale East and Stockdale West, have screens that are perforated in the shallow/intermediate aquifer (THC, 2015), typically up to approximately 400 feet bgs and produce water at low rates satisfactory for rural water use. During historical low groundwater conditions, water levels in the shallow/intermediate aquifers in the project vicinity were approximately 75 feet amsl (Figure 3.9-2), which is approximately 240 feet bgs assuming the ground surface elevation is approximately 315 feet amsl. The proposed project would result in additional maximum drawdown of approximately 21 feet in the shallow/intermediate aquifer, which would lower groundwater levels to 261 feet bgs under historical low conditions. Assuming typical private landowner well depths range between 300 to 400 feet bgs, the proposed project would leave between approximately 40 to 140 feet of exposed screen, which would provide adequate flow to support operation at low production rates. Therefore, project operation is not expected to have a significant effect on operation of neighboring private landowner wells under historical low groundwater conditions.

Most production wells operated by water districts have screens that are perforated in the deep aquifer (THC, 2015) up to approximately 700 feet bgs. The Kern Water Bank well 6D03, which is the closest production well to the project site, is screened in the deep aquifer up to approximately 704 feet bgs. During historical low groundwater conditions, water levels in the deep aquifers in the project vicinity were approximately 36 feet amsl (Figure 3.9-2), which is approximately 279 feet bgs assuming the ground surface elevation is approximately 315 feet amsl. The proposed project would result in additional maximum drawdown of approximately 29 feet in the deep aquifer, which would lower groundwater levels to 308 feet bgs under historical low conditions. This groundwater level is higher than the typical production well depth of 700 feet bgs, including the KWB well 6D03. Therefore, project operation is not expected to have a significant effect on operation of neighboring production wells under historical low groundwater conditions.

Based on the CEQA significance criteria, the proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted). Therefore the environmental impacts would be considered less than significant. No mitigation measures would be required.

Additionally, as described previously in Chapter 1 and 2, and further in Chapter 4, the proposed project would be operated subject to, and in accordance with, Rosedale's MOUs with adjoining entities in the Kern Fan area and the complementary Long Term Operations Plan. The Long Term Operations Plan designates specific measures to be employed to "prevent, eliminate or mitigate significant adverse impacts" resulting from project operation, including effects to neighboring wells. The Long Term Operations Plan includes monitoring of groundwater conditions and the use of Rosedale's Groundwater Model to annually predict the contribution of Rosedale's projects to groundwater declines in the area. The Plan defines when such Project Conditions constitute a negative project impact (NPI) relative to No-Project Conditions. The Plan also establishes the NPI that would trigger implementation of mitigation measures, such as when the Groundwater Model predicts groundwater levels that would result in mechanical failure or other operational problems at neighboring wells. The Plan includes mitigation measures to be implemented for different categories of wells, such as providing compensation to lower the well pump; reducing or adjusting pumping to prevent, avoid, or eliminate the NPI; or drilling a new well.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

Impact HYDRO-3: Recharge operations on the proposed project site could result in groundwater mounding that could potentially impact underground structures or impair recharge efforts of adjacent groundwater banking operations.

During periods of shallow groundwater, underground structures such as support structures of the CVC, or other sub-surface infrastructure could be damaged by upward pressure caused by rising groundwater. The CVC is below grade at Stockdale West and above grade at Stockdale East; and some support structures may extend below grade. The CVC may be proximate to the third Stockdale site given the site radius. Mounding groundwater resulting from natural conditions, off-site recharging, or recharging on the project sites could impact the integrity of these structures or cause cracks in sub-surface concrete panels.

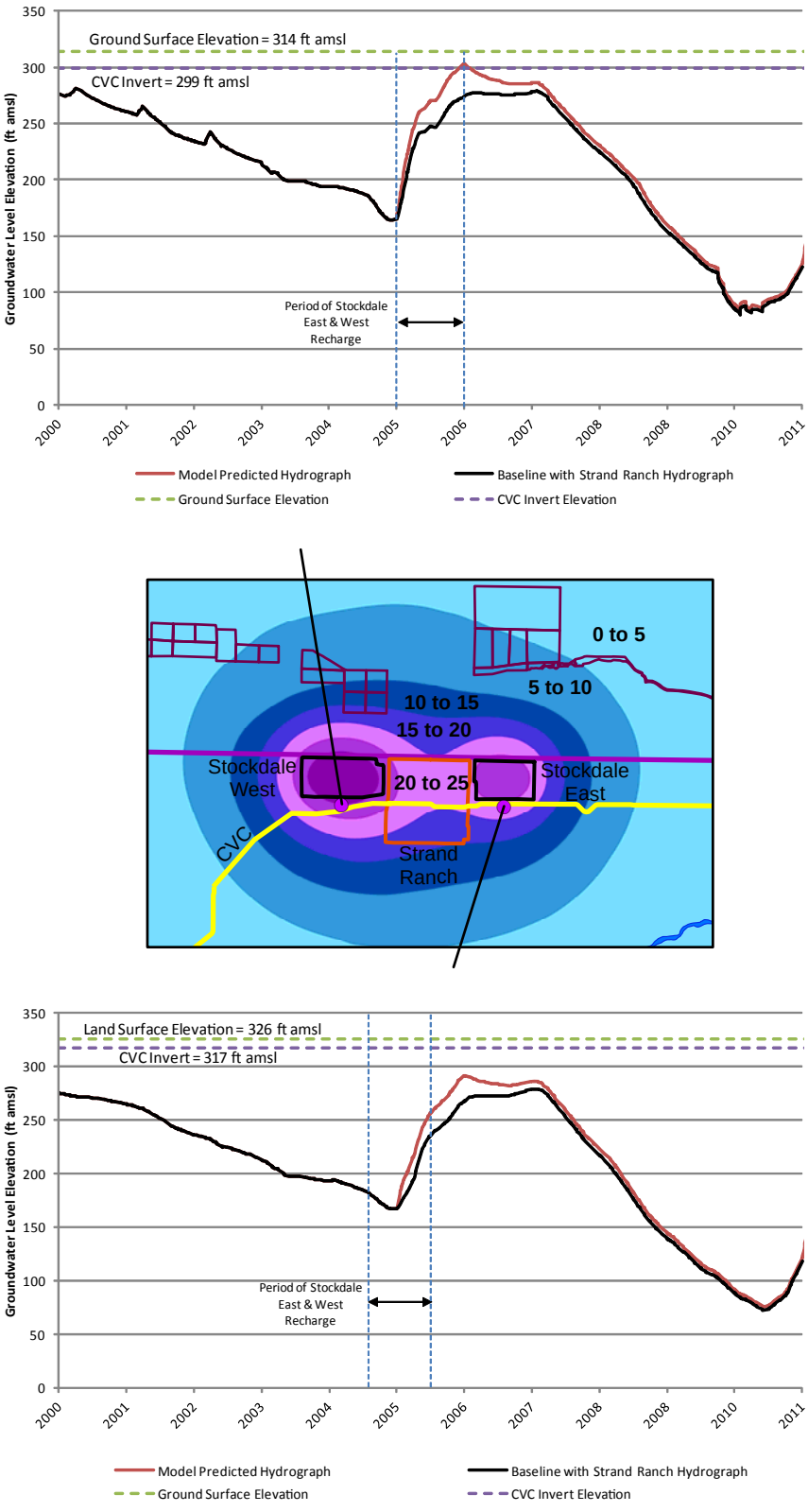
Groundwater modeling conducted for Stockdale East and Stockdale West evaluated the effects that proposed recharge would have during times of high baseline groundwater levels, simulated using conditions between January 2005 and January 2006 (THC, 2015). The Stockdale East and Stockdale West are located just to the north of the KWBA. Recharge operations may cause

groundwater levels to rise or mound beneath these sites and adjacent area. Such would be the case at the third Stockdale project site as well. Recharge modeling during a simulated period of high groundwater shows a maximum groundwater mound, relative to the hydrologic baseline, of approximately 35 feet directly beneath Stockdale West and approximately 29 feet directly beneath Stockdale East (THC, 2015). The maximum mounding would likely occur in the shallow and intermediate aquifers with lesser mounding predicted in the deep aquifer. Groundwater levels are not predicted to rise above the bottom of the CVC near Stockdale East. However, model results show that groundwater levels are predicted to rise as much as four feet above the bottom of the CVC near Stockdale West in the absence of mitigation (Figure 3.9-3). **Mitigation Measure HYDRO-2** requires development and implementation of a shallow groundwater monitoring plan prior to operation of the proposed project to avoid any impacts to the CVC.

Piezometers have been installed at Stockdale West for detecting and monitoring shallow groundwater conditions near the CVC (see Figure 2-2). The locations of the piezometers were approved by KCWA. As part of the Stockdale West Pilot Project, IRWD developed *Operating Guidelines During Shallow Groundwater Conditions* that KCWA agreed to (**Appendix F**). The Operating Guidelines allowed the Pilot Project to operate to the fullest extent possible while also protecting the CVC facilities from effects of shallow groundwater. The Operating Guidelines included four major components: piezometer installation, groundwater monitoring, evaluation of groundwater conditions, and recharge restrictions.

Mitigation Measure HYDRO-2 requires development of a similar shallow groundwater monitoring plan prior to operation of the proposed project that would be approved by KCWA. The plan would include installation of piezometers at the Stockdale Properties where necessary, groundwater monitoring requirements, identification of the critical depth at which shallow groundwater would pose a threat to the stability of CVC structures, and recharge restrictions that ensure shallow groundwater levels would not reach this critical depth. With this mitigation, impacts to subsurface structures from recharging water would be less than significant.

In addition to effects on the CVC, groundwater mounding could potentially effect recharge operations on neighboring parcels, such as the adjacent KWBA recharge basins south of Stockdale East and Stockdale West. The mounding analysis includes the effects of the proposed project together with existing KWBA operations, represented by the use of historical high water levels during periods when the Kern Water Bank was operating. The analysis shows that at the project sites and adjacent areas, groundwater levels are not anticipated to reach ground surface (Figure 3.9-3). At the KWBA recharge basins south of the CVC, project-related effects to groundwater levels would start at a maximum mounding of up to 25 feet, relative to historical high water levels, and decrease to zero feet, as the distance from the project site increases (Figure 3.9-3). The resulting effect would be no different than existing conditions under high water levels, whereby recharge rates decline over time as recharge occurs. Proposed recharge operations at Stockdale East and Stockdale West also are not expected to affect the regional direction of groundwater flow (THC, 2015). As such, impacts to operation of neighboring groundwater basins would be considered less than significant.



SOURCE: Thomas Harder & Co.

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Figure 3.9-3

Scenario 1: Predicted Groundwater Mounding Relative to the Cross Valley Canal Shallow/Intermediate Aquifers

Groundwater levels directly beneath Stockdale East and Stockdale West are predicted to return to pre-project conditions relatively rapidly following a period of recharge. Groundwater levels in the shallow and intermediate aquifers decline to within 10 feet of their pre-recharge levels within one year after recharge is stopped. For areas outside of the project sites, groundwater mounding would be even less. These recharge effects would be temporary and occur only as long as project recharge ponds were in operation plus the time to reach a new equilibrium once recharge operations are terminated.

Impact Determination

The proposed project could result in mounding of shallow groundwater that could affect subsurface structures, in particular the CVC. With implementation of Mitigation Measure HYDRO-2, a shallow groundwater monitoring plan would be developed and implemented that would require installation of piezometers, a monitoring program, and recharge restrictions that would ensure recharge operations do not adversely affect the CVC. As such, impacts would be less than significant with mitigation

Shallow groundwater mounding associated with proposed recharge activities would not affect the regional direction of groundwater flow. Project-related recharge would affect groundwater mounding conditions by increasing groundwater elevations between zero to 25 feet in the shallow/intermediate aquifer below neighboring recharge basins. Under conditions similar to historical high groundwater levels, such mounding effects would not result in groundwater levels reaching the ground surface and would not preclude operation of neighboring basins. The resulting effect would be no different than existing conditions under high water levels, whereby recharge rates decline over time as recharge occurs. Impacts to neighboring basins would be considered less than significant, and no mitigation is required.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

HYDRO-2: Prior to operation of the project, Rosedale shall develop and implement a shallow groundwater monitoring plan for purposes of protecting subsurface structures of the Cross Valley Canal (CVC). Piezometers shall be installed adjacent to the CVC at Stockdale East and the third Stockdale project site if applicable. Piezometers have already been installed at Stockdale West. The location and design of the new piezometers shall be approved by the Kern County Water Agency (KCWA). Piezometers at the Stockdale Properties shall be used to monitor groundwater levels beneath the CVC. Prior to initiating the project, a California state licensed geotechnical engineer shall conduct an analysis to determine the critical depth at which shallow groundwater would pose a threat to the stability of CVC structures. Based on this analysis, the monitoring plan shall identify depths at which monitoring frequency shall change, such as from monthly to weekly to daily, as shallow groundwater levels approach the critical depth. The monitoring plan also shall identify the depth at which project operation would cease such that the critical depth would not be reached and the conditions

under which project operation could resume. The monitoring plan shall be approved by KCWA.

Threshold 3. Erosion

Impact HYDRO-4: The proposed project could substantially alter the existing drainage pattern of a site that could result in substantial erosion or siltation on- or off-site.

Construction

Construction of the proposed project would require excavation, grading and recontouring of soils at the project sites. During these activities, soils could be become exposed to high winds or heavy precipitation causing erosion. The proposed project would disturb more than one acre, and therefore Rosedale would be required to prepare and submit a SWPPP, which would include BMPs to minimize erosion hazards during grading and demolition activities. As part of this process, Rosedale would file a Notice of Intent with SWRCB, in compliance with the statewide NPDES General Construction Permit, and would develop and implement a SWPPP outlining the erosion control and pollution prevention measures to be used during the course of construction.

Operation

The proposed project would construct recharge basins at Stockdale East and the third Stockdale site. The basins would serve to contain storm water and thus, although the drainage pattern of the sites would be altered, would not cause substantial erosion or siltation on- or off-site. The basins also would continue to be used for agricultural purposes when not being used for recharge. Thus with the continuation of farming, grazing, or fallowing, the existing land cover would not be substantially altered from existing conditions and would not alter the conditions that affect erosion or siltation. The Central Intake Pipeline would be underground once installed and would not permanently alter the drainage pattern of the alignment.

Impact Determination

The project SWPPP would include BMPs to minimize the impacts of construction to a less than significant level. Erosion control BMPs have been proven effective at minimizing erosion during construction and associated earthwork activities. With implementation of **Mitigation Measure HYDRO-1**, the project would be able to minimize the potential for erosion or siltation to occur during construction. Once proposed facilities are installed, operation of groundwater recharge, recovery, and conveyance facilities would not alter conditions that affect erosion or siltation.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

Implement **Mitigation Measure HYDRO-1.**

Threshold 6. Water Quality

Impact HYDRO-5: The proposed project could substantially degrade groundwater quality by the addition of recharge water.

As described in the setting section, the aquifer beneath the Stockdale Properties has been characterized through laboratory analysis and compared with drinking water parameters as shown in **Table 3.9-2**. The results indicate that with exception of gross alpha, the local groundwater quality meets all of the Title 22 drinking water standards. The gross alpha concentration at the Stockdale East site was found right at the MCL limit of 15 pCi/L and at the Stockdale West site slightly higher at 18.9 pCi/L.

The water quality of the surface water sources for groundwater banking is in general lower in constituent concentrations than that of the local groundwater (see Table 3.9-2). The introduction of surface water into the shallow zone will improve water quality as it has been shown to occur for the neighboring Strand Ranch project (Wildermuth, 2012a as reported in THC, 2015).

TABLE 3.9-2
WATER QUALITY FOR SELECT PARAMETERS

Analyte	Units	GW West	GW East	CA Aqueduct	Friant-Kern	Kern River	MCL
Total Dissolved Solids (TDS)	mg/l	400	280	334	41	88	500
Nitrate (NO3)	mg/l	13.4	14.4	2.4	1.4	1.0	45
Arsenic (As)	ug/l	ND	ND	7.0	2.9	5.2	10
Chloride	mg/l	81	51	NA	NA	NA	500
Gross Alpha-emission activity	pCi/L	18.9	15	NA	NA	NA	15
Uranium	pCi/L	10.2	10.9	NA	NA	NA	20

ND = Not detected above laboratory detection limit.
NA = Not available, however not known to be of concern.
GW West = Water quality of groundwater sampled at Stockdale West site.
GW East = Water quality of groundwater sampled at Stockdale East site

SOURCE: THC, 2015 and Crewdson, 2007

As described in **Chapter 3.8, Hazards and Hazardous Materials**, the transport, use, and disposal of pesticides associated with past, present and future agricultural activities would continue to be done in accordance with applicable regulatory requirements in order to protect water quality and public health. As done already at Stockdale West, construction of the recharge basins at Stockdale East and the third Stockdale project site would involve scraping/excavating surface soils to create berms, such that the recharge basin floors are below grade. Any residual pesticides in the surface soils of former agricultural areas would be scraped off the recharge basin floor. The potential for residual pesticides to be transported to the groundwater by the recharge water would be minimal since the surface soils would be scrapped from the basin floors.

Future agricultural activities at the Stockdale properties would be subject to all applicable regulatory requirements of the USEPA, CDPR, and the Kern CAC. Farming operations could include the use of restricted or unrestricted materials, including pesticides that are listed in 3 CCR Section 6800(a) and/or 6800(b). IRWD and Rosedale would require all contract farmers to comply with regulations pertaining to application of pesticides within recharge basins and in proximity to wellheads. Section 6800(a) pesticides would be restricted from application on the Stockdale Properties. Section 6800(b) pesticides could be used within the recharge basins without restriction, also in accordance with CDPR regulations. All required measures pertaining to wellhead protection also would be implemented, such as prohibiting mixing, loading, spraying, storage or pesticides within 100 feet of an unprotected wellhead, and prohibiting application of pre-emergent herbicides from the 6800(a) and 6800(b) lists between the berm and the wellhead of a protected wellhead.

Rosedale and IRWD would require the contract farmer to obtain a permit from the CAC for application of restricted materials and to comply with all conditions of the permit in order to ensure the protection of human health and the environment. The contract farmer also would be required to notify the CAC 24 hours prior to application of any restricted materials on the Stockdale Properties. The contract farmer would be required to inform Rosedale and IRWD and the CAC in the event of any accidental spill or inappropriate application of pesticides onsite. The contract farmer would be required to remediate completely and dispose of properly all contaminated soil to prevent the transport of pesticides into the groundwater and protect public health. Compliance with regulatory requirements pertaining to pesticide use would ensure impacts would be less than significant.

Also, implementation of **Mitigation Measure HAZ-1** would require that samples of soils onsite at the Stockdale East property are analyzed and appropriately remediated or removed if soils contain hazardous quantities of contaminants related to oilfield operations onsite. This would reduce any potential impacts to groundwater due to potential transport of hazardous substances during recharge activities.

Impact Determination

The surface water sources for recharge generally have constituent concentrations that are lower than the underlying groundwater, and therefore with blending, groundwater quality would likely improve. The transport, use, and disposal of pesticides would also be done in accordance with applicable regulatory requirements, including regulations specific to application of pesticides within recharge basins and in proximity to wellheads. Mitigation Measure HAZ-1 would require that samples of soils at the Stockdale East property are analyzed and removed appropriately if soils contain hazardous quantities of contaminants. Therefore impacts to water quality would be considered less than significant with mitigation.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

Implement **Mitigation Measure HAZ-1** (see Chapter 3.8).

Threshold 8. 100-Year Flood Hazard Areas

Impact HYDRO-6: The proposed project could place structures within a 100-year flood hazard area.

Stockdale East, Stockdale West, the Central Intake Pipeline alignment, and the majority of the area being considered for the third Stockdale site are classified as Zone X on the Federal Emergency Management Agency's FIRM for unincorporated Kern County (FEMA, 2008), and as such, not located within a 100-year flood hazard area. However, a small area in the northwest corner of the third Stockdale site radius is classified as Zone A, indicating an area where the 100-year flood base elevations are not known (FEMA, 2008). If recharge basins were to be built in this area, introduction of a new structure could impede or redirect flood flows or alter base flood elevations on neighboring parcels.

Impact Determination

Implementation of **Mitigation Measure HYDRO-3** would ensure any development associated with the third Stockdale site would not impede or redirect flood flows, either by requiring the project design to avoid flood hazard areas or by designing the project in accordance with the Kern County Floodplain Management Ordinance to ensure flood hazards or flood elevations on neighboring parcels are not significantly altered. Impacts would be less than significant with mitigation.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

HYDRO-3: If the third Stockdale project site includes a flood hazard area, then associated project facilities would be designed either: (1) to avoid development within the flood hazard area, or (2) to ensure that flood hazards or flood elevations on neighboring parcels are not significantly altered.

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3.10 Land Use and Planning

This chapter describes the existing land use and planning in the vicinity of the project area, the impacts to land use and planning as a result of the proposed project, and mitigation measures that would reduce significant impacts.

3.10.1 Environmental Setting

Project Vicinity

The proposed project consists of the Stockdale East property, the Stockdale West property, and a third property that would be located within a designated radius around both sites (collectively referred to as the "Stockdale Properties"). The Stockdale East property is located at the southeastern corner of Stockdale Highway and Enos Lane (Highway 43) in unincorporated Kern County. The Stockdale West property is located farther west along Stockdale Highway, adjacent to the western edge of the Strand Ranch property. Both properties are about 10 miles south of Shafter, California and six miles from the eastern boundary of Bakersfield, California. The project also consists of the Central Intake Pipeline, which would be constructed within Stockdale East and within an easement through private agricultural property between Stockdale East and Goose Lake Slough (Figure 2-4). Land use in the vicinity of the project area is dominated by agriculture and open space, but also includes groundwater recharge activities, mineral and petroleum extraction, industrial land uses, and scattered rural residences. The Kern River and floodplain, the dominant natural feature in the vicinity of the Stockdale Properties, is located approximately 2.5 miles south and east of the project sites.

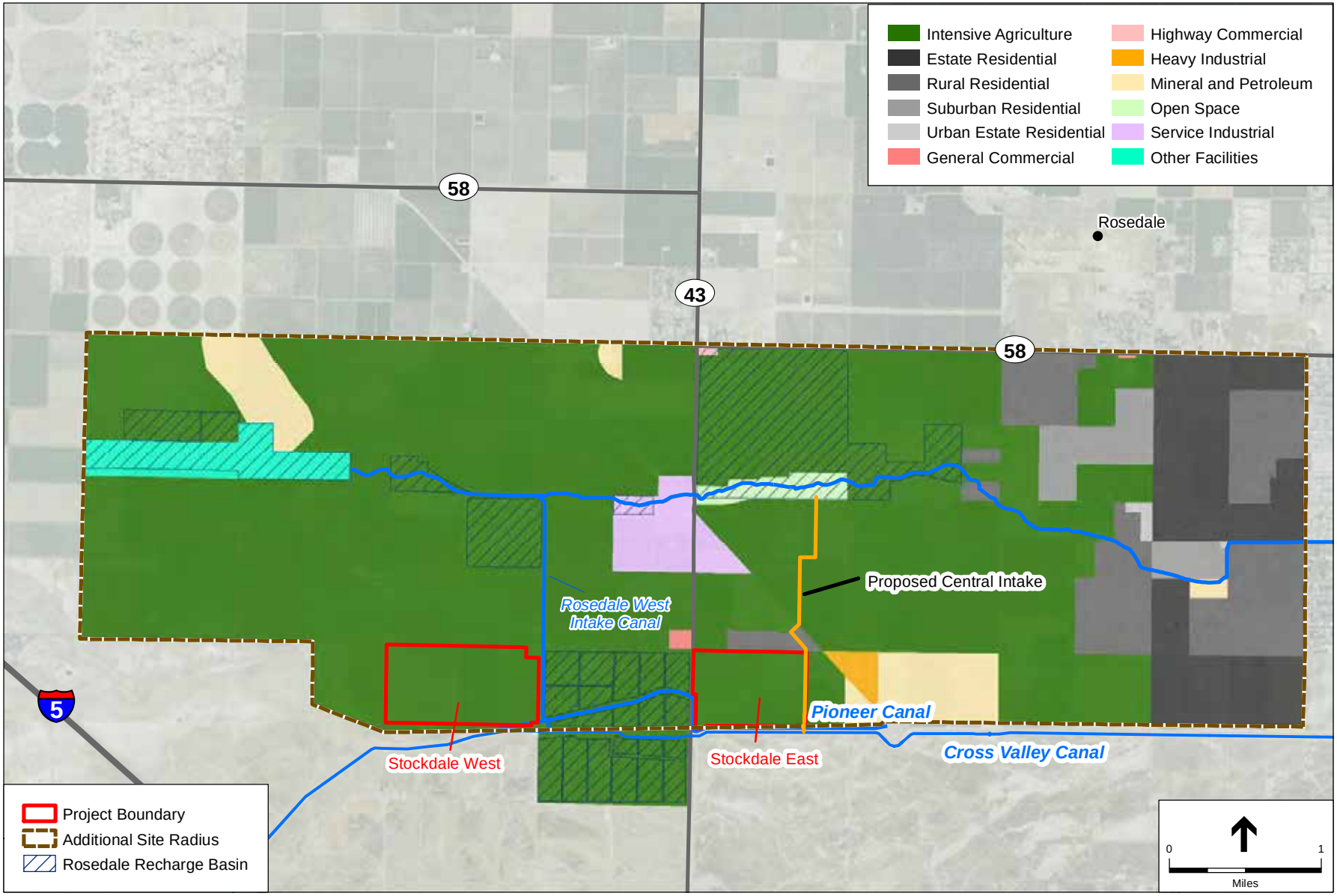
Existing Land Use Designations

Stockdale East

Stockdale East occupies approximately 230 acres within unincorporated Kern County and has been used for agricultural operations and petroleum extraction. The main crop produced on Stockdale East is alfalfa (RAM, 2009). Currently the crop grown on Stockdale East is alfalfa. Stockdale East has two onsite active oil wells with pumping units.

As shown on **Figure 3.10-1**, the Stockdale East property is designated as Intensive Agriculture (Map Code 8.1) by the County General Plan. This designation refers to areas devoted to the production of irrigated crops with a minimum parcel size of 20 acres and also includes other land uses such as groundwater recharge acres, petroleum extraction, and public utility uses (Kern County Planning Department, 2004). The Kern County Land Use designation identifies petroleum exploration and extraction as a compatible use of Intensive Agriculture (Kern County, 2004a).

The Stockdale East property is located within the planning area of the *Metropolitan Bakersfield General Plan* (Bakersfield General Plan), which is an element of the County General Plan (City of Bakersfield and Kern County, 2002). According to the Bakersfield General Plan, the land use designation at Stockdale East is Resource-Intensive Agriculture (R-IA). This designation is similar to the Intensive Agriculture designation in the County General Plan. The Intensive



SOURCE: ESRI 2013, Kern County 2013

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Figure 3.10-1

General Plan Land Use Designation

Agriculture designation refers to areas devoted to the production of irrigated crops with a minimum parcel size of 20 acres.

According to Zoning Map 121 of Kern County, Stockdale East is zoned as Exclusive Agriculture (A). See **Figure 3.10-2.** The purpose of the Exclusive Agriculture District is to designate areas suitable for agricultural uses and prevent encroachment by and conversion of land to non-agricultural uses. The Permitted Uses in the Exclusive Agriculture District include water storage and groundwater recharge facilities (County Zoning Ordinance, Section 19.12.020 (F)). The proposed project is exempt from County Zoning Ordinance per Government Code 53091, which states that the building and zoning ordinances "of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water…by a local agency."

The eastern portion of Stockdale East falls within the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP) as shown on **Figure 3.10-3**.

Stockdale West

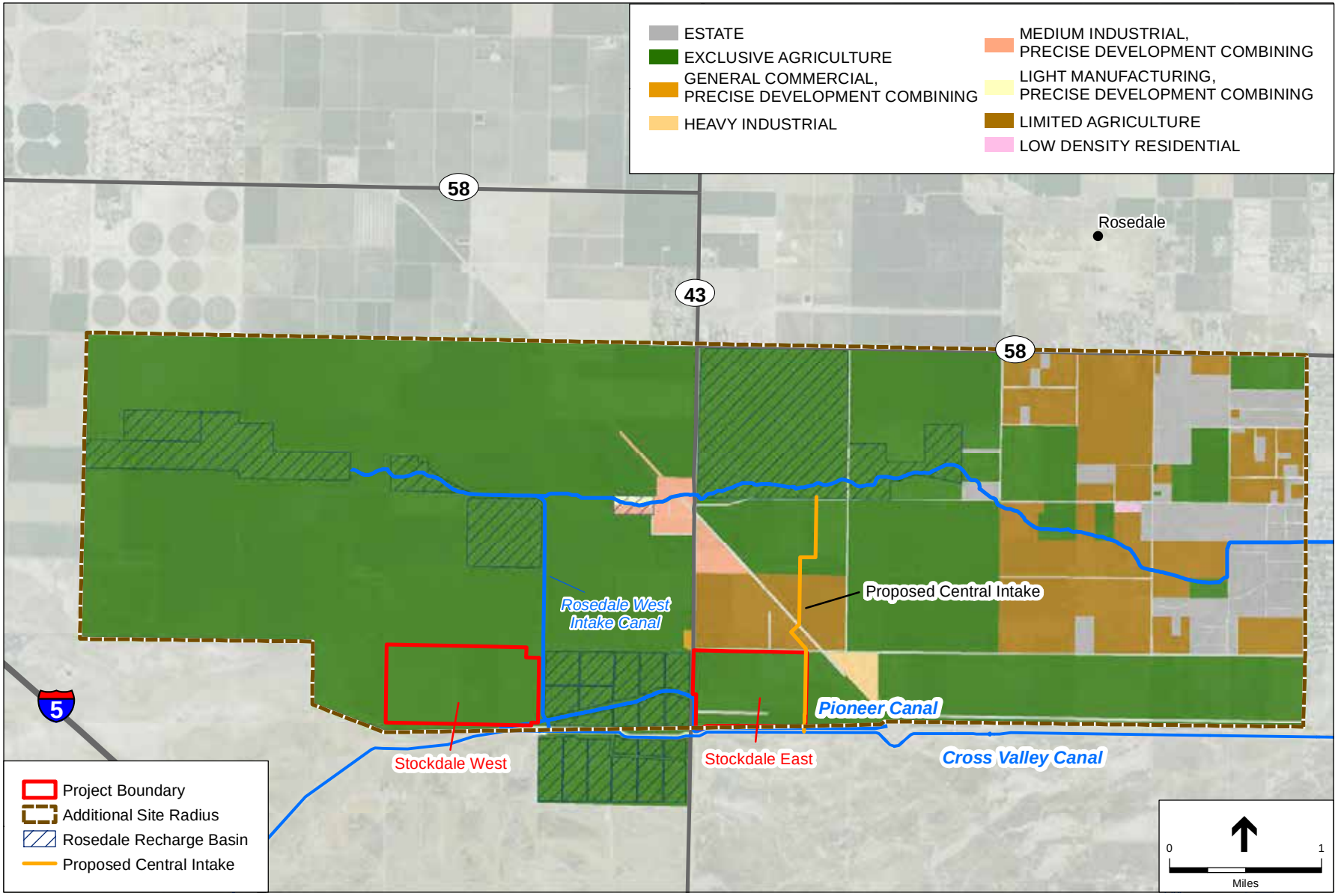
Stockdale West occupies approximately 323 acres and had been used exclusively for agriculture since the 1950's. Main crops produced on Stockdale West include vegetables and field crops. Currently, Stockdale West has been converted to four recharge basins covering 265 acres as part of the Pilot Recharge Project.

Similar to Stockdale East, the Stockdale West parcel is designated as Intensive Agriculture (Map Code 8.1) by the County General Plan (Kern County Planning Department, 2009) (Figure 3.10-1). This designation refers to areas devoted to the production of irrigated crops with a minimum parcel size of 20 acres, and also includes other land uses such as groundwater recharge acres, petroleum extraction, and public utility uses (Kern County Planning Department, 2004a).

Again, similar to Stockdale East, according to Zoning Map 121 of Kern County, Stockdale West is zoned as Exclusive Agriculture (A) (Figure 3.10-2**).** The purpose of the Exclusive Agriculture District is to designate areas suitable for agricultural uses and prevent encroachment by and conversion of land to non-agricultural uses. The Permitted Uses in the Exclusive Agriculture District include water storage and groundwater recharge facilities (County Zoning Ordinance, Section 19.12.020 (F)).The proposed project is exempt from the *Kern County Zoning Ordinance* (County Zoning Ordinance) per Government Code 53091, which states that the building and zoning ordinances "of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water…by a local agency".

Third Stockdale Site

The third Stockdale project site would be located within a site radius as shown on Figure 3.10-1, and is anticipated to be primarily agricultural land. The majority of land within the radius is designated Intensive Agriculture by the Kern County General Plan and is zoned Exclusive Agriculture, similar to Stockdale East and Stockdale West.



SOURCE: ESRI 2013, Kern County 2013

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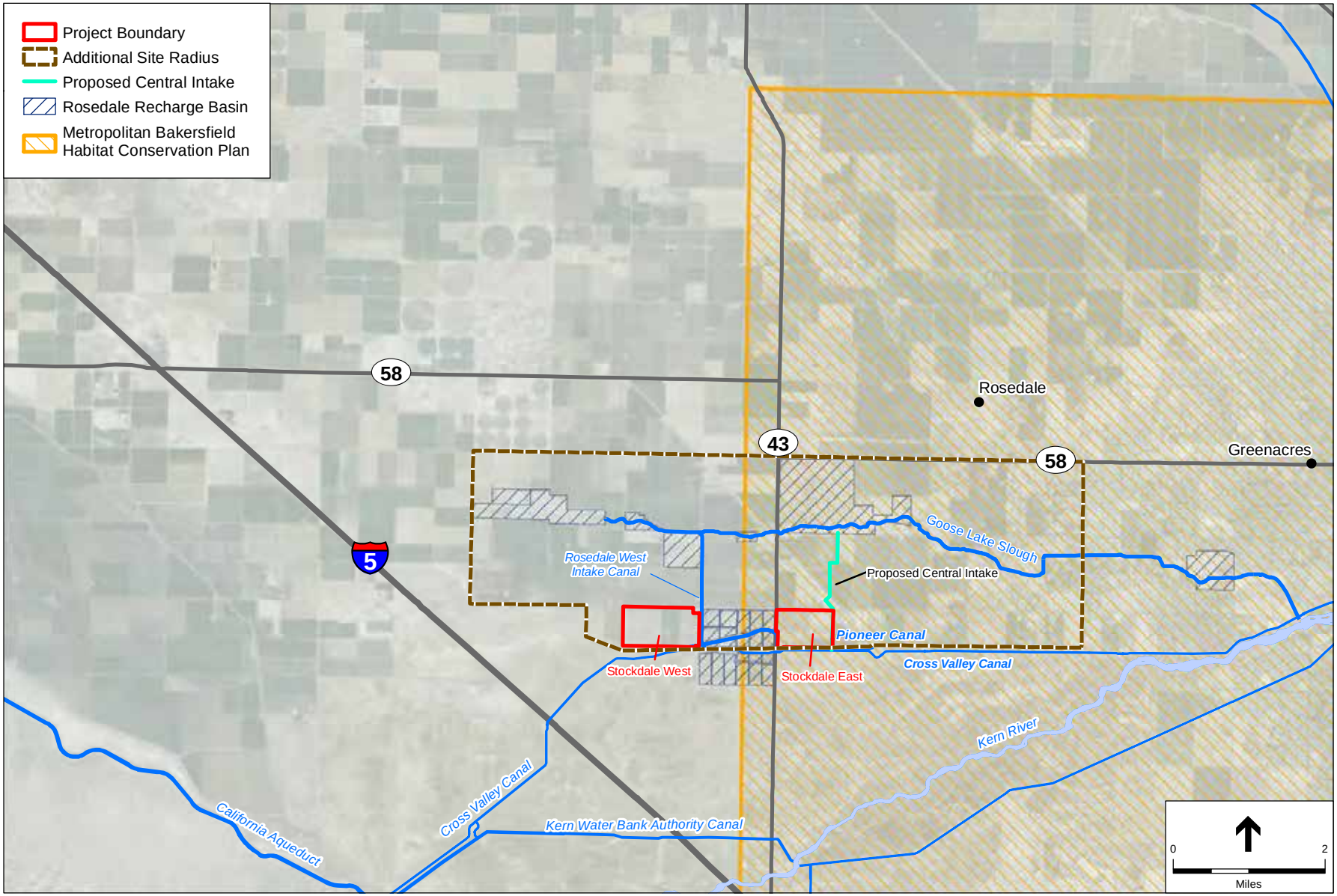
Figure 3.10-2

Kern County Zoning Designation



SOURCE: ESRI 2013

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Figure 3.10-3

Habitat Conservation Planning Designation

Central Intake Pipeline

The proposed Central Intake Pipeline would run along the eastern edge of Stockdale East and then continue north. Offsite of Stockdale East, the alignment is designated as Intensive Agriculture and Rural Residential by the Kern County General Plan (Figure 3.10-1). The alignment is zoned for Exclusive Agriculture (A) and Limited Agriculture (A-1) (Figure 3.10-2). The alignment would be required to cross Stockdale Highway, the Southern Pacific Railroad, and Brimhall Road.

Surrounding Land Uses

Land surrounding the Stockdale East and Stockdale West properties is zoned by the County Zoning Ordinance as predominantly Exclusive Agricultural, Limited Agricultural, and Low-Density Residential (See Figure 3.10-2). Kern County General Plan land use designations of surrounding properties include Intensive Agriculture and Rural Residential. Actual land use in the project area is characterized by agriculture, rural residential, groundwater recharge, mineral extraction, and light industrial and commercial activity. Land within the site radius for the third Stockdale project site is overwhelmingly designated Intensive Agriculture and zoned as Exclusive Agriculture. Figure 3.10-1 illustrates the land use designations of the Stockdale Properties, Central Intake Pipeline, and surrounding area.

The properties immediately east of Stockdale East and west of Stockdale West are used for agriculture, as are properties north of both parcels. The Strand Ranch parcel is situated in the middle of both properties and currently includes recharge basins and groundwater production wells. Both properties are bordered by the Cross Valley Canal (CVC) on the south. South of the CVC, all adjacent properties are owned by Kern Bank Water Authority (KWBA) and include groundwater recharge basins. Adjacent to the northeast corner of Stockdale West is an electrical substation owned and operated by Pacific Gas & Electric (PG&E). Runoff from the substation is contained within the substation and does not intrude onto Stockdale West (Kleinfelder, 2010). The properties adjacent to the Central Intake Pipeline are used for agriculture. The Southern Pacific Railroad (SPRR) is approximately less than one-eighth mile from the northeast corner of Stockdale East and would intersect the alignment of the Central Intake Pipeline (Kern County Planning Department, 2004c). In the project vicinity, the Buttonwillow Branch of the SPRR runs west out of Bakersfield and crosses the Kern River, CVC, Stockdale Highway, and SR-58. Interstate 5 is approximately 1.5 miles south and west from Stockdale East and Stockdale West.

There are few sensitive land uses in the vicinity of the proposed project. There is a cluster of residences and a pet boarding facility on Stockdale Highway, just east of Enos Lane and north of Stockdale East. A residence is located along Superior Road approximately 0.4 miles south of Brimhall Road. There are no schools, churches, hospitals, local police or fire stations, within a two mile radius of either Stockdale East or Stockdale West. The closest school is Rio Bravo Greely School, which is approximately 3.5 miles north of the Central Intake Pipeline. The closest church is Rosedale Baptist Church, which is approximately 3 miles northeast of both properties. The closest police and emergency services is the Buttonwillow California Highway Patrol Office located at 29449 Stockdale Highway approximately 2.5 miles west of Stockdale West near Interstate 5.

Surrounding Recreational Facilities

The Kern River Parkway includes 6,000 acres of recreational facilities, including parks, trails, and waterways. The Kern River Parkway extends 30 miles from the mouth of Kern Canyon, west through the City of Bakersfield, and ends at Interstate 5. The Kern River Parkway is approximately 2.5 miles south and east of the proposed project site. Recreational activities available at Kern River Parkway include jogging, bicycling, hiking, horseback riding, canoeing and kayaking, fishing, swimming, volleyball, and other outdoor activities.

The Kern County Bicycle Facilities Plan (Kern Council of Governments, 2001) is a planning guide for the development of bicycle facilities within the county. Kern County is particularly well suited for bicycle transportation due to the warm, dry climate and flat terrain (Kern Council of Governments, 2001). The Bicycle Facilities Plan outlines existing and planned bicycle transportation routes. The Kern River Bicycle Path is part of the Kern River Parkway. This bicycle path runs along the Kern River, starting in the City of Bakersfield and ending at Enos Lane just east of Interstate 5, approximately three miles south of Stockdale East and Stockdale West (City of Bakersfield, 2007). The Kern River Bicycle Path is a Class I Bikeway, which is a right-of-way completely separated from the roadway for exclusive use of bikes and pedestrians (Kern Council of Governments, 2001).

Other than the Kern River Parkway and Bicycle Trail, the closest other recreational facilities to the proposed project sites are AW Noon Park, located in an unincorporated area seven miles southwest of the project site, the Buena Vista Aquatic Recreation Area, located seven miles south of the project site, plus eight golf courses, numerous local parks, and the Mesa Marin Raceway located in the City of Bakersfield. All of these facilities are at least five miles away from the Stockdale East and Stockdale West, and would not be located within the site radius identified for the third Stockdale project site.

3.10.2 Regulatory Setting

Local

Kern County General Plan

Land use in the vicinity of the proposed project is governed by the Land Use, Open Space, and Conservation Element of the County General Plan (Kern County Planning Department, 2004a). The following goals, policies, and implementation measure are applicable to the proposed project:

> **Goal 1:** Kern County residents and businesses should receive adequate and cost effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the proposed project.
>
> **Goal 5:** Ensure that adequate supplies of quality (appropriate for intended use) water are available to residential, industrial, and agricultural users within Kern County.
>
> **Policy 35:** Ensure that adequate water storage, treatment, and transmission facilities are constructed concurrently with planned growth.

Policy 39: Encourage the development of the County's groundwater supply to sustain and ensure water quality and quantity for existing users, planned growth, and maintenance of the natural environment.

Implementation Measure X: Encourage effective groundwater resource management for the long-term benefit of the County through the following:

- Promote groundwater recharge activities in various zone districts.
- Support the development of future sources of additional surface water and groundwater, including conjunctive use, recycled water, conservation, additional storage of surface water, and groundwater and desalination.

Kern County Zoning Ordinance

The land use categories set forth in the County General Plan are implemented through the County Zoning Ordinance. Stockdale East and Stockdale West are currently zoned as Exclusive Agriculture (A), and the Central Intake is currently zoned as Exclusive Agriculture (A) and Limited Agriculture (A-1). According to Sections 19.12.020 and Section 19.14.020 of the County Zoning Ordinance, permitted uses for the Exclusive Agriculture and Limited Agriculture designations include water storage or groundwater recharge facilities. The proposed project is exempt from the County Zoning Ordinance per Government Code 53091, which states that the building and zoning ordinances "of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water…by a local agency."

Metropolitan Bakersfield General Plan

The project site is within the planning area of the Metropolitan Bakersfield General Plan (City of Bakersfield and Kern County, 2002). The Land Use Element of the Bakersfield General Plan includes one goal and one implementation measure that are applicable to the proposed project:

Goal 3: Accommodate new development which is compatible with and complements existing land use.

Implementation Measure 7: Local guidelines for project processing shall reflect *CEQA Guidelines* which state that the environmental effects of a project must be taken into account as part of the project consideration.

Metropolitan Bakersfield Habitat Conservation Plan

Stockdale West is located within the planning area covered by the MBHCP. The MBHCP is a program that addresses the effect of urban growth on federally and state protected plant and animal species within the Metropolitan Bakersfield General Plan area. The MBHCP is a joint program of the City of Bakersfield and Kern County that was undertaken to assist urban development applicants in complying with state and federal endangered species laws.

The MBHCP utilizes a mitigation fee paid by applicants for grading or building permits to fund the purchase and maintenance of habitat land to compensate for the effects of urban development on endangered species habitat. The lands to be acquired for the program are generally located outside the Metropolitan Bakersfield area.

Kern County and the City of Bakersfield have entered into a legal agreement with the California Department of Fish and Game and the U.S. Fish and Wildlife Service that spells out obligations in conjunction with the MBHCP. The agreement allows the County and the City to receive habitat mitigation credit that can be applied against future habitat loss that accompanies urban development.

3.10.3 Impact Assessment

Thresholds of Significance

The following criteria from Appendix G of the *CEQA Guidelines* are used as thresholds of significance to determine the impacts of the proposed project as related to land use and planning. The proposed project would have a significant impact if it would:

1. Physically divide an established community.
2. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
3. Conflict with any applicable habitat conservation plan or natural community conservation plan.

Effects Found Not to be Significant

Threshold 1. Divide an Established Community

Stockdale East, Stockdale West, and the Central Intake Pipeline are located in an agricultural and rural residential community. Construction and operation of recharge basins, production wells, and conveyance structures on these properties would be consistent with existing community land use and would not serve to divide an established community. Similarly, the third Stockdale project site also would be located within agricultural and rural residential communities as defined by the site radius. Development of recharge basins and production wells within this radius also would not divide the established community. No impact would occur.

Impacts and Mitigation Measures

Threshold 2. Land Use Plan, Policy, and Regulation

Impact LU-1: The proposed project could conflict with any applicable land use plan, policy, or regulation of the jurisdiction over the project.

Stockdale East and Stockdale West

The Kern County and Metropolitan Bakersfield General Plans designate the land use at Stockdale East and Stockdale West as Intensive Agriculture. The Intensive Agriculture designation allows groundwater recharge facilities, and petroleum exploration and extraction, as compatible land uses. Both parcels are zoned for Exclusive Agriculture. The County Zoning Ordinance allows groundwater recharge facilities in Exclusive Agriculture Districts. The proposed project does not require a conditional use permit. The proposed project is compatible with applicable land use plans, policies, and regulations.

The Stockdale East and Stockdale West properties are divided into quadrants by mid-section lines, and are surrounded by section lines as designated by Kern County. Mid-section lines are reserved by the County for arterial roadways and require a setback between 45 feet to 70 feet while section lines require a setback of 55 to 90 feet (Kern County Planning Department, 2012). Mid-section lines on the Stockdale West property have been preserved with dirt road levee tops approximately 20 feet wide. Mid-section lines on the other Stockdale Properties would be similarly preserved through design and location of basins and wells that avoid mid-section lines.

Although not required, if the mid-section lines were eliminated through an amendment to the Kern County General Plan, then the proposed project facilities would not have to be designed to accommodate the setbacks. With implementation of optional **Mitigation Measure LU-1**, the mid-section lines would be eliminated.

Third Stockdale Site

The location of the third Stockdale project site has not yet been determined. Land within the site radius shown on Figure 3.10-1 is primarily Intensive Agriculture, similar to both the Stockdale East and Stockdale West properties. As shown on Figure 3.10-2., land within the site radius is zoned primarily Exclusive Agriculture. It is anticipated that the third Stockdale project site would be located on agricultural land designated as Intensive Agriculture by the Kern County General Plan, which allows for groundwater recharge facilities. Kern County Setback and mid-section line requirements would be adhered to, similar to Stockdale East and Stockdale West.

Central Intake Pipeline

The Central Intake Pipeline is designated as Intensive Agriculture and Rural Residential by the Kern County General Plan (Figure 3.10-1). The Intensive Agriculture designation allows groundwater recharge facilities including conveyance structures. The alignment is zoned for Exclusive Agriculture and Limited Agriculture (Figure 3.10-2). The County Zoning Ordinance allows groundwater recharge facilities in Exclusive Agriculture and Limited Districts. The proposed project is compatible with applicable land use plans, policies, and regulations.

The Central Intake Pipeline would cross under Stockdale Highway and the Southern Pacific Railroad; jack-and-bore or other tunneling construction techniques would be employed to avoid disruption of these surface features. In these locations the proposed project would be required to secure encroachment and right of way permits from Kern County, Southern Pacific Railroad, and any other agency with jurisdiction over the crossings. Additionally, the alignment would be required to secure a temporary encroachment and right of way permit for trenching activity across

Brimhall Road, which would be secured from the County and all applicable agencies prior to construction. The southern portion of the Central Intake would be constructed within Stockdale East and no permanent easement would be required. The portion of the alignment north of Stockdale East would be constructed through private property, and a permanent easement would be required prior to construction. In addition, both the Stockdale West Turnout and the Central Intake Turnout would require approval from KCWA for modifications to the CVC and approval from KWBA to allow the pipelines leading from the turnouts to cross under the Pioneer Canal.

Impact Determination

The proposed project would be compatible with applicable land use plans, policies and regulations of Kern County. Applicable permits, approvals, and easements would need to be secured prior to construction of the Central Intake Pipeline and Turnout and the Stockdale West Turnout. Design of project facilities would be required to accommodate setbacks from mid-section lines, or implementation of optional Mitigation Measure LU-1 would eliminate mid-section lines and any associated setback requirements. Impacts to land use would be considered less than significant, since Mitigation Measure LU-1 is not required.

Significance Conclusion

Less than Significant.

Mitigation Measure

LU-1: A General Plan Amendment may be requested from Kern County to eliminate the mid-section line setback requirements from the Stockdale properties.

Threshold 3. Habitat Conservation Plan

Impact LU-3: The proposed project could conflict with the Metropolitan Bakersfield Habitat Conservation Plan.

The Stockdale East property and the Central Intake alignment fall within the boundaries of the MBHCP area. The third Stockdale project site has not yet been determined, and could fall within the jurisdiction of the MBHCP as shown on Figure 3.10-3. The MBHCP's primary focus is on lands converted to urban uses (MBHCP, 1994). The MBHCP sets forth a program for the preservation and protection of habitat for several rare or endangered species found in the HCP study area in exchange for the loss of some existing habitat from urban development. The MBHCP permit only applies to City or County actions or actions by others, which involve City or County permits. Special agencies, such as Rosedale, that are exempt from local permitting have other options with regard to endangered species issues, including resolving endangered species issues directly with USFWS and CDFW (MBHCP, 1994).

Impact Determination

Given that the proposed project would not result in the conversion of land to urban uses, and that mitigation measures have been included to reduce project impacts to threatened and endangered

species to less than significant levels (see Mitigation Measures BIO-1 though BIO-10 in Chapter 3.4 Biological Resources), the proposed project would not conflict with the MBHCP. Impacts would be less than significant, and no additional mitigation is required.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

References – Land Use and Planning

City of Bakersfield and Kern County, 2002. *Metropolitan Bakersfield General Plan Update EIR,* adopted June 26, 2002.

City of Bakersfield and Kern County, 1994. *Metropolitan Bakersfield Habitat Conservation Plan.* April 1994.

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RAM, 2009. *Phase I Environmental Site Assessment for the Rosedale Rio-Bravo Storage District*. January 2010.

3.11 Mineral Resources

This chapter describes the affected environment and regulatory setting for mineral resources. It also describes the impacts on mineral resources that would result from implementation of the proposed project, and mitigation measures that would reduce these impacts, if applicable. The information in this chapter is based on available literature and research.

3.11.1 Environmental Setting

Kern County is one of the richest oil-producing counties in the United States in which approximately 2,971 square miles of land in Kern County are classified as Mineral Resource Zones (MRZs) of varying significance. The valley floor area of Kern County and the surrounding lower elevations of the mountain ranges contain numerous deposits of oil and gas resources, a major economic resource for the County. Mineral resources in Kern County include numerous mining operations that extract a variety of materials, including sand and gravel, stone, gold, dimensional stone, limestone, clay, shale, gypsum, pumice, decorative rock, silica, and specialty sand. MRZs have been designated to indicate the significance of mineral deposits. The MRZ categories are as follows:

MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.

MRZ-2: Areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.

MRZ-3: Areas containing mineral deposits the significance of which cannot be evaluated from available data.

MRZ-4: Areas where available information is inadequate for assignment to any other MRZ.

According to the *Mines and Mineral Resources of Kern County, California*, there are no MRZs within the vicinity of the project site (USGS, 1962). Kern County has been a major oil producer since the early 1900s. Stockdale East, Stockdale West, and the Central Intake are located within the Strand Oil Field (DOGGR, 2013a). A portion of the site radius for the third Stockdale site also is included in the boundaries of the Strand Oil Field. Other oil fields exist in the vicinity of this potential third site as well. Mineral rights associated with and underlying the Stockdale East, Stockdale West, and Central Intake alignment are not owned by Rosedale or IRWD. The same would be true for the third property to be acquired. Both Rosedale and IRWD would be required to design surface facilities to allow for mineral rights owners to access subsurface oil resources in the future.

Sand and Gravel

Sand and gravel have been determined to be important resources for construction, development, and physical maintenance, from highways and bridges to swimming pools and playgrounds. The availability of sand and gravel affects construction costs, tax rates, and affordability of housing

and commodities. The State of California has statutorily required the protection of sand and gravel operations. Because transportation costs are a significant portion of the cost of sand and gravel, the long-term availability of local sources of this resource is an important factor in maintaining the economic attractiveness of a community to residents, business, and industry. The major resources of sand and gravel in Kern County are in stream deposits along the eastern side of the San Joaquin Valley and in the Sierra Nevada foothills, and in alluvial fan deposits along the north flank of the San Emidio and Tehachapi Mountains at the southern end of the County. Most of the recent alluvium in the San Joaquin Valley floor is composed of sand used as a source of road base material.

3.11.2 Regulatory Setting

State

Division of Oil, Gas, and Geothermal Resources (DOGGR)

Division of Oil, Gas and Geothermal Resources (DOGGR) is a state agency responsible for supervising the drilling, operation, maintenance, plugging, and abandonment of oil, gas, and geothermal wells. DOGGR's regulatory program promotes the sensitive development of oil, natural gas, and geothermal resources in California through sound engineering practices, prevention of pollution, and implementation of public safety programs. To implement this regulatory program, DOGGR requires avoidance of building over or near plugged or abandoned oil and gas wells, or requires the remediation of wells to current DOGGR standards.

Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act of 1975 State requires the State Geologist to classify land into MRZs according to its known or inferred mineral potential. The primary goal of mineral land classification is to ensure that the mineral potential of land is recognized by local government decision-makers and considered before land-use decisions are made that could preclude mining.

Local

Kern County General Plan

The Land Use, Open Space and Conservation Element of the Kern County General Plan provides goals, policies, and implementation measures that relate to the protection of important mineral, petroleum, and agricultural resources and ensures that development of resource areas minimize effects to neighboring resource lands. The General Plan also provides policies that emphasize conservation of identified mineral deposits, and protection of lands classified as MRZ-2. The goal, policies, and implementation measures applicable to the proposed project regarding mineral resources include:

Land Use, Conservation, and Open Space Element, Resource Section

Goal 2: Protect areas of important mineral, petroleum, and agricultural resource potential for future use.

Policy 14: Emphasize conservation and development of identified mineral deposits.

Implementation Measure H: Use the California Geological Survey's latest maps to locate mineral deposits until the regional and statewide importance mineral deposits map has been completed, as required by the Surface Mining and Reclamation Act.

3.11.3 Impact Assessment

Thresholds of Significance

The following criteria from Appendix G of the *CEQA Guidelines* are used as thresholds of significance to determine the impacts of the proposed project as related to mineral resources. The proposed project would have a significant impact if it would:

1. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
2. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Effects Found Not to be Significant

Threshold 2. Locally-Important Mineral Resource

The proposed project would not result in the loss of locally important mineral resources. The project sites are not located within a designated MRZ. The proposed project would not result in the loss of availability of locally valuable sand and gravel resources. There would be no impact.

Impacts and Mitigation Measures

Threshold 1. Loss of Availability of Regionally-Important Mineral Resources

Impact MRS-1: The proposed project could block access to oil resources beneath the Stockdale Properties.

The Stockdale West property is currently developed with groundwater recharge basins and earthen berms. No important mineral resources, including oil resources have been identified onsite. The Stockdale East property is currently cultivated for agricultural use and contains an active oilfield, including oil pads and drums associated with oilfield activities. The Central Intake alignment north of Stockdale East would be located in the vicinity of one active oil and gas well. The oilfields and wells may remain active during project implementation and operation. Rosedale would be required to accommodate existing and future drill islands to maintain access to

underlying mineral rights. With incorporation of the drill islands into the project design, the proposed project would not impede future access to subsurface mineral resources.

In addition, the operation of groundwater banking facilities at Stockdale East would not be expected to affect active or abandoned oil wells. Well construction records for the nine known wells on Stockdale East indicate that all are constructed with an upper casing and outer cement seal that extend to a minimum of 495 ft bgs (THC, 2014). Historical groundwater fluctuations have occurred in the upper approximate 290 ft bgs, which is well above the bottom of the shallowest oil well upper seal depth (THC, 2015). Project pumping is expected to add a maximum of approximately 24 ft of drawdown directly below Stockdale East (see Chapter 3.9, Hydrology and Water Quality), which would not cause groundwater levels to reach 495 ft bgs. Therefore, the operation of recharge and recovery facilities at Stockdale East would not be expected to significantly change the existing hydraulic connection of the oil wells with the aquifer system. Impacts to oil wells are considered less than significant.

The third Stockdale project site has not yet been determined but would be located within a designated site radius that is zoned primarily for agricultural uses. There are active oil fields located within and around the site radius, including the Strand Oil Field. During the selection of the third Stockdale project site, further analysis of potential active or future oilfield activities would be conducted. Incorporation of well pad areas into future design of facilities on the third Stockdale project site and avoiding areas designated for future drill islands would ensure future access to any subsurface mineral resources is not impacted.

Impact Determination

Development of groundwater banking facilities on the Stockdale properties would not preclude existing or future access to any underlying mineral rights, such as oil rights. Where necessary, the design of recharge basins, wells, and conveyance structures would be required to avoid existing and future drill islands, when the project site is located over an oil field. The proposed project would not result in the loss of availability of regionally-important mineral resources. The proposed project also would not have adverse direct effects to the existing oil wells within Stockdale East. Impacts would be less than significant.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

References – Mineral Resources

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR), 2013. *DOGGR Online Mapping System.* Accessed at: http://maps.conservation.ca.gov/doms/doms-app.html?api=01120486

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U.S. Geological Survey, 1969. *Mines and Mineral Resources of Kern County, California*.

3.12 Noise

This chapter presents information on ambient noise and vibration conditions in the vicinity of the proposed project and identifies potential impacts associated with noise and vibration due to construction and operation of the proposed project.

3.12.1 Environmental Setting

Sound and Noise

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. The decibel (dB) scale is used to quantify sound intensity. Since the human ear is not equally sensitive to all frequencies within the entire spectrum, noise measurements are weighted more heavily within those frequencies of maximum human sensitivity in a process called "A-weighting," referred to as dBA. With regard to increases in A-weighted noise levels, it is widely accepted that the average person can barely perceive noise level changes of 3 dBA, while a change in noise levels of 5 dBA is a readily perceptible increase in noise levels and the minimum required increase for a change in community reaction (Caltrans, 1998). An increase of 10 dBA is perceived as a doubling of loudness.

Time variation in noise exposure is typically expressed in terms of the average energy over time (L_{eq}), or alternatively, as a statistical description of the sound level that is exceeded over some fraction of a given period of time. For example, the L50 noise level represents the noise level that is exceeded 50 percent of the time. Half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Several methods have been devised to relate noise exposure over time to human response. The Day-Night Noise Level (DNL) is a 24-hour L_{eq} that adds a 10 dBA penalty to sounds occurring between 10:00 p.m. to 7:00 a.m. to account for the increased sensitivity to noise events that occur during the quiet late evening and nighttime periods. A commonly used noise metric for this type of study is the Community Noise Equivalent Level (CNEL). The CNEL adds a 5 dBA penalty to noise occurring during evening hours from 7:00 p.m. to 10:00 p.m., and a 10 dBA penalty to sounds occurring between the hours of 10:00 p.m. to 7:00 a.m. to account for the increased sensitivity to noise events that occur during the quiet late evening and nighttime periods. Thus, the CNEL noise metric provides a 24-hour average of A-weighted noise levels at a particular location, with an evening and a nighttime adjustment, which reflects increased sensitivity to noise during these times of the day. The DNL and the CNEL are similar noise descriptors in most urban dominated environments. These descriptors are best used for measuring average increases in overall noise over a daily period and not single event noises, which are best described as unique events.

Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (Vdb) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration (FTA, 1995). Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration.

Existing Ambient Noise and Vibration Environment

Noise

The proposed project would be located in a rural, agricultural area. Noise sources in rural areas are typically natural, including insects, birds, wind, and weather. Accordingly, existing ambient noise levels in rural areas such as the project sites are low. Background noise levels in rural areas typically range between 35 and 45 dBA DNL. The primary sources of noise in the rural agricultural areas are roadway traffic and farm machinery on a seasonal basis. Background noise levels are approximately 40 dBA in rural residential areas and 45 dBA in agricultural cropland with equipment operating (FERC 2002, USEPA 1978).

Vibration

Similar to the environmental setting for noise, the vibration environment is dominated by traffic from nearby roadways. Heavy trucks can generate ground-borne vibrations that vary depending on vehicle type, weight, and pavement conditions. As heavy trucks typically operate on major streets, existing ground-borne vibration in the project vicinity is largely related to heavy truck traffic on the surrounding roadway network. Vibration levels from adjacent roadways are generally not perceptible in the project area.

Sensitive Receptors

Noise

Land uses deemed sensitive by the State of California include schools, hospitals, rest homes, and long-term care and mental care facilities, which are considered to be more sensitive to ambient noise levels than others. Many jurisdictions also consider residential uses particularly noise-sensitive because families and individuals expect to use time in the home for rest and relaxation, and noise can interfere with those activities. Some jurisdictions may also identify other noise-sensitive uses such as churches, libraries, and parks. Land uses that are generally not considered to be noise sensitive receptors include office, commercial, and retail developments.

Consequently, the noise standards for sensitive land uses are more stringent than for those at less sensitive uses. The Kern County Noise Element has identified the following land uses as sensitive receptors: residential areas, schools, convalescent and acute care hospitals, parks and recreational areas, and churches (Kern County Planning Department, 2010).

The proposed project site is located in a rural area characterized by agriculture uses and including scattered single-family, ranch-style residences. There are few sensitive land uses in the vicinity of the proposed project. The nearest residences are across Stockdale Highway, approximately 800 feet north of the edge of Stockdale West, 200 feet north of Stockdale East, and 300 feet west of the Central Intake alignment near the railroad crossing. There are no schools, churches, hospitals, local police or fire stations, within a two mile radius of the Stockdale West and East properties. The closest school is Rio Bravo Greeley School, which is approximately 3.5 miles north of the Central Intake. The closest church is Rosedale Baptist Church, which is approximately three miles northeast of the Stockdale West and Stockdale East properties. The additional site radius for the third Stockdale project site includes residential uses on the eastern boundary. The Rio Bravo Greeley School is located just north of the site radius boundary.

Vibration

Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly and sick), and vibration sensitive equipment. Sensitive vibration receptors for the proposed project are the same as the noise sensitive receptors presented above.

3.12.2 Regulatory Setting

Federal, State, and local agencies regulate different aspects of environmental noise and vibration. Federal and State agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies. 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; local noise ordinances establish standards and procedures for addressing specific noise sources and activities. Kern County has developed general plan policies, goals, and guidelines regarding the ambient noise environment, which would be applicable to the proposed project, as discussed below.

Federal

Federal Noise Policies

There are no Federal noise standards that directly regulate environmental noise related to construction or operation of the proposed project. With regard to noise exposure and the workplace, the Office of Environmental Health and Safety regulations safeguard the hearing of workers exposed to occupational noise.

Federal Vibration Policies

The Federal Railway Administration (FRA) and the Federal Transit Administration (FTA) have published guidance relative to vibration impacts. According to the FRA, fragile buildings can be exposed to ground-borne vibration levels of 0.5 PPV without experiencing structural damage (FRA, 1998). The FTA has identified the human annoyance response to vibration levels as 80 RMS (FTA, 1995).

State

There are no State noise standards that directly regulate environmental noise related to construction or operation of the proposed project. The State has promulgated the California Noise Insulation Standards, found in *California Code of Regulations*, Title 24 (known as the Building Standards Administrative Code), Part 2 (known as the California Building Code), Appendix Chapters 12 and 12A. These standards set forth an interior standard of DNL 45 dBA for habitable spaces. These standards may be applied to residences located near construction activity or stationary noise sources as a method of examining potentially intrusive noise.

State Vibration Policies

There are no adopted State policies or standards for ground-borne vibration. Caltrans does recommend that extreme care be taken when sustained pile driving occurs within 7.5 meters (25 feet) of any building, and 15 to 30 meters (50 to 100 feet) of a historic building or a building in poor condition.

Local

Kern County General Plan: Noise Element

County policies for noise are included in the Noise Element of the Kern County General Plan (Kern County Planning Department, 2010). The purpose of the Noise Element is to: (1) establish reasonable standards for maximum desired noise levels in Kern County, and; (2) develop an implementation program which could effectively deal with the noise problem. The County noise goals, policies, and standards are based on standards suggested by the U.S. Environmental Protection Agency (EPA) and the California Department of Health. The Noise Element requires that proposed commercial and industrial uses or operations be designed or arranged so they would not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dBA DNL or less in outdoor activity areas and interior noise levels in excess of 45 dBA DNL.

Kern County Noise Ordinance

Chapter 8.36 of the Kern County Code addresses noise issues. These include acceptable hours of construction and limitations on construction related noise impacts on adjacent sensitive receptors. Noise producing construction activities that are audible to a person with average hearing ability at a distance of 150 feet from the construction site, or within 1,000 feet of an occupied residential dwelling are prohibited between the hours of 9:00 p.m. to 6:00 a.m. on weekdays, and 9:00 p.m. to 8:00 a.m. on weekends. However the following exceptions are permitted:

1. The resource management director or his designated representative may for good cause exempt some construction work for a limited time.
2. Emergency work is exempt from this section.

3.12.3 Impact Assessment

Thresholds of Significance

The following criteria from Appendix G of the *CEQA Guidelines* are used as thresholds of significance to determine the impacts of the proposed project as related to noise and vibration. The proposed project would have a significant impact if it would:

1. Result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
2. Result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels.
3. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
4. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project
5. For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels
6. For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

Effects Found Not to be Significant

Threshold 5. Airport Land Use Plan

The proposed project is not located within two miles of public airport or public use airport or located within an airport land use plan area. The nearest airport to the project site is a private model airplane airfield, located adjacent to the northernmost portion of the Central Intake north of Brimhall Road. The airfield is approximately 650 feet in length. The nearest public commercial airport is Meadows Field Airport, approximately 20 miles northeast of the Stockdale East and West properties and approximately eight miles northeast of the eastern boundary of the additional site radius. Therefore, the proposed project would not expose people residing or working in the area to excessive noise levels.

Threshold 6. Private Airstrip

A private model airplane airfield is located adjacent to the northernmost portion of the Central Intake north of Brimhall Road and approximately one mile north of Stockdale East. The airstrip is approximately 650 feet in length and includes a small open shaded area. There are no residences or buildings where people live or work associated with the airstrip that would be exposed to excessive noise levels as a result of construction of the Central Intake or facilities on Stockdale

East and Stockdale West. Therefore, the proposed project would not expose people residing or working in the area to excessive noise levels.

Impacts and Mitigation Measures

Threshold 1. Noise Level Standards

Impact NOISE-1: The proposed project could generate noise levels that exceed noise standards.

The proposed project would involve temporary noise sources associated with general construction activity. Construction of the proposed facilities on Stockdale East, Stockdale West, and the Central Intake is anticipated to begin in summer 2015 and continue in approximately six-month phases, with a total of four to six sequential phases. Construction of facilities on the third Stockdale project site would follow similar phasing but would occur at a later date, subsequent to Stockdale East and Stockdale West. Noise impacts from construction activities would be a function of the noise generated by construction equipment, the equipment location, and the timing and duration of the noise-generating activities. Construction would involve site clearing; demolition; excavation and backfill; construction of basins, conveyances, and recovery facilities; and site restoration. Each stage would involve the use of different kinds of construction equipment and, therefore, has its own distinct noise characteristics. As such, construction activity noise levels at and near the project site would fluctuate depending on the particular type, number, and duration of uses of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. **Table 3.12-1** shows typical exterior noise levels at various phases of commercial construction, and **Table 3.12-2** shows typical noise levels associated with various types of equipment.

TABLE 3.12-1
TYPICAL CONSTRUCTION NOISE LEVELS

Construction Phase	Noise Level (dBA, Leq)[a]
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

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

SOURCE: U.S. Environmental Protection Agency (EPA), 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*.

TABLE 3.12-2
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Levels (dBA at 50 feet)	
	Without Noise Control	With Feasible Noise Control [a]
Earthmoving		
Front Loaders	79	75
Backhoes	85	75
Dozers	80	75
Tractors	80	75
Scrapers	88	80
Graders	85	75
Trucks	91	75
Pavers	89	80
Material Handling		
Concrete Mixers	85	75
Concrete Pumps	82	75
Cranes	83	75
Derricks	88	75
Stationary Equipment		
Pumps	76	75
Generators	78	75
Compressors	81	75
Impact Equipment		
Pile Driver	101	95
Jack Hammer	88	75
Rock Drills	98	80
Pneumatic Tools	86	80
Other		
Saws	78	75
Vibrators	76	75

a. Feasible noise controls represent estimates obtained by using quieter procedures or equipment and noise control features that would require no major design or extreme cost. Quiet equipment can be designed with enclosures, mufflers, or noise-reduction features.

SOURCE: Bolt, Baranek and Newman, 1971

The noise levels shown in Table 3.12-1 represent composite noise levels associated with typical construction activities, which take into account both the number of pieces and spacing of heavy construction equipment that are typically used during each phase of construction. These estimated maximum noise levels would not be continuous, nor would they be typical of noise levels throughout the construction period. These noise levels would diminish notably with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 84 dBA Leq measured at 50 feet from the noise source to the receptor would reduce to 78 dBA Leq at 100 feet from the source to the receptor, and reduce by another 6 dBA Leq to 72 dBA Leq at 200 feet from the source to the receptor.

The nearest sensitive receptor to the Stockdale East and Stockdale West properties are single-family residences located on the north side of Stockdale Highway. The boundaries of these properties are approximately 800 feet from the property line of Stockdale West and approximately 200 feet from the property line of Stockdale East. The nearest sensitive receptor to

the Central Intake alignment is a residential property on the north side of Stockdale Highway approximately 300 feet west of the pipeline construction easement near the railroad crossing. Construction at Stockdale West would primarily involve well drilling, which would occur at a setback of approximately 880 feet from Stockdale Highway as shown in Figure 2-2. Noise levels due to well drilling would be 98 dBA at 50 feet without noise controls. Given the distance of the nearest residences from the project area, noise levels at a distance of 1600 feet from well drilling activities would be approximately 62 dBA. Construction at Stockdale East would also include well drilling as well as excavation to form recharge basins. Noise levels due to excavation would be 89 dBA at 50 feet without noise controls. At the nearest residences approximately 200 feet away, noise levels associated with excavation would be approximately 77 dBA. Noise levels associated with well drilling would be approximately 71 dBA at a distance of 1080 feet considering the required setback. Construction of the Central Intake would primarily involve excavation as well tunneling under Stockdale Highway and the railroad. Noise levels due to excavation at the nearest sensitive receptor 300 feet away would be approximately 74 dBA. Noise levels due to tunneling would be approximately 83 dBA. The third Stockdale project site would be identified within the additional site radius which encompasses primarily agricultural uses but also residential and commercial uses on the eastern portion of the area.

Kern County does not have regulations restricting construction noise levels. Therefore, construction activities at any of the Stockdale Properties or the Central Intake that would be in proximity to sensitive receptors would be operating in compliance with noise standards as set forth by the County and City.

In addition, construction activities associated with the proposed project would be short-term and phased and would be required to comply with the noise regulations as stated in the County Municipal Code. Construction activity for the proposed project would generally occur between 7:00 a.m. and 6:00 p.m., Monday through Friday, which would not violate the construction hours established in the County Municipal Code. The Kern County Code prohibits noise-producing construction activities that are audible to a person with average hearing ability within 150 feet of the construction site, or within 1,000 feet of an occupied residential dwelling, between the hours of 9:00 p.m. to 6:00 a.m. on weekdays, and 9:00 p.m. to 8:00 a.m. on weekends. All construction activities for the proposed project would not violate these restrictions. The only construction activity proposed beyond 9:00 p.m. would be 24-hour well drilling; however all proposed well drilling on Stockdale East and Stockdale West would be at a greater distance than 1,000 feet from any occupied residential dwelling. As such, construction-related noise would not exceed established noise standards and would be considered less than significant.

Operational activities would be passive and include movement of water through pipes and canals. Potential noise sources during operation may include the pump station and noise associated with vehicular trips for maintenance and monitoring activities. Maintenance would involve activities such as clearing debris and dredging recharge basins and vegetation management activities. Recharge basin maintenance would require transportation of minimal heavy equipment to the project site (e.g., backhoe and front loader) and a small maintenance crew. However, maintenance and monitoring activities would occur infrequently and are not anticipated to generate excessive noise that may impact sensitive receptors.

Impact Determination

Construction activities at the Stockdale Properties and the Central Intake would result in a temporary increase in noise levels in the project vicinity. Noise levels would be in accordance with the City and County noise standards for construction; there are no regulations restricting construction noise levels. Operational activities would not significantly increase noise levels and would not create noise impacts. Therefore, the proposed project would not expose sensitive receptors to noise levels in excess of established standards.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

Threshold 2. Groundborne Vibration

Impact NOISE-2: The proposed project could generate or result in excessive groundborne vibration or groundborne noise levels.

As shown in **Table 3.12-3**, use of heavy equipment (e.g., a large bulldozer) generates vibration levels of 0.031 PPV or 81 RMS at a distance of 50 feet. Ground-borne vibration attenuates quickly with distance; the RMS level from heavy equipment would be below the 80 RMS standard at about 60 feet, where RMS would be equal to 79. (The FTA has identified the human annoyance response to vibration levels as 80 RMS.) In addition, as shown in Table 3.12-3, vibration levels at 50 feet from heavy equipment would not exceed the potential building damage threshold of 0.5 PPV. Generally, given these distances, vibration levels would not be perceptible outside of the project construction areas at the Stockdale Properties and the Central Intake, given the requirements for setbacks from property boundaries. Additionally, there are no sensitive receptors located within 60 feet of Stockdale East, Stockdale West, or the Central Intake. The nearest sensitive receptor is approximately 200 feet from Stockdale East, 300 feet from the Central Intake alignment and 800 feet from Stockdale West. Construction-related vibration impacts would be less than significant.

TABLE 3.12-3
VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT

Equipment	PPV at 50 ft (inches/second)[a]	RMS at 50 ft (VdB)[b]
Large bulldozer	0.031	81
Caisson drilling	0.031	81
Loaded trucks	0.027	80

[a] Fragile buildings can be exposed to ground-borne vibration levels of 0.5 PPV without experiencing structural damage.
[b] The human annoyance response level is 80 RMS.

SOURCE: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006.

Operation of the proposed project would not have any components that would generate substantial vibration. Thus, impacts associated with vibration would be less than significant.

Impact Determination

The use of heavy equipment during construction at the Stockdale Properties and the Central Intake alignment would not exceed the vibration thresholds for human annoyance or for building damage due to attenuation and distance of sensitive receptors and structures. Impacts due to groundborne vibration would be less than significant.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

Threshold 3. Permanent Ambient Noise Levels

Impact NOISE-3: The proposed project could result in a substantial permanent increase in ambient noise levels in the project vicinity.

Operation of the proposed project facilities would be primarily characterized by movement of water through pipes, canals, and basins. Potential noise sources during operation may include the pump station and noise associated with vehicular trips for maintenance and monitoring activities. Maintenance would involve activities such as clearing debris and dredging recharge basins and vegetation management activities. Recharge basin maintenance would require transportation of minimal heavy equipment to the project site (e.g., backhoe and front loader) and a small maintenance crew. However, maintenance activities would occur infrequently and are not expected to substantially increase ambient noise levels in the area above existing levels without the proposed project. Monitoring activities would also be periodic and would not create a substantial increase in ambient noise levels.

Impact Determination

Operation of the proposed project would result in passive noise and include movement of water through pipes, canals, and basins. Noise generated by the proposed project facilities would be minimal and would not significantly increase ambient noise levels. Other operational activities would include routine maintenance and monitoring activities that would require the transportation of minimal heavy equipment to the project site, workers, and truck trips. Maintenance and monitoring activities would be infrequent and would not substantially increase ambient noise levels. Therefore, impacts to permanent ambient noise levels would be less than significant.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

Threshold 4. Temporary Ambient Noise Levels

Impact NOISE-4: The proposed project could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity.

As discussed above under Impact NOISE-1, noise temporarily generated during construction would not be subject to any noise standards or thresholds under the County regulations. Nonetheless, construction noise would result in a temporary or periodic increase in ambient noise levels in the project vicinity. As discussed previously, noise levels at the nearest sensitive receptors, which are approximately 800 feet north of Stockdale West, 200 feet north of Stockdale East, and 300 feet west of the Central Intake alignment, would be approximately 62 dBA during well drilling at Stockdale West, approximately 77 dBA during excavation at the northern boundary of Stockdale East, and approximately 74 dBA during excavation for the Central Intake. Noise levels due to tunneling under the railroad would be approximately 83 dBA. The exterior noise level established by the Kern County Noise Ordinance is 65 dBA. Construction noise would be below this level at sensitive receptors during project construction on Stockdale West, and as such, temporary increases in ambient noise would not be significant. Construction noise would be above this level at sensitive receptors along the northern boundary of Stockdale East and west of the Central Intake alignment. However, baseline conditions at Stockdale East include agricultural operations along with associated use of heavy farm machinery, such as tractors. It has been documented that noise from tractors can range from 85 dBA to 91 dBA (Bean, 2008). Such noise levels are similar to that associated with proposed construction activities, both in dBA and the intermittent time periods that such noise is generated. Thus, temporary increases in ambient noise levels due to project construction would be considered less than significant. No mitigation is required.

The location of the third Stockdale project site is not known and could be located in close proximity to residential land uses. As such, sensitive receptors could be exposed to substantial temporary increase in ambient noise level. To mitigate for such temporary noise, **Mitigation Measure NOISE-1** would require the construction contractor to locate equipment directed away from sensitive receptors, and maintain noise controls on standard construction equipment. With the implementation of Mitigation Measures NOISE-1, temporary construction noise impacts would be considered less than significant.

Impact Determination

Construction noise would expose sensitive receptors to temporary increases in ambient noise levels. Such noise impacts would be reduced to less than significant levels with implementation of noise controls on construction equipment and other best practices as required by NOISE-1. Impacts would be less than significant with mitigation.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

NOISE-1: To reduce temporary construction related noise impacts at the third Stockdale site, the following shall be implemented by the construction contractor:

a. Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.

b. Locate equipment staging in areas that will create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.

c. Ensure proper maintenance and working order of equipment and vehicles, and that all construction equipment is equipped with manufacturers approved mufflers and baffles.

d. Install sound-control devices in all construction and impact equipment, no less effective than those provided on the original equipment.

References – Noise

Bean, Thomas L., 2008. *FACT SHEET: Agriculture and Natural Resources, Noise on the Farm Can Cause Hearing Loss*. The Ohio State University Extension, AEX-590-08.

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Federal Energy Regulatory Commission (FERC), 2002. *California State Lands Commission, Kern River 2003 Expansion Project, Draft Environmental Impact Statement/Environmental Impact Report.*

Federal Railway Administration (FRA), 1998. High-Speed Ground Transportation Noise and Vibration Impact Assessment.

Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment.*

Kern County Planning Department, 2010. *Kern County General Plan Noise Element.*

United States Environmental Protection Agency (EPA), 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances.*

United States Environmental Protection Agency (EPA), 1978. *Protective Noise Levels. Condensed Version of USEPA Levels Document, USEPA 550/9-79-100.*

3.13 Transportation and Traffic

This chapter describes the existing transportation networks and traffic conditions in the project vicinity and the applicable regulatory framework. The effects of the proposed project on transportation and traffic are primarily temporary impacts during project construction.

3.13.1 Environmental Setting

Roadway Network

The project site is located in rural Kern County in the southern San Joaquin Valley west of Bakersfield, California. Kern County is a major transportation corridor that includes trucking routes, passenger vehicles, and railways. The roadway system in Kern County has been operating at acceptable conditions with isolated incidence of crowding. Kern County's roadway facilities consist of approximately 6,300 miles of highway. Together, Interstate 5 and the State highway system provide inter-regional connectivity to the project area from all directions (**Figure 3.13-1)**. Interstate 5 (I-5), State Route 99 (SR-99), and State Route 43 (SR-43) provide north-south access to the project area, and State Route 46 (SR-46) and State Route 58 (SR-58) provide east-west access to the project area. The project area also includes secondary arterial, collector, and local roads that serve regional and local transportation needs:

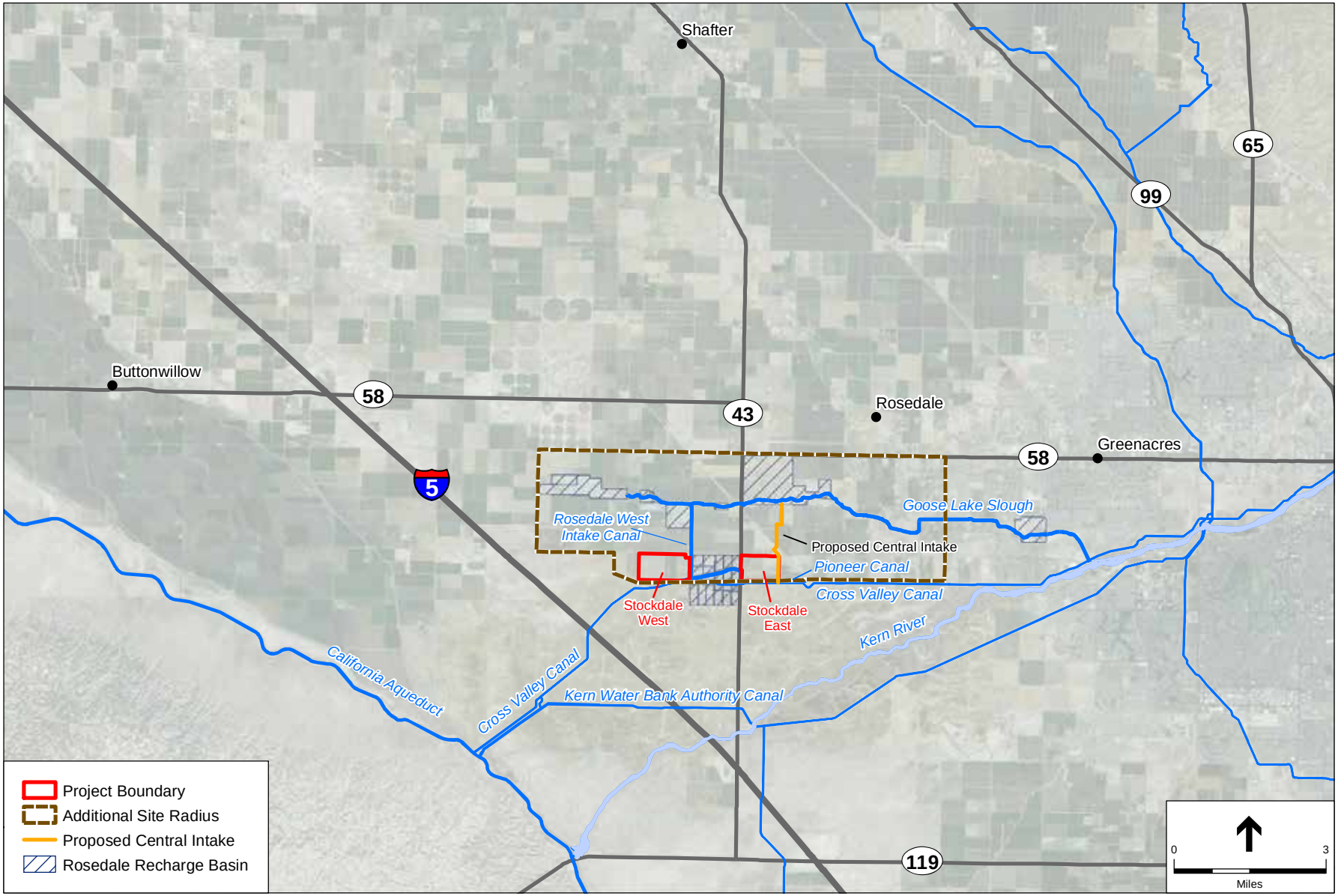
I-5 is a major north-south freeway that runs from the Mexican to Canadian border, connecting California, Oregon, and Washington. I-5 is approximately 8.5 miles from the project site.

SR-99 branches from I-5 south of Bakersfield and continues north through Fresno to Sacramento. SR-99 is a six-lane freeway in Kern County with sections of eight-lanes as it travels through Bakersfield.

SR-43 is a north-south trending highway that connects the towns of Shafter, Wasco, Hanford, and Selma. It runs parallel to SR-99. The route begins southwest of Bakersfield at the intersection of SR-119 and Enos Lane through rural farmland. SR-43 runs adjacent to Stockdale East and runs through the Stockdale additional site radius.

SR-46 begins at SR-99 and travels west through Wasco, into San Luis Obispo County over the Coast Range, through Paso Robles, and ending at U.S. Highway 1 near the coast. SR-46 is approximately 27 miles from the project site.

SR-58 begins in San Luis Obispo County, travels east through Kern County through Bakersfield and Mojave, and ends in San Bernardino County. SR-58 is approximately 13 miles from the project site.



SOURCE: ESRI 2013

Stockdale Integrated Banking Project . 211181

Figure 3.13-1

Regional Roadways

Truck Routes

Truck traffic contributes between 20 to 30 percent of traffic on Kern County roads (Kern County Planning Department, 2009). Several highways in Kern County consist of 30 percent of truck trips with a total County average truck vehicle miles traveled (VMT) of about 24 percent, which is higher than the state average of 10 percent. Most trucks traveling through Kern County are interstate carriers; interstate trucking is controlled and regulated by the California Department of Transportation (Caltrans).

Public Transit

Golden Empire Transit (GET) provides transit bus service to the Metropolitan Bakersfield area, including 88 buses and 20 routes (GET, 2012). Kern Regional Transit (KRT) provides transit bus service to outlying areas of Kern County with connections between Bakersfield, Wasco, Shafter, Buttonwillow, Kern River Valley, and other cities (Kern County Regional Transit Division, 2012). The Buttonwillow and Lost Hills-Bakersfield KRT routes are in the vicinity of the project site. KRT bus routes connect to GET but routes and to AMTRAK passenger trains. The AMTRAK station is located at Truxton Ave and S Street in Bakersfield. The AMTRAK San Joaquin Route originates in Bakersfield and connects to northern cities such as Fresno and Sacramento. There are no AMTRAK trains running south from Bakersfield (AMTRAK, 2007).

Two railroad lines cross through central Kern County, the Atchison, Topeka & Santa Fe Railroad (ATSFRR) and the Southern Pacific Railroad (SPRR) (Kern County Planning Department, 2009). Both lines run in a general north-south direction through Bakersfield. In the project vicinity, the Buttonwillow Branch of the SPRR runs west out of Bakersfield and crosses the Kern River, Cross Valley Canal, Stockdale Highway, and SR-58.

City and County Bikeways

Kern County developed and adopted the first Bikeways Plan in the mid 1970's that called for bicycle lanes on various streets, exclusive bike paths on canals, along railroad right-of-ways, and along the Kern River. The Kern County Bicycle Master Plan and Complete Streets Recommendations were adopted in September 2012. This plan also encompasses the Kern County Bicycle Facility Plan (2001). There are over 67 miles of existing bicycle facilities in the unincorporated parts of Kern County. This consists of over 25 miles of Class II Bike Lanes, over 38 miles of Class III Bike Routes, and three miles of Class I Bake Path along the Kern River. The Kern County Bicycle Master Plan proposes 751 miles of new bikeways. Over 30 miles of bike lanes exist along various streets including Stockdale Highway to California State University Bakersfield and surrounding main streets in Bakersfield (Kern COG, 2011). Bicycle facilities are classified as follows:

Bike Path (Class I): separate right of way with exclusive use of bicycles and pedestrians with crossflow minimized.

Bike Lane (Class II): striped lane for one-way bike travel on street or highway, and

Bike Route (Class III): shared use with pedestrian or motor vehicle traffic.

The nearest bikeway, the Kern River Bikeway, is a Class I bike path stretching over 12.3 miles through Bakersfield and is a major component of the Kern River Parkway. The Kern River Bikeway will be used as a backbone of a regional bikeway system.

Level of Service

Level of service (LOS) measures the quality of service provided by a roadway and is used to correlate quantitative traffic-volume data to qualitative descriptions of traffic performance at intersections. LOS criteria for roadways account for numerous variables, including annual average daily traffic, roadway capacity, grade, and environment (urban versus rural). **Table 3.13-1** provides a description of LOS categories "A" through "F" for intersections and highway capacity as defined by the Transportation Research Board (TRB, 2002). Within Kern County, county-maintained roads must achieve at least LOS D. The Caltrans standard for State highways is LOS C and LOS D (Kern County Planning Department, 2009).

Stockdale Highway is an east-west trending highway maintained by the County. Stockdale Highway experiences annual average daily traffic (AADT) of approximately 6,471 in the project vicinity (east of SR-43) (Kern Council of Governments, 2014).

Brimhall Road is an east-west trending roadway maintained by the County. Brimhall Road experiences AADT of approximately 610 in the project vicinity (east of SR-43) (Kern Council of Governments, 2014).

SR-43/Enos Lane is a north-south trending highway. SR-43 is maintained by Caltrans, experiences an AADT of approximately 5,900 in the project vicinity (junction of SR-58) (Caltrans, 2014).

I-5 Freeway is a north-south trending highway maintained by Caltrans. I-5 experiences AADT of 34,500 in the project vicinity (Stockdale Road) (Caltrans, 2014).

TABLE 3.13-1
LEVEL OF SERVICE DEFINITIONS

LOS Rating	Description	Signalized Intersections Delay (sec)	Highway Capacity Ratio
A	Free Flow. No approach phase is fully used by traffic and no vehicle waits longer than one red indication. Insignificant delays.	0-16	0.0-0.59
B	Stable Operation. An occasional approach phase is fully used. Many drivers begin to feel somewhat restricted within platoons of vehicles. Minimal delays.	16-22	0.6-0.69
C	Stable Operation. Major approach phase may become fully used. Most drivers feel somewhat restricted. Acceptable delays.	22-28	0.7-0.79
D	Approaching Unstable. Drivers may have to wait through more than one red signal cycle. Queues develop but dissipate rapidly, without excessive delays.	28-35	0.8-0.89
E	Unstable Operation. Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection. Significant delays.	35-40	0.9-0.99
F	Forced Flow. Represents jammed conditions. Intersection operates below capacity with several delays; may block upstream intersections.	greater than 40	N/A

SOURCE: TRB, 2002.

3.13.2 Regulatory Setting

The development and regulation of the transportation network in the vicinity of the proposed project primarily involves state and local jurisdictions. All roads within the project area are under the jurisdiction of state and local agencies. Applicable state and local laws and regulations related to traffic and transportation issues are discussed below.

State

California Department of Transportation (Caltrans)

Caltrans manages interregional transportation, including management and construction of the California highway system. In addition, Caltrans is responsible for permitting and regulation of the use of state roadways. The project area includes roadways that fall under Caltrans' jurisdiction (e.g., I-5, SR-99, and SR-43). Caltrans' construction practices require temporary traffic control planning "during any time the normal function of a roadway is suspended" (FHWA, 2008). In addition, Caltrans requires that permits be obtained for transportation of oversized loads and transportation of certain materials, and for construction-related traffic disturbance.

Local

Kern County Circulation Element

The proposed project is located within Kern County and is governed by the Kern County General Plan (Kern County Planning Department, 2009). The Circulation Element of the County General Plan includes goals and policies for transportation planning and development of facilities to support development in a manner that avoids traffic degradation, reduces environmental effects, and maintains quality of life (Kern County Planning Department, 2009). The County has set a goal of maintaining a minimum LOS D for all roads throughout the County.

Kern County Traffic Department, Traffic Engineering Division

The Kern County Traffic Engineering Division has responsibility for growth and transportation planning issues, rural public transportation planning, and development review. This division coordinates with Kern Council of Governments, Caltrans and other agencies to procure project funding. They also review transportation-related issues on land development matters, developer fees and areas of benefit.

Kern Council of Governments Congestion Management Program

All urbanized areas with a population larger than 200,000 are required to have a Congestion Management System, Program, or Process. The Kern Council of Governments (COG) refers to its congestion management activities as the Congestion Management Program (CMP). Kern COG was designated as the Congestion Management Agency. The CMP is a systematic process for managing congestion that provides information on: (1) transportation system performance, and (2) alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs.

The purpose of the CMP is to help ensure that a balanced transportation system is developed that relates population growth, traffic growth and land use decisions to transportation system LOS performance standards and air quality improvement. The CMP is an effort to more directly link land use, air quality, transportation and the use of new advanced transportation technologies as an integral and complementary part of this region's plans and programs.

The purpose of defining the CMP network is to establish a system of roadways that will be monitored in relation to established LOS standards. At a minimum, all state highways and principal arterials must be designated as part of the Congestion Management System of Highways and Roadways. Kern County has 18 designated state highways.

2011 Regional Transportation Plan

The Regional Transportation Plan (RTP) was prepared by the Kern COG, and was adopted in July 2010. The 2011 RTP is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, state, and federal agencies. Kern COG prepared the 2011 RTP to include the CMP, which is designed to ensure that a balanced transportation system is developed, relating population and traffic growth, land use decisions, performance standards and air quality improvements. Additionally, the RTP establishes a basis on which funding applications are evaluated. Use of any state or federal transportation funds by local governments must conform to the RTP, the State Implementation Plan (SIP) for air quality improvements, and the Federal Transportation Improvement Program (FTIP) (Kern COG, 2011).

Kern County Airport Land Use Compatibility Plan (ALUCP)

The Kern County ALUCP establishes procedures and criteria to assist Kern County and affected incorporated cities in addressing compatibility issues for the proposed project regarding airports and the land uses around them. The nearest airport to the project site is Joe Gottlieb Field, a private airfield, located approximately 5.5 miles to the west. The nearest public airport is Elk Hills-Buttonwilliow Airport approximately 15 miles west of the project site. Meadows Field Airport, approximately 20 miles northeast of the project site and is the primary commercial and international airport serving the county and the San Joaquin Valley. The project site is not within the Kern County ALUCP.

3.13.3 Impact Assessment

Thresholds of Significance

The following criteria from Appendix G of the *CEQA Guidelines* are used as thresholds of significance to determine the impacts of the proposed project as related to transportation and traffic. The proposed project would have a significant impact if it would:

1. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes

of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

2. Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
3. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks.
4. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
5. Result in inadequate emergency access.
6. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Effects Found Not to be Significant

Threshold 3. Air Traffic Patterns

The proposed project does not include new or altered airport facilities and would not affect air traffic patterns. There would be no impact.

Threshold 6. Alternative Transportation and Policies

Public transportation is supported by several public transit services include the GET and KRT transit bus service, and the AMTRAK train system. No GET or KRT transit bus stops are located in the project vicinity. The closest bikeway to the project area would be the Kern River Bikeway, which extends along the Kern River and is approximately three miles south of the project area. A Class II bike lane on Stockdale Highway also begins approximately four miles west from the Stockdale Properties, and approximately a half mile west from the potential third site radius boundary. Construction of the proposed project would require truck trips along Stockdale Highway; however, all staging areas and construction activities would be located onsite at the Stockdale Properties and are not anticipated to impact public transit, bicycle, or pedestrian facilities. As the Kern River Bikeway and bike lane is more than three miles from the project area, the bikeway facility would not be impacted by project construction or operation. Therefore, impacts to alternative transportation and policies and plans would not occur.

Impacts and Mitigation Measures

Threshold 1. Traffic Circulation

Impact TR-1: The proposed project could conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.

During project construction, additional vehicles would be added to local and regional roadways for purposes of construction worker commutes and delivery of construction equipment and

materials. Construction of the proposed project would require up to twenty construction workers during each construction phase. Other construction-related vehicles would include water trucks, flat-back delivery trucks, and 10-wheel dump trucks. Other large construction equipment and vehicles would be delivered to the site via flat-bed trucks. Construction-related vehicles would travel to and access the project sites via Stockdale Highway, SR-43/Enos Lane, and the I-5 Freeway. All construction vehicles and equipment would be staged onsite at the Stockdale Properties.

The Stockdale Highway, SR-43/Enos Lane, and the I-5 Freeway currently experience AADTs of 6,471, 5,900, and 34,500, respectively, in the project area (Caltrans, 2014). The daily increase of 20 construction worker commutes is not anticipated to affect the performance of the circulation system, as the increase in AADTs would be less than one percent on each roadway. Other construction-related vehicles would be delivered to the project sites and remain staged onsite for the duration of a construction phase and would not affect local traffic or circulation. Construction of the Central Intake Pipeline would require trenching across Brimhall Road, which would require short-term lane or road closures or detours. Jack and bore methods would be used to tunnel under Stockdale Highway and avoid disturbance of this roadway. Trenching across Brimhall Road would take no longer than two weeks. Implementation of **Mitigation Measure TR-1** would require inclusion of measures into the project's Construction Traffic Control Plan that ensure Rosedale provides signage and flagging to alert motorists of pending lane or road closures and detours. Given the short-term nature of such an effect on traffic flow, the effect of lane or roadways closures or detours on roadways circulation would be considered less than significant. Because construction of the proposed project would not substantially increase traffic on nearby roadways, the proposed project would not conflict with any applicable plans, ordinances, or policies that establish measures of effectiveness for the performance of the circulation system around the project site. Therefore, the construction phase of the proposed project would have a less than significant impact on traffic circulation.

Project operation would result in infrequent trips related to maintenance and monitoring activities at the project sites. Occasional maintenance and monitoring activities, such as clearing debris and dredging recharge basins, would not substantially increase traffic in the project area. During project operation, monitoring crews would visit the project site periodically to perform routine inspections of conveyance structures, recharge basins, wells, pumps, and other project facilities. Project monitoring would require minimal visits to the site and would not substantially affect surrounding roadways. Recharge basin maintenance would require transportation of minimal heavy equipment to the project site (e.g., backhoe and front loader) and a small maintenance crew. The increase of vehicle trips would be minimal and would not substantially increase traffic volumes on Stockdale Highway or other adjacent roadways and highways.

The operations phase of the proposed project would not impact the existing LOS of project-related roadways, and project implementation would not conflict with the goals set forth by the Kern County General Plan or any other applicable ordinance or policy that set forth to measure the effectiveness of the circulation system in the vicinity of the project site. Therefore, the

operations phase of the proposed project would have a less than significant impact on traffic circulation.

Impact Determination

Construction and operation of the proposed project would not substantially alter traffic volume on roadways in the project vicinity. During construction of the Central Intake Pipeline across Brimhall Road, implementation of Mitigation Measure TR-1 would ensure motorists are aware of short-term lane or road closures or detours. The proposed project would not conflict with applicable policies or ordinances establishing effectiveness for the performance of the circulation system. Impacts would be less than significant.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

TR-1: For project features that require open-trench construction across roadways, the Construction Traffic Control Plan for the proposed project shall include measures that ensure Rosedale provides signage and flagging to alert motorists of pending and actual lane or road closures and detours. Such measures shall conform to the requirements of the Kern County Roads Department and any requirements of related encroachments permits.

Threshold 2. Level of Service Standards

Impact TR-2: The proposed project could conflict with an applicable congestion management program and reduce the level of service of surrounding roads and highways.

In general, LOS standards for roadways are intended to regulate long-term traffic increases resulting from the operation of new development, and do not apply to temporary construction projects. Therefore, for the proposed project, temporary construction-generated traffic would not result in any long-term degradation in operation conditions of LOS on any nearby roadways Operation of the proposed project would generate minimal traffic as a result of occasional truck trips related to onsite maintenance and monitoring activities. As a result, the proposed project would maintain the current levels of service on roadways surrounding the Stockdale Properties. The proposed project would be in compliance with established Kern County General Plan LOS Standards. Therefore, impacts related to congestion and levels of service to surrounding roads and highways would be less than significant, and no mitigation is required.

Impact Determination

Operation of the proposed project would result in a minimal increase of maintenance vehicle trips on Stockdale Highway, SR-43, and other surrounding roadways. The increase in vehicle trips would not affect the existing level of service. There would be no conflict with applicable congestion management programs, and no mitigation is required.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

Threshold 4. Hazardous Design Features

Impact TR-3: The proposed project could result in a substantial increase to hazards due to a design feature or incompatible uses.

Project construction would require the delivery of heavy construction equipment that may require transportation by oversize vehicles on roadways. The use of oversize vehicles could create a hazard to the public by limiting views on the roadways, obstructing space, and reducing travel speed on the roadway. To ensure that construction-related oversize vehicle loads and travel are in compliance with applicable California Vehicle Code sections and California Street and Highway Codes applicable to licensing, size, weight, load, and roadway encroachment of construction vehicles, the construction contractor would prepare a Construction Traffic Control Plan that conforms to requirements of the Kern County Roads Department and the California Department of Transportation District 6. The Construction Traffic Control Plan would identify construction delivery times and vehicle travel routes in advance to minimize construction traffic during peak a.m. and p.m. hours. The preparation and approval of the Construction Traffic Control Plan would further reduce construction-related traffic and roadway hazards in the project vicinity. **Mitigation Measure TR-2** would ensure the Construction Traffic Control Plan is developed prior to construction for approval.

The third Stockdale project site has not yet been determined but would be located within the additional site radius. The Rio Bravo Greeley School located at 6601 Enos Lane, is adjacent to the northern boundary of the additional site radius at the cross streets of Enos Lane and Rosedale Highway. In the event the third Stockdale project site is to be located within a quarter mile of the school, impacts related to the construction and operation of the proposed project could occur. Implementation of **Mitigation Measure HAZ-4** would require coordination with the Rio Bravo-Greeley Union School District to determine a haul route that would not impact existing school safety routes.

Impact Determination

The transportation of construction-related equipment may require the use of oversize vehicles. The construction contractor would prepare a Construction Traffic Control Plan for approval to ensure construction-related oversize vehicle loads and travel are in compliance with applicable California Vehicle Code sections and California Street and Highway Codes. Mitigation Measure TR-2 would ensure the Construction Traffic Control Plan is prepared and implemented. Mitigation Measure HAZ-4 would require coordination with the Rio Bravo-Greeley Union School District, if the third Stockdale project site is within 0.25 miles of a school, to determine a haul route that would not impact

existing school safety routes. Operation of the proposed project would not increase hazards due to project design features. Therefore, impacts would be less than significant with mitigation.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

TR-2: IRWD and Rosedale shall require the construction contractor to prepare and implement a Construction Traffic Control Plan that conforms to requirements of the Kern County Roads Department, California Department of Transportation District 6, and the California Department of Transportation Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook. The construction contractor shall obtain all necessary permits for the work within the road right-of-way or use of oversized/overweight vehicles that will utilize county maintained roads, which may require California Highway Patrol or a pilot car escort.

Implement **Mitigation Measure HAZ-4**.

Threshold 5. Emergency Access

Impact TR-4: The proposed project could result in inadequate emergency access.

The Stockdale Properties and the Central Intake alignment are located in a rural agricultural area with adequate egress and ingress to the sites via Stockdale Highway, Rosedale Highway, Enos Lane (SR-43), Brimhall Road, and Superior Road in the event of an emergency. Construction of the Central Intake Pipeline would be accomplished using trenching construction techniques across Brimhall Road, which may require temporary lane closures or a detour. The Central Intake Pipeline crossings of Stockdale Highway and the Southern Pacific Railroad would utilize jack and bore techniques to avoid disruption of surface transportation features. The proposed project would not require public road closures that could impact access by emergency vehicles. However, construction-related traffic could affect emergency response to the project site and surrounding vicinity. A pet resort business and several residences are located near the Stockdale East site. The third Stockdale project site similarly could be located near residential land uses. To ensure emergency access is not impacted during construction in the project vicinity, Rosedale and IRWD would require the construction contractor to prepare a Construction Traffic Control Plan that would include assurance of access for emergency vehicles to the project site. Mitigation Measure TR-2 would ensure the Construction Traffic Control Plan is prepared and implemented by the contractor.

Dirt roads would be constructed at Stockdale East and the third property and run along the perimeter of and in between all basins for access during operation and maintenance activities. Similar dirt roads currently exist at the Stockdale West property. These dirt roads would be constructed and accessible for emergency access within the project site, if necessary.

Impact Determination

Preparation and implementation of a Construction Traffic Control Plan in accordance with Mitigation Measure TR-2 would ensure emergency access is not impacted during construction. Proposed and existing dirt roads around and in between the project recharge basins would also accommodate emergency vehicles and access in case of emergencies at the Stockdale properties. Therefore, impacts to emergency access would be less than significant.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

Implement **Mitigation Measure TR-2**.

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3.14 Utilities and Energy

This chapter describes the existing utilities and energy in the vicinity of the proposed project and determines the potential impacts that would occur with project implementation.

3.14.1 Environmental Setting

Water

The majority of Metropolitan Bakersfield is served by the California Water Service Company (CWSC), a privately held public utility, which obtains its water supply principally from wells and is supplemented by the Kern County Water Agency (KCWA). Currently, water utilized at Stockdale East and Stockdale West is supplied by on-site agricultural wells. Additional information about these wells is provided in **Chapter 3.9, Hydrology and Water Quality**.

Water supply for the Metropolitan Bakersfield area is provided through both surface water and groundwater, each of which has several sources. Surface water supply for the Metropolitan Bakersfield areas comes from the Kern River and SWP, all of which must be treated prior to distribution (City of Bakersfield and Kern County, 2002). There are currently three surface water treatment plants in Metropolitan Bakersfield, one facility owned and operated by the KCWA Improvement District 4 with a peak capacity of 90 mgd, and two CWSC treatment plants with 20 mgd and 1.5 mgd (membrane) capacities. Each plant uses a combination of chemical addition, settling, filtration, and disinfection to produce water of acceptable quality.

The Southern San Joaquin Groundwater Basin and the primary groundwater aquifer below Metropolitan Bakersfield provide a substantial source of potable water to the Metropolitan Bakersfield area. Groundwater resources in the project area are described in greater detail in **Chapter 3.9, Hydrology and Water Quality**.

Wastewater / Sewer

The planning area is served by five major wastewater treatment facilities: the City of Bakersfield's Treatment Plant No. 2, the City's Treatment Plant No. 3, the North of River Sanitary District (NORSD) plant, Mount Vernon/Panorama District plant, and the Lamont Public Utility District plant, which is located outside the planning area. Neither Stockdale East, Stockdale West, nor the Central Intake alignment are connected to a local sewer system. The third Stockdale project site has yet to be determined but would be located within the site radius shown in Figure 2-2.

Solid Waste

Solid waste collection services (residential and commercial) are provided within the City of Bakersfield by the City Sanitation Division and contracted private haulers and, in the unincorporated area, by a county franchise hauler. All solid waste generated within the Metropolitan Bakersfield is disposed of in county-operated landfills. Currently two County

landfills are in operation to dispose of waste generated within Metropolitan Bakersfield: Bena and Shafter-Wasco. The landfills are located outside of City limits within Kern County.

Bena Landfill is located approximately 18 miles east of Bakersfield and is the primary landfill that serves Bakersfield. Currently the landfill has a maximum permitted capacity of 46,239,605 cubic yards and the current daily limits are 1,150 tons per day. In 2013, the remaining capacity was 33,144,497 cubic yards. The landfill will go inactive in 2046 (Personal communication, December 23, 2013).

Shafter-Wasco Landfill is located one mile north of Lerdo Highway on Scofield Avenue in Kern County. Currently the landfill has a maximum permitted capacity of 21,895,179 cubic yards and the current daily limits are 345 tons per day. In 2013, the remaining capacity was 14,729,755 cubic yards. The landfill will go inactive in 2059 (Personal communication, December 23, 2013).

Energy

The electrical system in Kern County is supplied by three of California's largest utilities: Pacific Gas & Electric (PGE), Southern California Edison, and Southern California Gas. PGE currently serves Stockdale East, Stockdale West, and the additional site radius identified for the third Stockdale project site and Central Intake (California Energy Commission, 2007). Electrical generation technologies present in Kern County include: cogeneration, wind energy, geothermal energy, biomass/transformation, solar energy, and hydroelectric.

3.14.2 Regulatory Setting

State

California Energy Commission (CEC)

The CEC regulates the provision of natural gas and electricity within the state. The CEC is the state's primary energy policy and planning agency. Created in 1974, the CEC has five major responsibilities: forecasting future energy needs and keeping historical energy data, licensing thermal power plants 50 megawatts (MW) or larger, promoting energy efficiency through appliance and building standards, developing energy technologies and supporting renewable energy, and planning for and directing the state response to energy emergencies.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies, in addition to authorizing video franchises. In 1911, the CPUC was established by Constitutional Amendment as the Railroad Commission. In 1912, the Legislature passed the Public Utilities Act, expanding the Commission's regulatory authority to include natural gas, electric, telephone, and water companies as well as railroads and marine transportation companies. In 1946, the Commission was renamed the California Public Utilities Commission. It is tasked with ensuring

safe, reliable utility service is available to consumers, setting retail energy rates, and protecting against fraud.

2005 California Energy Action Plan II and 2008 Update

The California Energy Action Plan II is the state's principal energy planning and policy document (California Energy Commission, 2005 updated 2008). The plan identifies state-wide energy goals, describes a coordinated implementation plan for State energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. In accordance with this plan, the first priority actions to address California's increasing energy demands are energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation (i.e., the use of relatively small power plants near or at centers of high demand). To the extent that these actions are unable to satisfy the increasing energy and capacity needs, clean, and efficient fossil-fired generation is supported.

California Urban Water Management Planning Act

Section 10610 of the California Water Code establishes the Urban Water Management Planning Act. The act states that every urban water service provider that serves 3,000 or more customers or that supplies over 3,000 acre-feet of water annually should prepare an Urban Water Management Plan (UWMP) every five years. The goal of a UWMP is to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. IRWD certified its latest UWMP in November 2010.

Regional Water Quality Control Board (RWQCB)

The primary responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and nine RWQCBs. The SWRCB sets statewide policy for the implementation of state and federal laws and regulations. The RWQCBs adopt and implement Water Quality Control Plans (Basin Plans) which recognize regional differences in natural water quality, actual and potential beneficial uses, and water quality problems associated with human activities. The project sites are within the jurisdiction of the Central Valley Region.

California Department of Toxic Substances Control (DTSC)

The DTSC regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California. Over 1,000 scientists, engineers, and specialized support staff make sure that companies and individuals handle, transport, store, treat, dispose of, and clean up hazardous wastes appropriately.

California Department of Water Resources (DWR)

The California DWR is a department within the California Resources Agency. The DWR is responsible for the State of California's management and regulation of water usage.

Integrated Solid Waste Management Act of 1989 (Public Resources Code 40050, et seq.) or Assembly Bill 939

Pursuant to the California Integrated Solid Waste Management Act of 1989, all cities in California are required to reduce the amount of solid waste disposed in landfills. Assembly Bill 939 required a reduction of 25 percent by 1995 and 50 percent by 2000. Contracts that include work that will generate solid waste, including construction and demolition debris, have been targeted for participation in source-reduction, reuse, and recycling programs. The contractor is urged to manage solid waste generated by the work to divert waste from disposal in landfills (particularly Class III landfills) and maximize source reduction, reuse, and recycling of construction and demolition debris.

California Solid Waste Reuse and Recycling Access Act of 1991 (California Public Resources Code Chapter 18)

The California Solid Waste Reuse and Recycling Access Act identified a lack of adequate areas for collecting and loading recyclable materials, resulting in a significant impediment to diverting solid waste. This act requires state and local agencies to address access to solid waste for source reduction, recycling, and composting activities. Each local agency must adopt an ordinance related to adequate areas for collecting and loading recyclable materials for development projects.

Local

Kern County General Plan

The Kern County General Plan provides guidance on public utilities and related services (Kern County, 2004). Sections of the plan that are relevant to the proposed project are included below.

1.4 Public Facilities and Services

Goal 1: Kern County residents and businesses should receive adequate and cost effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the proposed project.

Policy 1: New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.

Policy 3: Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.

Implementation Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Implementation Measure D: Involve utility providers in the land use and zoning review process.

Implementation Measure L: Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.

Metropolitan Bakersfield General Plan EIR

The Metropolitan Bakersfield General Plan Update EIR provides background information on utilities and public services dealing with the present and planned land uses in the area, probable need for public facilities and services in the area, and the present capacity of public facilities and adequacy of public services.

The Metropolitan Bakersfield General Plan Update provides background information on utilities and public services dealing with the present and planned land uses in the area, probable need for public facilities and services in the area, and the present capacity of public facilities and adequacy of public services.

3.14.3 Impact Assessment

Thresholds of Significance

The following criteria from Appendix F and Appendix G of the *CEQA Guidelines* are used as thresholds of significance to determine the impacts of the proposed project as related to utilities and energy. The proposed project would have a significant impact if it would:

1. Exceed wastewater treatment requirements of the applicable Regional Water Quality Board;
2. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
3. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
4. Require new or expanded water supply resources or entitlements;
5. 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;
6. Be served by a landfill with insufficient permitted capacity to accommodate the project solid waste disposal needs; or
7. Not comply with federal, state, and local statutes and regulations related to solid waste.
8. Result in a substantial increase in overall or per capita energy consumption.
9. Conflict with applicable energy efficiency policies or standards.

Effects Found Not to be Significant

Thresholds 1 / 2 / 5. Wastewater Treatment and Wastewater Facilities

No new water, wastewater treatment, or septic systems would be constructed as a result of the proposed project. The proposed project would not permanently increase wastewater generation in the project area and would not be subject to wastewater treatment requirements of the Central Valley Regional Water Quality Control Board. The proposed project would not produce wastewater and would not require a wastewater treatment provider to serve the project. Therefore, the proposed project at Stockdale East, Stockdale West, the Central Intake, and the third Stockdale project site would have no impact on wastewater treatment facilities.

Threshold 3. Stormwater Facilities

The proposed project would construct new recharge basins at Stockdale East and the third Stockdale project site. These basins would be constructed similar to the existing basins on Stockdale West, with the bottom of the basin below grade and earthen berms built up above grade to contain water to be recharged. The existing and proposed basins associated with the proposed project would contain any storm water onsite at the Stockdale Properties. The project would also include construction of the Central Intake Pipeline, which would be located below the ground surface and thereby would not contain storm water runoff. There would be no increase in storm water runoff that would require construction or expansion of storm water drainage facilities. No storm water facilities would be constructed and as such no corresponding environmental effects would occur.

Threshold 7. Solid Waste Regulations

The proposed project is a water recharge project that would not result in the construction of facilities or developments that would generate solid waste. The proposed project may result in export of soil and other materials extracted to construct recharge basins and conveyance structures, and all work would be conducted in compliance with all federal, state, and local statutes and regulations related to solid waste and its disposal.

Impacts and Mitigation Measures

Threshold 4. Water Supplies

Impact UTIL-1: The proposed project could require new or expanded water supply resources or entitlements.

The proposed project does not require a new water supply. Water used for recharge as part of the proposed project would be conveyed to/from Stockdale East and Stockdale West via the CVC, Rosedale's West Intake Canal, and the proposed Central Intake Pipeline. In addition, other regional facilities may be used to move water to/from the project sites, such as the Pioneer Canal, subject to any available capacity and any necessary approvals. Once the third Stockdale project site is identified, conveyance options would be determined.

The source for recharge waters for the proposed project could potentially include federal, state, and local sources as described in **Chapter 2, Project Description**. Water sources could include, but are not limited to, the CVP, SWP, Metropolitan Water District of Southern California, and appropriative water rights including pre-1914 and post-1914 water rights, and other Kern River water depending on availability. Sources of water to serve as recharge waters would be available only during certain conditions and subject to the requirements of DWR, SWRCB and the water rights' holders. Agreements would be made, as necessary, in advance of any water exchanges or transfers.

Pre-1914 and post-1914 water rights can be transferred to other parties as long as legal users of water are not injured ("no injury rule," per Water Code Sections 1706 and 1702). The SWRCB supervises changes to post-1914 water rights, but not pre-1914 water rights. In addition, for transfers of post-1914 water rights, the SWRCB must make a finding that the transfer will not result in unreasonable effects on fish or wildlife or other in-stream beneficial uses (SWRCB, 1999). The "no unreasonable effect" test is not the same as the evaluation of significant impacts under CEQA (SWRCB, 1999). Should the use of such post-1914 appropriative water rights require evaluation of impacts to legal users and other environmental considerations, additional analysis may be required. Otherwise, given that transfers of appropriative water rights are subject to the approval of the transferring agency, and at times the SWRCB, and that the water code requires a finding of no injury, and at times a finding of no unreasonable effect, the uses of such waters for recharge would not result in significant impacts.

The unregulated high-flow Kern River water captured under the project for recharge would consist of water that would otherwise have left Kern County or created flooding conditions. Therefore, relative to baseline conditions, the use of unregulated high-flow Kern River water for recharge would not result in significant impacts to other legal users of water.

Impact Determination

The proposed project does not require a new water supply. No impacts to water rights holders, other water suppliers, or other public utilities would occur from the purchase, exchange, or transfer of water from the sources identified in Section 2.4.2 of Chapter 2. Should water from other sources not suggested in Section 2.4.2 of this EIR be acquired for recharge, additional analysis may be required subject to the discretion of Rosedale and IRWD. Impacts would be less than significant.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

Threshold 6. Landfill Capacity

Impact UTIL-2: The proposed project could require additional landfill capacity.

As mentioned previously, recharge facilities on Stockdale West have already been constructed and minimal soil would be excavated onsite to construct proposed wells and the Stockdale West Turnout. Construction of the recharge and recovery facilities on Stockdale East and the Central Intake Pipeline, along with the pump station and CVC turnout, would generate excavated soils and construction debris. During formation of the recharge basins, excavated soils would be used to create the berms around the recharge basins, such that no landfill capacity would be needed for disposal of excess soils. Construction of recovery wells, the pumps station and turnout, and the Central Intake Pipeline would generate some excess excavated soils. Excess soils, non-hazardous construction refuse, and solid waste would be either collected and recycled or disposed at one of two local landfills, either Bena Landfill or Shafter-Wasco Landfill, approximately 20-25 miles from the project site. Both landfills have a capacity of 4,500 and 334 tons per day, respectively, which would allow sufficient room for construction and solid waste from Stockdale East and the Central Intake, and any potential solid waste generated at the third Stockdale project site. Any potentially contaminated soils at Stockdale East or the Central Intake alignment associated with neighboring oil extraction operations or historical agricultural pesticide or fertilizer use would be removed and disposed in accordance with all federal, state, and local hazardous materials regulations. See Chapter 3.8, Hazards and Hazardous Materials for more information. The proposed project would be required to comply with all federal, state, and local statutes and regulations related to solid waste.

Impact Determination

Construction of the proposed project is not expected to generate a substantial amount of waste that would exceed the capacity of local landfills. Operation of the proposed project would not generate any solid waste. The proposed project would not require the creation of additional landfill capacity; construction-related waste would be accommodated at the two existing local landfills. Impacts would be less than significant.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

Thresholds 8 / 9. Energy Consumption

Impact UTIL-3: The proposed project could result in a substantial increase in energy consumption that could affect local and regional energy supplies.

Energy intensity (kwh/AF) is a measure of the amount of energy required to perform water management activities, such as pumping, groundwater extraction, conveyance, and treatment (CEC, 2005). Once constructed, the proposed project would involve recharge of source waters and extraction of groundwater, and conveyance of water resources to/from the proposed project via local and regional canals, channels, and the California Aqueduct. The potential impact of this action is based on the amount of energy required to convey, recharge, and extract water.

The majority of operational activity associated with the proposed project would involve the passive, gravity driven movement of water through pipes and basins. During the recharge phase, electric pumps would be required to boost water to/from recharge basins; the pumps would be powered by the existing electrical grid served by PGE. Recovery operations would involve extraction of water at Stockdale East and Stockdale West through five proposed recovery wells. Recovery activities would also be powered by the existing electrical grid. The maximum amount of energy expended per AF of water (kwh/AF) at Stockdale East and Stockdale West is shown in **Table 3.14-1**. The location of the third Stockdale project site has yet to be determined along with its ultimate size; energy use at the third Stockdale project site would likely be at an energy intensity similar to Stockdale East and Stockdale West. It is anticipated that activities on the third Stockdale project site would also be powered by the existing electrical grid.

TABLE 3.14-1
ESTIMATED MAXIMUM OPERATIONAL ENERGY CONSUMPTION

	Annual Energy Consumption	Energy Intensity
Recharge Activities*		
Stockdale West (27,100 AF/year)	813,000 kwh/year	30 kwh/AF
Stockdale East (19,000 AF/year)	570,000 kwh/year	30 kwh/AF
Other Recharge via Central Intake (10,000 AF/year)	600,000 kwh/year	60 kwh/AF
Recovery Activities		
Stockdale West (11,250 AF/year)	Up to 3,375,000 to 6,187,500 kwh/year	300 to 550 kwh/AF
Stockdale East (7,500 AF/year)	Up to 2,250,000 to 4,125,000 kwh/year	300 to 550 kwh/AF

* Energy for recharge activities would be used primarily for pumps.

SOURCE: ESA, 2013; Thomas Harder, 2013 (Appendix E to this DEIR)

Typically, recharge activities and recovery activities would not occur simultaneously. In some years, neither recharge nor recovery would occur. Energy consumption thus would not necessarily be regular or sustained over time. With respect to energy intensity, typical energy use associated with groundwater supply and conveyance ranges from 225 to 585 kwh/AF, as a national average (CEC, 2005). The energy intensity for the proposed project falls within this range, with energy intensities for recharge activities estimated at 30 to 60 kwh/AF and 300 to 550 kwh/AF for recovery activities. According to the CEC, the energy intensity of different groundwater sources varies, depending on both the depth at which groundwater resides and the

efficiency of the pumps and motors used to pump it. In addition, in the context of energy intensity and benefits to the state, the primary benefit of groundwater is the ability to offset the high energy intensity of SWP deliveries in summer and fall. Groundwater banking and conjunctive use projects promote such strategies by recharging imported water during wet periods for later extraction during dry periods, either summer/fall months or drought periods when surface supplies are low (CEC, 2005).

Impact Determination

Implementation of the proposed project at Stockdale East, Stockdale West, the Central Intake alignment, and at the third Stockdale project site would intermittently increase demands on local energy providers. The demands to the electrical grid would not be as constant as residential, commercial or industrial uses due to the irregular use of the recharge and recovery facilities. It is not anticipated that additional power generation facilities would be required to serve the proposed project, or that the demand would exceed capacity of energy providers. IRWD and Rosedale will be required to engage PGE though the normal processes of establishing services to ensure adequate power supplies are provided to the project sites. This process has already been initiated.

To minimize the energy intensity of the proposed project and the impact on local power supply providers while also supporting policies of the California Energy Action Plan II, the proposed project would incorporate energy efficient equipment such as system pumps and motors in accordance with **Mitigation Measure UTIL-1**. Such energy efficiency measures would reduce the overall power requirements associated with the proposed project. With implementation of Mitigation Measure UTIL-1, impacts to local and regional energy supplies would be considered less than significant.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

UTIL-1: IRWD and Rosedale shall install energy efficient equipment, including pumps and motors, for operation of the proposed project.

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CHAPTER 4
Cumulative Impacts

4.1 Introduction

CEQA Analysis Requirements

CEQA requires that an EIR assess the cumulative impacts of a project with respect to past, current, and probable future projects within the region. *CEQA Guidelines,* Section 15355, define cumulative effects as "two or more individual effects that, when considered together, are considerable or which compound or increase other environmental impacts." Pertinent guidance for cumulative impact analysis is given in Section 15130 of the *CEQA Guidelines*:

- An EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable", (i.e., the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of current projects, and the effects of probable future projects, (including those outside the control of the agency, if necessary).
- An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.
- A project's contribution is less than cumulatively considerable, and thus not significant, if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.
- The discussion of impact severity and likelihood of occurrence need not be as detailed as for effects attributable to the project alone.

The analysis of cumulative effects in this chapter focuses on the effects of concurrent construction and operation of the proposed project with other spatially and temporally proximate projects as described below. As such, this cumulative analysis relies on a list of related projects that have the potential to contribute to cumulative impacts in the project area.

4.2 Related Projects

4.2.1 Geographic Scope

Cumulative impacts are assessed for related projects within a similar geographic area. This geographic area may vary depending upon the issue area discussed and the geographic extent of the potential impact. For example the geographic area associated with construction noise impacts is limited to areas directly adjacent to construction sites, whereas the geographic area that is

affected by construction-related air emissions may include the larger airshed. Construction impacts associated with increased noise, dust, erosion, and access limitations tend to be localized and could be exacerbated if other development or improvement projects are occurring within the same or adjacent locations as the proposed project.

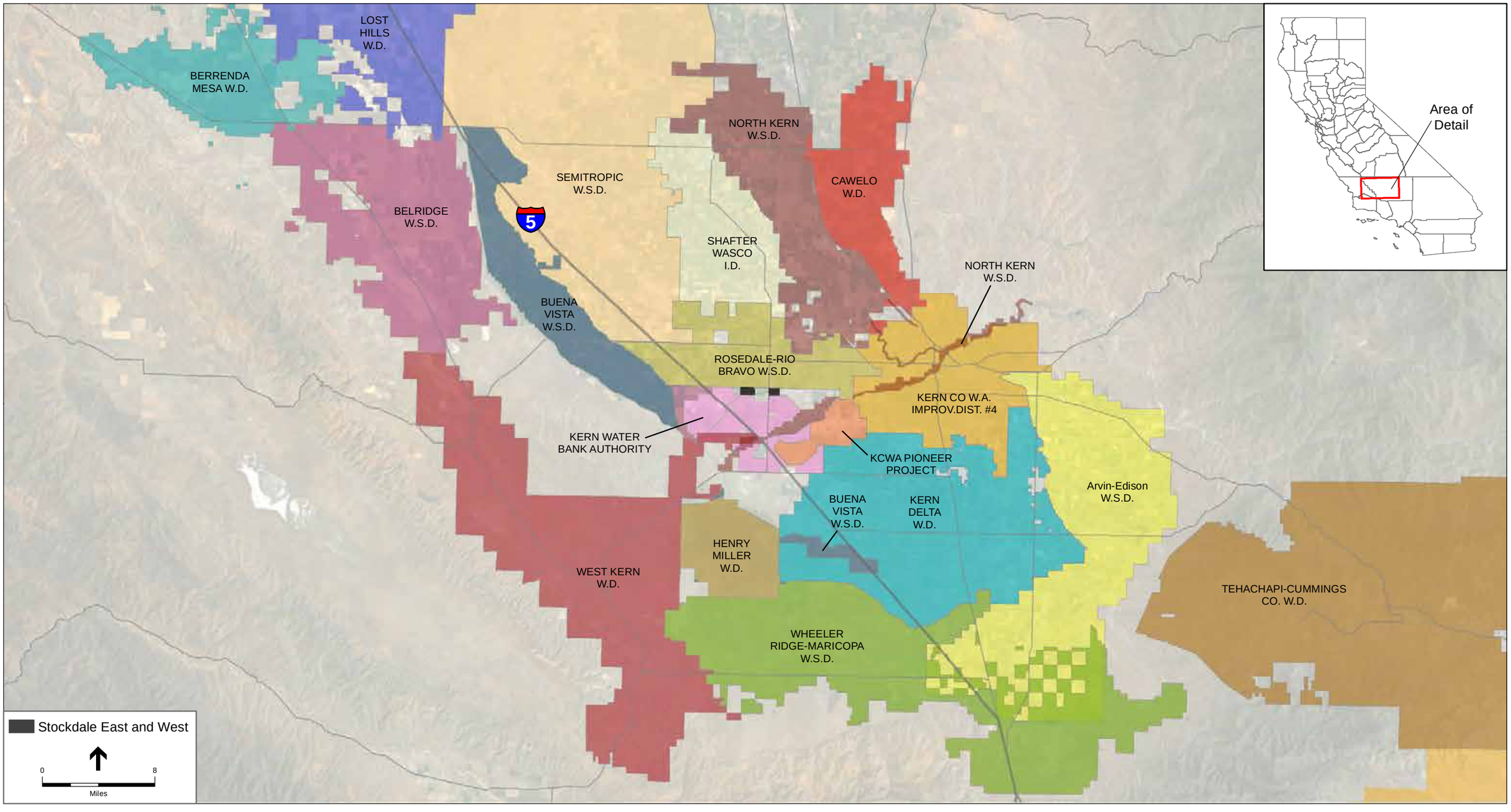
The Stockdale Properties are located in western Kern County, approximately six miles west of the City of Bakersfield, 10 miles southwest of the Friant-Kern Canal, 2.50 miles south of the City of Shafter, and six miles east of the California Aqueduct. The site radius for the third property partially encompasses the western edge of the City of Bakersfield. Combined, Stockdale East and West are approximately 553 acres. The third project site has yet to be identified; however it would likely be up to 640 acres and characterized by agricultural land. For the purposes of this analysis, we considered related projects within a five-mile radius around the project sites when evaluating potential cumulative impacts due to construction of the proposed project. These related projects are listed in **Table 4-1**. To determine potential cumulative impacts due to operation of the proposed project, we considered existing and future water banking programs for the water districts in the Kern Fan area (**Figure 4-1**). These projects are listed in **Table 4-2**. Given this, the geographic scope for each issue area also may vary depending on the nature of the cumulative impacts.

4.2.2 Project Timing

In addition to the geographic scope, cumulative impacts also take into consideration the timing of related projects relative to the proposed project. The implementation schedule is particularly important for construction-related impacts; for a group of projects to generate cumulative construction impacts, they must be temporally as well as spatially proximate. The related projects described below may or may not occur simultaneously with the proposed project. However, this analysis assumes these projects would be implemented concurrently with construction of the proposed project, beginning in summer 2015 and commencing operations three years later.

4.2.3 Type of Projects Considered

As described in Chapter 3 of this EIR, the impacts associated with implementation of the proposed project include both short-term, temporary construction-related impacts and long-term impacts related to project operation. Therefore, cumulative effects could result when considering the effects of the proposed project in combination with the effects of other construction projects in the area and the effects of operating other water banking projects in Kern Fan area. For this analysis, other past, present, and reasonably-foreseeable future construction projects, particularly other capital improvement and development projects, in the area have been identified (Table 4-1). In addition, other past, present, and reasonably-foreseeable future water banking projects in the Kern Fan area have been identified (Table 4-2).



SOURCE: ESRI 2013, California Department of Water Resources

Stockdale Integrated Banking Project . 211181

Figure 4-1

Kern County Water Districts

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TABLE 4-1
CAPITAL IMPROVEMENT AND DEVELOPMENT PROJECTS

Project	Project Type	Location/Area Affected
Caltrans District 6 Projects (1)		
Rosedale Highway Widening	Roadway Widening	Rosedale Highway between Allen Road and Gibson Street, add two lanes
State Route 99 Auxiliary Land/Rosedale Highway Off-ramp Improvements	Roadway Improvements	State Route 99 and Rosedale Highway off-ramp, operational and safety improvements
24th Street Improvements	Roadway Improvements	24th Street from SR99 to M Street; widen, realign, and restripe
State Route 99/Hosking Avenue Interchange	New Interchange	State Route 99 in South Bakersfield at Hosking Avenue
State Route 58 Gap Closure	Roadway Widening	Widen SR 58 between SR 99 and Cottonwood Road, Bakersfield
State Route 178 at Morning Drive Interchange	Roadway Improvements	New interchange at SR 178; widening of SR 178 from two to four lanes
State Route 99 Widening Project, North Bakersfield	Roadway Widening	State Route 99 between SR204 to Beardsley Canal Undercrossing
State Route 99 Widening Project, South Bakersfield	Roadway Widening	State Route 99 between SR119 to Wilson Road Overcrossing
Centennial Corridor Project	Road Improvement	Interstate 5 to State Route 58 East through Bakersfield; State Route 99 from Wilson Road (south) to Gilmore Avenue (north)
City of Bakersfield (2)		
GP Amendment/ZC No. 13-0125; Construction of 167 MF units	Residential	Taft Highway and Wible Road
Zone Change 12-0416; Construction of 50 MF units; 60,000 sf office and commercial use	Residential/Commercial	Baker and Kentucky Street
Conditional Use Permit 12-0436; 7.5 acre drill state to accommodate two new oil wells	Oil Well Drill Site	13755 White Lane, Bakersfield
GP Amendment/ ZC 12-0349; Construction of maximum 617 MF dwelling units	Residential	Panama Lane & Stine Road
Kern River Channel Maintenance Program	Flood Plain Management	Kern River Channel/Stockdale Highway
General Plan Amendment/Zone Change No. 12-0355/PD Review No. 12-0356; 252,497 sf mini storage facility	Commercial Development	China Grade Loop and Manor Street
General Plan Amendment/ Zone Change 12-0372	Residential Development	Rosedale Highway and Van Buren Place
Conditional Use Permit No. 12-0323	Oil Well Drill Site	4900 S. Allen Road
Kern River Flow and Municipal Water Program	Water Flow Management	Kern River
24th Street Cul-de-sacs	Road Improvement	24th Street and Elm

Project	Project Type	Location/Area Affected
Kern County (3)		
Zone Change 15, Map 140; PD Plan 5, Map 140; Exclusion from Ag Preserve 10; Tentative Parcel Map 11235 – Oil Field-related Warehouses	Oil Well Drill Site	Enos Lane and Taft Highway (SR 119)
Central Valley Investors; construction of 39,685 sf of commercial space	Commercial	SE corner of Olive Drive and Victor Street
Old River Solar Project	Solar Development	Shafter Road, between Godsford Rd and Ashe Rd
Rosedale & Renfro Precise Development Plan; 229,000 sf shopping center	Commercial Development	NE corner of Renfro Rd and Rosedale Hwy
Renfro Rd-Johnson Rd to Rosedale Highway	Pave Shoulders	Renfro Road and Johnson Road
Heath Rd.-Johnson Rd to Rosedale Highway	Pave Shoulders	Heath Road and Johnson Road

SOURCES: (1) Caltrans District 6, 2015; TRIP, 2015; (2) California OPR, CEQAnet database, 2015; (3) Kern County Planning and Community Development, Environmental Documents 2015; Kern County Construction Projects, 2015.

TABLE 4-2
GROUNDWATER BANKING PROGRAMS IN KERN COUNTY

Project	Type	Gross Area of District (Acres)
Semitropic WSD	In Lieu/Direct Recharge Projects	221,000
Arvin Edison WSD	In Lieu/Direct Recharge Projects	130,000
Rosedale Rio Bravo WSD	In Lieu/Direct Recharge Projects	44,000
Buena Vista WSD	In Lieu/Direct Recharge Projects	50,000
Kern Delta WD	In Lieu/Direct Recharge Projects	125,000
Cawelo WD	In Lieu/Direct Recharge Projects	45,000
Berrenda Mesa WD	Direct Recharge Projects	369
City of Bakersfield, 2800 Acres	Direct Recharge Projects	2,760
Kern County Water Agency Pioneer Project	Direct Recharge Projects	2,250
Kern Water Bank	Direct Recharge Projects	20,500
West Kern WD/Buena Vista WSD	Direct Recharge Projects	2,000
North Kern Water Storage District	Direct Recharge Projects	75,000

SOURCES: Kern County Water Agency, Buena Vista Water Storage District, Rosedale Rio Bravo Water Storage District, Kern Delta Water District.

In addition to the related projects listed in Tables 4-1 and 4-2, additional development that has not yet been identified, could occur within the project area and may contribute to cumulative impacts. In addition, each of the implementing agencies is planning numerous small-scale projects that

have not been included in the list. This analysis assumes that in the vicinity of the proposed project, there will be on-going construction projects throughout the implementation period.

4.2.4 Description of Select Related Water Banking and Infrastructure Projects

Kern Water Bank Authority

The Kern Water Bank is directly adjacent to the southern boundaries of Stockdale East and Stockdale West. The Kern Water Bank Authority (KWBA) was formed in 1996 as a joint powers authority and operates on approximately 20,500 acres in Kern County. The main purpose of the Kern Water Bank is to recharge, store, and recover water to improve water supply for KWBA members. The Kern Water Bank is located on the Kern River alluvial fan and receives water from three sources: the Kern River, the California Aqueduct, and the Friant-Kern Canal. Through May 2011, the Kern Water Bank project has recharged over 1.7 million acre-feet and recovered nearly 0.9 million acre-feet leaving a current balance of about 0.8 million acre-feet in storage (KWBA, 2012, 2015).

The Final EIR that was prepared to support the formation of the Kern Water Bank was recently successfully challenged (*Rosedale-Rio Bravo Water Storage District, et al. vs. Department of Water Resources, et al.* (Sacramento County Superior Court Case No. 34-2010-80000703)), and the California Department of Water Resources (DWR) is currently preparing new CEQA documentation. In the meantime, the Kern Water Bank project is currently continuing to operate pursuant to the Interim Operations Plan (see Chapter 1). For purposes of analyzing cumulative impacts for the proposed Stockdale Integrated Banking Project, it is assumed that the Kern Water Bank project will continue to operate in the foreseeable future in a manner similar to historic practices.

In addition to the existing Kern Water Banking project, the KWBA is proposing the Conservation and Storage Project, which would involve the appropriation of up to 500,000 AFY of unappropriated water from the Kern River. In February 2010, the SWRCB issued an order removing fully-appropriated status from the Kern River, although this determination is currently being appealed. Nonetheless, KWBA has filed a water right application for the appropriation to support the Project. As part of the Project, the KWBA intends to divert water from the Kern River for storage in the Kern Water Bank for later recovery and delivery in dry years. The KWBA issued the NOP for this project in February 2012.

Drought Relief Project

The Drought Relief Project (DRP) includes construction and operation of nine groundwater production wells within Rosedale's service area to recover water stored in Rosedale's Conjunctive Use Program. The DRP includes six wells on Rosedale's Superior Basins and three wells on Rosedale's West Ponds, as shown in Figure 1-2. Three of the wells on the Superior Basins will represent the offsite well component of the Strand Ranch Project, and another three wells will be used by CLWA as part of its participation in Rosedale's Conjunctive Use Program. It is estimated that each DRP well would have a recovery rate of approximately 3,000 gpm, based

on typical well production rates in the area, and may be screened in both the intermediate and deep aquifers (250 to 700 feet bgs). The construction and operation of the wells have been previously evaluated pursuant to CEQA (Rosedale, 2001; Rosedale, 2003; Rosedale, 2008; CLWA, 2014). A drawdown analysis has been conducted to evaluate the collective operation of all DRP wells and their combined effects on groundwater levels (THC, 2014). The drawdown analysis also considers simultaneous operation of DRP wells together with the proposed wells on Stockdale East and Stockdale West and the Strand Ranch Project wells.

James Groundwater Storage and Recovery Project

The James Groundwater Storage and Recovery Project is a proposed 700 acre project in southwest Bakersfield designed to recharge, store and recover water to provide a cost-effective and reliable water supply for landowners within Rosedale. The James Project is approximately three miles southeast of Stockdale East, south of the Kern River and bordered to the south by Panama Lane. The project water would help provide an affordable and reliable water supply to approximately 25,000 acres of irrigated agriculture and over 10,000 residents within Rosedale and 50,000 acres in Buena Vista Water Storage District. The project property, known locally as McAllister Ranch, was formerly a planned residential development that was in the early stages of construction. Due to the downturn in the real estate market and project financing issues, development was discontinued and the property sat idle for several years until it was sold in a bankruptcy proceeding. Rosedale and Buena Vista Water Storage District jointly purchased the property in 2011. A Notice of Preparation of an Environmental Impact Report was published in May 2012.

Water is a critical resource and Kern County, like many other areas of the state, is continually challenged with procuring a clean, reliable water supply in sufficient quantity to provide for our residential, agricultural and municipal water needs. This project has the potential to recharge up to 57,600 acre feet of water in wet years and recover 40,000 AFY during times of need.

2800 Acres Project and Pioneer Project

The City of Bakersfield operates the “2800 Acres” water banking project and the Kern County Water Agency operates the Pioneer Groundwater Recharge and Recovery Project (Pioneer Project). Both projects are groundwater banking projects along the Kern River and also adjacent to the boundary with Rosedale. Water sources include the Kern River, SWP, and CVP. Rosedale is a participant in the Pioneer Project, along with other regional water districts.

City of Bakersfield Kern River Flow and Municipal Water Program

The City’s Kern River Flow and Municipal Water Program (KRFMWP) is listed above in Table 4-1. The City is proposing to enhance the Bakersfield water supply by allocating a portion of its existing pre-1914 appropriative rights to the Kern River, and also directing unappropriated surplus Kern River water (under application with the State Water Resources Control Board) to flow in the Kern River channel as available, for purposes of groundwater recharge among other

things.[1] Other water agencies have also applied to the SWRCB for unappropriated Kern River water. In 1989, the SWRCB declared that the Kern River, from the Buena Vista Lake bed upstream (including all tributaries) was fully appropriated year-round. The "fully appropriated" status of the Kern River meant that the SWRCB would not accept new applications for diversion from the Kern River unless it could be demonstrated that unappropriated water exists. Recent court decisions finding a partial forfeiture of certain Kern River water rights has given rise to several petitions questioning the fully-appropriated status of the Kern River. The entities filing petitions include Rosedale, KCWA, KWBA, Buena Vista Water Storage District, the City of Bakersfield, and North Kern Water Storage District/City of Shafter.

Along with the petitions to reassess the Kern River's fully-appropriated status, these entities have filed applications to appropriate water from the Kern River should it be determined that unappropriated water exists. The full allocation of Kern River water may be determined by the SWRCB and additional local water diverters may be identified. The outcome of the SWRCB proceedings is highly speculative at this time.

With respect to the proposed project, the KRFMWP would similarly be a groundwater recharge and recovery project. The proposed project would not have environmental effects that would combine with the City's proposed use of unappropriated water.

Centennial Corridor Project

The California Department of Transportation (Caltrans), in cooperation with the City of Bakersfield and Kern County, is in the process of constructing a new alignment for State Route (SR) 58. It will provide a continuous route from Interstate 5 to the west to Cottonwood Road on existing SR 58 east. Construction of the Centennial Corridor will be completed in segments. Segment 2, composed of the Westside Parkway, is mainly complete and open to the public, save from Phase 6C, the westernmost portion from Allen Road to Stockdale Highway, which is currently under construction (Bakersfield Freeways, 2015).

According to the Centennial Corridor Draft Environmental Impact Report (Caltrans, 2014), Segment 3 of the Project will include the re-designation of Stockdale Highway to SR 58 to provide access to Interstate 5 from Bakersfield. Stockdale Highway runs along the northern border of Stockdale East and Stockdale West and crosses the proposed Central Intake alignment. Improvements to the intersection of State Route 43, running north to south, and Stockdale Highway, running east to west, will be required to ensure proper flow of traffic. This intersection is located on the northwestern corner of Stockdale East, with SR 43 running in between Stockdale East and Stand Ranch. Improvements will include a widening of the intersection and installation of traffic signals. Caltrans will also widen both SR 43 and Stockdale Highway to add dedicated left-turn lanes, and a shared through/right-turn lane in both directions on Stockdale Highway,

[1] The Tulare County Superior Court determined, in a Tentative Decision issued March 12, 2015, that the City's certification of the EIR for the project shall be set aside. (*North Kern Water Storage District, et al. vs. City of Bakersfield* (VCU251748 and related cases). The Court has not entered a final judgment. As such, the status of the City's proposed project is uncertain.

which will require Kern County to acquire a small amount of right-of-way on either side of the highway (Caltrans, 2014).

4.3 Impacts and Mitigation Measures

Project Construction

Impact CUM-1: Concurrent construction of several projects in the vicinity of the Stockdale Properties could result in cumulative short-term impacts associated with air quality, biological resources, cultural resources, noise, traffic, and water quality.

Air Quality and Greenhouse Gas Emissions

As already explained in **Chapter 3.3 Air Quality**, according to the SJVAPCD, any project that would individually have a significant air quality impact could also be considered to have a significant cumulative air quality impact. Construction emissions from the project would result in the generation of air pollutants in the San Joaquin Valley Air Basin and in the immediate vicinity of the project area, and would incrementally add to cumulative emissions. The project would also add to ozone precursor emissions on a regional basis and would incrementally add to PM10 and CO emissions on a local basis. For operation activities, on-road traffic would be minimal and would result in a negligible increase in criteria pollutant emissions. Triennial earthwork operations would also result in minor increases in criteria pollutant emissions. Short-term project construction and long-term project operations would result in a less-than-significant individual project impact. Therefore, the proposed project would not result in cumulatively considerable increases of criteria air pollutants.

As already explained in **Chapter 3.7 Greenhouse Gas Emissions**, the analysis of impacts to GHG emissions is inherently cumulative. Impacts associated with GHG emissions have been determined to be less than significant. No additional analysis is required.

Biological Resources

Construction of facilities in and around open space areas could result in destruction and/or disturbance of natural habitat. Habitat destruction/disturbance would contribute to the overall impacts to natural habitat in the vicinity of proposed project resulting from cumulative development. The proposed project area is characterized primarily by agricultural land use; no designated open space areas would be disturbed as a result of the proposed project.

Construction of the proposed project at the Stockdale Properties and Central Intake could result in impacts to special-status species and migratory birds. Implementation of **Mitigation Measures BIO-1** through **BIO-6** would reduce potential impacts to special-status species and migratory birds to less than significant levels. No impacts would occur on the Stockdale East and Stockdale West properties regarding jurisdictional wetlands. However, depending on the location of the third Stockdale project site, and the jurisdictional determination regarding Goose Lake Slough and level of disturbance related to the Central Intake inlet/outlet, impacts could occur. Implementation of **Mitigation Measure BIO-7** would reduce any impacts to wetlands or jurisdictional resources to a less than significant level.

The projects listed in Tables 4-1 and 4-2 could involve permanent loss of habitat and contribute to cumulative impacts to special-status species and migratory birds in the project area. Implementation of the proposed project would have potentially significant impacts to biological resources that could incrementally contribute to cumulative effects when considered together with other related project. However, the proposed project would not result in the permanent loss of habitat for any special-status species, and Mitigation Measures BIO-1 through BIO-7 have been identified to fully mitigate any potential impacts to species or wetlands. Therefore, the proposed project would not contribute significantly to cumulative loss of species or habitat in the project vicinity.

Cultural Resources

The geographic scope for cumulative impacts to archaeological and paleontological resources includes a one-mile radius from the project site. This geographic scope of analysis is appropriate because the archaeological, historical, and paleontological resources within this radius are expected to be similar to those that occur on the project sites because of their proximity; similar environments, landforms, and hydrology would result in similar land-use—and thus, site types. Similar geology within this vicinity would likely yield fossils of similar sensitivity and quantity.

The project vicinity contains a significant archaeological and historical record that, in many cases, has not been well documented or recorded. Thus, there is potential for ongoing and future development projects in the vicinity to disturb landscapes that may contain known or unknown cultural resources. Potential impacts of the proposed project to cultural resources, in combination with other projects in the area, could contribute to a cumulatively significant impact due to the overall loss of historical and archaeological artifacts unique to the region. However, this analysis includes mitigation measures in the event that archaeological resources are encountered during construction activity, which would reduce project impacts to a less than significant level. Therefore, with implementation of **Mitigation Measures CUL-1** and **CUL-2**, the proposed project would not have a cumulatively considerable contribution to impacts to archaeological and historical resources.

Excavation activities associated with the proposed project in conjunction with other projects in the area could contribute to the progressive loss of fossil remains, as-yet unrecorded fossil sites, associated geological and geographic data, and fossil bearing strata. However, in the event that paleontological resources are encountered, the proposed project would have less than significant impacts by requiring implementation of **Mitigation Measures CUL-3** and **CUL-4**. Therefore, with the implementation of Mitigation Measures CUL-3 and CUL-4, cumulative impacts to paleontological resources would be less than significant. Furthermore, through the implementation of **Mitigation Measure CUL-5** would mitigate the project's potential to disturb any human remains, including those interred outside of formal cemeteries, and cumulative impacts to human remains would be less than significant. Consequently, the incremental effects of the proposed project, after mitigation, would not contribute to an adverse cumulative impact on cultural or paleontological resources or human remains.

Noise

The primary sources of noise in rural agricultural areas such as the project sites are roadway traffic and farm machinery on a seasonal basis. Construction of the proposed project would generate some noises that are different from typical background noise in the project area. Related projects in the surrounding area would also temporarily generate noise associated with construction activities, in particular construction of Segment 3 of the Centennial Corridor Project, which would widen Stockdale Highway along the northern border of Stockdale East and Stockdale West. The neighboring Kern Water Bank Conservation and Storage Project would utilize existing facilities at the existing Kern Water Bank project and would not require any new construction.

If construction of the proposed project were to occur coincidentally with Segment 3 of the Centennial Corridor Project, sensitive receptors in the immediate vicinity could experience cumulatively considerable noise impacts. For the proposed project, to mitigate for temporary increases in ambient noise levels associated with construction activity, **Mitigation Measure NOISE-1** would require the construction contractor to locate equipment directed away from sensitive receptors and maintain noise controls on standard construction equipment. In addition, implementation of **Mitigation Measure CUM-1** would require the construction contractor to consult with Caltrans District #6 to coordinate construction schedules, if necessary, to minimize potential compounding of effects to ambient noise levels due to construction activities associated with both projects. With implementation of mitigation, the incremental impact of project construction activities to increases in ambient noise levels would not be cumulatively considerable.

Traffic

Concurrent construction of the proposed project with other related projects would temporarily increase traffic due to increases in vehicle trips by construction workers and construction vehicles on area roadways, increase potential traffic safety hazards on public roadways, and damage road pavement. As described in **Chapter 3.13, Transportation and Traffic**, the number of vehicles added to local roadways due to construction and operation of the proposed project is relatively small relative to current AADT and would not affect performance standards for roadway circulation. Construction of the Central Intake across Brimhall Road may cause temporary lane or road closures, but implementation of a Construction Traffic Control Plan (**Mitigation Measures TR-1** and **TR-2**) would ensure effects to traffic flow are minimized. Construction of the Central Intake across Stockdale Highway would be accomplished using jack-and-bore methods or a similar tunneling technique that would avoid disruption to the roadway. As such, the proposed project together with the Centennial Corridor Project would not combine to create cumulative impacts to traffic flow or circulation. However, given that the Centennial Corridor Project would widen Stockdale Highway, the construction zones of both projects could overlap. Implementation of **Mitigation Measure CUM-1** would ensure the construction contractor consults with Caltrans prior to initiating construction of the Central Intake Pipeline to discuss construction schedules, project plans, and staging plans, to ensure construction activities associated with both projects would be located to avoid conflict or incompatibility of equipment or construction methods.

The increase in operational vehicles due to project maintenance would not be substantial enough to affect local roadway LOS or cause LOS to drop below LOS standards (LOS D). Thus, it is unlikely that the proposed project, together with related projects, would contribute enough vehicles to affect LOS on roadways in the project vicinity. In addition, if necessary, related projects would incorporate project-specific mitigation measures to reduce their respective impacts related to construction traffic, including the preparation and implementation of traffic control plans. Therefore, the proposed project's incremental contribution to traffic-related congestion would not be cumulatively considerable.

Water Quality

Concurrent construction of the proposed project with other related projects in the Kern Fan region could result in temporary impacts to hydrology and water quality in the project area. Concurrent construction activities could result in increased erosion and subsequent sedimentation, with impacts to water quality in downstream water bodies and/or storm drain capacity. Additionally, surface water quality could be affected by construction activities that result in the release of fuels or other hazardous materials to stream channels or storm drains, or discharge from excavation dewatering activities. The Kern River is not listed as an impaired water body in the Basin Plan. Implementation of SWPPPs for the proposed project and other related projects greater than one acre would minimize the potential for impacting water quality in compliance with the General Construction Permit discharge conditions (see **Chapter 3.9**, **Hydrology**). In particular, the BMPs required in **Mitigation Measure HYDRO-1** would be included in the SWPPP for the proposed project to ensure potential impacts related to erosion and storm water quality are reduced to less-than-significant levels. Therefore, the proposed project's incremental contribution to construction-related water quality impacts would not be cumulatively considerable.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

CUM-1: The construction contractor shall consult with appropriate local agencies and jurisdictions prior to initiating ground-disturbing activities, to determine if other construction projects will occur coincidentally at the same time and in the vicinity of the proposed project, depending on project schedule. Coordination of construction activities for coincident projects shall occur to ensure impacts to noise and traffic do not compound to be cumulatively significant and to ensure compatibility of activities within construction zones. Adjustments to construction schedules and plans shall be made accordingly as necessary.

Project Operation

Impact CUM-2: The proposed project and related projects could result in cumulative long-term impacts to groundwater resources.

Kern County has a long history of reliance on groundwater resources as a source of water supply for agriculture, drinking water, and industrial uses. The combination of very thick, coarse-grained

sediments of the Kern Fan and recharge from the Kern River has created a very large groundwater resource. However, uncontrolled groundwater pumping beginning in the 1920s eventually caused great declines in groundwater levels and subsequent land subsidence in the region. Although Bakersfield has not experienced as much subsidence as elsewhere in the San Joaquin Valley, the underlying groundwater resources have nonetheless been threatened by declining water levels. With the advent of improved groundwater management practices including groundwater banking and groundwater recharge projects, the groundwater basins have begun to recover.

Groundwater banking programs are typically designed to hydraulically transfer surface waters into the available storage capacity of the underlying aquifer. Years of high precipitation/snow pack (e.g., 2007) provide opportunities to divert high flows from the Kern River into recharge facilities for future use thereby bolstering available groundwater supplies. The groundwater banking programs of Kern County represent the largest operations of this kind in the United States. The various entities or water districts that operate water banking programs in the Kern Fan area include Rosedale, KWBA, Kern Delta Water District, Buena Vista Water Storage District, Henry Miller Water District, Berrenda Mesa, the City of Bakersfield's 2800 Acres Project, and the Pioneer Project (Figure 4-1). Other districts outside the fan include Semitropic Water Storage District, North Kern Water Storage District, West Kern Water District, Improvement District No. 4, Rosedale Ranch ID, Cawelo Water District, and Arvin-Edison Water Storage District; although, not all of these entities are actively involved in groundwater banking operations. However, many of these districts are either currently developing groundwater banking projects or have plans to expand operations in the future, such as KWBA's Conservation and Storage Project and the City of Bakersfield's KRFMWP.

Groundwater banking projects are designed to maintain a positive project balance such that no net water would be removed from the basin. The projects operate by recharging water in wet years and recovering water in dry years. Water banks only recover water up to the amount previously banked minus an amount to account for losses to the basin.

Long term trends have shown improvements in groundwater levels, when compared to a no-project condition; however even with the overall benefits seen with groundwater banking programs, temporary effects can be experienced during years or multiple years when recovery of stored water occurs. For example, 2001 was a year where recovery operations far exceeded recharge operations. As a result, drawdowns in monitoring wells during 2001 were observed to be as much as 165 feet. In addition, as described in Chapter 3.9, recovery activities resulted in a groundwater fluctuation of 246 feet from an historical high level in 2007 to an historical low level in 2010 (THC, 2015). However, groundwater levels subsequently rebounded to within about 40 feet of historical high levels by 2012 as recharge activities resumed and dominated the effects of recovery. Preliminary information for groundwater elevations from 2014 indicates that previous historic low groundwater levels may have been met or exceeded, given the current and ongoing drought conditions (Kern Fan Monitoring Committee, 2015).

Many of the Kern Fan groundwater banking projects operate under Memoranda of Understanding (MOUs) which were developed as an effort to protect the underlying groundwater resources and

avoid adverse effects. Under the MOUs, groundwater banking operations should be "consistent with avoiding, mitigating or eliminating to the greatest extent practicable, significant adverse impacts." For the proposed project, the Long Term Operations Plan (see Appendix B) implements the provisions of the MOUs by providing a framework under which Rosedale would monitor for and identify project-related adverse impacts to neighboring entities. The Long Term Operations Plan designates specific measures to be employed to "prevent, eliminate or mitigate significant adverse impacts" resulting from project operation, including effects to neighboring wells. Projects operated pursuant to current MOUs are designed to recover only the amounts that have been stored through recharge activities minus the accounting of factored losses. These assumed losses are not recoverable by any of the water districts and become additions to the aquifer. The losses are derived from surface recharge loss, water recharged and subsequently extracted for out-of-district use, water banked by out-of-County entities, and water banked if purchased by adjoining entities within 3 years.

As described in Chapter 3.9, Hydrology and Water Quality, modeling for the proposed project included a drawdown analysis that included surrounding areas and neighboring wells (see Appendix E). Different recharge and recovery scenarios were evaluated to assess potential cumulative groundwater level changes that could be expected under the various hydrological conditions that were observed over the period of 2004 to 2010. This time period included low groundwater conditions (February 2004 through November 2004), historical low groundwater conditions (September 2009 through June 2010) and historical high groundwater conditions (January 2005 through January 2006). Potential groundwater level changes due to project operation would be greatest at the project sites; would be temporary in nature, and would decrease with distance from the project site (THC, 2015). The results of the impact analysis in Chapter 3.9 concludes that project operations are not expected to significantly affect operation of neighboring wells because the modeled drawdown associated with pumping at Stockdale East and Stockdale West would not result in groundwater levels below typical well depths. Modeling of the proposed groundwater extraction indicates that once project pumping ceases, groundwater levels would recover to within five to eight feet of the pre-pumping groundwater level after three to six months, even during conditions that represent historical low conditions (THC, 2015). In addition, the modeling for the proposed project analyzed regional groundwater flow gradients, and the results show no substantive changes as a result of recharge or recovery operations (THC, 2015).

Although operation of the proposed project alone would not affect groundwater levels to a degree that would result in neighboring well being unable to support existing or planned land uses, when considered together with existing and future groundwater banking projects in the Kern Fan region, there is potential for the project's incremental effects to be considerable when combined with the effects of other banking projects. Significant cumulative impacts to groundwater due to concurrent operation of regional groundwater banking projects could occur, particularly during extreme conditions. For example, concurrent operation of the proposed project together with the Drought Relief Project (DRP) would result in simultaneous operation of 14 recovery wells located on Stockdale East, Stockdale West, Superior Basins, and West Ponds. The effects of such recovery operations would serve to temporarily lower groundwater levels beneath and around these wells. The effects of combined operations have been modeled using a similar methodology,

and the same regional groundwater flow model, as the analysis conducted for the proposed project. The cumulative analysis assumes that all 14 recovery wells are operating for eight months and approximately 44,100 AF of groundwater is extracted (THC, 2014). The analysis also incorporates groundwater pumping and recharge for all other existing banking projects and pumpers in the modeled area, including the Strand Ranch Project. The analysis also evaluates differential effects of perforating the DRP wells in either the intermediate and deep aquifers or just the deep aquifer alone.

The results of the cumulative analysis suggest that the effects of combined recovery operations would slightly increase drawdown at the closest private landowner wells north of Stockdale East and Stockdale West. Expected drawdown in the intermediate aquifer would range between 20 to 30 feet, which indicates a potential increase from the estimated project-related drawdown of 21 feet due to operation of just the Stockdale East and West wells (THC, 2014). At the nearest production well (KWB well 6D03), expected drawdown in the deep aquifer would range between 30 to 60 feet, depending on whether the DRP wells are perforated in the deep and/or intermediate aquifers (THC, 2014). This would represent a potential increase from the estimated project-related drawdown of 29 feet due to operation of just the Stockdale East and West wells.

Given the depths of the neighboring private and production wells, the modeled cumulative drawdown would not lower groundwater to a level that would affect neighboring well operation. Considering historic low groundwater levels, additional drawdown of 30 feet would lower groundwater to 270 feet bgs in the intermediate aquifer in project vicinity. Given that private wells are generally 300 to 400 feet deep, there would be sufficient exposed screen, even with the cumulative drawdown, to provide adequate flow to support operation at low production rates and to support overlying land uses. In the deep aquifer, additional drawdown of 60 feet would lower groundwater to 339 feet bgs in the project vicinity under historic low groundwater conditions. This groundwater level is still higher than the typical production well depth of 700 feet bgs, including the KWB well 6D03, which is 704 feet deep. Therefore, the cumulative impacts of operating wells associated with the proposed project, DRP, and other existing banking projects such as Strand Ranch would not have cumulatively considerable impacts to neighboring well operations.

However, historical low groundwater levels may have recently been exceeded in 2014 due to ongoing drought conditions (Kern Fan Monitoring Committee, 2015), and other future groundwater banking projects may be developed that increase cumulative recovery capacity in the project area. Therefore, implementation of Rosedale's Long Term Operations Plan, as required by **Mitigation Measure CUM-2**, would serve to mitigate the proposed project's incremental contribution to cumulative groundwater impacts and associated effects to wells serving overlying land uses. A general description of the primary components of the Long Term Operations Plan is as follows:

A. Establish a Protocol for Monitoring and Reporting Groundwater Conditions:

- Rosedale will conduct monitoring of groundwater conditions during years that recovery is expected from a Rosedale project, in addition to the monitoring conducted by the Kern

Fan Monitoring Committee. Rosedale will report current groundwater levels monthly to its Board of Directors and make reports available to the public on its website.

- Rosedale will regularly update its Groundwater Model to actual conditions; use the Model to predict future groundwater conditions; report modeling results to its Board of Directors; and make modeling results available to the public on its web site.
- Recovery in any calendar year shall not commence until the Model has been run for projected operations.

B. Implement Proactive Measures

- Rosedale's Groundwater Model will be used to predict the contribution of Rosedale's projects 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 Rosedale 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

- Mitigation measures will be implemented when a NPI is triggered in years when average water levels at specified wells[2] are more than 140 feet from the surface as measured on March 31 each year. It is expected that water levels will not decline to an extent resulting in a NPI when water levels are less than 140 feet from the surface.
- A 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 (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 a NPI is triggered for an operational agricultural well:
    - When the Model predicts a NPI outside the current operating range of the pump but within the potential operating range of the well, then Rosedale will provide compensation to lower the well pump to meet the landowner's needs.

[2] Wells 29S/25E-27N1&2, 29S/25E-25M1&2, 29S/26E-31H1&2, and 29S/25E-35G01 are the wells that will be used to monitor groundwater levels. These wells have been determined to be best suited for detecting fluctuations in groundwater levels due to project operations.

- When the Model predicts a NPI outside the current and potential operating range of the well, then Rosedale 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 a NPI is triggered for a domestic well:
  - When the Model predicts a NPI such that production ceases or is likely to cease, then Rosedale 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, Rosedale will provide interim in-home water supplies until one of these actions is completed.

Such measures would ensure neighboring wells would not be adversely affected by the project. With implementation of the Long Term Operations Plan, the incremental contribution of the proposed project to cumulative impacts to groundwater resources would not be cumulatively considerable.

Significance Conclusion

Less than Significant with Mitigation.

Mitigation Measures

CUM-2: Operation of the proposed project shall be conducted in accordance with the *Long Term Project Recovery Operations Plan Regarding Rosedale-Rio Bravo Water Storage District Projects* (Long Term Operations Plan). The Long Term Operations Plan requires monitoring of groundwater conditions; annual predictions of project-related groundwater declines in the area; definition of negative project impact (NPI) to neighboring wells relative to no-project conditions; triggers for implementation of mitigation measures based on NPI that affects neighboring well operation; and mitigation measures to be implemented for different categories of wells. Mitigation measures include, but are not limited to, providing compensation to lower well pumps; reducing or adjusting pumping to prevent, avoid, or eliminate the NPI; or drilling a new well.

Impact CUM-3: The proposed project and related projects could result in cumulative long-term impacts to agricultural resources.

As described in **Chapter 3.2, Agricultural Resources**, the proposed project would be built on lands designated as Prime and Unique Farmland by the California Department of Conservation (CDC) Farmland Mapping and Monitoring Program (FMMP). As Stockdale West recharge facilities are fully constructed, only recovery wells, pump houses, and turnout/turn-in structures would be installed onsite. Current facilities at Stockdale East may be replaced with recharge basins, earthen berms, recovery facilities, on-site conveyance canals and pipelines and the Central Intake Pipeline, pump station and turnout. Although the third Stockdale project site has not yet

been determined, construction of recharge facilities at the site is anticipated to be similar to those proposed at Stockdale East. The proposed recharge facilities would be made available for farming, fallowing, or grazing when properties are not needed for water recharge or water management purposes. In addition, groundwater recharge is considered to be a compatible agricultural land use and would not preclude future use of the properties for agricultural production. The proposed project would not convert agricultural lands to non-agricultural use. Thus, the impact of the proposed project to agricultural resources is considered less than significant.

The cumulative impact of the proposed project on agricultural resources is dependent on the past, present, and reasonably-forseeable future conditions of development and land use in the project vicinity. There have been documented losses of farmland in Kern County since 2000. For example, there were 990,422 acres of farmland in 2000; 967,151 acres of farmland in 2004; 939,221 acres of farmland in 2008; and 914,084 acres in 2010, and 900,332 in 2012 (CDC, 2013, 2015). Over an eight year span from 2004 to 2012, Prime Farmland declined from 643,128 acres to 597,771 acres, and Unique Farmland declined from 109,318 acres to 89,694 acres (CDC, 2013, 2015,). This equates to a seven percent loss of Prime Farmland (45,357 acres) and an eighteen percent loss of Unique Farmland (19,624 acres) over six years. However, over the same time period, Grazing Lands have increased from 1,791,467 acres in 2004 to 1,843,605 acres in 2012, a three percent increase (52,138 acres).

There is an abundance of land in the vicinity of the proposed project that is categorized as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (see Figure 3.2-1). Other related projects in the area could result in the conversion of agricultural lands. Table 4-1 lists planned development projects in the vicinity of the proposed project, and Table 4-2 lists other groundwater banking programs in Kern County. Some development projects may require cancellation of Williamson Act contracts or exclusions from agricultural preserves as designated by Kern County.

The proposed project would not contribute to cumulative farmland conversion. As described in **Chapter 3.2, Agricultural Resources**, the proposed project would provide benefits to agriculture in the project vicinity by preventing the conversion of the Stockdale Properties from farmland to residential or commercial development and preventing overdraft conditions in the underlying groundwater basin, upon which regional farmers depend for irrigation water. Groundwater recharge is a compatible agricultural land use and the proposed project would not convert agricultural lands to non-agricultural use. Therefore, the incremental contribution of the proposed project to cumulative impacts to agricultural resources would not be cumulatively considerable.

Significance Conclusion

Less than Significant.

Mitigation Measures

None required.

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CHAPTER 5
Growth Inducement Potential

5.1 Overview

The *CEQA Guidelines* (Section 15126.2(d)) require that an EIR evaluate the growth-inducing potential of a proposed action. Growth inducing potential is defined by the *CEQA Guidelines* as:

> …the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this definition are public works projects, which would remove obstacles to population growth…. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can have direct and/or indirect growth inducement potential. Direct growth would result if a project involved construction of new housing. A project can have an indirect growth inducement effect if it would establish substantial, new, or permanent employment opportunities and indirectly stimulate the need for additional housing and services. Similarly, a project would have an indirect growth inducement effect if it would remove an obstacle to additional growth and development, such as providing urban services, such as water supply, to un-served or underserved areas.

The proposed project would not directly cause growth. This section reviews the population growth projections for Rosedale and IRWD service areas and describes the existing and projected water demand and water supply conditions. It provides a description of both districts' role in providing water to customers within their service areas and evaluates the potential for the proposed project to have an indirect effect to growth by removing an obstacle to growth.

5.2 Population

IRWD Service Area

Population within IRWD's service area is projected to increase 32 percent by 2035, from 337,876 in 2010 to approximately 446,633 in 2035 (IRWD, 2011). A significant portion of this growth is due to development by The Irvine Company, Tustin Legacy (former MCAS Tustin) and development of Heritage Fields at the Orange County Great Park. Water demand is expected to increase as a direct function of the planned growth in population, as well as related planned housing and employment markets.

The northern portion of Orange County was extensively developed in the 1970s and 1980s and continues to increase in population density. Between 2000 and 2011, Orange County's population increased by seven percent, an annual growth rate of approximately 0.63 percent.

Southern California as a whole has had a population growth rate of 10.55 percent, or an annual increase of 0.96 percent (SCAG, 2012b). As shown in **Table 5-1**, the Southern California Association of Governments (SCAG) projects that Orange County's population will increase to 3.42 million by the year 2035, an approximate 14.5 percent increase over 2008 population. SCAG estimates that most of the projected growth in Southern California will result from local birth rates rather than immigration, which accounted for most of the growth in the 20th Century. The data source for IRWD's population statistics is the Center for Demographic Research, California State University, Fullerton (2010) using the California State Department of Finance population data..

TABLE 5-1
IRWD POPULATION PROJECTIONS

	2008	2020	2035
Orange County [a]	2,989.000	3,266,000	3,421,000
IRWD[b]	337,876	381,379	446,633

SOURCES: (a) SCAG 2012a RTP Growth Forecast; (b) IRWD Urban Water Management Plan, November 2011.

Rosedale Service Area

The Rosedale service area consists predominately of rural agricultural land uses. However, its eastern portions are within the Metropolitan Bakersfield planning area and are experiencing development and population growth. The City of Bakersfield in coordination with Kern County prepared a General Plan in 2002 evaluating growth in the Bakersfield sphere of influence (SOI) (City of Bakersfield and Kern County, 2007). The proposed project boundaries are partially located within the designated City of Bakersfield SOI. Based on the Kern Council of Governments (COG) most recently published Regional Transportation Plan (RTP), the Metropolitan Bakersfield Planning would have an estimated population growth of 59 percent by the year 2035 (**Table 5-2**). The population of the City of Bakersfield was 350,020 in 2010, approximately 65 percent of the Metropolitan Bakersfield Planning Area population of 533,461 (Dept of Finance, 2011).

TABLE 5-2
ROSEDALE POPULATION PROJECTIONS

	2010	2020	2035
Kern County	845,600	1,010,800	1,321,000
Metropolitan Bakersfield	533,461	640,536	848,487

SOURCES: Kern COG, 2011 RTP, July 2010

5.3 Water Supply and Demand

IRWD

IRWD is a member agency of the Municipal Water District of Orange County (MWDOC) and receives approximately 22 percent of imported water from MWD through MWDOC. Water imported to IRWD comes from the Sacramento-San Joaquin Delta in Northern California and the Colorado River. Approximately 50 percent of IRWD's overall supply comes from local groundwater wells in the Orange County Groundwater Basin, and the Irvine and Lake Forest sub-basins. OCWD replenishes the groundwater basin largely by recharging Santa Ana River water, highly treated, high-quality recycled water into the aquifer and by importing some additional water from MWD for recharge as well. IRWD also receives water from other local sources including the Santiago Creek watershed and by recycled water resources produced by IRWD. **Table 5-3** shows the supply and demand for a single dry year forecast.

TABLE 5-3
IRWD'S SINGLE DRY-YEAR SUPPLY AND DEMAND (AFY)

	2015	2020	2035
Supply Totals	133,214	160,408	160,408
Demand Totals	98,169	114,586	119,873
Difference	35,045	45,822	40,535
Difference of % of Supply	26%	29%	25%
Difference of % of Demand	36%	40%	34%

SOURCE: IRWD Water Resources Master Plan, 2014.

MWD manages and coordinates the delivery of imported surface water supplies from the Colorado River and from Northern California through the State Water Project with six southern California counties including Orange County. MWDOC, a member agency of MWD, is a water wholesale agency that does not provide water directly to customers but rather purchases it from MWD and sells it to its approximately 30 member agencies, comprising cities and water districts throughout the county. These member agencies, including IRWD, are the local water retailers, selling water directly to their local customers.

MWD provides approximately 50 percent of the water supply for Orange County, on average. **Table 5-4** summarizes MWD's single dry-year supply portfolio through 2030, identifying existing supplies and the supplies under development both for additional import as well as locally within MWD's service area. As shown in the table, MWD has developed a multiple supply portfolio to meet current demands and to accommodate growth demands within its service area without increasing pressure on groundwater production. MWD's supply forecasts provide estimations of supply reliability for local member agencies to base future supply requirements. Actual reliability of supplies could vary depending on implementation of proposed projects.

TABLE 5-4
MWD'S SINGLE DRY-YEAR SUPPLY CAPABILITY AND TOTAL DEMAND (AFY)

	2015	2020	2035
Current Programs			
In-Region Storage and Programs	685,000	931,000	830,000
California Aqueduct	522,000	601,000	610,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000
Capability of Current Programs	**2,457,000**	**2,782,000**	**2,690,000**
Total Demands on MWD	**2,171,000**	**2,162,000**	**2,319,000**
Surplus	**286,000**	**620,000**	**371,000**
Programs Under Development			
In-Region Storage and Programs	206,000	306,000	336,000
California Aqueduct	556,000	700,000	700,000
Colorado River Aqueduct Supply	187,000	187,000	187,000
Capability of Proposed Programs	**762,000**	**862,000**	**1,036,000**
Potential Surplus	**1,048,000**	**1,482,000**	**1,407,000**

SOURCE: MWD, Regional Urban Water Management Plan, Table 2-9, November 2010.

In recent years, MWD's primary water supplies have come under pressure. As Arizona approaches full use of its Colorado River entitlement, MWD's diversion of Colorado River water may decrease. This decrease in diversion is accounted for in MWD's most recent Regional Urban Water Management Plan. To make up for the decrease, MWD has identified local projects and conservation measures to meet increasing demand. In addition, supply availability from the Sacramento-San Joaquin Delta will continue to be constrained due to curtailments in pumping and water deliveries due to special-status species such as the endangered Delta smelt. Such curtailments reduce the reliability of MWD's future supplies.

IRWD's system is reliable due to its interdependent sources of supply. A shown in Tables **5-3** and **Table 5-5**, projected water supplies are shown to be sufficient to meet customer needs through 2035. This assumes that there will be an increase in recycled water use and local groundwater production (**Table 5-6**) through planned projects and that imported water purchased through MWD would remain constant. Water demand is expected to increase as the population grows. **Table 5-5**

summarizes IRWD's water supply portfolio projected to the year 2035. The proposed project is not included in this portfolio because it is being developed as a dry-year supplemental supply only.

TABLE 5-5
IRWD CURRENT AND PLANNED WATER SUPPLIES (AFY)

	2015	2020	2035
Potable Supplies:			
Purchased MWD Treated	41,929	41,929	41,929
Groundwater	49,170	49,170	49,170
Baker Water Treatment Plant	0	6,858	6,858
Future Groundwater Projects	0	12,787	12,787
Total Potable Supply Capability:	**91,099**	**110,744**	**110,744**
Build-out Demand potable:	**63,403**	**76,266**	**81,993**
Non-potable Supplies:			
Recycled Water	26,135	26,135	26,135
Purchased MWD Untreated	21,221	24,262	24,262
Native (Surface Water)	3,000	0	0
Non-potable Groundwater	3,514	3,514	3,514
Total Non-potable Supply Capability	**53,870**	**53,911**	**53,911**
Build-out Demand non-potable:	**28,344**	**30,823**	**30,037**
Total Planned Water Supply:	**144,969**	**164,655**	**164,655**

SOURCE: IRWD Water Resources Master Plan, 2014.

TABLE 5-6
AMOUNT OF GROUNDWATER PROJECTED TO BE PUMPED (AFY)

Location	2015	2020	2030
Orange County Groundwater Basin	**43,861**	**56,213**	**56,213**
Irvine Subbasin (Irvine Desalter)	**8,823**	**8,823**	**8,823**
Los Alisos Area	**-**	**435**	**435**
Total	**52,684**	**65,471**	**65,471**
Local Groundwater as a % Total of Water Supply	**36%**	**40%**	**40%**

SOURCE: IRWD Water Resources Master Plan, 2014.

IRWD's UWMP evaluates multiple dry-year drought supplies and identifies sources of supply to meet actual demands. Generally, during periods of drought, should MWD's sources be stressed through multiple dry years, or suffer catastrophic failure, IRWD could augment water supplies through increased local groundwater pumping on a short-term basis, as well as reduce demands through increased conservation measures as described in IRWD's UWMP. The proposed project

would help to augment IRWD's dry-year supply portfolio to enhance water supply reliability and redundancy..

Redundant water sources also enhance the system's overall reliability for potential scenarios such as catastrophic failures of water conveyance infrastructure, a shut-down of Delta water supplies, or water quality issues in the SWP. To plan for these contingencies, a diverse water supply portfolio provides the highest degree of reliability.

Rosedale

Rosedale is dominated by agricultural land uses and thus water use is primarily for agricultural irrigation. Water use in the District varies from year to year depending on the crops that are grown and the amount of land that remains fallow. However, as more permanent crops are grown and more land is converted to urban development, the fluctuations in water use have become less pronounced (Rosedale, 2013). Water used for irrigation within Rosedale's service area is primarily obtained from groundwater pumping, although about 10,000 to 15,000 AFY of surface water is delivered by Rosedale to landowners for use during wet years. Consumptive use within the District is currently estimated to be about 93,000 AFY, including the consumptive use of precipitation (Rosedale, 2013). For the period from 1993 through 2011, the average annual consumptive use has been estimated to be about 92,000 AFY. **Table 5-7** summarizes consumptive use within the Rosedale service area since 1976. As shown in the table, average urban use has doubled since 1990 as crop use has been decreased slightly. This trend is expected to continue.

TABLE 5-7
HISTORIC CONSUMPTIVE USE WITHIN ROSEDALE DISTRICT (AFY)

Period	Crop Use	Urban Use	Subtotal
1976-1990	86,968	3,772	90,740
1991-2005	84,311	6,920	91,231
1993-2011	--	--	92,000
2012	84,500*	8,500	93,000

• Includes Crop use plus fallow and undeveloped land use.

SOURCE: Rosedale Rio-Bravo Water Storage District, 2013.

5.4 Growth Inducement Potential

The proposed project would provide additional groundwater recharge, storage and recovery capacity in the Kern Fan region to augment Rosedale's Conjunctive Use Program and enhance supply reliability for IRWD during periods when other supplies are reduced or interrupted. The proposed project would not have a direct growth-inducing effect within the IRWD service area or the Rosedale district boundaries. The proposed project does not involve construction of new housing and would not substantially expand or establish new employment opportunities that, in turn, would generate housing development. Nor would the proposed project provide water supply infrastructure to a previously undeveloped or underserved region.

The proposed project provides water supply reliability to IRWD through redundancy and diversification of water supply options available in future years. IRWD has more than adequate water supplies (existing and under development) to meet projected demands to the year 2035. This proposed project provides a means of offsetting existing supplies during periods when existing sources may be reduced or interrupted and provides a cost effective means of managing contingency and drought planning needs. The proposed project would not be capable of providing water every year and therefore could not support the continuous demands associated with population growth. The Urban Water Management Planning Act of 1993 requires major water suppliers to identify sources of water to meet three-year drought scenarios. Options to show that water would be available for such a drought include providing drought-proof water supplies such as desalinated water and recycled water or constructing substantial storage capacity. The proposed project provides a future drought supply to augment the district's drought planning requirements. Drought planning provides for supply reliability but does not accommodate additional demand.

Neither IRWD nor Rosedale has authority or responsibility for approving land use designations. Neither district makes decisions about approving new development that would require connections to potable water supplies. Planning in the IRWD service area is the responsibility of all municipalities within IRWD's service area. Cities within the IRWD service area include the cities of Irvine, Tustin, Orange, Newport Beach, Lake Forest, and Costa Mesa. Some unincorporated areas of the County of Orange are also within IRWD's service area boundary. Rosedale encompasses several cities, but the City of Bakersfield sphere of influence dominates the growth projections. The cities and the counties are responsible for identifying and accommodating growth within their boundaries. Each city and county has prepared a General Plan that identifies growth projections specific to their areas. Each of the cities and counties acknowledge that population is increasing and each entity has identified significant impacts associated with the growth. Each entity has adopted overriding considerations pursuant to CEQA requirements, acknowledging that growth results in secondary impacts that may be significant and unavoidable. These impacts include increased air pollution, traffic congestion, and loss of open space and farmland.

Water banking provides for effective groundwater management within the Rosedale service area that benefits overlying groundwater users and banking entities. Water banking does not promote or induce growth within the Rosedale service area. Use of property for recharge basins prevents other development on the site and is compatible with existing agricultural land uses in the area.

The proposed project neither supports nor encourages growth within the IRWD or Rosedale service areas to a greater degree than presently estimated by the agencies with land use jurisdiction within their service areas. The proposed project would not remove any obstacles to growth and would not indirectly have a significant impact on growth inducement.

References – Growth Inducement Potential

California Department of Finance, 2011. *E-5 Population and Housing Estimates for Cities, Counties, and the State, January 2011-2013, with 2010 Benchmark.* Accessed at: http://www.dof.ca.gov/Research/demographic/reports/estimates/e-5/2011-20/view.php.

City of Bakersfield and Kern County, 2007. *Metropolitan Bakersfield General Plan*

Irvine Ranch Water District (IRWD), 2011. *2010 Urban water Management Plan*.

IRWD, 2014 *Water Resources Master Plan.*

Kern Council of Governments, 2010. *2011 Final Regional Transportation Plan.*

Municipal Water District (MWD), 2010. *Regional Urban Water Management Plan, Table 2-9.*

Rosedale-Rio Bravo Water Storage District, 2013. *Groundwater Management Plan*. Prepared by AECOM, February 2013.

Southern California Associated Governments (SCAG), 2011. *Draft Program Environmental Impact Report SCAG 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy*.

Southern California Associated Governments (SCAG), 2012a. *2012 Draft RTP Growth Forecast.* Accessed at http://www.scag.ca.gov/DataAndTools/Pages/GrowthForecasting.aspx.

Southern California Associated Governments (SCAG), 2012b. *2013-2035 Regional Transportation Plan 2012-2035.*

CHAPTER 6
Alternatives Analysis

6.1 CEQA Requirements for Alternatives Analysis

CEQA requires that an EIR describe and evaluate a reasonable range of feasible alternatives to a project, or to the location of a project, that would attain most of the project objectives and avoid or substantially lessen significant project impacts. CEQA Guidelines (§15126.6) set forth the following criteria for alternatives:

> **Identifying Alternatives.** The range of alternatives is limited to those that would avoid or substantially lessen any of the significant effects of the project, are feasible, and would attain most of the basic objectives of the project. Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative. The specific alternative of 'no project' shall also be evaluated along with its impact.
>
> **Range of Alternatives.** An EIR need not consider every conceivable alternative, but must consider a reasonable range of alternatives that will foster informed decision-making and public participation. The "rule of reason" governs the selection and consideration of EIR alternatives, requiring that an EIR set forth only those alternatives necessary to permit a reasoned choice.
>
> **Evaluation of Alternatives.** EIRs are required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. Matrices may be used to display the major characteristics of each alternative and significant environmental effects of each alternative to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed but in less detail than the significant effects of the project.

6.1.1 Project Objectives

The objectives of the proposed project are as follows:

- Integrate the proposed project facilities and coordinate the proposed project operations with Rosedale's Conjunctive Use Program, including the Strand Ranch Project, to provide for maximum operational flexibility between the various programs and facilities.

- Provide additional groundwater recharge, storage, and recovery capacity in the Kern River Fan region to augment and provide operating flexibility for Rosedale's existing and future programs.
- Develop recharge and recovery capacities for each of IRWD's and Rosedale's respective properties to be available for its priority use and for the other agency's use to the extent unused capacity may be available.
- Develop additional groundwater recharge, storage, and recovery capacity to provide IRWD customers with increased water supply reliability through redundancy and diversification during periods when other supply sources may be reduced or interrupted.

6.1.1 Key Impacts of the Proposed Project

Chapter 3 of this EIR identifies potential impacts associated with the proposed project for each environmental issue area in Appendix F and Appendix G of the CEQA Guidelines, including long-term and short-term impacts. Mitigation measures were identified to render impacts less than significant. No significant unavoidable impacts would result from implementation of the proposed project. A summary of the significance of the greatest impacts for each environmental resource analyzed in Chapter 3 is presented below in **Table 6-1**. Specific impacts and all mitigation measures are provided in Table ES-1 in the Executive Summary of this Draft EIR.

6.2 Alternatives to the Project

6.2.1 Alternatives Considered But Rejected

This section identifies other project alternatives that were considered but rejected from further consideration.

Recharge Basin Location Alternative

Rosedale and IRWD considered alternative locations to Stockdale East and Stockdale West for constructing groundwater banking facilities. Recharge, recovery, and conveyance facilities would be designed to accommodate the alternative location. The majority of the properties identified by Rosedale and IRWD were located within the radius identified for the third Stockdale site, in addition to two areas southeast of the proposed project. Within the site radius, locations considered were: east of Stockdale East (approximately 1,100 acres total) and west of Stockdale West (approximately 160 acres) along the northern side of the Cross Valley Canal; directly north of the Strand Ranch property (approximately 340 acres total); and northwest of the Stockdale West property (approximately 160 acres). Southeast of the proposed project, locations were considered approximately 5.6 miles and 10.7 miles (230 acres) from the proposed project.

TABLE 6-1
SUMMARY OF PROJECT IMPACT ANALYSIS

Environmental Resource	Significance Determination
Aesthetics	LSM
Agriculture and Forestry Resources	LSM
Air Quality	LTS
Biological Resources	LSM
Cultural Resources	LSM
Geology, Soils, and Seismicity	LSM
Greenhouse Gas Emissions	LTS
Hazards and Hazardous Materials	LSM
Hydrology and Water Quality	LSM
Land Use and Planning	LTS
Mineral Resources	LTS
Noise	LSM
Transportation and Traffic	LSM
Utilities and Energy	LSM
Cumulative Impacts	LSM

LTS = Less than Significant
LSM = Less than Significant with Mitigation

SOURCE: ESA 2014.

All potential project locations were evaluated based on a list of criteria that defined the ideal conditions for implementation of the proposed project. The criteria included the following:

- The property is available for purchase and at an economically-feasible price;
- Development costs are reasonable and economically feasible;
- Soil permeability conditions and infiltration rates are adequate for groundwater recharge;
- There is an unconfined aquifer below the property (i.e. no clay layers that could impede long term recharge and storage);
- There is adequate storage space in the aquifer below the property;
- Groundwater quality is compatible with pump-in requirements of the California aqueduct;
- Existing conveyance facilities are proximate to the property; and
- Other environmental constraints such as soil quality and existing land use are compatible with a groundwater banking project.

Environmental impacts associated with implementing the proposed project in other locations would likely be similar and would meet the project objectives. Additional tie-ins or more linear feet of conveyance structures might be required, depending on location and proximity to the CVC or other regional conveyance facilities. This could result in greater construction-related

environmental impacts. Nonetheless, based on property inquiries, some alternative locations were either too small or too expensive to purchase and develop in a manner that was economically feasible or prudent; other locations were unavailable (not for sale). As a result, the location alternative was rejected from further analysis.

Rosedale considered alternative locations to the Central Intake alignment. The alignments were evaluated based on the following goals that defined the ideal conditions for implementation of the proposed project:

- Maximize conveyance flexibility to and from Stockdale East, Superior Ponds, Goose Lake Slough, and the CVC.
- Minimize distance between facilities to minimize environmental disturbance.
- Minimize costs associated with construction.
- Minimize pumping requirements;
- Maximize the use of existing easements, rights-of-way, and roadways to minimize disturbance to private landowners.

Once a general alignment was determine variations to the general alignment were analyzed and discussed with affected landowners. The adjustments were within the same general vicinity as the proposed alignment, with modifications to the locations of the crossing of Stockdale Highway, PG&E transmission line easements, and the railroad; the route through the agricultural lands between Stockdale Highway and Brimhall Road; and associated location of the connection point to the Goose Lake Slough. The final alignment accomplished the goals of the proposed intake while minimizing impacts to the public and the environment.

The Central Intake feasibility evaluation also included consideration of whether a pipeline or canal would be constructed. Both options were analyzed and alignments considered. A pipeline was selected over a surface canal because it minimized the required footprint of the facilities and associated crop loss, maintenance requirements, and access issues. The canal option, while not as cost effective relative to construction, was eliminated because it did not minimize impacts to the environment or the affected landowners as well as the pipeline option.

Injection Well Alternative

Under the Injection Well Alternative, Rosedale and IRWD would construct injection wells on the Stockdale Properties to inject water into the groundwater basin rather than construct recharge basins on the surface. This proposed alternative would require approximately 10 injection wells to provide the equivalent recharge of the proposed recharge basins. This proposed alternative would include construction of large water storage facilities on site at the Stockdale Properties to hold water for injection. The other components of the project, including conveyance and extraction facilities, would be similar to the proposed project. The Injection Well Alternative would be cost prohibitive. In addition, the aquifer characteristics make injection at this level not practical. Due to cost limitations and operational impracticalities, this alternative was rejected from further analysis.

Orange County Storage

Water storage facilities could be constructed in Orange County to provide water supply reliability during dry years for IRWD. IRWD could develop an in-county storage program either by (a) partnering with Orange County Water District (OCWD) to develop a banking program to store water in the Orange County Groundwater Basin or (b) constructing surface storage facilities.

OCWD has approved a groundwater banking project with Metropolitan, which is IRWD's imported water provider. OCWD is not partnering with individual retail water agencies to develop groundwater banking programs at this time. Therefore, a groundwater banking program within Orange County is not feasible.

IRWD could construct surface storage facilities within its service area, such as reservoirs and tanks, to store water during wet years for use during dry years and multiple-drought years. Implementing an in-county surface storage program would require IRWD to purchase a substantial amount of land that could accommodate enough storage reservoirs and tanks with a combined maximum capacity of 50,000 AF. Environmental impacts associated with constructing a surface reservoir would likely be significant. In order to store a cumulative volume of water equivalent to the proposed project, the land acquisition required and implementation process is cost prohibitive for IRWD at this time.

Conservation

IRWD manages a water conservation program to reduce water demand in its service area. IRWD is a signatory to the Memorandum of Understanding Regarding Water Conservation in California (MOU) (August 1991). The MOU requires IRWD to implement programs designed to comply with or exceed prescribed urban water conservation Best Management Practices (BMPs) requirements (IRWD, 2011). The BMPs are intended to reduce long-term urban water demand. IRWD complies with the BMP requirements by implementing the California Urban Water Conservation Council (CUWCC) foundational BMPs and through the Gallons Per Capita Day (GPCD) calculation reporting system. The CUWCC foundational BMPs are:

1. Utility Operations
    a. Conservation Coordinator
    b. Water Waste Prevention
    c. Water Loss Control
    d. Metering and Commodity Rates
    e. Retail Conservation Pricing
2. Education Programs
    a. Public Information Programs
    b. School Education Program

In addition to the foundational BMPs, agencies have the option of implementing Programmatic BMPs or use the Flex Track approach which provides agencies with flexibility to implement a combination of programs within their service area.

Since 2005, IRWD has provided over $3 million in tactical incentives for approximately 95,000 devices (e.g. water efficient devices) with estimated lifetime water savings of almost 9,000 acre feet. This does not achieve the objective of the proposed project, however, to provide IRWD customers with increased water supply reliability through redundancy and diversification during periods when existing imported supplies are reduced or interrupted. Under extreme shortage scenarios, IRWD can temporarily implement further demand reduction efforts as described in IRWD's Water Shortage Contingency Plan. Conservation efforts combined with supplemental supplies provided by the proposed project to augment IRWD's supply portfolio provide the most effective and reliable water supply alternative. Therefore, conservation by itself was not considered feasible to achieve the project objectives.

Recycled Water

IRWD has an extensive water recycling program, which began in 1967. IRWD currently meets almost a quarter of its total demands with recycled water, and as a result reduced demands for potable and imported water (IRWD, 2011). Recycled water is primarily used for landscape and agricultural irrigation and other non-potable uses, such as industrial processes, cooling towers, and interior flushing in now 62 dual plumbed buildings. Currently, recycled water is used for 95 percent of all irrigation in IRWD's service area and meets over 23 percent of IRWD's total water resource demand (IRWD, 2011). IRWD has a dual distribution system that delivers recycled water from the Michelson Water Reclamation Plant (MWRP) and the Los Alisos Water Reclamation Plant (LAWRP) to non-potable end users (IRWD, 2011). IRWD has nearly completed construction of the MWRP Phase II Expansion project, which will increase the MWRP treatment capacity by an additional 10 million gallons per day (mgd), from 18 mgd to 28 mgd. By 2025, IRWD's total recycled water production capacity at the MWRP and LAWRP would be approximately 33 mgd by 2025. Recycled water that is produced during winter months, when irrigation demand is typically low, is delivered to seasonal recycled water storage reservoirs for later use during dry months.

The quality of recycled water effluent used for landscape irrigation and agriculture complies with Title 22, Division 4 of the California Administrative Code, Department of Public Health. Recycled water production is considered "drought-proof" because wastewater flow typically remains constant even during dry years, however, recycled water can only be used for state-approved non-drinking water uses. Additional recycled water use expansion could not be implemented as an alternative to the proposed project because IRWD already extensively serves recycled water to meet non-potable demands which has reduced potable water use. When imported water supplies may be cutback due to drought or interrupted, IRWD cannot use recycled water to meet potable water demands and therefore would need to augment potable water supply. Therefore, recycled water was not considered as a feasible project alternative.

6.2.2 No Project Alternative

According to Section §15126.6(e) of the CEQA Guidelines, discussion of the No Project Alternative must include a description of existing conditions and reasonably-foreseeable future conditions that would exist if the project were not approved. Under the No Project Alternative, IRWD would not construct recovery wells on Stockdale West; Rosedale would not construct recharge basins and recovery wells on Stockdale East; and the Central Intake Pipeline would not be built. Stockdale East would continue to be operated for agricultural production and Stockdale West also would accommodate agricultural activities within the existing recharge basins, including grazing. Groundwater would continue to be pumped from agricultural wells to support agricultural activities at both properties, with no recharge to offset such pumping. The third Stockdale project site would not be identified and developed, and the Stockdale Properties would not be integrated with Rosedale's Conjunctive Use Program. Under the No Project Alternative, IRWD's water supply would be less reliable during periods when existing supplies may be reduced or interrupted. Rosedale would continue to explore and develop partnerships with other water districts within or outside of the Kern Fan to expand its Conjunctive Use Program.

Ability to Meet Project Objectives

Implementation of the No Project Alternative would not provide the benefits of enhanced water supply reliability during dry periods for IRWD customers when other supply sources may be reduced or interrupted and would not provide additional recharge and recovery capacity for Rosedale's Conjunctive Use Program. Implementation of the No Project Alternative would not meet any of the stated project objectives and would not address IRWD's need for water supply reliability, redundancy, and diversification.

Impact Analysis

Under the No Project Alternative, the identified impacts associated with constructing and operating the proposed project would be avoided, such as impacts to air quality, noise, traffic, biological resources, and cultural resources. Under the No Project Alternative, during temporary periods when existing supplies are reduced due to drought or are interrupted, potable water demand in the IRWD service area would continue to be met with potentially less imported water and local groundwater supplies. It is expected that other water suppliers who produce water from the Orange County basin will also experience cutbacks of imported supplies and will increase groundwater production, and the OCWD imported replenishment water may also be cutback. This increased utilization of the basin could result in an accumulated overdraft that may only be sustainable for short durations. . During periods of catastrophic supply interruption and multi-year drought conditions, IRWD's water supply would be less reliable. Under the No Project Alternative, IRWD would not benefit from the water supply redundancy and diversification provided by the proposed project. IRWD would be more vulnerable to water supply disruptions caused by drought or other catastrophic water supply interruptions due to infrastructure failures, Delta water supply reductions, or reductions in other imported water deliveries from MWD.

Under the No Project Alternative, Rosedale would not have access to the recharge and recovery facilities proposed for the Stockdale Properties. Rosedale would be limited to the recharge

capacity of its existing recharge basins and forego any potential benefits to groundwater storage and overdraft correction associated with the proposed project. This includes foregoing correction of overdraft caused by groundwater pumping at Stockdale East to support existing farming practices.

6.3 Summary of Alternatives Analysis

One of the primary purposes of the alternatives analysis is to identify project alternatives that may avoid or substantially lessen significant project impacts (*CEQA Guidelines* §15126.6). The proposed project would not result in any significant impacts as documented in the analyses provided in Chapters 3, 4, and 5 of this Draft EIR. Nonetheless, CEQA requires that an EIR shall assess the No Project Alternative. A comparison of the proposed project to the No Project Alternative presents a tradeoff between achieving project objectives and impacting the environment. The No Project Alternative would avoid all the environmental impacts of the proposed project but would not meet any of the project objectives. The No Project Alternative also would forego any environmental benefits to the San Joaquin Valley Groundwater Basin such as correction of overdraft conditions, including those due to groundwater pumping to support irrigated agriculture at the Stockdale East property.

CEQA requires that an EIR identify the environmentally superior alternative of a project other than the No Project Alternative (*CEQA Guidelines* §15126.6(e)(2)). Since the proposed project would be compatible with agricultural land uses, support sustainable use of groundwater for agriculture in Kern County, benefit the San Joaquin Valley Groundwater Basin through recharge and storage, enhance water supply reliability for IRWD, and not result in any significant impacts that cannot be mitigated, the proposed project is considered the environmentally superior alternative.

TABLE 6-2
SUMMARY OF ALTERNATIVES ANALYSIS
RELATIVE IMPACTS AS COMPARED TO THE PROPOSED PROJECT

Environmental Resource	Proposed Project	No Project Alternative
Meets All Project Objectives?	Yes	No
Environmental Impacts		
Aesthetics	LSM	-
Agriculture and Forestry Resources	LSM	-
Air Quality	LTS	-
Biological Resources	LSM	-
Cultural Resources	LSM	-
Geology, Soils, and Seismicity	LSM	-
Greenhouse Gas Emissions	LTS	-
Hazards and Hazardous Materials	LSM	-
Hydrology and Water Quality	LSM	+
Land Use and Planning	LTS	-
Mineral Resources	LTS	-
Noise	LSM	-
Transportation and Traffic	LSM	-
Utilities and Energy	LSM	-
Cumulative Impacts	LSM	-

LTS = less than significant
LSM = less than significant with mitigation
+ = more severe/more intense
- = less severe/less intense
0 = no change

SOURCE: ESA 2015.

References – Alternatives Analysis

California Urban Water Conservation Council, 2013. Website: Resource Center – BMP Reporting Support. Accessed at: http://www.cuwcc.org/2column.aspx?id=16560.

Irvine Ranch Water District, 2011. *2010 Urban Water Management Plan.*

CHAPTER 7
Report Preparers

7.1 Project Sponsor / Lead Agency

Rosedale-Rio Bravo Water Storage District

P.O. Box 20820
Bakersfield, CA 93390-0820

Eric Averett, General Manager
Dan Bartel, Assistant General Manager

7.2 Project Sponsor / Responsible Agency

Irvine Ranch Water District

15600 Sand Canyon Avenue
Irvine, CA 92618

Paul Weghorst, Executive Director of Water Policy
Fiona Sanchez, Director of Water Resources
Kellie Welch, Water Resources Manager

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Thomas Harder & Co.

Groundwater Consulting
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Thomas Harder, Principal Hydrogeologist

Appendix A

Scoping Report

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Scoping Summary

date October 24, 2013

to Eric Averett, General Manager, Rosedale-Rio Bravo Water Storage District
Paul Weghorst, Director of Water Resources, Irvine Ranch Water District

from Jennifer Jacobus

subject Stockdale Integrated Banking Project Public Scoping

ROSEDALE RIO-BRAVO WATER STORAGE DISTRICT
STOCKDALE INTEGRATED BANKING PROJECT

Scoping Summary

Introduction

Rosedale-Rio Bravo Water Storage District (Rosedale), as the Lead Agency, in consultation with the Irvine Ranch Water District (IRWD), as a Responsible Agency, has proposed the Stockdale Integrated Banking Project (proposed project). The proposed project would allow both agencies to utilize available storage in the local San Joaquin Valley Groundwater Basin by developing groundwater banking facilities on up to three properties located approximately six miles west of the City of Bakersfield in western Kern County. The proposed project would include the Stockdale East property, which is owned by Rosedale, the Stockdale West property, which is owned by IRWD, and a potential third property that would be located within a designated radius around both properties in the unincorporated Kern County, California. Operation of the proposed project would be coordinated with Rosedale's existing Groundwater Storage, Banking, Exchange, Extraction & Conjunctive Use Program, which includes the existing Rosedale-IRWD Strand Ranch Integrated Banking Project. The proposed project would provide greater operational flexibility for Rosedale and would enhance water supply reliability for IRWD by providing contingency storage to augment supplies during dry-year periods when other supply sources may be limited or not available.

Notice of Preparation and Notice of Availability

The Notice of Preparation (NOP) was prepared pursuant to the California Environmental Quality Act (CEQA), to notify interested parties that Rosedale and IRWD will be preparing an Environmental Impact Report (EIR) to evaluate potential environmental impacts of the proposed project (see Attachment 1). The NOP was mailed on

September 24, 2013 to interested parties, including local, state, and federal agencies; news publications; and other groups or individuals who had previously expressed interest in the project. The NOP also was posted by the County Clerk in both Kern County and Orange County (see Attachment 1). A Notice of Completion (NOC) was also prepared by Rosedale and IRWD and sent to the State Clearinghouse. The proposed project was given a State Clearinghouse number of SCH# 2013091076, and the project information was posted in the CEQAnet Database (see Attachment 2). Copies of the NOP were made available for public review at local libraries (Beale Memorial Library in Bakersfield, CA and Heritage Park Regional Library in Irvine, CA). Copies of the NOP are also available for public review at the Rosedale website (www.rrbwsd.com) and at the IRWD website (www.irwd.com).

Scoping Period

The 30-day project scoping period began with the distribution of the NOP on September 24, 2013 and remained open through October 24, 2013. During the scoping period, one scoping meeting was held on October 15, 2013 at IRWD headquarters (15600 Sand Canyon Avenue, Irvine) and another scoping meeting was held on October 16, 2013 at Rosedale headquarters (849 Allen Road, Bakersfield). Public notices of the scoping meetings were placed in the Bakersfield Californian and Orange County Register newspapers (see Attachment 7).

At the scoping meetings, ESA gave a presentation on the proposed project and the CEQA process (see Attachment 3). No meeting participants attended the October 15, 2013 scoping meeting aside from ESA and IRWD staff. Only two meeting participants attended the October 16, 2013 scoping meeting at the Rosedale headquarters. Participant questions and comments were recorded and comment cards were also available for participants to fill out at the meeting or to send in at a later date. The sign-in sheet from the October 16, 2013, public scoping meeting is included as Attachment 4.

Comments

During the scoping period, Rosedale received a total of four (4) comment letters on the proposed project via mail and e-mail (see Attachment 5). Rosedale and IRWD received verbal comments during the scoping meeting, which have been recorded as Attachment 6.

The next formal opportunity for public comments will be associated with the release of the Draft Environmental Impact Report, expected to be available for public review in Winter 2014.

Contents of this Report

This Scoping Summary contains documents pertinent to the scoping process. The following items are included:

Attachment 1: Notice of Preparation
Attachment 2: Notice of Completion
Attachment 3: Scoping Meeting Presentation
Attachment 4: Scoping Meeting Sign-in Sheets
Attachment 5: Comment Letters Received by Rosedale
Attachment 6: Scoping Meeting Verbal Comments
Attachment 7: Public Notice of Scoping Meeting

Attachment 1: Notice of Preparation

Notice of Preparation

Date: September 24, 2013

To: Responsible and Trustee Agencies and Interested Parties

Subject: Notice of Preparation of an Environmental Impact Report

Project: Stockdale Integrated Banking Project

Lead Agency: Rosedale Rio-Bravo Water Storage District

This Notice of Preparation (NOP) has been prepared to notify agencies and interested parties that the Rosedale-Rio Bravo Water Storage District (Rosedale), as the Lead Agency, in consultation with the Irvine Ranch Water District (IRWD), as a Responsible Agency, is beginning preparation of an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) for the proposed Stockdale Integrated Banking Project (proposed project). The proposed project would allow both agencies to utilize available storage in the local San Joaquin Valley Groundwater Basin by developing groundwater banking facilities on up to three properties located approximately six miles west of the City of Bakersfield in western Kern County. As shown in **Figure 1**, the proposed project would include the Stockdale East property, which is owned by Rosedale, the Stockdale West property, which is owned by IRWD, and a potential third property that would be located within a designated radius around both properties. Operation of the proposed project would be coordinated with Rosedale's existing Groundwater Storage, Banking, Exchange, Extraction & Conjunctive Use Program, which includes the existing Rosedale-IRWD Strand Ranch Integrated Banking Project. The proposed project would provide greater operational flexibility for Rosedale and would enhance water supply reliability for IRWD by providing contingency storage to augment supplies during dry-year periods when other supply sources may be limited or not available. A description of the proposed project and its potential environmental impacts are included as Attachment A to this NOP.

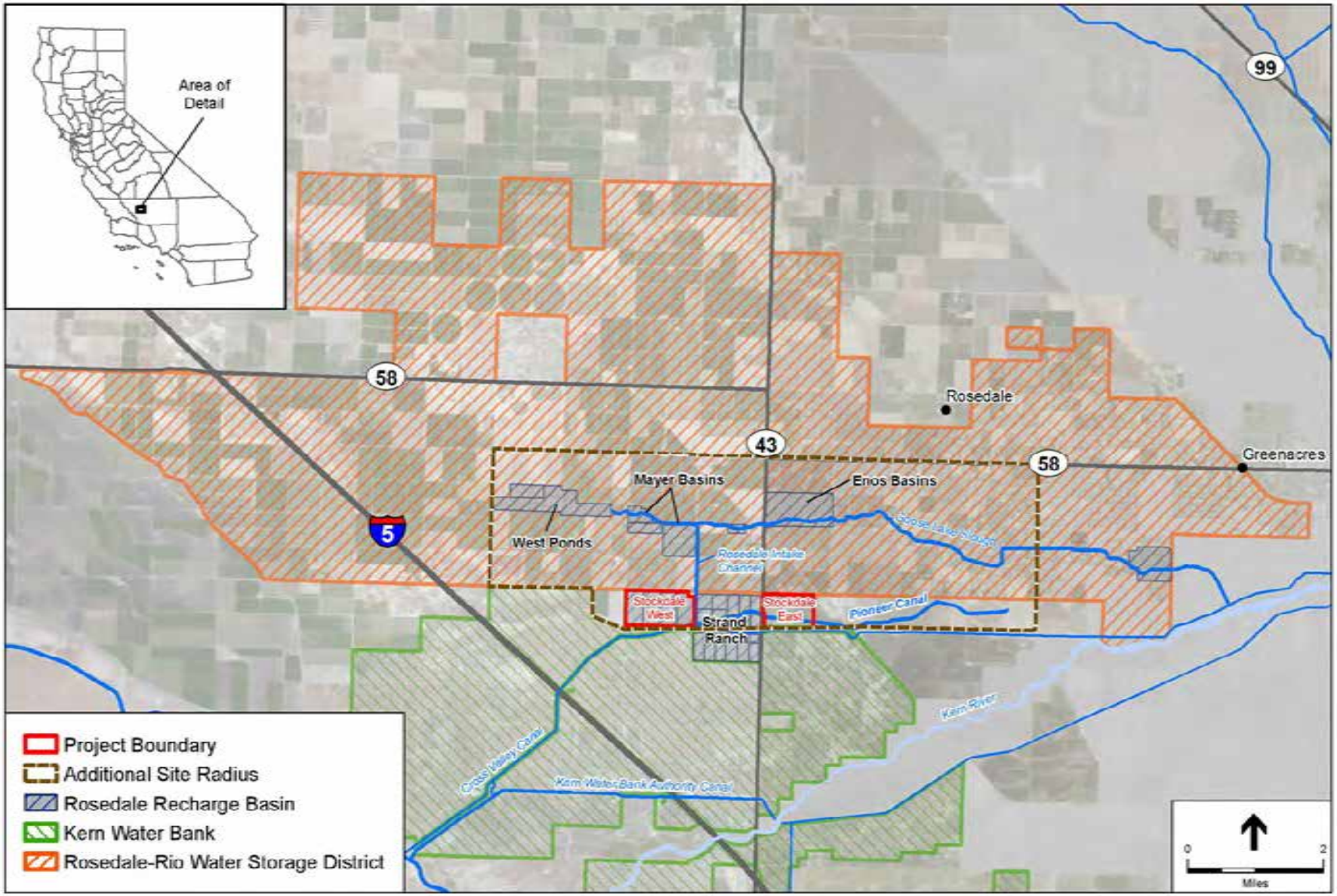
Rosedale and IRWD are soliciting the views of responsible and trustee agencies and interested persons as to the scope and content of the environmental information to be evaluated in the EIR. In accordance with CEQA, agencies are requested to review the project description provided in this NOP and provide comments on environmental issues related to the statutory responsibilities of the agency. The EIR will be used by Rosedale and IRWD when considering approval of the proposed project.

Comment Period. In accordance with the time limits mandated by CEQA, comments on the NOP must be received no later than 30 days after publication of this notice. Please send your comments to the contact person shown below, by **5:00 p.m. on October 24, 2013**. Please include a return address and contact name with your comments.

Contact: Eric Averett
General Manager
Rosedale-Rio Bravo Water Storage District
P.O. Box 20820
Bakersfield, CA 93390-0820
Telephone: (661) 589-6045
Email: eaverett@rrbwsd.com

Scoping Meetings. Two public meetings will be held to receive public comments and suggestions on the project. The scoping meetings will be open to the public as follows:

	Rosedale-Rio Bravo Water Storage District	Irvine Ranch Water District
DATE:	October 16, 2013	October 15, 2013
TIME:	2:00 PM	6:30 PM
LOCATION:	849 Allen Road Bakersfield, California	15600 Sand Canyon Avenue Irvine, California



SOURCE: Bing Maps

Stockdale Integrated Banking Project . 211181

Figure 1
Proposed Project Components

ATTACHMENT A
Stockdale Integrated Banking Project

1. Project Background

Rosedale-Rio Bravo Water Storage District

Rosedale-Rio Bravo Water Storage District (Rosedale) is located west of Bakersfield and encompasses approximately 44,000 acres in Kern County, with 27,500 acres developed as irrigated agriculture and approximately 7,500 acres developed for urban uses. Rosedale's service area overlies the Kern County Sub-Basin of the San Joaquin Valley Groundwater Basin. Rosedale was established in 1959 to develop a groundwater recharge program to offset overdraft conditions in the underlying basin. Rosedale's Groundwater Storage, Banking, Exchange, Extraction & Conjunctive Use Program (Conjunctive Use Program) currently manages approximately 470,000 acre feet (AF) of stored groundwater in the underlying basin, which has an estimated total storage capacity in excess of 1.7 million acre-feet. Water supplies for the Conjunctive Use Program are supplied by the participating water agencies and include high-flow Kern River water and supplies from the Central Valley Project (CVP) and State Water Project (SWP). Currently, the infrastructure for the Conjunctive Use Program includes over one thousand acres of recharge basins and several recovery wells. The current Program provides for maximum annual recharge of approximately 252,000 acre-feet per year (AFY) and maximum annual recovery of approximately 62,500 AFY.

Irvine Ranch Water District

Irvine Ranch Water District (IRWD) was established in 1961 as a California Water District pursuant to the California Water District Law (California Water Code, Division 13). IRWD provides potable and recycled water, sewage collection and treatment, and urban runoff treatment to municipal and industrial (M&I) and agricultural customers within an 115,531-acre service area in Orange County, California. Currently, 65 percent of the water IRWD provides for its customers comes from local sources, including groundwater (produced from the groundwater basin managed by Orange County Water District), surface water, and reclaimed water. The remaining 35 percent of IRWD's water supply is imported by the Metropolitan Water District of Southern California (Metropolitan or MWD) and purchased by IRWD through the Municipal Water District of Orange County (MWDOC).

IRWD currently participates in Rosedale's Conjunctive Use Program through its Strand Ranch Integrated Banking Project (see Figure 1). The Strand Ranch Project includes approximately 502 acres of groundwater recharge basins and seven production wells. IRWD has the ability to

store up to 50,000 AF and to recover 17,500 AFY in accordance with its banking project terms with Rosedale.

2. Project Objectives

The proposed project would allow both Rosedale and IRWD to utilize available storage in the local San Joaquin Valley Groundwater Basin by developing groundwater banking facilities on up to three properties located approximately six miles west of the City of Bakersfield in western Kern County. As shown in **Figure 1**, the proposed project would include the Stockdale East property, which is owned by Rosedale, the Stockdale West property, which is owned by IRWD, and a potential third property that would be located within a designated radius around both properties. The objectives of the proposed project are as follows:

- Integrate the proposed project facilities and coordinate the proposed project operations with Rosedale's Conjunctive Use Program, including the Strand Ranch Integrated Banking Project, to provide for maximum operational flexibility between the various programs and facilities.
- Provide additional groundwater recharge, storage, and recovery capacity in the Kern River Fan region to augment and provide operating flexibility for Rosedale's existing and future programs.
- Develop recharge and recovery capacities for each of IRWD's and Rosedale's respective properties to be available for its priority use and for the other agency's use to the extent not used on an annual basis.
- Develop additional groundwater recharge, storage, and recovery capacity to provide IRWD customers with increased water supply reliability through redundancy and diversification.

3. Purpose and Need for the Project

There is approximately 1.7 million acre-feet (AF) of storage available within the aquifer underlying the Rosedale service area. Rosedale has sufficient storage capacity for its agricultural customers and banking partners and also has considerable unused storage capacity. The proposed project would augment the recharge, storage, and extraction capabilities of the Conjunctive Use Program and provide greater operational flexibility to allow Rosedale to fulfill its mission to maintain groundwater levels within its service area.

In addition, the proposed project would enhance water supply reliability for IRWD by providing contingency storage to augment supplies during dry-year periods when other supply sources may be limited or unavailable. IRWD currently has 50,000 AF of storage associated with the neighboring Strand Ranch Integrated Banking Project (Strand Ranch). IRWD's use of unbalanced exchange programs at Strand Ranch has effectively reduced the amount of storage available to IRWD from 50,000 AF to 25,000 AF. The District desires to maintain a storage capacity of approximately 88,000 AF for its own use, and therefore it is necessary to develop or acquire additional storage and associated recharge and recovery capacity. The proposed project would

augment IRWD's contingency storage allowing it to achieve its storage goals to provide the desired amount of reliability for its water supply portfolio.

Utilizing existing storage capacity in the underlying aquifer avoids the need to construct extensive surface water storage facilities elsewhere to perform the same function. In addition, the proposed project avoids overdraft conditions by eliminating the unbalanced extraction of groundwater for agricultural production. Stockdale East and West are currently not within the boundaries of a public water agency, and thus water extracted historically for agricultural irrigation has not been replenished. The proposed project is consistent with Department of Water Resources (DWR) water management goals. In the *California Water Plan Update 2009*, DWR recognizes the benefits of conjunctive water management, which include improving water supply reliability, reducing groundwater overdraft and land subsidence, and protecting water quality and environmental conditions.

4. Project Location

The proposed project would be located in western Kern County, approximately six miles west of the City of Bakersfield, 10 miles southwest of the Friant-Kern Canal, 2.50 miles south of the City of Shafter, and six miles east of the California Aqueduct (see Figure 1). The project sites would consist of Stockdale East, Stockdale West, and a third property that may be acquired by either agency within a site radius shown in Figure 1 (collectively referred to as the "Stockdale Properties"). Specifically, Stockdale East consists of approximately 230 acres of agricultural land and is located adjacent to and north of the Cross Valley Canal (CVC). Currently the crops grown on Stockdale East are cotton and alfalfa. There is a small pilot groundwater banking facility on Stockdale East as well. Stockdale West consists of approximately 323 acres of land and is located north of the Pioneer Canal and the CVC. Existing conditions at Stockdale West include four recharge basins and one overflow basin that cover 265 acres, built as part of a one-year Pilot Recharge Project in year 2011.

5. Project Description

The proposed project would construct and operate groundwater banking facilities at the Stockdale Properties. Rosedale and IRWD would each retain priority rights to the recharge and recovery capacities identified for their respective properties. Each agency would also retain for their primary use the defined storage capacities associated with their respective properties. Each agency would have equivalent access to available and unused recharge and recovery capacities in each other's facilities not used on an annual basis through each agency's priority rights. In addition to storage capacity tied to Stockdale West, IRWD also would have access to an additional 50,000 AF of storage in Rosedale's Conjunctive Use Program under a proposed Program Agreement between Rosedale and IRWD.

The proposed project would integrate facilities at the Stockdale Properties with Rosedale's existing Conjunctive Use Program and the Strand Ranch Integrated Banking Project. The proposed project would allow for coordinated operation of recharge and recovery facilities at the Stockdale Properties with the Strand Ranch and Conjunctive Use Programs. Rosedale may

provide IRWD access to unused recharge and recovery capacity from its Conjunctive Use Program subject to the annual recharge and recovery limits previously analyzed in accordance with CEQA. The Conjunctive Use Program and Strand Ranch facilities have already been evaluated in accordance with CEQA.

Water Supplies

Source waters for recharge would be secured and acquired by Rosedale and IRWD from various sources, including federal, state, and local suppliers through unbalanced exchange agreements, purchase, temporary transfers, permanent transfers or other water exchange and management programs as may be developed. Specifically, water supply sources could include, but are not limited to, the State Water Project (SWP), the Kern River, and Central Valley Project (CVP).

Recharge Facilities

In 2011, IRWD constructed four recharge basins and one overspill containment basin on the Stockdale West property as part of the one-year Pilot Recharge Project. The Pilot Recharge Project facilities include basins and earthen berms consisting of varying shape, size and depth covering 265 acres (or 82 percent) of the property. The existing basin layout avoids the edges of the Pioneer Canal and the CVC. The proposed project would utilize the existing recharge basins on Stockdale West. No other recharge basins would be constructed on Stockdale West. However, embankments may be constructed to divide the existing basins into smaller impoundments as may be necessary in the future.

Stockdale East currently has small pilot groundwater banking facilities onsite. The proposed project would construct new recharge and conveyance facilities on the Stockdale East property, including basins and berms that would occupy approximately 200 acres (or 87 percent) of the property. Recharge facilities would consist of up to eight recharge basins of varying shape, size, and depth. The third Stockdale Property also may be developed with new recharge facilities, similar to those described for Stockdale East and Stockdale West. It is anticipated that recharge capacity at the third property would be comparable to neighboring banking projects.

Recharge basins and conveyance facilities at the Stockdale Properties would be constructed, operated and maintained in a manner to prevent high groundwater conditions that would impact CVC operations. It is anticipated that a groundwater monitoring program, similar to that developed for the Kern Water Bank Authority and Strand Ranch, would be developed for the proposed project.

Extraction Facilities

The proposed recovery facilities at all three Stockdale Properties would be designed to minimize impacts to wells pumping on adjacent properties. Recovery capacity and the number of wells to be constructed at the Stockdale Properties will be determined based on modeling of specific subsurface conditions at each site. IRWD will reserve priority use of all recovery facilities and capacities located on the Stockdale West property while Rosedale will reserve priority use of the recovery facilities and capacities located on the Stockdale East property.

Similar to the Strand Ranch Project, the proposed project would provide flexibility for IRWD and Rosedale to pump from existing off-site wells within Rosedale's service area when unused capacity is available. In addition, the proposed project includes the opportunity for IRWD and Rosedale to construct and pump from up to three new additional wells within the Rosedale service area. These wells would be joint-use wells providing recovery capacity for both agencies in support of the proposed project or to meet other recovery obligations. The proposed project would provide the flexibility to combine the use of the wells on the Stockdale Properties with these joint-use wells to meet pumping obligations.

Conveyance Facilities

Water would be conveyed to the proposed project via the CVC and Rosedale's Intake Channel. In addition, other regional facilities may be used to move water to/from the project, such as the Pioneer Canal, subject to any necessary approvals.

Water could be conveyed to Stockdale West through the existing Strand Ranch facility using an existing siphon and intake structure that connects the two properties. This conveyance strategy would utilize the existing CVC Strand Ranch North Turnout, and water would flow by gravity to Stockdale West. Additional improvements to the Rosedale Intake Channel or CVC turnouts may be modified or constructed to improve the ability to deliver water to Stockdale West.

Water could be conveyed to Stockdale East via the CVC and other regional facilities, such as the Pioneer Canal. Water could be conveyed to the Pioneer Canal through existing turnouts from the Strand Ranch Canal or the CVC. A new turnout or turnouts from the CVC and/or the Pioneer Canal to the Stockdale East Property may also be constructed. A low head lift station would be constructed to lift the water the few feet necessary to recharge on portions of the property.

Groundwater recovered from the production wells on Stockdale East and Stockdale West would be conveyed to the CVC through new recovery pipelines that would be below ground, running along the dirt roads between recharge basins or buried in the basin bottoms, with exact locations subject to final well placement. The recovery pipelines could connect to the Rosedale Intake Channel and/or the CVC. Groundwater recovered from the three off-site wells within Rosedale's service area also would be conveyed to the CVC through new or existing pipelines that would connect to the Rosedale Intake Channel. Construction and operation of these off-site recovery pipelines have already been evaluated in accordance with CEQA as part of Rosedale's Conjunctive Use Program.

6. Discussion of Impacts

In accordance with Section 15126 of the CEQA Guidelines, the EIR will assess the physical changes to the environment that would likely result from construction and operation of the proposed project, including direct, indirect and cumulative impacts and growth-inducing impacts. The EIR will provide an assessment of impacts at the project level for facilities and activities associated with Stockdale East and Stockdale West (CEQA Guidelines Section 15161) and at the program level for facilities and activities associated with the third Stockdale Property (CEQA Guidelines Section 15168). A subsequent assessment of impacts would be required in accordance

with CEQA prior to implementation of project facilities at the third Stockdale Property, once the location and project design have been identified.

Potential impacts of the proposed project are summarized below. The EIR will identify mitigation measures if necessary to reduce potentially significant impacts of the proposed project. The EIR also will discuss alternatives to the proposed project, including the no-project alternative.

Aesthetics

The existing aesthetic quality of the project area is dominated by rural agriculture. The proposed project would alter the visual character of the project sites and their surroundings by converting agricultural land uses to groundwater banking land uses. The EIR will evaluate the potential for the proposed project to impact aesthetic resources, including visual character, scenic vistas, and new sources of light and glare.

Agricultural Resources

The proposed project would increase the amount and reliability of groundwater supplies available for irrigated agriculture in the region and contribute beneficially to agricultural production. When not being used for groundwater recharge, the properties may be maintained by either grazing or irrigated agricultural activities. The EIR will determine if the Stockdale Properties include lands designated by the state's Farmland Mapping and Monitoring Program as Prime, Unique, or Important Farmland and if the project sites are located within Kern County agricultural preserves or under Williamson Act contracts. If necessary, mitigation measures will be developed to reduce impacts to agricultural resources.

Air Quality

Construction of the proposed project would generate emissions from construction equipment exhaust, earth movement, construction workers' commute, and material hauling. The EIR will estimate construction related emissions and long-term operational emissions of the proposed project. The EIR will also evaluate the proposed project's consistency with the regional air quality attainment plans. The EIR will develop mitigation measures if necessary to reduce impacts associated with the project.

Biological Resources

The proposed project is located on and surrounded by agricultural lands; natural habitat in the immediate vicinity is limited. The EIR will evaluate the potential for the proposed project to impact biological resources, such as sensitive species and critical habitats, and will evaluate the project's consistency with the Metropolitan Bakersfield Habitat Conservation Plan (HCP), Kern Water Bank HCP, local ordinances, and state and federal regulations governing biological resources.

Cultural Resources

Although the Stockdale Properties would be located in disturbed areas primarily used for agricultural production, excavation below the top soil could uncover previously unknown archaeological or paleontological resources. Historic resources also may exist in the area. The

EIR will assess the potential effects of the proposed project on cultural resources. Mitigation measures will be developed if necessary to reduce the level of impact where possible.

Geology, Soils, and Seismicity

The proposed project is located in a seismically active region. New project facilities could be subject to potential seismic hazards including ground shaking. In addition, ground-disturbing construction activities could expose soils to storm water erosion. The EIR will evaluate geologic hazards in the region and will develop mitigation measures if necessary to reduce potential effects of the proposed project.

Greenhouse Gas Emissions

Construction activities would require operation of equipment and vehicles that emit greenhouse gases (GHGs). Project facilities would be operated with electric power, the generation of which produces GHGs. The EIR will quantify GHG emissions associated with project construction and operation in terms of carbon dioxide equivalent (CO2e) emissions and compare project emissions to regional thresholds of significance. The analysis will consider the collective size of project facilities with respect to levels of CO2e emissions and the energy efficiency parameters of the project.

Hazards and Hazardous Materials

Construction of new project facilities would require excavation of the existing ground surface, which could uncover contaminated soils or hazardous substances that pose a substantial hazard to human health or the environment. The EIR will assess the potential for encountering hazardous materials and conditions and will develop mitigation measures if necessary to ensure that any hazards encountered during construction would be handled in accordance with applicable regulations. The EIR will also assess the potential for the public or the environment to be affected by accidental release of hazardous materials due to project construction and operation and will develop mitigation measures if necessary to minimize potential effects. Operation of groundwater recharge basins could mobilize existing soil contamination. The EIR will assess the potential for project operations to affect the location of contamination plumes and subsequently affect groundwater quality.

Hydrology and Water Quality

The EIR will identify surface water and groundwater resources in the vicinity of the Stockdale Properties and will evaluate potential impacts posed by the project during construction and operation. The EIR will describe the recharge, storage, and recovery capacities of Stockdale East and Stockdale West and model potential impacts of recharge and extraction activities both onsite and offsite. The EIR will summarize the results of a groundwater drawdown analysis for proposed production well operations and a mounding analysis for proposed recharge operations. Cumulative impacts of operating the proposed project will include an assessment of incremental impacts to groundwater due to coordinated operation of the project facilities and facilities associated with the Conjunctive Use Program and Strand Ranch Project, and any other neighboring groundwater recharge or recovery facilities.

The EIR will also provide existing groundwater quality data, analyze the differential project impacts to water quality based on source waters, and analyze the impact of project operations on any nearby groundwater contamination plumes. In addition, the EIR also will describe potential impacts associated with storm water runoff and develop mitigation measures if necessary to meet construction and operational storm water quality requirements and minimize impacts to receiving waters.

Land Use

The proposed project would be located in a rural area of Kern County. The EIR will identify the designated land uses for the Stockdale Properties. The EIR will evaluate consistency of the proposed project with existing land uses within the project area and develop mitigation measures to avoid inconsistencies if necessary.

Mineral Resources

Petroleum resources and oil production facilities are present in the western portion of Kern County where the proposed project would be located. Stockdale East currently has three operating oil wells with pumping units, one tank farm, one produced water injection well, three idle, and two plugged wellheads onsite. The status of oil operations will be described in the EIR. The EIR will identify impacts to mineral resources that would result from implementation of the proposed project and develop mitigation measures to avoid or substantially lessen impacts, if necessary.

Noise

Construction of the proposed project would generate noise that could be audible by nearby residents and other sensitive receptors in the vicinity of the Stockdale Properties. The EIR will evaluate the proximity of sensitive receptors to the project sites and recommend mitigation measures if necessary to ensure that the proposed project complies with local policies and ordinances and minimizes noise impacts.

Transportation and Traffic

Construction of the proposed project would temporarily add additional vehicle trips to local transportation corridors, including material haul trips and construction worker commutes. The EIR will evaluate the impact of the proposed project on traffic and circulation in the vicinity of the project sites and local and regional roadways. The EIR will develop mitigation measures if necessary to minimize any potential effects.

Utilities and Energy

Construction and operation of the proposed project could affect public utilities and regional energy requirements. The EIR will describe any potential need for water entitlements to operate the proposed project and identify potential impacts to local and regional energy supplies and capacity due to operation of pumps and wellheads. The EIR also will describe any potential impacts on storm water drainage systems and solid waste facilities, including regional landfill capacities and availability to accept construction debris.

FILED
KERN COUNTY

SEP 24 2013

MARY B. BEDARD
AUDITOR CONTROLLER-COUNTY CLERK
BY _____ DEPUTY

Notice of Preparation

Date: September 24, 2013

To: Responsible and Trustee Agencies and Interested Parties

Subject: Notice of Preparation of an Environmental Impact Report

Project: Stockdale Integrated Banking Project

Lead Agency: Rosedale Rio-Bravo Water Storage District

This Notice of Preparation (NOP) has been prepared to notify agencies and interested parties that the Rosedale-Rio Bravo Water Storage District (Rosedale), as the Lead Agency, in consultation with the Irvine Ranch Water District (IRWD), as a Responsible Agency, is beginning preparation of an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) for the proposed Stockdale Integrated Banking Project (proposed project). The proposed project would allow both agencies to utilize available storage in the local San Joaquin Valley Groundwater Basin by developing groundwater banking facilities on up to three properties located approximately six miles west of the City of Bakersfield in western Kern County. As shown in **Figure 1**, the proposed project would include the Stockdale East property, which is owned by Rosedale, the Stockdale West property, which is owned by IRWD, and a potential third property that would be located within a designated radius around both properties. Operation of the proposed project would be coordinated with Rosedale's existing Groundwater Storage, Banking, Exchange, Extraction & Conjunctive Use Program, which includes the existing Rosedale-IRWD Strand Ranch Integrated Banking Project. The proposed project would provide greater operational flexibility for Rosedale and would enhance water supply reliability for IRWD by providing contingency storage to augment supplies during dry-year periods when other supply sources may be limited or not available. A description of the proposed project and its potential environmental impacts are included as Attachment A to this NOP.

Rosedale and IRWD are soliciting the views of responsible and trustee agencies and interested persons as to the scope and content of the environmental information to be evaluated in the EIR. In accordance with CEQA, agencies are requested to review the project description provided in this NOP and provide comments on environmental issues related to the statutory responsibilities of the agency. The EIR will be used by Rosedale and IRWD when considering approval of the proposed project.

Comment Period. In accordance with the time limits mandated by CEQA, comments on the NOP must be received no later than 30 days after publication of this notice. Please send your comments to the contact person shown below, by **5:00 p.m. on October 24, 2013**. Please include a return address and contact name with your comments.

Contact: Eric Averett
General Manager
Rosedale-Rio Bravo Water Storage District
P.O. Box 20820
Bakersfield, CA 93390-0820
Telephone: (661) 589-6045
Email: eaverett@rrbwsd.com

Scoping Meetings. Two public meetings will be held to receive public comments and suggestions on the project. The scoping meetings will be open to the public as follows:

	Rosedale-Rio Bravo Water Storage District	Irvine Ranch Water District
DATE:	October 16, 2013	October 15, 2013
TIME:	2:00 PM	6:30 PM
LOCATION:	849 Allen Road Bakersfield, California	15600 Sand Canyon Avenue Irvine, California

Notice of Environmental Document
Posted by County Clerk on 9/25/13
and for 30 days thereafter. Pursuant to
Section 21152(C), Public Resources Code

3076

Notice of Preparation

POSTED

SEP 24 2013

ORANGE COUNTY CLERK-RECORDER DEPARTMENT

BY: _____ DEPUTY

Date: September 24, 2013

To: Responsible and Trustee Agencies and Interested Parties

Subject: Notice of Preparation of an Environmental Impact Report

Project: Stockdale Integrated Banking Project

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TIME:	2:00 PM	6:30 PM
LOCATION:	849 Allen Road Bakersfield, California	15600 Sand Canyon Avenue Irvine, California

Attachment 2: Notice of Completion

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: Stockdale Integrated Banking Project

Lead Agency: Rosedale-Rio Bravo Water Storage District | Contact Person: Eric Averett
Mailing Address: 849 Allen Road | Phone: (661) 589-6045
City: Bakersfield | Zip: 93390-0820 | County: Kern County

Project Location: County: Kern | City/Nearest Community: Rosedale
Cross Streets: Stockdale Hwy & Enos Lane (Hwy 43) | Zip Code: 93312
Longitude/Latitude (degrees, minutes and seconds): ____° ____' ____" N / ____° ____' ____" W Total Acres: ____
Assessor's Parcel No.: ____ Section: ____ Twp.: ____ Range: ____ Base: ____
Within 2 Miles: State Hwy #: 58, 43, 119 | Waterways: Kern River, Cross Valley Canal, Pioneer Canal
Airports: ____ | Railways: Santa Fe Railroad | Schools: ____

Document Type:

CEQA: ☑ NOP ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ____ ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec Other: ____
NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI
Other: ☐ Joint Document ☐ Final Document ☐ Other: ____

Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☐ Other: ____

Development Type:

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational: ____
☐ Recreational: ____
☑ Water Facilities: Type recharge & wells MGD ____
☐ Transportation: Type ____
☐ Mining: Mineral ____
☐ Power: Type ____ MW ____
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type ____
☐ Other: ____

Project Issues Discussed in Document:

☑ Aesthetic/Visual ☑ Agricultural Land ☑ Air Quality ☑ Archeological/Historical ☑ Biological Resources ☐ Coastal Zone ☑ Drainage/Absorption ☐ Economic/Jobs
☐ Fiscal ☑ Flood Plain/Flooding ☐ Forest Land/Fire Hazard ☑ Geologic/Seismic ☑ Minerals ☑ Noise ☐ Population/Housing Balance ☐ Public Services/Facilities
☐ Recreation/Parks ☐ Schools/Universities ☐ Septic Systems ☐ Sewer Capacity ☑ Soil Erosion/Compaction/Grading ☑ Solid Waste ☑ Toxic/Hazardous ☑ Traffic/Circulation
☐ Vegetation ☑ Water Quality ☑ Water Supply/Groundwater ☐ Wetland/Riparian ☑ Growth Inducement ☑ Land Use ☑ Cumulative Effects ☐ Other: ____

Present Land Use/Zoning/General Plan Designation:

Stockdale East - Intensive Agriculture; Exclusive Agriculture. Stockdale West - Intensive Agriculture; Exclusive Agriculture.

Project Description: *(please use a separate page if necessary)*

The Rosedale-Rio Bravo Water Storage District (Rosedale), as the Lead Agency, in consultation with the Irvine Ranch Water District (IRWD), as the Responsible Agency, proposes the Stockdale Integrated Banking Project. The proposed project would be located on three properties in the vicinity of Stockdale Highway and Enos Lane (Hwy 43). The proposed project would develop groundwater banking facilities, including recharge basins and groundwater production wells, on the three properties. The proposed project would augment the recharge and extraction capacity of Rosedale's existing Conjunctive Use Program and provide greater operational flexibility. The proposed project would also enhance water supply reliability for IRWD by providing contingency storage to augment supplies during dry-year periods when other supply sources may be limited or not available.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

___X___	Air Resources Board	___X___	Office of Emergency Services
_____	Boating & Waterways, Department of	___X___	Office of Historic Preservation
_____	California Highway Patrol	_____	Office of Public School Construction
___X___	Caltrans District # 6	_____	Parks & Recreation, Department of
_____	Caltrans Division of Aeronautics	_____	Pesticide Regulation, Department of
_____	Caltrans Planning	_____	Public Utilities Commission
_____	Central Valley Flood Protection Board	___X___	Regional WQCB # 5
_____	Coachella Valley Mtns. Conservancy	___X___	Resources Agency
_____	Coastal Commission	_____	S.F. Bay Conservation & Development Comm.
_____	Colorado River Board	_____	San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
___X___	Conservation, Department of	_____	San Joaquin River Conservancy
_____	Corrections, Department of	_____	Santa Monica Mtns. Conservancy
_____	Delta Protection Commission	_____	State Lands Commission
_____	Education, Department of	_____	SWRCB: Clean Water Grants
_____	Energy Commission	___X___	SWRCB: Water Quality
___X___	Fish & Game Region # 4	_____	SWRCB: Water Rights
_____	Food & Agriculture, Department of	_____	Tahoe Regional Planning Agency
_____	Forestry and Fire Protection, Department of	___X___	Toxic Substances Control, Department of
_____	General Services, Department of	___X___	Water Resources, Department of
___X___	Health Services, Department of		
_____	Housing & Community Development	_____	Other: _____
_____	Integrated Waste Management Board	_____	Other: _____
___X___	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date September 24, 2013 Ending Date October 24, 2013

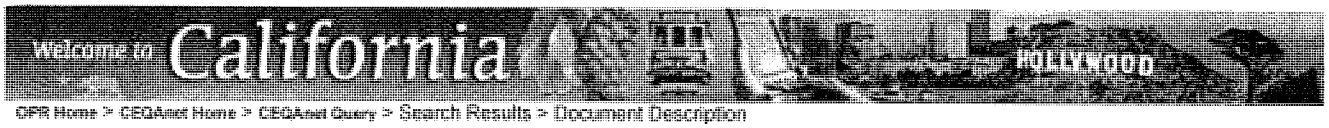
Lead Agency (Complete if applicable):

Consulting Firm: ESA
Address: 626 Wilshire Blvd, Suite 1100
City/State/Zip: Los Angeles, CA 90017
Contact: Jennifer Jacobus
Phone: (213) 599-4300

Applicant: _____
Address: _____
City/State/Zip: _____
Phone: _____

Signature of Lead Agency Representative: _____ **Date:** 9/23/13

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.



Stockdale Integrated Banking Project

SCH Number: 2013091076

Document Type: NOP - Notice of Preparation

Project Lead Agency: Rosedale-Rio Bravo Water Storage District

Project Description

The Rosedale-Rio Bravo Water Storage District, as the Lead Agency, in consultation with the Irvine Ranch Water District (IRWD), as the Responsible Agency, proposes the Stockdale Integrated Banking Project. The proposed project would be located on three properties in the vicinity of Stockdale Highway and Enos Lane (Hwy 43). The proposed project would develop groundwater banking facilities, including recharge basins and groundwater production wells, on the three properties. The proposed project would augment the recharge and extraction capacity of Rosedale's existing Conjunctive Use Program and provide greater operational flexibility. The proposed project would also enhance water supply reliability for IRWD by providing contingency storage to augment supplies during dry-year periods when other supply sources may be limited or not available.

Contact Information

Primary Contact:
Eric Averett
Rosedale-Rio Bravo Water Storage District
661/589-6045
849 Allen Road
P.O. Box 867
Bakersfield, CA 93302-0867

Project Location

County: Kern
City:
Region:
Cross Streets: Stockdale Hwy & Enos Lane (Hwy 43)
Latitude/Longitude:
Parcel No:
Township:
Range:
Section:
Base:
Other Location Info: Rosedale

Proximity To

Highways: Hwy 58, 43, 119
Airports:
Railways: Santa Fe Railroad
Waterways: Kern River, Cross Valley Canal, Pioneer Canal
Schools:
Land Use: Stockdale East - Intensive Agriculture; Exclusive Agriculture. Stockdale West - Intensive Agriculture; Exclusive Agriculture.

Development Type

Water Facilities

Local Action

Project Issues

Aesthetic/Visual, Agricultural Land, Air Quality, Archaeologic-Historic, Biological Resources, Drainage/Absorption, Flood Plain/Flooding, Geologic/Seismic, Minerals, Noise, Soil Erosion/Compaction/Grading, Solid Waste, Toxic/Hazardous, Traffic/Circulation, Water Quality, Water Supply, Growth Inducing, Landuse, Cumulative Effects

Reviewing Agencies (Agencies in **Bold Type** submitted comment letters to the State Clearinghouse)

Resources Agency; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Wildlife, Region 4; CA Department of Public Health; Native American Heritage Commission; Public Utilities Commission; California Highway Patrol; Caltrans, District 6; State Water Resources Control Board, Divison of Financial Assistance; State Water Resources Control Board, Division of Water Quality; State Water Resources Control Board, Division of Water Rights; Regional Water Quality Control Bd., Region 5 (Fresno)

Date Received: 9/24/2013 **Start of Review:** 9/24/2013 **End of Review:** 10/23/2013

CEQAnet HOME | NEW SEARCH

Attachment 3: Scoping Meeting Presentation

Stockdale Integrated Banking Project

CEQA SCOPING MEETINGS

October 15 and 16, 2013

ESA is where solutions and service meet.

Purpose of Meeting & Agenda

- Purpose of Meeting
  - Provide an opportunity for agencies and interested persons to provide input regarding the scope and content of environmental information to be evaluated in the Draft Environmental Impact Report (EIR)
- Agenda
  - California Environmental Quality Act (CEQA) Overview and Process
  - Project Background
  - Project Description
  - Project Objectives
  - Issues Analyzed in the EIR
  - CEQA Schedule for Project
  - Receive Public Comments

California Environmental Quality Act

CEQA Process for an EIR

Rosedale-Rio Bravo Water Storage District

- Established in 1959 to develop a groundwater recharge program to offset overdraft conditions in the underlying San Joaquin Valley Groundwater Basin.
- Service Area
  - 44,000 acres west of Bakersfield
  - 27,500 acres irrigated agriculture; 7,500 acres urban uses
- Groundwater Storage, Banking, Exchange, Extraction & Conjunctive Use Program
  - Total storage capacity in excess of ~1.7 million AF
  - Annual recharge of ~252,000 AFY
  - Maximum annual recovery ~62,500 AFY
  - Over 1,000 acres of recharge basins

Rosedale-Rio Bravo Water Storage District

Irvine Ranch Water District

- Established in 1961, IRWD provides potable and recycled water, sewage collection and treatment, and urban runoff treatment.
- Service Area
  - 115,531 acres in Orange County, including all of the City of Irvine and portions of the Cities of Costa Mesa, Lake Forest, Newport Beach, Orange, Santa Ana, Tustin, and unincorporated Orange County
- Strand Ranch Integrated Banking Project:
  - IRWD participates in Rosedale's Conjunctive Use Program
  - 502 acres of recharge basins / 7 production wells
  - 50,000 AF storage limit / 17,500 AFY recovery limit

Stockdale Integrated Banking Project

- The proposed project would allow both Rosedale and IRWD to utilize available storage in the local San Joaquin Valley Groundwater Basin by developing groundwater banking facilities on the Stockdale Properties:
  - Stockdale East – Rosedale
  - Stockdale West – IRWD
  - Third property within a designated site radius
- Project facilities include new recharge basins, extraction wells, conveyance facilities

Stockdale Integrated Banking Project

- Rosedale and IRWD retain priority rights to recharge and recovery capacities for their own properties.
- Equivalent access to available and unused recharge and recovery capacities in each other's facilities.
- Integration of project facilities with the Conjunctive Use Program and Strand Ranch Project.
- Coordinated operation of project facilities with the Conjunctive Use Program and Strand Ranch Project.

Stockdale Integrated Banking Project

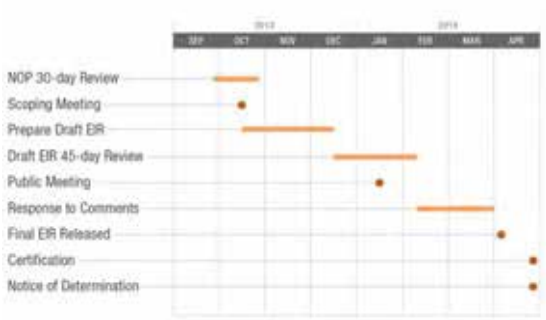
Stockdale Project Objectives

- Integrate the proposed project facilities and coordinate the proposed project operations with Rosedale's Conjunctive Use Program, including the Strand Ranch Integrated Banking Project, to provide for maximum operational flexibility between the various programs and facilities.
- Provide additional groundwater recharge, storage, and recovery capacity in the Kern River Fan region to augment and provide operating flexibility for Rosedale's existing and future programs.
- Develop recharge and recovery capacities for each of IRWD's and Rosedale's respective properties to be available for its priority use and for the other agency's use to the extent not used on an annual basis.
- Develop additional groundwater recharge, storage, and recovery capacity to provide IRWD customers with increased water supply reliability through redundancy and diversification.

Issues Analyzed in the EIR

- Aesthetics
- Agriculture & Forestry
- Air Quality & GHG
- Biological Resources
- Cultural Resources
- Geology, Soils, & Seismicity
- Hazards &Hazardous Materials
- Hydrology &Water Quality
- Land Use & Recreation
- Mineral Resources
- Noise
- Public Services
- Transportation and Traffic
- Utilities and Energy
- Alternatives Analysis
- Cumulative Impacts
- Growth Inducement

Estimated CEQA Schedule



NOP Review and Comment

- Please send comments to:

Eric Averett, General Manager
Rosedale-Rio Bravo Water Storage District
P.O. Box 20820
Bakersfield, CA 93390-0820
eaverett@rrbwsd.com

- Written comments must be received by:

5:00 PM on October 24, 2013

- Include contact information with all comments
- NOP document availability: **www.irwd.com**

Public Comments

Attachment 4: Scoping Meeting Sign-in Sheets

Sign-in Sheet

Irvine Ranch Water District
15600 Canyon Avenue, Irvine, CA
Tuesday, October 15, 2013 | 6:30pm

Rosedale Rio-Bravo Water Storage District
849 Allen Road. Bakersfield, CA
Wednesday. October 16, 2013 | 2:00pm

The signing, registering, or completion of this document is voluntary. All persons may attend this meeting regardless of whether they sign, register, or complete this document.

Name: DEE JASPAR
Company/Affiliation: DEE JASPAR & ASSOC, INC
Address: 2730 UNICORN RD. BLDG "A"
BAKERSFIELD CA 93308
Email: djaspar@djaciv1.com
Do you want future notices regarding this project? ☐ yes ☐ no

Name:
Company/Affiliation:
Address:
Email:
Do you want future notices regarding this project? ☐ yes ☐ no

Name: Stephen Reich
Company/Affiliation: Stetson Engineers
Address: 2171 Francisco Blvd. E.
San Rafael, CA 94901
Email: Steverc@stetsonengineers.com.
Do you want future notices regarding this project? ☒ yes ☐ no

Name:
Company/Affiliation:
Address:
Email:
Do you want future notices regarding this project? ☐ yes ☐ no

Name:
Company/Affiliation:
Address:
Email:
Do you want future notices regarding this project? ☐ yes ☐ no

Name:
Company/Affiliation:
Address:
Email:
Do you want future notices regarding this project? ☐ yes ☐ no

Name:
Company/Affiliation:
Address:
Email:
Do you want future notices regarding this project? ☐ yes ☐ no

Name:
Company/Affiliation:
Address:
Email:
Do you want future notices regarding this project? ☐ yes ☐ no

Attachment 5: Comment Letters Received by Rosedale

ARVIN-EDISON WATER STORAGE DISTRICT

October 22, 2013

Eric Averett, General Manager
Rosedale-Rio Bravo Water Storage District
P.O. Box 20820
Bakersfield, CA 93390-0820

Re: *Stockdale Integrated Banking Project NOP Comments*

Dear Mr. Averett:

Thank you for providing Arvin-Edison Water Storage District (AEWSD) the opportunity to comment on the Rosedale-Rio Bravo Water Storage District (RRBWSD) and Irvine Ranch Water District's Notice of Preparation (NOP) of an Environmental Impact Report (EIR) regarding the Stockdale Integrated Banking Project (Project).

AEWSD is generally supportive of groundwater banking programs and projects. As you are aware, AEWSD also has a long-term water management program/agreement with RRBWSD and values the relationship.

AEWSD's primary concern is with respect to water quality. This Project anticipates discharging native groundwater into the Cross Valley Canal (CVC). Currently there is no water quality policy on the CVC, which would address, among other things, potential degradation of CVC supplies. Accordingly, the Project cannot point to existing requirements and operational guidelines to limit degradation; and therefore, limit any water quality impacts from the Project. Subsequently, the EIR will need to address potential degradation of receiving water supplies and subsequent mitigation needs, if any.

Thank you, and again we appreciate the opportunity to provide input into your Project. If you have questions or comments, please don't hesitate to call or email.

Sincerely,

Steve Collup
Engineer-Manager

cc: Jeevan Muhar, Staff Engineer
Holly Melton, KCWA/CVC

SCC:JSM:sj\AEWSD\RRBWSD\Averett.Eric.NOP.comments.SIBP.10.13.doc

20401 Bear Mountain Boulevard · P.O. Box 175 · Arvin, CA 93203
Telephone (661) 854-5573 · Fax (661) 854-5213 · E-mail: arvined@aewsd.org

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, CA 93710
(559) 243-4005
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

Date 10-28-13 LL
File Name
File Location
Original Section I EIR
Copy
Scan
Email

October 23, 2013

Eric Averett
Rosedale-Rio Bravo Water Storage District
Post Office Box 20820
Bakersfield, California 93390-0820

SUBJECT: NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT STOCKDALE INTEGRATED BANKING PROJECT ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT SCH# 2013091076

Dear Mr. Averett:

The California Department of Fish and Wildlife (Department) has reviewed the Notice of Preparation (NOP) prepared for the above Project. Approval of the Project would result in the development of a groundwater banking facility which would include recharge basins and groundwater extraction wells. The proposed Project would augment the recharge and extraction capacity of the Rosedale's existing Conjunctive Use Program and provide greater operational flexibility. The Project would also enhance water supply reliability for the Irvine Ranch Water District (IRWD) by providing contingency storage to augment supplies during dry-year periods when other supply sources may be limited or not available.

The Project site is located on three properties in the vicinity of Stockdale Highway and Enos Lane (Highway 43), ten miles southwest of the Friant-Kern Canal, 2.5 miles south of the City of Shafter, and six miles east the California Aqueduct in western Kern County, California. Based on the information provided, it appears that the Project will occur on three potential properties including Stockdale East, owned by the Rosedale-Rio Bravo Water Storage District; Stockdale West, owned by the IRWD, and a potential third property that would be located within a radius around both properties. Stockdale East currently consists of 230 acres of cotton and alfalfa, and it is adjacent to and north of the Cross Valley Canal. Stockdale West includes 323 acres of land north of Pioneer Canal and Cross Valley Canal, and consists of four recharge basins and one overflow basin. The third property consisting of the radius around Stockdale East and West, has yet to be defined.

The Department recognizes that the Lead Agency will evaluate the potential for the Project to impact biological resources within the Environmental Impact Report (EIR). The NOP states, "the proposed project is located on and surrounded by agricultural

lands; natural habitat in the immediate vicinity is limited." Based on the current aerial imagery available, dated July 30, 2012, the study area includes parcels containing non-native grassland that offers habitat opportunities for special status species. This letter is to provide early guidance to assist the Lead Agency and the Project biologist regarding our concerns. The Department is concerned that biological resources could potentially be impacted by the implementation of the Project and would like to offer recommendations on avoidance, minimization, and mitigation measures.

The Project site currently contains irrigated agriculture as well as undeveloped non-native grassland habitat that likely supports State and federally listed species. Specifically, the Department is concerned that ground-disturbing activities associated with the Project and potential infrastructure construction such as pipeline and water extraction well development could result in impacts to special-status species known to occur in the Project area including, but not limited to: nesting birds; the State and federally endangered Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*) and blunt-nosed leopard lizard (*Gambelia sila*), the latter of which is also a State fully protected species; the State threatened and federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*); the State threatened San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), and Swainson's hawk (*Buteo swainsoni*); the federally endangered Kern mallow (*Eremalche kernensis*), Buena Vista Lake shrew (*Sorex ornatus relictus*), and San Joaquin woollythreads (*Monolopia congdonii*); the federally threatened western snowy plover (*Charadrius alexandrinus nivosus*); the federally proposed threatened mountain plover (*Charadrius montanus*); the State Species of Special Concern tricolored blackbird (*Agelaius tricolor*), silvery legless lizard (*Anniella pulchra pulchra*), burrowing owl (*Athene cunicularia*), western pond turtle (*Emys marmorata*), loggerhead shrike (*Lanius ludovicianus*), San Joaquin whipsnake (*Masticophis flagellum ruddocki*), Tulare grasshopper mouse (*Onychomys torridus tularensis*), coast horned lizard (*Phrynosoma blainvillii*), western spadefoot (*Spea hammondii*), American badger (*Taxidea taxus*), and Le Conte's thrasher (*Toxostoma lecontei*); the California Rare Plant Rank 1B.1 listed Horn's milk-vetch (*Astragalus hornii* var. *hornii*), lesser saltscale (*Atriplex minuscula*), slough thistle (*Cirsium crassicaule*), and Coulter's goldfields (*Lasthenia glabrara* ssp. *coulteri*); the California Rare Plant Rank 1B.2 listed heartscale (*Atriplex cordulata var. cordulata*), Earlimart orache (*Atriplex cordulata var.erecticaulis*), Lost Hills crownscale (*Atriplex coronata* var. *vallicola*), Earlimart orache (*Atriplex subtilis*), and recurved larkspur (*Delphinium recurvatum*); and the California Rare Plant Rank 4.2 which was also federally delisted Hoover's eriastrum (*Eriastrum hooveri*). All these species are known to occur on or in close proximity to the subject site.

The Project site has appropriate habitat for nesting, denning, foraging, or colonization opportunities for the above species; therefore, a reconnaissance-level assessment of the Project site conducted, by a qualified wildlife biologist and a qualified botanist, is warranted. In the event that burrows, dens, and/or vegetation that could support

special-status species are present within or immediately adjacent to any portions of the Project site, the Department recommends that focused biological surveys be conducted by qualified biologists during the appropriate survey period(s) and prior to Project implementation to determine if these species are present and if they could be impacted by the proposed Project. Survey results can then be used to identify any mitigation, minimization, and avoidance measures that are to be included in the EIR prepared for this Project and any potential permitting needs. We recommend that our suggested avoidance and minimization measures be included in the EIR as enforceable mitigation measures as appropriate. Our comments follow.

Department Jurisdiction

Trustee Agency Authority: The Department is a Trustee Agency with responsibility under CEQA for commenting on projects that could impact plant and wildlife resources. Pursuant to Fish and Game Code Section 1802, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species. As a Trustee Agency for fish and wildlife resources, the Department is responsible for providing, as available, biological expertise to review and comment upon environmental documents and impacts arising from project activities, as those terms are used under CEQA (Division 13 [commencing with Section 21000] of the Public Resources Code).

Responsible Agency Authority: The Department has regulatory authority over projects that could result in the "take" of any species listed by the State as threatened or endangered, pursuant to Fish and Game Code Section 2081. If the Project could result in the "take" of any species listed as threatened or endangered under the California Endangered Species Act (CESA), the Department may need to issue an Incidental Take Permit (ITP) for the Project. CEQA requires a Mandatory Finding of Significance if a project is likely to substantially impact threatened or endangered species (sections 21001(c), 21083, Guidelines sections 15380, 15064, 15065). Impacts must be avoided or mitigated to less than significant levels unless the CEQA Lead Agency makes and supports a Statement of Overriding Consideration (SOC). The CEQA Lead Agency's SOC does not eliminate the Project proponent's obligation to comply with Fish and Game Code Section 2080. The Project has the potential to reduce the number or restrict the range of endangered, rare, or threatened species (as defined in Section 15380 of CEQA).

Unlisted Species: Species of plants and animals need not be officially listed as Endangered, Rare, or Threatened (E, R, or T) on any State or Federal list to be considered E, R, or T under CEQA. If a species can be shown to meet the criteria for E, R, or T, as specified in the CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15380), the Department recommends that it be fully considered in the environmental analysis for the Project.

Fully Protected Species: The Department has jurisdiction over fully protected species of birds, mammals, amphibians, reptiles, and fish pursuant to Fish and Game Code Sections 3511, 4700, 5050, and 5515. "Take" of any fully protected species is prohibited and the Department cannot authorize their "take".

Bird Protection: The Department has jurisdiction over actions which may result in the disturbance or destruction of active nest sites or the unauthorized "take" of birds. Fish and Game Code sections that protect birds, their eggs, and nests include sections 3503 (regarding unlawful "take," possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the "take," possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful "take" of any migratory nongame bird).

Stream Alteration Agreement (SAA): The Department also has regulatory authority with regard to activities occurring in streams and/or lakes that could adversely affect any fish or wildlife resource, pursuant to Fish and Game Code sections 1600 *et seq.* Goose Lake Slough and multiple drainage channels are present within the Project site. The Department advises the Project proponent to consult with the Department before ground-breaking activities within or adjacent to any surface water features or submit a Stream Alteration Notification to determine if the surface water features and conveyance structures are within the Department's jurisdiction and an SAA is required for the proposed activities. The Department is required to comply with CEQA in the issuance or the renewal of an SAA. For additional information on notification requirements, please contact our staff in the Stream Alteration Program at (559) 243-4593.

Water Pollution: Pursuant to Fish and Game Code Section 5650, it is unlawful to deposit in, permit to pass into, or place where it can pass into "Waters of the State", any substance or material deleterious to fish, plant life, or bird life, including non-native species. The Department recommends that the EIR fully address potential pollutants to "Waters of the State" in the environmental analysis for the Project. The Regional Water Quality Control Board also has jurisdiction regarding discharge and pollution to "Waters of the State" including storm water runoff into surface waters.

Potential Project Impacts and Recommendations

Blunt-nosed Leopard Lizard (BNLL): Known occurrence records document BNLL within the boundaries of the Project site. It appears that portions of the Project site may contain undeveloped non-native grassland that could provide habitat for BNLL. Because BNLL is fully protected and, therefore, no "take" incidental or otherwise can be authorized by the Department, the Department recommends protocol-level surveys be conducted prior to any ground-disturbing activities in all areas of suitable habitat following the Department's protocol-level survey methods described in the "Approved Survey Methodology for the Blunt-nosed Leopard Lizard" (DFG, 2004). Suitable habitat

includes all areas of grassland and shrub scrub habitat that contains required habitat elements, such as small mammal burrows. The Department recommends that these surveys, the parameters of which were designed to optimize detectability, be conducted to reasonably assure the Department that "take" of this fully protected species will not occur as a result of Project implementation. In the event that this species is detected during protocol-level surveys, consultation with the Department is warranted to discuss how to implement the Project and avoid "take." It is important to note that protocol-level surveys must be conducted on multiple dates during late spring, summer, and fall and that within these time periods there are specific date, temperature, and time parameters which must be adhered to; as a result, protocol-level surveys for this species are not synonymous with 30-day "pre-construction" surveys often recommended for other wildlife species.

San Joaquin Kit Fox (SJKF): Known occurrence records document SJKF within the Project site, and therefore the Department considers the Project site as occupied habitat for the species. SJKF populations are known to den in right-of-ways, vacant lots, parks, landscaped areas, golf courses, etc., and population numbers fluctuate over years. Presence/absence in any one year does not necessarily depict the potential for kit fox to occur on a site. This is true for many other listed species in the San Joaquin Valley. It is important to note that SJKF may be attracted to the construction and disposal areas of the site due to the type and level of activity (grading, excavation, etc.) and the loose, friable soils that are created as a result of intensive ground disturbance. The Department recommends having a qualified biologist conduct focused surveys for potential, known, atypical, and active kit fox dens on the entire Project site and follow the United States Fish and Wildlife Service (USFWS) Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance (2011) well in advance of ground disturbing activities. It is also recommended that a pre-construction survey be conducted and that a biological monitor be present at the excavation and spoils disposal sites. In the event that this species is detected during surveys, consultation with the Department is warranted to discuss how to implement the Project and avoid "take," or if avoidance is not feasible, to acquire a State ITP prior to any ground-disturbing.

T**ipton Kangaroo Rat (TKR):** Known occurrence records document TKR within the Project site. It appears that portions of the Project site may contain undeveloped parcels that could provide habitat for TKR. In order to determine if TKR occupy the Project site, focused protocol-level trapping surveys would need to be conducted by a qualified wildlife biologist that is permitted to do so by both the Department and USFWS. These surveys must be conducted well in advance of ground-disturbing activities in order to determine if impacts to TKR could occur. In order to implement full avoidance for TKR, the Department recommends a 50-foot no-disturbance buffer be employed around all burrows that could be used by TKR. If full avoidance for TKR is not feasible and "take" could occur as a result of Project implementation, acquisition of a

State ITP may be warranted prior to initiating ground-disturbing activities. Alternatively, the applicant has the option of assuming presence of these species and securing a State ITP.

San Joaquin Antelope Squirrel (SJAS): Known occurrence records document SJAS within one mile of the Project site. It appears that portions of the Project site may contain undeveloped parcels that could provide habitat for SJAS. In order to determine if SJAS occupy the Project site, focused protocol-level surveys would need to be conducted by a qualified wildlife biologist. These surveys must be conducted well in advance of ground-disturbing activities in order to determine if impacts to SJAS could occur. In order to implement full avoidance for SJAS, the Department recommends a minimum 50-foot no-disturbance buffer be employed around all burrows that could be used by SJAS. If "take" could occur as a result of Project implementation, acquisition of a State ITP would be warranted prior to initiating ground-disturbing activities. Alternatively, the applicant has the option of assuming presence of these species and securing a State ITP.

Swainson's Hawk (SWHA): Known occurrence records document SWHA within 3.5 miles of the Project site. Furthermore, Swainson's hawks are known to occur in the general vicinity of the Project. To avoid impacts to the species, the Department recommends that surveys be conducted following the survey methodology developed by the Swainson's Hawk Technical Advisory Committee (SWHA TAC, 2000), prior to any ground disturbance. These surveys, the parameters of which were designed to optimize detectability, must be conducted to reasonably assure the Department that "take" of this species will not occur as a result of disturbance associated with Project implementation. In the event that this species is detected during protocol-level surveys, consultation with the Department is warranted to discuss how to implement the Project and avoid "take," or if avoidance is not feasible, to acquire a State ITP prior to any ground-disturbing activities.

SWHA generally forage within 10 miles of their nest tree, and loss of foraging habitat could constitute a significant impact under CEQA. The Department's Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (CDFG, 1994) recommends the following:

- Projects within 1 mile of an active nest tree provide a minimum of one acre of habitat management (HM) land for each acre of development authorized.

- Projects within 5 miles of an active nest but greater than 1 mile provide a minimum of 0.75 acres of HM land for each acre of urban development authorized.

- Projects within 10 miles of an active nest tree but greater than 5 mile from an active nest tree provide a minimum of 0.5 acres of HM land for each acre of urban development authorized.

The Department recommends that funding of a sufficient long-term endowment for the management of the protected properties be paid by the Project sponsors. In addition to fee title acquisition of grassland habitat, mitigation could occur by the purchase of conservation or suitable agricultural easements. Suitable agricultural easements would include areas limited to production of crops such as alfalfa, dry land and irrigated pasture, and cereal grain crops. Vineyards, orchards, cotton fields, and other dense vegetation do not provide adequate foraging habitat. Additionally, nest trees are an extremely limited resource in the southern San Joaquin Valley; the Department recommends that lands protected as foraging habitat for SWHA exist no more than 10 miles from a SWHA nest in order to be beneficial to the species.

Special-Status Plant Species: There is the potential for multiple special-status plant species to occur on or adjacent to the Project site. The Department recommends the Project site be surveyed for special-status plants by a qualified botanist following the "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities" (November 24, 2009). This protocol, which is intended to maximize detectability, includes the identification of reference populations to facilitate the likelihood of field investigations occurring during the appropriate floristic period. In the absence of protocol-level surveys being performed, additional surveys may be necessary. Further, the Department recommends special-status plant species be avoided whenever possible by delineation and observing a no-disturbance buffer of at least 50 feet from the outer edge of the plant population(s) or specific habitat type(s) required by special status plant species. If buffers cannot be maintained, then consultation with the Department may be warranted to determine appropriate minimization and mitigation measures for impacts to special-status plant species. If a State- or federally listed plant species is identified during botanical surveys, it is recommended consultation with the Department and/or the USFWS should be conducted to determine the need for an ITP.

Burrowing Owl: There are multiple known occurrence records of burrowing owl within one mile of the Project area. To avoid impacts to the species, we recommend that focused surveys be conducted following the survey methodology developed by the California Burrowing Owl Consortium (CBOC, 1993) well in advance of any ground disturbance associated with Project construction as well as a pre-construction survey effort. If any ground disturbing activities will occur during the burrowing owl nesting season (approximately February 1 through August 31), and potential burrowing owl burrows are present within the Project footprint, implementation of avoidance measures are warranted. In the event that burrowing owls are found, the Department's "Staff Report on Burrowing Owl Mitigation" (CDFG 2012) (Staff Report) recommends that

impacts to occupied burrows be avoided by implementation of no disturbance buffer zones (specified in the table below), unless a qualified biologist approved by the Department verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

* meters (m)

Failure to implement this buffer zone could cause adult burrowing owls to abandon the nest, cause eggs or young to be directly impacted (crushed), and/or result in reproductive failure, in violation of Fish and Game Code and the Migratory Bird Treaty Act.

If the Project proposes to evict burrowing owls that may be present, the Department recommends passive relocation during the non-breeding season. We recommend that the EIR describe all avoidance measures that would be employed in the event that owls are found on the Project site, as well as methods that would be used to evict owls from burrows. We also recommend that the EIR specify how the impact of evicting owls would be mitigated to a less than significant level. The Staff Report recommends that foraging habitat be acquired and permanently protected to offset the loss of foraging and burrow habitat. The Department also recommends replacement of occupied burrows with artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow constructed (1:1) as mitigation for the potentially significant impact of evicting a burrowing owl.

Nesting Birds: The trees, shrubs, and grasses within and in the vicinity of the Project site likely provide nesting habitat for songbirds and raptors. The Department encourages Project implementation of any new development sites to occur during the non-nesting bird season. However, if ground disturbing activities must occur during the breeding season (February through mid-September), the Project applicant is responsible for ensuring that implementation of the Project does not result in any violation of the Migratory Bird Treaty Act or relevant Fish and Game Codes as referenced above. Prior to work commencing; including staging, clearing, and grubbing, the Department recommends surveys for active nests be conducted by a qualified wildlife biologist no more than 10 days prior to the start of the of the Project commencing and that the surveys be conducted in a sufficient area around the work site to identify any nests that are present and to determine their status. A sufficient area

means any nest within an area that could potentially be affected by the Project. In addition to direct impacts, such as nest destruction, nests might be affected by noise, vibration, odors, and movement of workers or equipment. The department recommends that identified nests be continuously surveyed for the first 24 hours prior to any construction related activities to establish a behavioral baseline. Once work commences, all nests should be continuously monitored to detect any behavioral changes as a result of the Project. If behavioral changes are observed, the work causing that change should cease and the Department consulted for additional avoidance and minimization measures.

If continuous monitoring of identified nests by a qualified wildlife biologist is not feasible, the Department also recommends a minimum no disturbance buffer of 250 feet around active nests of non-listed bird species and a 500 foot no-disturbance buffer around the nests of unlisted raptors until the breeding season has ended, or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival. Variance from these no disturbance buffers may be implemented when there is compelling biological or ecological reason to do so, such as when the Project area would be concealed from a nest site by topography. Any variance from these buffers is advised to be supported by a qualified wildlife biologist and it is recommended the Department be notified in advance of implementation of a no disturbance buffer variance.

Federally Listed Species: The Department also recommends consulting with the USFWS on potential impacts to federally listed species including, but not limited to western snowy plover, mountain plover, TKR, BNLL, SJKF, Buena Vista Lake shrew, Kern mallow, and San Joaquin woollythreads. "Take" under the Federal Endangered Species Act (FESA) is more broadly defined than CESA; "take" under FESA also includes significant habitat modification or degradation that could result in death or injury to a listed species by interfering with essential behavioral patterns such as breeding, foraging, or nesting. Consultation with the USFWS in order to comply with FESA is advised well in advance of Project implementation.

State Species of Special Concern: Tricolored blackbird, silvery legless lizard, burrowing owl, loggerhead shrike, Le Conte's thrasher, western pond turtle, coast horned lizard, San Joaquin whipsnake, Tulare grasshopper mouse, Buena Vista Lake shrew, western spadefoot, and American badger could occur in the Project area. The Department recommends that focused surveys be conducted for these species well in advance of any ground disturbance associated with Project construction. The Department recommends that the surveys be done by qualified biologists familiar with the species during the appropriate survey period(s) and prior to Project implementation to determine if these species are present and if they could be impacted by the proposed Project. Survey results can then be used to identify any mitigation, minimization, and

avoidance measures to minimize significant impacts to State Species of Special Concern.

Riparian Habitat and Wetlands: Riparian habitat and wetlands are of extreme importance to a wide variety of plant and wildlife species. Riparian habitat and wetlands are known to exist adjacent to and may be within the proposed Project site as a result of historic seeping from the earth-lined canals. The Department considers projects that impact these resources as significant if they result in a net loss of acreage or habitat value. The Department has a no-net-loss policy regarding impacts to wetlands. The Department recommends that when wetland habitat cannot be avoided, impacts to wetlands be compensated for with the creation of new habitat, preferably on-site, on a minimum of an acre-for-acre basis. Wetlands that have been inadvertently created by leaks, dams or other structures, or failures in man-made water systems are not exempt from this policy.

In addition, the Department recommends delineating all wetlands that will not be directly removed or filled with a 100-foot no-disturbance buffer and that riparian vegetation along waterways be protected with a 200-foot no-disturbance buffer from the high water mark.

More information on survey and monitoring protocols for sensitive species can be found at the Department's website (www.dfg.ca.gov/wildlife/nongame/survey_monitor.html). If you have any questions on these issues, please contact Reagen O'Leary, Environmental Scientist, at the address provided on this letterhead, by telephone at (559) 243-4014, extension 244, or by electronic mail at Reagen.OLeary@wildlife.ca.gov.

Sincerely,

Kristin Tomlinson (acting)

Jeffrey R. Single, Ph.D.
Regional Manager

cc: Thomas Leeman
United States Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

Literature Cited

CBOC, 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. California Burrowing Owl Consortium, April 1993.

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USFWS, 2011. Standard Recommendations for the Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance. United States Fish and Wildlife Service.

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October 23, 2013

VIA EMAIL

Eric Averett
General Manager
Rosedale-Rio Bravo Water Storage District
P.O. Box 20820
Bakersfield, CA 93390-0820

Re: City of Bakersfield's Comments to Notice of Preparation of an Environmental Impact Report for Stockdale Integrated Banking Project.

Dear Mr. Averett:

On behalf of the City of Bakersfield ("City"), we submit the following comments to the Notice of Preparation ("NOP") of an Environmental Impact Report ("EIR") for Stockdale Integrated Banking Project" ("Project") issued by the Rosedale-Rio Bravo Water Storage District ("Rosedale") on September 24, 2013.

The City generally supports the goals and purposes of the Project, as the City supports Rosedale's efforts to increase its "operational flexibility" and to otherwise efficiently and effectively manage its use of local water resources. The City still has a number of concerns with regard to the Project, the NOP, and the potential scope and contents of the EIR.

The City is particularly concerned that the Project will involve the transfer or sale of local water supplies, including the waters of the Kern River, out of Kern County to the Irvine Ranch Water District ("Irvine").

As indicated in the NOP, Irvine is a California Water District that provides a water supply to municipal and industrial customers within an 115,531 acre service area in Orange County, California. The NOP indicates that one of the primary purposes and goals of the Project is to increase Irvine's water supply. In particular, one of the "Project Objectives" is to "develop"

Irvine's "groundwater recharge, storage and recovery capacity" to provide "increased water supply reliability" for Irvine's "customers." (NOP, p. A-2.) The Project specifically would allow Irvine to maintain and utilize up to 88,000 acre feet of water in storage in Kern County "for its own use." (Id.)

The NOP further states that the Project "would enhance water supply reliability for [Irvine] by providing contingency storage to augment supplies during dry-year periods when other supply sources may be limited or unavailable." (NOP, p. A-2.) The NOP then states that the Project would "augment" Irvine's "contingency storage," allowing it to achieve its storage goals to provide the desired amount of reliability for its water supply portfolio." (Id.)

Sales and transfers of local water supplies out of the county are directly contrary to the policies and interests of the City. The City has a long standing policy, most recently confirmed in 2001, that Kern River water shall not be utilized outside the boundaries of the San Joaquin Valley Portion of Kern County.

The City is concerned that the Project would violate that policy. Development of a water supply for Irvine within Kern County would seem to necessarily and logically involve the importation or transfer of local water supplies out of the County to Orange County. The NOP, moreover, confirms that the Project could involve the storage and eventual transfer of Kern River water out of the County to Irvine.

The NOP states that water supplies used for recharge under the Project "would be secured and acquired by Rosedale and [Irvine] from various sources, including federal, state and local suppliers." (NOP, p. A-4.) The NOP further states: "Specifically water supply sources could include, but are not limited to, the State Water Project (SWP), **the Kern River**, and Central Valley Project (CVP)." (Id., emphasis added.)

The City believes it is highly questionable and suspect that Rosedale would propose to implement a project which involves the transfer of local water supplies, including Kern River supplies, to "out of county" entities, specifically to a large Southern California urban water district, at a time when the local region is suffering through a critical drought, local water supplies, including the Kern River, are drastically depleted, and groundwater levels are rapidly declining. The City is concerned that the "out-of-county" water sales or transfers proposed through the Project could cause substantial harm to the local environment, the local groundwater basin, the City's water resources and supplies, the Kern River, and the water resources of the entire southern San Joaquin Valley.

The City is additionally concerned about the Project, and the potential impacts of the Project, because the boundaries of Rosedale overlap with the boundaries of the City. Rosedale and the City spread and extract water from a shared groundwater basin. The City directly and indirectly provides water for individuals living within the overlapping City and Rosedale boundaries, and the City's Kern River water supply indirectly benefits landowners within the

remaining portion of Rosedale. Accordingly, the EIR for the Project should accurately, honestly and completely review the wide ranging potential impacts of the Project on the City, the environment in and around the City, and the City's water supply. The EIR should also completely and comprehensively review the impact of the proposed transfer of local water supplies, including Kern River water, out of the area, to Southern California.

The City has the following additional comments, questions, and concerns regarding the NOP and the Project. These comments do not constitute or represent all of the City's objections to and concerns with the Project, or to the adequacy of Rosedale's, or Irvine's, compliance with CEQA. The City reserves the right to supplement these comments, in the future, and the City reserves the right to submit substantive objections to the Project.

The "Project Description" in the NOP is deficient, as it is incomplete, vague and lacking in critical details about the Project. The Project Description fails to provide important details about the physical features of the Project and the infrastructure necessary for and related to the Project. The Project Description also lacks required information about Irvine's intended use of water stored or banked in connection with the Project.

The NOP also uses vague, general phrases to represent the objectives and goals of the Project. The NOP states, for example, that the Project will "integrate" Project facilities with existing Rosedale facilities, and will "coordinate" Project operations "to provide for maximum operational flexibility between the various programs and facilities." (NOP, p. A-2.) The NOP further states that the Project will "provide operating flexibility for Rosedale's existing and future programs." (Id.) The NOP, however, does not provide further description or definition regarding the phrases "integrate," "coordinate," and "operational flexibility." The NOP does not actually describe how the Project will achieve these goals, or how the Project will actually function in connection, or "coordination," with Rosedale's existing projects and operations. The NOP therefore does not sufficiently summarize or state the actual goals and objectives of the Project.

An NOP must contain "sufficient information describing the project and the potential environmental effects to enable the responsible agencies to make a meaningful response." (14 Cal. Code Regs. § 15082(a)(I).) Without a more specific and detailed description of the Project's objectives and goals, the City cannot make a meaningful response to the NOP.

The City questions why Rosedale, and not Irvine, is designated as the Lead Agency for the Project. The primary goal of the Project, according to the NOP, is to create or provide a water supply for Irvine and its customers. Although the Project would be located within the boundaries of Rosedale, the Project appears to only provide secondary, ancillary benefits to Rosedale. As indicated, Rosedale only refers to vague, general benefits for the Project in connection with the goals and purposes of the Project, such as increasing operational "flexibility." It does not appear, however, that Rosedale, will actually obtain or utilize a new or increased water supply in connection with the Project.

Since the Project is a water supply project for Irvine, Irvine should be lead agency for CEQA purposes. The fact that the Project is located within Rosedale does not preclude Irvine from acting as lead agency. (14 Cal. Code Regs. § 15051(a).) Irvine would appear to have "principal responsibility" for implementing the Project, since it will acquire and store water for its later use in connection with the Project. In contrast, Rosedale would appear only to have a secondary role as the operator of the Project facilities.

The description of "Water Supplies" in the NOP is deficient. The NOP indicates that water used for recharge in the Project would be secured and acquired from "various sources, including federal, state and local suppliers." (NOP, p. A-4.) The NOP later states that water sources for the Project "could" include the State Water Project, the Kern River and the Central Valley Project.

Instead of providing important and necessary information about the source of water to be used in the Project, as required under CEQA, the NOP simply claims that water could come from any potential source, under any potential scenario or circumstances. That section clearly does not present "sufficient information describing the project and the potential environmental effects to enable the responsible agencies to make a meaningful response."(14 Cal. Code Regs. § 15082(a)(1).)

It is irresponsible, and not in compliance with CEQA, for the NOP to indicate that the Project will use each and every potential available source of water, without limitation or consideration of the practical or legal consequences and impacts. The NOP should provide more specific information regarding water sources so that the EIR can properly and sufficiently analyze the impacts of the project on water supplies proposed for use in the Project.

The NOP does not indicate that the EIR will examine the impacts of the Project on other entities, such as the City, that may currently use some of the water proposed for use in the Project. The NOP further does not identify or describe the current use of the water which would be utilized in the Project, and does not describe or predict how, when and to what extent the water will be available for use in the Project.

An EIR must consider all impacts of a project on the environment, even if the impacts would be felt by another agency. (*San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713.) The NOP should therefore indicate that the EIR will assess the impact of the Project on the City, other water users in the region, and the Kern River.

The EIR should review the impacts of the Project on other water supply and banking projects in the area, including banking and recharge projects operated by the City, such as the Kern River channel and the 2800 Acre recharge facility. The California Supreme Court has recognized that "the future water sources for a large land use project and the impacts of exploiting those sources are not the type of information that can be deferred for future analysis."

(*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 431.)

The NOP also does not provide sufficient or detailed information regarding potential "conveyance facilities" for the Project. Such facilities should be considered part of the Project, and the EIR must review and analyze impacts on the environment associated with the construction and use of such conveyance facilities.

Finally, the NOP does not reflect or mention any consideration of alternatives to the project, including the "no project" alternative. The NOP does not indicate that Rosedale and Irvine will consider conservation, additional sources of water, alternate storage locations, or other alternatives to the Project.

The statements and comments in this letter constitute only the City's comments to the NOP. The City reserves the right to comment on and raise appropriate objections and challenges to the Project, the EIR which will be prepared in connection with the Project, and any other efforts or approvals related to the Project.

We thank you for consideration of these comments. Please let us know if you have any questions in regards to these comments.

Sincerely,

Colin L. Pearce (JJE)

Colin L. Pearce
for DUANE MORRIS LLP

CLP:jlm

cc: Art Chianello, City of Bakersfield

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

October 24, 2013

Eric Averett
General Manager
Rosedale-Rio Bravo Water Storage District
P. O. Box 20820
Bakersfield, CA 93390-0820

Project: Stockdale Integrated Banking Project

District CEQA Reference No: 20130840

Dear Mr. Averett:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the Notice of Preparation (NOP) for the Stockdale Integrated Banking Project. The proposed project consists of the development of groundwater banking facilities on up to three properties located approximately six miles west of the city of Bakersfield. The project will allow for greater operational flexibility for the Rosedale-Rio Bravo Water Storage District and would enhance water supply reliability for the Irvine Ranch Water District. The District offers the following comments:

Emissions Analysis

1) The District is currently designated as extreme nonattainment for the 8-hour ozone standard, attainment for PM10 and CO, and nonattainment for PM2.5 for the federal air quality standards. At the state level, the District is designated as nonattainment for the 8-hour ozone, PM10, and PM2.5 air quality standards. The District recommends that the Air Quality section of the Environmental Impact Report (EIR) include a discussion of the following impacts:

   a) **Criteria Pollutants:** Project related criteria pollutant emissions should be identified and quantified. The discussion should include existing pre-project and post-project emissions.

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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Fresno, CA 93726-0244
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34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585

www.valleyair.org www.healthyairliving.com

i) Construction Emissions: Construction emissions are short-term emissions and should be evaluated separate from operational emissions. The project would be considered to have a short-term significant impact on air quality if annual construction emissions cannot be reduced or mitigated to below the District's thresholds of significance: 10 tons per year of NOx, 10 tons per year of ROG, or 15 tons per year of PM10.

- *Recommended Mitigation:* To reduce impacts from construction related exhaust emissions, the District recommends feasible mitigation for the project to utilize off-road construction fleets that can achieve fleet average emissions equal to or cleaner than the Tier II emission standards, as set forth in §2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 Code of Federal Regulations. This can be achieved through any combination of uncontrolled engines and engines complying with Tier II and above engine standards.

ii) Operational Emissions: Permitted (stationary sources) and non-permitted (mobile sources) sources should be analyzed separately. The project would be considered to have a long-term significant impact on air quality if annual permitted and non-permitted emissions cannot be reduced or mitigated to below the District's thresholds of significance: 10 tons per year of NOx, 10 tons per year of ROG, or 15 tons per year of PM10.

- *Recommended Mitigation:* Project related impacts on air quality can be reduced through incorporation of design elements that increase energy efficiency, reduce vehicle miles traveled, and reduce on-going operational construction exhaust emissions. However, design elements and compliance with District rules and regulations may not be sufficient to reduce project related impacts on air quality to a less than significant level. In such cases, additional mitigation would be required. An example of a feasible mitigation measure is the mitigation of project emissions through a Voluntary Emission Reduction Agreement (VERA). A VERA is an instrument by which the project proponent provides monies to the District, which is used by the District to fund emission reduction projects that achieve the reductions required by the lead agency. District staff is available to meet with project proponents to discuss a VERA for specific projects. For more information, or questions concerning this topic, please call District CEQA staff at (559) 230-5900.

iii) Recommended Model: Project related criteria pollutant emissions should be identified and quantified using CalEEMod (**Cal**ifornia **E**mission **E**stimator **Mod**el), which uses the most recent approved version of relevant Air Resources Board (ARB) emissions models and emission factors. CalEEMod is available to the public and can be downloaded from the CalEEMod website at: www.caleemod.com.

b) **Nuisance Odors:** The project should be evaluated to determine the likelihood that the project would result in nuisance odors. Nuisance orders are subjective, thus the District has not established thresholds of significance for nuisance odors. Nuisance odors may be assessed qualitatively taking into consideration of project design elements and proximity to off-site receptors that potentially would be exposed objectionable odors.

c) **Health Impacts:** Project related health impacts should be evaluated to determine if emissions of toxic air contaminants (TAC) will pose a significant health risk to nearby sensitive receptors. TACs are defined as air pollutants which may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. The most common source of TACs can be attributed to diesel exhaust fumes that are emitted from both stationary and mobile sources. Health impacts may require a detailed health risk assessment (HRA).

Prior to conducting an HRA, an applicant may perform a prioritization on all sources of emissions to determine if it is necessary to conduct an HRA. A prioritization is a screening tool used to identify projects that may have significant health impacts. If the project has a prioritization score of 1.0 or more, the project has the potential to exceed the District's significance threshold for health impacts of 10 in a million and an HRA should be performed.

If an HRA is to be performed, it is recommended that the project proponent contact the District to review the proposed modeling approach. The project would be considered to have a significant health risk if the HRA demonstrates that project related health impacts would exceed the District's significance threshold of 10 in a million.

More information on TACs, prioritizations and HRAs can be obtained by:

- E-mailing inquiries to: hramodeler@valleyair.org; or
- Visiting the District's website at:

  http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm.

2) In addition to the discussions on potential impacts identified above, the District recommends the EIR also include the following discussions:

a) A discussion of the methodology, model assumptions, inputs and results used in characterizing the project's impact on air quality. To comply with CEQA requirements for full disclosure, the District recommends that the modeling outputs be provided as appendices to the EIR. The District further recommends that the District be provided with an electronic copy of all input and output files for all modeling.

b) A discussion of the components and phases of the project and the associated emission projections, including ongoing emissions from each previous phase.

c) A discussion of project design elements and mitigation measures, including characterization of the effectiveness of each mitigation measure incorporated into the project.

d) A discussion of whether the project would result in a cumulatively considerable net increase of any criteria pollutant or precursor for which the San Joaquin Valley Air Basin is in non-attainment. More information on the District's attainment status can be found online by visiting the District's website at: http://valleyair.org/aqinfo/attainment.htm.

District Rules and Regulations

3) The proposed project may be subject to District rules and regulations, including: Regulation VIII (Fugitive PM10 Prohibitions), Rule 4102 (Nuisance), and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). In the event an existing building will be renovated, partially demolished or removed, the project may be subject to District Rule 4002 (National Emission Standards for Hazardous Air Pollutants).

4) The NOP indicates that the project includes the construction and operation of wells at the extraction facilities and a new lift head station at a conveyance facility. There is not enough information in the NOP to determine whether the new equipment associated with the project would be subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review). As such, the applicant should contact the District's Small Business Assistance (SBA) Office to determine whether an Authority to Construct (ATC) application and Permit to Operate (PTO) will be required for this project. SBA staff can be reached by phone at (661) 392-5665.

5) Any applicant subject to District Rule 9510 (Indirect Source Review) is required to submit an Air Impact Assessment (AIA) application to the District no later than applying for final discretionary approval, and to pay any applicable off-site mitigation fees before issuance of the first building permit or emissions generating activity.

a) There is not enough information provided in the NOP for the District to make a determination of applicability of Rule 9510 to this project. The applicant should contact District ISR staff to further discuss the project and applicability to Rule 9510. District ISR staff can be reached by phone at (559) 230-5900, or by email at ISR@valleyair.org.

b) If approval of the subject project constitutes the last discretionary approval by your agency, the District recommends that demonstration of compliance with District Rule 9510, including payment of all applicable fees before issuance of the first building permit or any emissions generating activity, be made a condition of project approval. Demonstration of compliance with the rule would include a

letter from the District to the applicant indicating that either the project is not subject to the rule or that the AIA application has been approved. Information about how to comply with District Rule 9510 can be found online at: http://www.valleyair.org/ISR/ISRHome.htm.

6) The above list of rules is neither exhaustive nor exclusive. To identify other District rules or regulations that apply to this project or to obtain information about District permit requirements, SBA staff can be reached by phone at (661) 392-5665. For a complete list of all current District rules and regulations, please visit the District's website at: www.valleyair.org/rules/1ruleslist.htm.

If you have any questions or require further information, please call Jessica Willis at (559) 230-5818.

Sincerely,

David Warner
Director of Permit Services

For: Arnaud Marjollet
Permit Services Manager

DW:jw

cc: File

Attachment 6: Scoping Meeting Verbal Comments

Rosedale-Rio Bravo Water Storage District and Irvine Ranch Water District
Stockdale Integrated Banking Project
NOP Scoping Meeting

Public Comments

October 15, 2013: A CEQA Scoping Meeting was held at 6:30 p.m. on October 15, 2013, at Irvine Ranch Water District in Irvine, CA. There were no attendees, and no comments were recorded.

October 16, 2014: A CEQA Scoping Meeting was held at 2:00 p.m. on October 16, 2013, at Rosedale-Rio Bravo Water Storage District in Bakersfield, CA. There were two attendees, and the following comments were recorded:

- Will Stockdale East and Stockdale West be annexed into Rosedale's service area?
- Will the Stockdale EIR tier from Rosedale's Master EIR for its Conjunctive Use Program
- Have alternatives to the project been considered?
- What permits will be required to implement the project?

Attachment 7: Public Notice of Scoping Meeting

PROOF OF PUBLICATION

The BAKERSFIELD CALIFORNIAN
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BAKERSFIELD, CA 93302

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Ad Number:	13303039	**PO #:**	NOP
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STATE OF CALIFORNIA
COUNTY OF KERN

I AM A CITIZEN OF THE UNITED STATES AND A RESIDENT OF THE COUNTY AFORESAID: I AM OVER THE AGE OF EIGHTEEN YEARS, AND NOT A PARTY TO OR INTERESTED IN THE ABOVE ENTITLED MATTER. I AM THE ASSISTANT PRINCIPAL CLERK OF THE PRINTER OF THE BAKERSFIELD CALIFORNIAN, A NEWSPAPER OF GENERAL CIRCULATION. PRINTED AND PUBLISHED DAILY IN THE CITY OF BAKERSFIELD COUNTY OF KERN,

AND WHICH NEWSPAPER HAS BEEN ADJUDGED A NEWSPAPER OF GENERAL CIRCULATION BY THE SUPERIOR COURT OF THE COUNTY OF KERN, STATE OF CALIFORNIA, UNDER DATE OF FEBRUARY 5, 1952, CASE NUMBER 57610; THAT THE NOTICE, OF WHICH THE ANNEXED IS A PRINTED COPY, HAS BEEN PUBLISHED IN EACH REGULAR AND ENTIRE ISSUE OF SAID NEWSPAPER
AND NOT IN ANY SUPPLEMENT THEREOF ON THE FOLLOWING DATES, TO WIT: 9/26/13

ALL IN YEAR 2013

I CERTIFY (OR DECLARE) UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.

Jessi Bruce

DATED AT BAKERSFIELD CALIFORNIA
9/26/13

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First Text
Public NoticeNotice of Preparation for a

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Public Notice
Notice of Preparation for an Environmental Impact Report

The Rosedale-Rio Bravo Water Storage District (Rosedale), as the Lead Agency, in consultation with the Irvine Ranch Water District (IRWD), as a Responsible Agency, is beginning preparation of an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) for the proposed Stockdale Integrated Banking Project located in Kern County.

Rosedale and IRWD have published a Notice of Preparation (NOP) of the EIR that includes a description of the proposed project and its probable environmental effects. The proposed project would develop groundwater banking facilities on up to three properties located approximately six miles west of the City of Bakersfield, including the Stockdale East property, the Stockdale West property, and a potential third property that would be located within a designated radius around both properties. Operation of the proposed project would be coordinated with Rosedale's existing Groundwater Storage, Banking, Exchange, Extraction & Conjunctive Use Program. The proposed project would provide greater operational flexibility for Rosedale and would enhance water supply reliability for IRWD by providing contingency storage to augment supplies during dry year periods when other supply sources may be limited or not available.

The NOP will be circulated for a 30-day period beginning on September 24, 2013 and ending on October 24, 2013. Rosedale and IRWD are soliciting the views of responsible and trustee agencies and interested persons as to the scope and content of the environmental information to be evaluated in the EIR. Please send your comments to Rosedale-Rio Bravo Water Storage District, Eric Averett, General Manager, P.O. Box 20020,Bakersfield, CA 93390-0820 or eaverett@rrbwsd.com

Two public meetings will be held to receive public comments and suggestions: Tuesday, October 15, 2013, at 6:30PM at IRWD, 15600 Sand Canyon Avenue, Irvine CA, and Wednesday, October 16, 2013, at 2:00 PM at Rosedale, 849 Allen Road, Bakersfield, CA.

September 26, 2013 (13303039)

AFFIDAVIT OF PUBLICATION

STATE OF CALIFORNIA,)
) ss.
County of Orange)

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of **The Orange County Register**, a newspaper of general circulation, published in the city of Santa Ana, County of Orange, and which newspaper has been adjudged to be a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of November 19, 1905, Case No. A-21046, that the notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

September 26, 2013

"I certify (or declare) under the penalty of perjury under the laws of the State of California that the foregoing is true and correct":

Executed at Santa Ana, Orange County, California, on

Date: September 26, 2013

Signature

The Orange County Register
625 N. Grand Ave.
Santa Ana, CA 92701
(714) 796-2209

PROOF OF PUBLICATION

Public Notice
Notice of Preparation for an Environmental Impact Report

The Rosedale-Rio Bravo Water Storage District (Rosedale), as the Lead Agency, in consultation with the Irvine Ranch Water District (IRWD), as a Responsible Agency, is beginning preparation of an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) for the proposed Stockdale Integrated Banking Project located in Kern County.

Rosedale and IRWD have published a Notice of Preparation (NOP) of the EIR that includes a description of the proposed project and its probable environmental effects. The proposed project would develop groundwater banking facilities on up to three properties located approximately six miles west of the City of Bakersfield, including the Stockdale East property, the Stockdale West property, and a potential third property that would be located within a designated radius around both properties. Operation of the proposed project would be coordinated with Rosedale's existing Groundwater Storage, Banking, Exchange, Extraction & Conjunctive Use Program. The proposed project would provide greater operational flexibility for Rosedale and would enhance water supply reliability for IRWD by providing contingency storage to augment supplies during dry-year periods when other supply sources may be limited or not available.

The NOP will be circulated for a 30-day period beginning on September 24, 2013 and ending on October 24, 2013. Rosedale and IRWD are soliciting the views of responsible and trustee agencies and interested persons as to the scope and content of the environmental information to be evaluated in the EIR. Please send your comments to Rosedale-Rio Bravo Water Storage District, Eric Averett, General Manager, P.O. Box 20820,Bakersfield, CA 93390-0820 or eaverett@rrbwsd.com

Two public meetings will be held to receive public comments and suggestions: Tuesday, October 15, 2013, at 6:30PM at IRWD, 15600 Sand Canyon Avenue, Irvine CA, and Wednesday, October 16, 2013, at 2:00 PM at Rosedale, 849 Allen Road, Bakersfield, CA.

Published: Orange County Register September 26, 2013. R-1514 9733183

Appendix B-1

Memorandum of Understanding
Groundwater Banking Program

FIRST AMENDED
MEMORANDUM OF UNDERSTANDING
REGARDING OPERATION AND MONITORING
OF THE
ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
GROUNDWATER BANKING PROGRAM

This Memorandum of Understanding is entered into the Effective Date hereof by and among **ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT**, hereinafter referred to as "Rosedale", and **SEMITROPIC WATER STORAGE DISTRICT, BUENA VISTA WATER STORAGE DISTRICT, HENRY MILLER WATER DISTRICT, KERN COUNTY WATER AGENCY, KERN WATER BANK AUTHORITY, IMPROVEMENT DISTRICT NO. 4 OF THE KERN COUNTY WATER AGENCY**, and **WEST KERN WATER DISTRICT**, collectively referred to as "Adjoining Entities."

R E C I T A L S

WHEREAS, Rosedale expects that certain real property more particularly shown on the map attached hereto as Exhibit A and incorporated herein by this reference ("Project Site"), or portions thereof, will be used in connection with the Project; and

WHEREAS, Rosedale intends to develop and improve the Project Site as necessary to permit the importation, percolation and storage of water in underground aquifers for later recovery, transportation and use for the benefit of Rosedale, all as more fully described in Exhibit B attached hereto and incorporated herein by this reference ("Project"); and

WHEREAS, Adjoining Entities encompass lands and/or operate existing projects lying adjacent to the Project Site as shown on said Exhibit A; and

WHEREAS, in recent years, water banking, recovery and transfer programs in Kern County have become increasingly numerous and complex; and

WHEREAS, it is appropriate and desirable to mitigate or eliminate any short-term and long-term significant adverse impacts of new programs upon potentially affected projects and landowners within the boundaries of Adjoining Entities; and

WHEREAS, Adjoining Entities and Rosedale desire that the design, operation and monitoring of the Project be conducted and coordinated in a manner to insure that the beneficial effects of the Project to Rosedale are maximized but that the Project does not result in significant adverse impacts to water levels, water quality or land subsidence within the boundaries of Adjoining Entities, or otherwise interfere with the existing and ongoing programs of Adjoining Entities; and

WHEREAS, on October 26, 1995, the Kern Water Bank Authority and its Member Entities, as the "Project Participants," and Buena Vista Water Storage District, Rosedale-Rio Bravo Water Storage District, Kern Delta Water District, Henry Miller Water District and West Kern Water District, as the "Adjoining Entities," entered into a Memorandum of Understanding, similar to this Memorandum of Understanding, which provided among other things at Paragraph 8 that for "any future project within the Kern Fan Area, the Parties hereto shall use good faith efforts to negotiate an agreement substantially similar in substance to this MOU," and by entering into this MOU the Adjoining Entities find that this MOU satisfies such requirement for the Project; and

WHEREAS, Rosedale intends to operate its Project such that the same does not cause or contribute to overdraft of the groundwater basin; and

WHEREAS, in connection with its environmental review for the Project, Rosedale commissioned a hydrologic balance study for a period of years, which study shows that the District is not currently operating in a state of overdraft, and, further, Rosedale has projected said hydrologic balance study into the future, assuming completion of the Project, and said projection demonstrates that the District is not expected to operate in state of overdraft following implementation of the Project, which studies have not been independently verified by the Adjoining Entities; and

WHEREAS, in the hydrologic balance studies conducted by Rosedale in connection with the Project, the annual safe yield from the groundwater basin is assumed to be .3 acre-feet per acre times the gross developed acres in the District and no assumption is included with respect to groundwater inflow or outflow; and

WHEREAS, this MOU affects the Project and other similar banking programs operated for the benefit of third parties. Conversely, this MOU does not apply to or permit any project involving the sale by Rosedale of water banked in the name of, and within the boundaries of, Rosedale to third parties for a use outside the boundaries of Rosedale.

NOW, THEREFORE, BE IT RESOLVED that, based upon the mutual covenants contained herein, the parties hereto agree as follows:

1. Project Design and Construction. Rosedale has completed a preliminary Project Description of the Project described in Exhibit B hereto representing the contemplated facilities for the Project. Said preliminary description has been reviewed by the parties hereto. The foregoing shall not be interpreted to imply consent to any aspect of any future project not described in existing approved environmental documentation. Rosedale will construct the Project consistent with such preliminary description. Any major modifications of the facilities and/or significant changes from that described in Exhibit B and in the environmental documentation for the Project will be subject to additional environmental review pursuant to CEQA and will be subject to review of the Monitoring Committee prior to implementation.

2. Project Operation. The Project shall be operated to achieve the maximum water storage and withdrawal benefits for Rosedale consistent with avoiding, mitigating or eliminating to the greatest extent practicable, significant adverse impacts resulting from the Project. To that end, the Project shall be operated in accordance with the following Project Objectives and Minimum Operating Criteria:

a. Project Objectives. Consistent with the Project description, Rosedale will make a good faith effort to meet the following objectives, which may or may not be met:

(1) The parties should operate their projects in such manner as to maintain and, when possible, enhance the quality of groundwater within the Project Site and the Kern Fan Area as shown in Exhibit C.

(2) If supplies of acceptable recharge water exceed recharge capacity, all other things being equal, recharge priority should be given to the purest or best quality water.

(3) Each project within the Kern Fan Area should be operated with the objective that the average concentration of total dissolved salts in the recovered water will exceed the average concentration of total dissolved salts in the recharged water, at a minimum, by a percentage equal to or greater than the percentage of surface recharge losses. The average shall be calculated from the start of each project.

(4) To maintain or improve groundwater quality, recovery operations should extract poorer quality groundwater where practicable. Blending may be used to increase recovery of lesser quality groundwater unless doing so will exacerbate problems by generating unfavorable movement of lesser quality groundwater. It is recognized that the extent to which blending can help to resolve groundwater quality problems is limited by regulatory agency rules regarding discharges into conveyance systems used for municipal supplies, which may be changed from time to time.

(5) All groundwater pumpers should attempt to control the migration of poor quality water. Extensive monitoring will be used to identify the migration of poor quality water and give advance notice of developing problems. Problem areas may be dealt with by actions including, but not limited to:

(a) limiting or terminating extractions that tend to draw lesser quality water toward or into the usable water areas;

(b) increasing extractions in areas that might generate a beneficial, reverse gradient;

(c) increasing recharge within the usable water area to promote favorable groundwater gradients.

(6) It is intended that all recovery of recharged water be subject to the so-called "golden rule." In the context of a banking project, the "golden rule" means that, unless acceptable mitigation is provided, the banker may not operate so as to create conditions that are worse than would have prevailed absent the project giving due recognition to the benefits that may result from the project, all as more fully described at paragraph 2(b)12 below.

(7) The Project shall be developed and operated so as to prevent, eliminate or mitigate significant adverse impacts. Thus, the Project shall incorporate mitigation measures as necessary. Mitigation measures to prevent significant adverse impacts from occurring include but are not limited to the following: (i) spread out recovery area; (ii) provide buffer areas between recovery wells and neighboring overlying users; (iii) limit the monthly, seasonal, and/or annual recovery rate; (iv) provide sufficient recovery wells to allow rotation of recovery wells or the use of alternate wells; (v) provide adequate well spacing; (vi) adjust pumping rates or terminate pumping to reduce impacts, if necessary; (vii) impose time restrictions between recharge and recovery to allow for downward percolation of water to the aquifer; and (viii) provide recharge of water that would otherwise not recharge the Kern Fan Basin. Mitigation measures that compensate for unavoidable adverse impacts include but are not limited to the following: (i) with the consent of the affected groundwater pumper, lower the pump bowls or deepen wells as necessary to restore groundwater extraction capability to such pumper; (ii) with the consent of the affected groundwater pumper, provide alternative water supplies to such pumper; and (iii) with the consent of the affected groundwater pumper, provide financial compensation to such pumper.

b. Minimum Operating Criteria.

(1) The Monitoring Committee shall be notified prior to the recharge of potentially unacceptable water, such as "produced water" from oilfield operations, reclaimed water, or the like. The Monitoring Committee shall review the proposed recharge and make recommendations respecting the same as it deems appropriate. Where approval by the Regional Water Quality Control Board is required, the issuance of such approval by said Board shall satisfy this requirement.

(2) Recharge may not occur in, on or near contaminated areas, nor may anyone spread in, on or near an adjoining area if the effect will be to mound water near enough to the contaminated area that the contaminants will be picked up and carried into the uncontaminated groundwater supply. When contaminated areas are identified within or adjacent to the Project, Rosedale shall also:

(a) participate with other groundwater pumpers to investigate the source of the contamination;

(b) work with appropriate authorities to ensure that the entity or individual, if any, responsible for the contamination meets its responsibilities to remove the contamination and thereby return the Project Site to its full recharge and storage capacity;

(c) operate the Project in cooperation with other groundwater pumpers to attempt to eliminate the migration of contaminated water toward or into usable water quality areas.

(3) Operators of projects within the Kern Fan Area will avoid operating such projects in a fashion so as to significantly diminish the natural, normal and unavoidable recharge of water

native to the Kern Fan Area as it existed in pre-project condition. If and to the extent this occurs as determined by the Monitoring Committee, the parties will cooperate to provide equivalent recharge capacity to offset such impact.

(4) The mitigation credit for fallowed Project land shall be .3 acre-feet per acre per year times the amount of fallowed land included in the Project Site in the year of calculation.

(5) The lands shown in Exhibit A may be utilized for any purpose provided, however, the use of said property by Rosedale for the Project shall not cause or contribute to overdraft of the groundwater basin.

(6) Each device proposed to measure recharge water to be subsequently recovered and/or recovery of such water will be initially evaluated and periodically reviewed by the Monitoring Committee. Each measuring device shall be properly installed, calibrated, rated, monitored and maintained by and at the expense of the owner of the measuring device.

(7) It shall be the responsibility of the user to insure that all measuring devices are accurate and that the measurements are provided to the Monitoring Committee at the time and in the manner required by the Monitoring Committee.

(8) A producer's flow deposited into another facility, such as a transportation canal, shall be measured into such facility by the operator thereof and the measurement reported to the Monitoring Committee at the time and in the manner required by such Monitoring Committee.

(9) The Monitoring Committee or its designee will maintain official records of recharge and recovery activities, which records shall be open and available to the public. The Monitoring Committee will have the right to verify the accuracy of reported information by

inspection, observation or access to user records (i.e., P.G.&E. bills). The Monitoring Committee will publish or cause to be published annual reports of operations.

(10) Losses shall be assessed as follows:

(a) Surface recharge losses shall be fixed and assessed at a rate of 3%, which includes a "safety factor" of 1% of water diverted for direct recharge. An additional surface recharge loss of 3% shall be fixed and assessed against water directly recharged which is subsequently extracted for out-of-district use. Such initial 3% loss may be modified in the future if studies acceptable to the parties demonstrate that such modification is appropriate, providing that a 1% "safety factor" shall be maintained and the total loss when directly recharged water is subsequently extracted for out-of-district use shall not exceed 6%. Notwithstanding anything to the contrary provided herein, water banked in Rosedale for or on behalf of third parties (i.e., creating a third party bank account) shall be subject to surface recharge losses calculated at 6% of water diverted for direct recharge.

(b) To account for all other actual or potential losses (including migration losses), a rate of 4% of water placed in a bank account shall be deducted to the extent that Rosedale has been compensated within three (3) years following the end of the calendar year in which the water was designated as banked at the SWP Delta Water Rate charged by DWR at the time of payment; provided further, however, that the water purchased and subtracted from a groundwater bank account pursuant to this provision shall only be used for overdraft correction within the District purchasing the water.

(c) An additional 5% loss shall be assessed against any water diverted to the Project Site for banking by, for, or on behalf of any out-of-County person, entity or organization (except current SWP Agricultural Contractors).

(d) All losses provided for herein represent amounts of water that are non-bankable and non-recoverable by Rosedale.

(11) Recovery of banked water shall be from the Project Site and recovery facilities shall be located therein. Recovery from outside the Project Site may be allowed with the consent of the District or entity having jurisdiction over the area from which the recovery will occur and upon review by the Monitoring Committee.

(12) Recovery of banked water may not be allowed if not otherwise mitigated if it will result in significant adverse impacts to surrounding overlying users. "Adverse impacts" will be evaluated using data applicable in zones including the area which may be affected by the Project of approximately five miles in width from the boundaries of the Project as designated by the Monitoring Committee. In determining "adverse impacts," as provided at this paragraph and elsewhere in this MOU, consideration will be given to the benefits accrued over time during operation of the Project to landowners surrounding the Project Site including higher groundwater levels as a result of operation of the Project. In determining non-Project conditions vs. Project conditions, credit toward mitigation of any otherwise adverse impacts shall be recognized to the extent of the 4% loss and 5% losses recognized under paragraphs 2.b.(10)(b) and (c), for the mitigation credit recognized under paragraph 2.b.(4), if any, and to the extent of recharge on the Project Site for overdraft correction.

(13) To the extent that interference, other than insignificant interference, with the pumping lift of any existing active well as compared to non-Project conditions, is attributable to pumping of any wells on the Project Site, Rosedale will either stop pumping as necessary to mitigate the interference or compensate the owner for such interference, or any combination thereof. The Monitoring Committee will establish the criteria necessary to determine if well interference, other than insignificant interference, is attributable to pumping of Project wells by conducting pumping tests of Project wells following the installation of monitoring wells (if not already completed) and considering hydrogeologic information.

(14) The Kern Fan Element Groundwater Model, with input from Rosedale and the Adjoining Entities, and utilizing data from a comprehensive groundwater monitoring program, may be used by the Monitoring Committee as appropriate to estimate groundwater impacts of the Project.

(15) The parties recognize that the Project shall be operated with a positive balance, i.e., there shall be no "borrowing" of water for recovery from the basin.

3. Project Monitoring. Adjoining Entities agree to participate in a comprehensive monitoring program and as members of a Monitoring Committee, as hereinafter more particularly described, in order to reasonably determine groundwater level and water quality information under Project and non-Project conditions. The monitoring program will more particularly require the following:

a. Monitoring Committee: Rosedale and the Adjoining Entities shall form a Monitoring Committee for the Project upon terms and conditions acceptable to the participants. The Monitoring Committee shall:

(1) Engage the services of a suitable independent professional groundwater specialist who shall, at the direction of the Committee, provide assistance in the performance of the tasks identified below;

(2) Meet and confer monthly or at other intervals deemed to be appropriate in furtherance of the monitoring program;

(3) Establish a groundwater evaluation methodology or methodologies;

(4) Prepare a monitoring plan and two associated maps, "Well Location, Water Quality Network," and "Well Location, Water Level Network," which plan and maps depict the location and types of wells anticipated to be used in the initial phase of groundwater monitoring (said plan and maps are expected to be modified from time to time as the monitoring program is developed and operated);

(5) Specify such additional monitoring wells and ancillary equipment as are deemed to be necessary or desirable for the purposes hereof;

(6) Prepare annual water balance studies and other interpretive studies, which will designate all sources of water and the use thereof within the study area;

(7) Develop criteria for determining whether excessive mounding or withdrawal is occurring or is likely to occur in an area of interest;

(8) Annually or as otherwise needed determine the impacts of the Project on each of the Adjoining Entities by evaluating with and without Project conditions; and

(9) Develop procedures, review data, and recommend Project operational criteria for the purpose of identifying, verifying, avoiding, eliminating or mitigating, to the extent practicable, the creation of significant imbalances or significant adverse impacts.

b. Collection and Sharing of Data. The Adjoining Entities will make available to the Monitoring Committee copies of all relevant groundwater level, groundwater quality, and other monitoring data currently collected and prepared by each. Rosedale shall annually report, by areas of interest, water deliveries for banking and other purposes, groundwater withdrawals from bank accounts, transfers and other changes in account balances.

c. Monitoring Costs.

(1) The cost of constructing monitoring wells and ancillary equipment within Rosedale shall be borne by Rosedale. The cost of any new or additional monitoring wells and ancillary equipment outside the boundaries of Rosedale shall be borne as may be determined by separate agreement of Rosedale and the Adjoining Entities.

(2) Each of the parties shall be responsible for the personnel costs of its representative on the Monitoring Committee. In addition, the Adjoining Entities shall be responsible for all costs of monitoring operations and facilities within their respective boundaries and Rosedale shall be responsible for all costs of monitoring operations and facilities within the Project Site.

(3) All other groundwater monitoring costs, including employment of the professional groundwater specialist, collection, evaluation and analyses of data as adopted by the Monitoring Committee, shall be allocated among and borne by the parties as they shall agree among themselves. Cost sharing among Adjoining Entities shall be as agreed by them. Any additional monitoring costs shall be determined and allocated by separate agreement of those parties requesting such additional monitoring.

4. Modification of Project Operations. The Monitoring Committee may make recommendations to Rosedale, including without limitation recommendations for modifications in Project operations based upon evaluation(s) of data which indicate that excessive mounding or withdrawal is occurring or is likely to occur in an area of interest. The Monitoring Committee and its members shall not act in an arbitrary, capricious or unreasonable manner.

5. Dispute Resolution.

a. Submission to Monitoring Committee. All disputes regarding the operation of the Project or the application of this MOU, or any provision hereof, shall first be submitted to the Monitoring Committee for review and analysis. The Monitoring Committee shall meet and review all relevant data and facts regarding the dispute and, if possible, recommend a fair and equitable resolution of the dispute. The Monitoring Committee and its members shall not act in an arbitrary, capricious or unreasonable manner. In the event that (1) the Monitoring Committee fails to act as herein provided, (2) any party disputes the Monitoring Committee's recommended resolution or (3) any party fails to implement the Monitoring Committee's recommended resolution within the time allowed, any party to this MOU may seek any legal or equitable remedy available as hereinafter provided.

b. Arbitration. If all of the parties agree that a factual dispute exists regarding any recommendation of the Monitoring Committee made pursuant hereto, or implementation thereof, such dispute shall, be submitted to binding arbitration before a single neutral arbitrator appointed by unanimous consent and, in the absence of such consent, appointed by the presiding judge of the Kern County Superior Court. The neutral arbitrator shall be a registered civil engineer, registered geologist, or other person agreeable to the parties, preferably with a background in groundwater hydrology. The arbitration shall be called and conducted in accordance with such rules as the contestants shall agree upon, and, in the absence of such agreement, in accordance with the procedures set forth in California Code of Civil Procedure section 1282, et seq. Any other dispute may be pursued through a court of competent jurisdiction as otherwise provided by law.

c. Burden of Proof. In the event of arbitration or litigation under this MOU, all parties shall enjoy the benefit of such presumptions as are provided by law but, in the absence thereof, neither party shall bear the burden of proof on any contested legal or factual issue.

d. Landowner Remedies. Nothing in this MOU shall prevent any landowner within the boundaries of any party from pursuing any remedy at law or in equity in the event such landowner is damaged as a result of projects within the Kern Fan Area.

6. Term. The Effective Date of this MOU shall be January 1, 2003 regardless of the date of actual execution. This MOU shall continue in force and effect from and after the Effective Date until terminated by (1) operation of law, (2) unanimous consent of the parties, or (3) abandonment of the Project and a determination by the Monitoring Committee that all adverse impacts have been fully eliminated or mitigated as provided in this MOU.

7. Complete Agreement/Incorporation Into Banking Agreements. This MOU constitutes the whole and complete agreement of the parties regarding Project operation, maintenance and monitoring (amending and replacing the original MOU between the parties regarding Rosedale's Groundwater Banking Program). Rosedale shall incorporate this MOU by reference into any further agreement it enters into respecting banking of water in or withdrawal of water from the Project Site.

8. Future Projects. With respect to any future project within the Kern Fan Area, the Parties hereto shall use good faith efforts to negotiate an agreement substantially similar in substance to this MOU.

9. Notice Clause. All notices required by this MOU shall be sent via first class United States mail to the addresses shown on the signature page of this agreement and shall be deemed delivered three days after deposited in the mail. Notice of changes in the representative or address of a party shall be given in the same manner.

10. California Law Clause. All provisions of this MOU and all rights and obligations of the parties hereto shall be interpreted and construed according to the laws of the State of California.

11. Amendments. This MOU may be amended by written instrument executed by all of the parties. In addition, recognizing that the parties may not now be able to contemplate all the implications of the Project, the parties agree that on the tenth anniversary of implementation of the Project, if facts and conditions not envisioned at the time of entering into this MOU are present, the parties will negotiate in good faith amendments to this MOU. If the parties cannot

agree on whether conditions have changed necessitating an amendment and/or upon appropriate amendments to the MOU, such limited issues shall be submitted to an arbitrator or court, as the case may be, as provided above.

12. Successors and Assigns. This MOU shall bind and inure to the benefit of the successors and assigns of the parties.

13. Severability. The rights and privileges set forth in this MOU are severable and the failure or invalidity of any particular provision of this MOU shall not invalidate the other provisions of this MOU; rather all other provisions of this MOU shall continue and remain in full force and effect notwithstanding such partial failure or invalidity.

14. Force Majeure. All obligations of the parties shall be suspended for so long as and to the extent the performance thereof is prevented, directly or indirectly, by earthquakes, fires, tornadoes, facility failures, floods, drownings, strikes, other casualties, acts of God, orders of court or governmental agencies having competent jurisdiction, or other events or causes beyond the control of the parties. In no event shall any liability accrue against a party, or its officers, agents or employees, for any damage arising out of or connected with a suspension of performance pursuant to this paragraph.

15. Counterparts. This MOU, and any amendment or supplement thereto, may be executed in two or more counterparts, and by each party on a separate counterpart, each of which, when executed and delivered, shall be an original and all of which together shall constitute one instrument, with the same force and effect as though all signatures appeared on a single document. In proving this MOU or any such amendment, supplement, document or

instrument, it shall not be necessary to produce or account for more than one counterpart thereof signed by the party against whom enforcement is sought.

IN WITNESS WHEREOF the parties have executed this MOU the day and year first above written at Bakersfield, California.

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
P. O. Box 867
Bakersfield, CA 93302-0867

By:_____

By:_____

WEST KERN WATER DISTRICT
800 Kern Street
P. O. Box 1105
Taft, CA 93268-1105

By:_____

By:_____

SEMITROPIC WATER STORAGE DISTRICT
P. O. Box Z
Wasco, CA 93280-0877

By:_____

By:_____

BUENA VISTA WATER STORAGE DISTRICT
P. O. Box 756
Buttonwillow, CA 93206

By:_____

By:_____

HENRY MILLER WATER DISTRICT
P. O. Box 9759
Bakersfield, CA 93389-9759

By:_____

By:_____

KERN WATER BANK AUTHORITY
P. O. Box 80607
Bakersfield, CA 93380-0607

By:_____

By:_____

KERN COUNTY WATER AGENCY
P. O. Box 58
Bakersfield, CA 93302-0058

By:_____

By:_____

IMPROVEMENT DISTRICT NO. 4
P. O. Box 58
Bakersfield, CA 93302-0058

By:_____

By:_____

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ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
P. O. Box 867
Bakersfield, CA 93302-0867

By:_____

By:_____

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Taft, CA 93268-1105

By:_____

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By:_____

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Bakersfield, CA 93380-0607

By:_____

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By:_____

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IMPROVEMENT DISTRICT NO. 4
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Bakersfield, CA 93302-0867

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By:_____

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Bakersfield, CA 93380-0607

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P. O. Box 867
Bakersfield, CA 93302-0867

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By:_____

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By:_____

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By:_____

By:_____

IMPROVEMENT DISTRICT NO. 4
P. O. Box 58
Bakersfield, CA 93302-0058

By:_____

By:_____

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P. O. Box 867
Bakersfield, CA 93302-0867

By:_____

By:_____

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800 Kern Street
P. O. Box 1105
Taft, CA 93268-1105

By:_____

By:_____

SEMITROPIC WATER STORAGE DISTRICT
P. O. Box Z
Wasco, CA 93280-0877

By:_____

By:_____

BUENA VISTA WATER STORAGE DISTRICT
P. O. Box 756
Buttonwillow, CA 93206

By:_____

By:_____

HENRY MILLER WATER DISTRICT
P. O. Box 9759
Bakersfield, CA 93389-9759

By:_____

By:_____

KERN WATER BANK AUTHORITY
P. O. Box 80607
Bakersfield, CA 93380-0607

By:_____

By:_____

KERN COUNTY WATER AGENCY
P. O. Box 58
Bakersfield, CA 93302-0058

By:_____

By:_____

IMPROVEMENT DISTRICT NO. 4
P. O. Box 58
Bakersfield, CA 93302-0058

By:_____

By:_____

instrument, it shall not be necessary to produce or account for more than one counterpart thereof signed by the party against whom enforcement is sought.

IN WITNESS WHEREOF the parties have executed this MOU the day and year first above written at Bakersfield, California.

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
P. O. Box 867
Bakersfield, CA 93302-0867

By:_____

By:_____

WEST KERN WATER DISTRICT
800 Kern Street
P. O. Box 1105
Taft, CA 93268-1105

By:_____

By:_____

SEMITROPIC WATER STORAGE DISTRICT
P. O. Box Z
Wasco, CA 93280-0877

By:_____

By:_____

BUENA VISTA WATER STORAGE DISTRICT
P. O. Box 756
Buttonwillow, CA 93206

By:_____

By:_____

HENRY MILLER WATER DISTRICT
P. O. Box 9759
Bakersfield, CA 93389-9759

By:_____

By:_____

KERN WATER BANK AUTHORITY
P. O. Box 80607
Bakersfield, CA 93380-0607

By:_____

By:_____

KERN COUNTY WATER AGENCY
P. O. Box 58
Bakersfield, CA 93302-0058

By:_____

By:_____

IMPROVEMENT DISTRICT NO. 4
P. O. Box 58
Bakersfield, CA 93302-0058

By:_____

By:_____

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ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
P. O. Box 867
Bakersfield, CA 93302-0867

By:_____

By:_____

WEST KERN WATER DISTRICT
800 Kern Street
P. O. Box 1105
Taft, CA 93268-1105

By:_____

By:_____

SEMITROPIC WATER STORAGE DISTRICT
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Wasco, CA 93280-0877

By:_____

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KERN WATER BANK AUTHORITY
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Bakersfield, CA 93380-0607

By:_____

By:_____

KERN COUNTY WATER AGENCY
P. O. Box 58
Bakersfield, CA 93302-0058

By:_____

By:_____

IMPROVEMENT DISTRICT NO. 4
P. O. Box 58
Bakersfield, CA 93302-0058

By:_____

By:_____

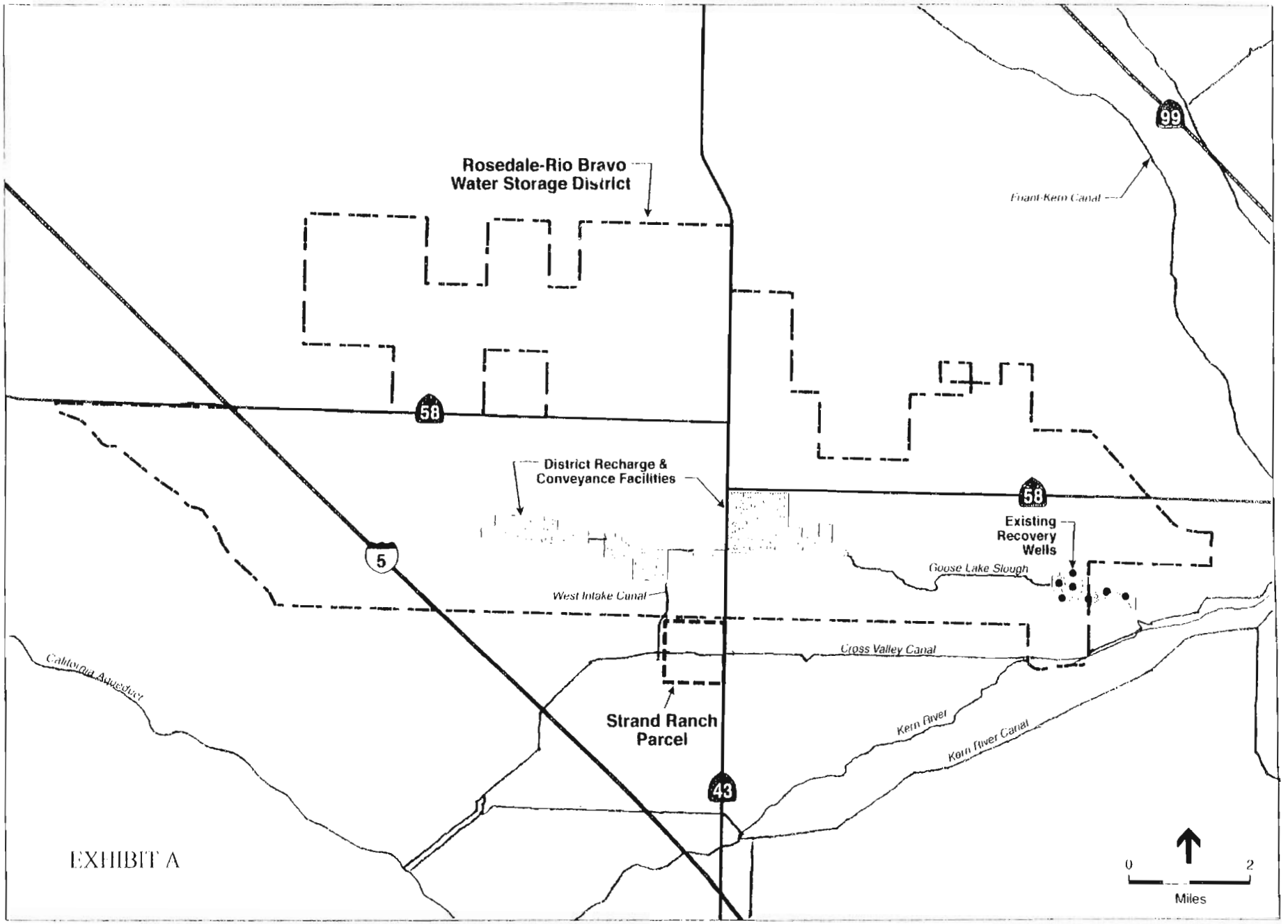

Rosedale-Rio Bravo
Water Storage District
Friant-Kern Canal
99
58
District Recharge &
Conveyance Facilities
58
Existing
Recovery
Wells
Goose Lake Slough
5
West Intake Canal
Cross Valley Canal
California Aqueduct
Strand Ranch
Parcel
Kern River
Kern River Canal
43
0
2
Miles

EXHIBIT A

EXHIBIT B

PROJECT DESCRIPTION

Purposes

The primary water management objective of Rosedale-Rio Bravo Water Storage District is to enhance water supplies for its landowners. One method of attaining this goal is to sponsor third party banking programs. Under such programs surface water will be stored in aquifers during times of surplus and either recovered during times of shortage or remain in the ground to assist with overdraft correction.

Sources of Water

Kern River water, being Rosedale-Rio Bravo WSD's primary supply water right, as well as other sources will be recharged. Such sources include: the Kern River, Friant-Kern, SWP, CVP, flood water and other sources that may be available from time to time.

Facilities

To achieve its water management objectives through third party banking programs, the Rosedale-Rio Bravo Water Storage District may require the construction of recharge ponds, water conveyance facilities, and water wells in addition to its existing facilities.

Of the approximately 43,000 acres that presently constitute Rosedale-Rio Bravo Water Storage District all may be used for in-lieu and/or direct recharge. In addition, adjacent lands within non-districted areas may also be used for in-lieu and direct recharge. It is anticipated that in the wettest of years as much as 300,000 acre-feet can be recharged.

It is proposed that water would be conveyed to and from the property using available capacity in any of the canals and conveyance facilities that may serve the property including: the Cross Valley Canal, the Kern River, the Friant Kern Canal, the California Aqueduct, and the Goose Lake Slough. It is also proposed to build additional conveyance facilities as future projects are developed.

As many as 20 wells may be added within the District boundaries before the project is complete to provide adequate recovery capacity and the necessary operational flexibility to avoid or minimize adverse impacts. District/Landowner programs may include the use of landowner wells by District wide reduction in surface supply allocations or by individual volunteer well lease programs. Once build out of the recovery facilities is complete, the recovery capacity will be maintained by constructing new wells to replace the capacity of older wells as they fail. New District owned wells shall be placed no closer than 880 feet from property and/or District boundaries. Wells inside the District boundaries shall be located and operated so as to prevent significant non-mitigable adverse impacts to neighboring landowners.

Operation

The project shall be managed by the Rosedale-Rio Bravo Water Storage District. Day-to-day operation of portions of the project may be contracted to other parties. Operation of the project shall be coordinated with adjoining projects. The total storage capacity intended to be utilized at any one time for banking project purposes is 500,000 AF and the total recovery capacity intended to be utilized for banking project purposes is 63,250 AF/year.

Banking Projects

The project includes all third party banking programs whether pending or completed. These

programs include, without limitation, the following:

ROSEDALE CONJUNCTIVE USE PROGRAM PARTNERSHIP AGREEMENTS

Banking Partner	Type	Annual Recharge (af)	Maximum Return Obligation (afy)	Maximum Storage (af)	Banked Water Source
Arvin-Edison WSD (draft terms)	2:1 Banking	30,000	10,000	90,000	CVP
Kern-Tulare/Rag Gulch WD	2:1 Banking	20,000	7,500	50,000	varies
Castaic Lake Water Agency	Banking	20,000	20,000*	100,000	varies
Buena Vista WSD	Banking	80,000	8,250	200,000	Kern River
Irvine Ranch Water District	Banking	17,500	17,500	50,000	varies
TOTAL			63,250	490,000	

*surplus capacity of existing wells

A detailed description of each program is found in the environmental documentation relating thereto which includes, without limitation, the following: (1) Master EIR for Groundwater Storage, Banking, Exchange, Extraction and Conjunctive Use Program, certified July 17, 2001; (2) Addendum No. 1 to Master EIR, adopted in 2003; (3) FEIR for the BVWSD/RRBWSD Water Banking and Recovery Program, certified October 11, 2002; (4) Negative Declaration for Kern Tulare Program; (5) Negative Declaration for Groundwater Banking - Allen Road Wellfield (AEWSD) Program; and (6) FEIR for the Strand Ranch Integrated Banking Project (IRWD), certified May 27, 2008.

Addenda

(1) Notwithstanding paragraph 2.b.(10)(a) of this agreement, the surface recharge losses for the Strand Ranch property shall be fixed and assessed at a rate of 6% whether the recharge is intended for in-district or out-of-district use; provided, however, such 6% loss may be modified in the future if studies acceptable to the parties demonstrate that such modification is appropriate; provided further, however, that a 1% safety factor shall be maintained and the total loss when directly recharged water is extracted for out-of-district use shall not exceed 6%.

(2) It is understood and agreed by and among all parties that issues involving project operations may be presented to and addressed by the Monitoring Committee whether or not such issues were discussed, reviewed and/or considered during the environmental evaluation of the project.

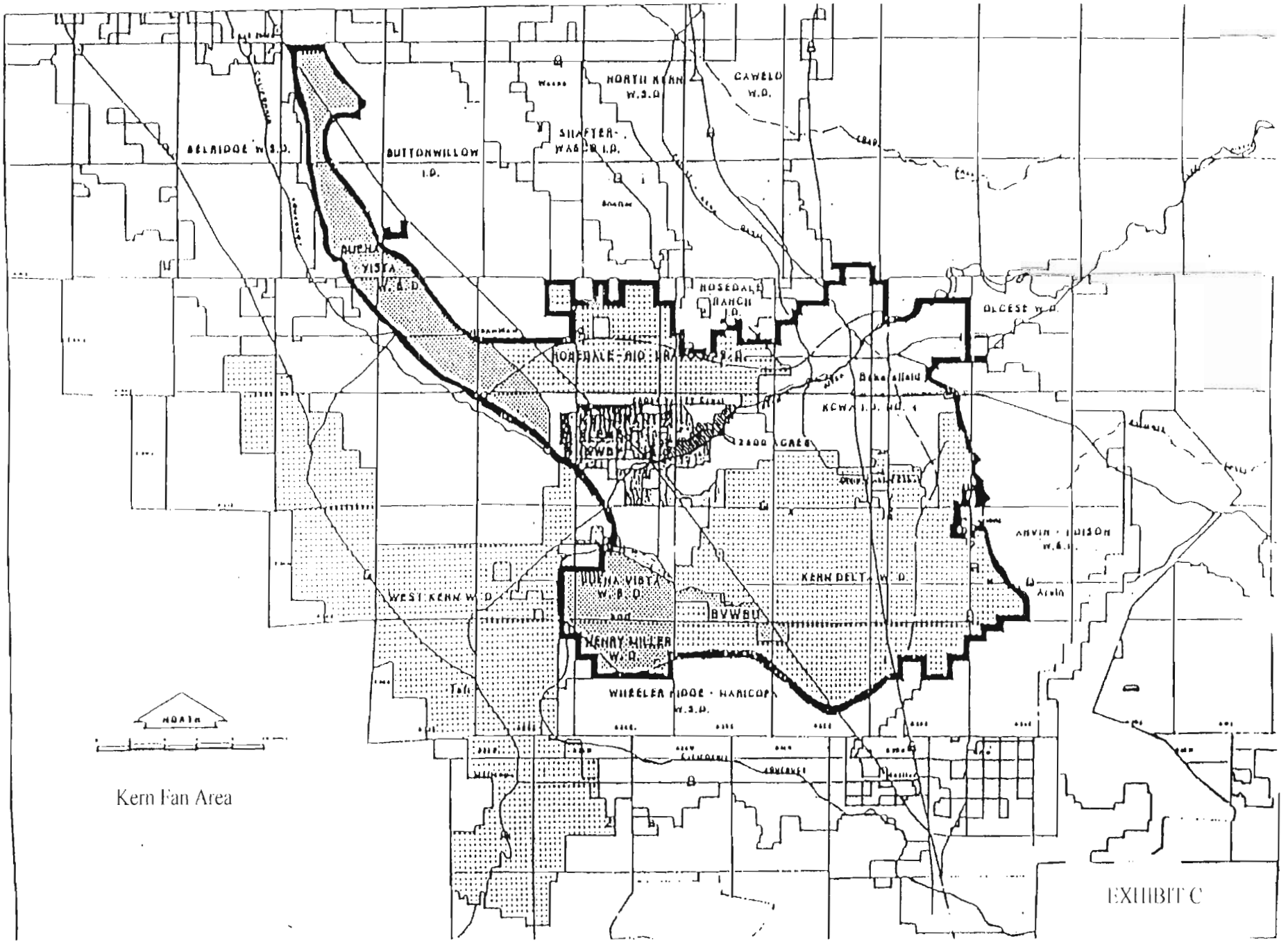

NORTH KERN W.S.D.
CAWELO W.D.
SHAFTER-WASCO I.D.
BELRIDGE W.S.D.
BUTTONWILLOW I.D.
BUENA VISTA W.S.D.
ROSEDALE RANCH I.D.
OLCESE W.D.
ROSEDALE-RIO BRAVO W.S.D.
Bakersfield
KCWA I.D. NO. 4
2800 ACRES
RWD
ARVIN-EDISON W.S.D.
KERN DELTA W.D.
WEST KERN W.D.
BUENA VISTA W.S.D.
BVWSD
HENRY MILLER W.D.
WHEELER RIDGE - MARICOPA W.S.D.
NORTH
Kern Fan Area

EXHIBIT C

Appendix B-2

Memorandum of Understanding
Groundwater Banking and Sale Program

April 30, 2004

Mr. Hal Crossley, General Manager
Rosedale-Rio Bravo Water Storage District
P.O. Box 867
Bakersfield, CA 93302

Re: Memorandum of Understanding, Rosedale-Rio Bravo Water Storage District Groundwater Banking and Sale Program

Dear Mr. Crossley:

Enclosed please find executed copies of the above-referenced Memorandum of Understanding. It is our understanding that this MOU does not in any way modify or amend our letter agreement regarding the banking and sales programs dated December 1, 2003. Please acknowledge that this is also your understanding by signing the acknowledgement below and returning a copy of this letter.

Sincerely,

Thomas N. Clark
General Manager

Being authorized by the district, we agree to the foregoing.

Hal Crossley

Rosedale-Rio Bravo Water Storage District
By Hal Crossley, General Manager
Dated: May 10, 2004

661/634-1400

Mailing Address
P.O. Box 58
Bakersfield, CA 93302-0058

Street Address
3200 Rio Mirada Dr.
Bakersfield, CA 93308

MEMORANDUM OF UNDERSTANDING

REGARDING OPERATION AND MONITORING OF THE ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT GROUNDWATER BANKING AND SALE PROGRAM

This Memorandum of Understanding is entered into the Effective Date hereof by and among **ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT**, hereinafter referred to as "Rosedale", and **ROSEDALE RANCH I.D. OF NORTH KERN WATER STORAGE DISTRICT, SEMITROPIC WATER STORAGE DISTRICT, BUENA VISTA WATER STORAGE DISTRICT, HENRY MILLER WATER DISTRICT, BERRENDA MESA WATER DISTRICT, KERN COUNTY WATER AGENCY, KERN WATER BANK AUTHORITY, IMPROVEMENT DISTRICT NO. 4 KERN COUNTY WATER AGENCY, and WEST KERN WATER DISTRICT**, collectively referred to as "Adjoining Entities."

R E C I T A L S

WHEREAS, Rosedale expects that certain real property more particularly shown on the map attached hereto as Exhibit A and incorporated herein by this reference ("Project Site"), or portions thereof, will be used in connection with the Project; and

WHEREAS, Rosedale intends to develop and improve the Project Site as necessary to permit the importation, percolation and storage of water in underground aquifers for later recovery, transportation and use for the benefit of Rosedale, all as more fully described in Exhibit B attached hereto and incorporated herein by this reference ("Project"); and

WHEREAS, Adjoining Entities encompass lands and/or operate existing projects lying adjacent to the Project Site as shown on said Exhibit A; and

WHEREAS, in recent years, water banking, recovery and transfer programs in Kern County have become increasingly numerous and complex; and

WHEREAS, it is appropriate and desirable to mitigate or eliminate any short-term and long-term significant adverse impacts of new programs upon potentially affected projects and landowners within the boundaries of Adjoining Entities; and

WHEREAS, Adjoining Entities and Rosedale desire that the design, operation and monitoring of the Project be conducted and coordinated in a manner to insure that the beneficial effects of the Project to Rosedale are maximized but that the Project does not result in significant adverse impacts to water levels, water quality or land subsidence within the boundaries of Adjoining Entities, or otherwise interfere with the existing and ongoing programs of Adjoining Entities; and

WHEREAS, on October 26, 1995, the Kern Water Bank Authority and its Member Entities, as the "Project Participants," and Buena Vista Water Storage District, Rosedale-Rio Bravo Water Storage District, Kern Delta Water District, Henry Miller Water District and West Kern Water District, as the "Adjoining Entities," entered into a Memorandum of Understanding, similar to this Memorandum of Understanding, which provided among other things at Paragraph 8 that for "any future project within the Kern Fan Area, the Parties hereto shall use good faith efforts to negotiate an agreement substantially similar in substance to this MOU," and by entering into this MOU the Adjoining Entities find that this MOU satisfies such requirement for the Project; and

WHEREAS, Rosedale intends to operate its Project such that the same does not cause or contribute to overdraft of the groundwater basin; and

WHEREAS, in connection with its environmental review for the Project, Rosedale commissioned a hydrologic balance study for a period of years, which study shows that the District is not currently operating in a state of overdraft, and, further, Rosedale has projected said hydrologic balance study into the future, assuming completion of the Project, and said projection demonstrates that the District is not expected to operate in state of overdraft following implementation of the Project, which studies have not been independently verified by the Adjoining Entities; and

WHEREAS, in the hydrologic balance studies conducted by Rosedale in connection with the Project, the annual safe yield from the groundwater basin is assumed to be .3 acre-feet per acre times the gross developed acres in the District and no assumption is included with respect to groundwater inflow or outflow; and

WHEREAS, this MOU affects the Project and other similar banking programs operated for the benefit of third parties.

NOW, THEREFORE, BE IT RESOLVED that, based upon the mutual covenants contained herein, the parties hereto agree as follows:

1. Project Design and Construction. Rosedale has completed a preliminary Project Description of the Project described in Exhibit B hereto representing the contemplated facilities for the Project. Said preliminary description has been reviewed by the parties hereto. The foregoing shall not be interpreted to imply consent to any aspect of any future project not described in existing approved environmental documentation. Rosedale will construct the Project consistent with such preliminary description. Any major modifications of the facilities and/or significant changes from that described in Exhibit B and in the environmental documentation for the Project will be subject to

additional environmental review pursuant to CEQA and will be subject to review of the Monitoring Committee prior to implementation.

2. Project Operation. The Project shall be operated to achieve the maximum water storage and withdrawal benefits for Rosedale consistent with avoiding, mitigating or eliminating to the greatest extent practicable, significant adverse impacts resulting from the Project. To that end, the Project shall be operated in accordance with the following Project Objectives and Minimum Operating Criteria:

a. Project Objectives. Consistent with the Project description, Rosedale will make a good faith effort to meet the following objectives, which may or may not be met:

(1) The parties should operate their projects in such manner as to maintain and, when possible, enhance the quality of groundwater within the Project Site and the Kern Fan Area as shown in Exhibit C.

(2) If supplies of acceptable recharge water exceed recharge capacity, all other things being equal, recharge priority should be given to the purest or best quality water.

(3) Each project within the Kern Fan Area should be operated with the objective that the average concentration of total dissolved salts in the recovered water will exceed the average concentration of total dissolved salts in the recharged water, at a minimum, by a percentage equal to or greater than the percentage of surface recharge losses. The average shall be calculated from the start of each project.

(4) To maintain or improve groundwater quality, recovery operations should extract poorer quality groundwater where practicable. Blending may be used to increase recovery of lesser quality groundwater unless doing so will exacerbate problems by generating

unfavorable movement of lesser quality groundwater. It is recognized that the extent to which blending can help to resolve groundwater quality problems is limited by regulatory agency rules regarding discharges into conveyance systems used for municipal supplies, which may be changed from time to time.

(5) All groundwater pumpers should attempt to control the migration of poor quality water. Extensive monitoring will be used to identify the migration of poor quality water and give advance notice of developing problems. Problem areas may be dealt with by actions including, but not limited to:

(a) limiting or terminating extractions that tend to draw lesser quality water toward or into the usable water areas;

(b) increasing extractions in areas that might generate a beneficial, reverse gradient;

(c) increasing recharge within the usable water area to promote favorable groundwater gradients.

(6) It is intended that all recovery of recharged water be subject to the so-called "golden rule." In the context of a banking project, the "golden rule" means that, unless acceptable mitigation is provided, the banker may not operate so as to create conditions that are worse than would have prevailed absent the project giving due recognition to the benefits that may result from the project, all as more fully described at paragraph 2(b)12 below.

(7) The Project shall be developed and operated so as to prevent, eliminate or mitigate significant adverse impacts. Thus, the Project shall incorporate mitigation measures as necessary. Mitigation measures to prevent significant adverse impacts from occurring include but

are not limited to the following: (i) spread out recovery area; (ii) provide buffer areas between recovery wells and neighboring overlying users; (iii) limit the monthly, seasonal, and/or annual recovery rate; (iv) provide sufficient recovery wells to allow rotation of recovery wells or the use of alternate wells; (v) provide adequate well spacing; (vi) adjust pumping rates or terminate pumping to reduce impacts, if necessary; (vii) impose time restrictions between recharge and recovery to allow for downward percolation of water to the aquifer; and (viii) provide recharge of water that would otherwise not recharge the Kern Fan Basin. Mitigation measures that compensate for unavoidable adverse impacts include but are not limited to the following: (i) with the consent of the affected groundwater pumper, lower the pump bowls or deepen wells as necessary to restore groundwater extraction capability to such pumper; (ii) with the consent of the affected groundwater pumper, provide alternative water supplies to such pumper; and (iii) with the consent of the affected groundwater pumper, provide financial compensation to such pumper.

b. Minimum Operating Criteria.

(1) The Monitoring Committee shall be notified prior to the recharge of potentially unacceptable water, such as "produced water" from oilfield operations, reclaimed water, or the like. The Monitoring Committee shall review the proposed recharge and make recommendations respecting the same as it deems appropriate. Where approval by the Regional Water Quality Control Board is required, the issuance of such approval by said Board shall satisfy this requirement.

(2) Recharge may not occur in, on or near contaminated areas, nor may anyone spread in, on or near an adjoining area if the effect will be to mound water near enough to the contaminated area that the contaminants will be picked up and carried into the uncontaminated

groundwater supply. When contaminated areas are identified within or adjacent to the Project, Rosedale shall also:

(a) participate with other groundwater pumpers to investigate the source of the contamination;

(b) work with appropriate authorities to ensure that the entity or individual, if any, responsible for the contamination meets its responsibilities to remove the contamination and thereby return the Project Site to its full recharge and storage capacity;

(c) operate the Project in cooperation with other groundwater pumpers to attempt to eliminate the migration of contaminated water toward or into usable water quality areas.

(3) Operators of projects within the Kern Fan Area will avoid operating such projects in a fashion so as to significantly diminish the natural, normal and unavoidable recharge of water native to the Kern Fan Area as it existed in pre-project condition. If and to the extent this occurs as determined by the Monitoring Committee, the parties will cooperate to provide equivalent recharge capacity to offset such impact.

(4) The mitigation credit for fallowed Project land shall be .3 acre-feet per acre per year times the amount of fallowed land included in the Project Site in the year of calculation.

(5) The lands shown in Exhibit A may be utilized for any purpose provided, however, the use of said property by Rosedale for the Project shall not cause or contribute to overdraft of the groundwater basin.

(6) Each device proposed to measure recharge water to be subsequently recovered and/or recovery of such water will be initially evaluated and periodically reviewed by the

Monitoring Committee. Each measuring device shall be properly installed, calibrated, rated, monitored and maintained by and at the expense of the owner of the measuring device.

(7) It shall be the responsibility of the user to insure that all measuring devices are accurate and that the measurements are provided to the Monitoring Committee at the time and in the manner required by the Monitoring Committee.

(8) A producer's flow deposited into another facility, such as a transportation canal, shall be measured into such facility by the operator thereof and the measurement reported to the Monitoring Committee at the time and in the manner required by such Monitoring Committee.

(9) The Monitoring Committee or its designee will maintain official records of recharge and recovery activities, which records shall be open and available to the public. The Monitoring Committee will have the right to verify the accuracy of reported information by inspection, observation or access to user records (i.e., P.G.&E. bills). The Monitoring Committee will publish or cause to be published annual reports of operations.

(10) Losses shall be assessed as follows:

(a) Surface recharge losses shall be fixed and assessed at a rate of 3%, which includes a "safety factor" of 1% of water diverted for direct recharge. An additional surface recharge loss of 3% shall be fixed and assessed against water directly recharged which is subsequently extracted for out-of-district use. Such initial 3% loss may be modified in the future if studies acceptable to the parties demonstrate that such modification is appropriate, providing that a 1% "safety factor" shall be maintained and the total loss when directly recharged water is subsequently extracted for out-of-district use shall not exceed 6%. Notwithstanding anything to the

contrary provided herein, water banked in Rosedale for or on behalf of third parties (~~i.e.~~, creating a third party bank account) shall be subject to surface recharge losses calculated at 6% of water diverted for direct recharge.

(b) To account for all other actual or potential losses (including migration losses), a rate of 4% of water placed in a bank account shall be deducted to the extent that Rosedale has been compensated within three (3) years following the end of the calendar year in which the water was designated as banked at the SWP Delta Water Rate charged by DWR at the time of payment; provided further, however, that the water purchased and subtracted from a groundwater bank account pursuant to this provision shall only be used for overdraft correction within the District purchasing the water.

(c) An additional 5% loss shall be assessed against any water diverted to the Project Site for banking by, for, or on behalf of any out-of-County person, entity or organization (except current SWP Agricultural Contractors).

(d) All losses provided for herein represent amounts of water that are non-bankable and non-recoverable by Rosedale.

(11) Recovery of banked water shall be from the Project Site and recovery facilities shall be located therein. Recovery from outside the Project Site may be allowed with the consent of the District or entity having jurisdiction over the area from which the recovery will occur and upon review by the Monitoring Committee.

(12) Recovery of banked water may not be allowed if not otherwise mitigated if it will result in significant adverse impacts to surrounding overlying users. "Adverse impacts" will be evaluated using data applicable in zones including the area which may be affected

by the Project of approximately five miles in width from the boundaries of the Project as designated by the Monitoring Committee. In determining "adverse impacts," as provided at this paragraph and elsewhere in this MOU, consideration will be given to the benefits accrued over time during operation of the Project to landowners surrounding the Project Site including higher groundwater levels as a result of operation of the Project. In determining non-Project conditions vs. Project conditions, credit toward mitigation of any otherwise adverse impacts shall be recognized to the extent of the 4% loss and 5% losses recognized under paragraphs 2.b.(10)(b) and (c), for the mitigation credit recognized under paragraph 2.b.(4), if any, and to the extent of recharge on the Project Site for overdraft correction.

(13) To the extent that interference, other than insignificant interference, with the pumping lift of any existing active well as compared to non-Project conditions, is attributable to pumping of any wells on the Project Site, Rosedale will either stop pumping as necessary to mitigate the interference or compensate the owner for such interference, or any combination thereof. The Monitoring Committee will establish the criteria necessary to determine if well interference, other than insignificant interference, is attributable to pumping of Project wells by conducting pumping tests of Project wells following the installation of monitoring wells (if not already completed) and considering hydrogeologic information.

(14) The Kern Fan Element Groundwater Model, with input from Rosedale and the Adjoining Entities, and utilizing data from a comprehensive groundwater monitoring program, may be used by the Monitoring Committee as appropriate to estimate groundwater impacts of the Project.

(15) The parties recognize that the Project shall be operated with a positive balance, i.e., there shall be no "borrowing" of water for recovery from the basin.

3. Project Monitoring. Adjoining Entities agree to participate in a comprehensive monitoring program and as members of a Monitoring Committee, as hereinafter more particularly described, in order to reasonably determine groundwater level and water quality information under Project and non-Project conditions. The monitoring program will more particularly require the following:

a. Monitoring Committee: Rosedale and the Adjoining Entities shall form a Monitoring Committee for the Project upon terms and conditions acceptable to the participants. The Monitoring Committee shall:

(1) Engage the services of a suitable independent professional groundwater specialist who shall, at the direction of the Committee, provide assistance in the performance of the tasks identified below;

(2) Meet and confer monthly or at other intervals deemed to be appropriate in furtherance of the monitoring program;

(3) Establish a groundwater evaluation methodology or methodologies;

(4) Prepare a monitoring plan and two associated maps, "Well Location, Water Quality Network," and "Well Location, Water Level Network," which plan and maps depict the location and types of wells anticipated to be used in the initial phase of groundwater monitoring (said plan and maps are expected to be modified from time to time as the monitoring program is developed and operated);

(5) Specify such additional monitoring wells and ancillary equipment as are deemed to be necessary or desirable for the purposes hereof;

(6) Prepare annual water balance studies and other interpretive studies, which will designate all sources of water and the use thereof within the study area;

(7) Develop criteria for determining whether excessive mounding or withdrawal is occurring or is likely to occur in an area of interest;

(8) Annually or as otherwise needed determine the impacts of the Project on each of the Adjoining Entities by evaluating with and without Project conditions; and

(9) Develop procedures, review data, and recommend Project operational criteria for the purpose of identifying, verifying, avoiding, eliminating or mitigating, to the extent practicable, the creation of significant imbalances or significant adverse impacts.

b. Collection and Sharing of Data. The Adjoining Entities will make available to the Monitoring Committee copies of all relevant groundwater level, groundwater quality, and other monitoring data currently collected and prepared by each. Rosedale shall annually report, by areas of interest, water deliveries for banking and other purposes, groundwater withdrawals from bank accounts, transfers and other changes in account balances.

c. Monitoring Costs.

(1) The cost of constructing monitoring wells and ancillary equipment within Rosedale shall be borne by Rosedale. The cost of any new or additional monitoring wells and ancillary equipment outside the boundaries of Rosedale shall be borne as may be determined by separate agreement of Rosedale and Adjoining Entities.

(2) Each of the parties shall be responsible for the personnel costs of its representative on the Monitoring Committee. In addition, the Adjoining Entities shall be responsible for all costs of monitoring operations and facilities within their respective boundaries and Rosedale shall be responsible for all costs of monitoring operations and facilities within the Project Site.

(3) All other groundwater monitoring costs, including employment of the professional groundwater specialist, collection, evaluation and analyses of data as adopted by the Monitoring Committee, shall be allocated among and borne by the parties as they shall agree among themselves. Cost sharing among Adjoining Entities shall be as agreed by them. Any additional monitoring costs shall be determined and allocated by separate agreement of those parties requesting such additional monitoring.

4. Modification of Project Operations. The Monitoring Committee may make recommendations to Rosedale, including without limitation recommendations for modifications in Project operations based upon evaluation(s) of data which indicate that excessive mounding or withdrawal is occurring or is likely to occur in an area of interest. The Monitoring Committee and its members shall not act in an arbitrary, capricious or unreasonable manner.

5. Dispute Resolution.

a. Submission to Monitoring Committee. All disputes regarding the operation of the Project or the application of this MOU, or any provision hereof, shall first be submitted to the Monitoring Committee for review and analysis. The Monitoring Committee shall meet and review all relevant data and facts regarding the dispute and, if possible, recommend a fair and equitable resolution of the dispute. The Monitoring Committee and its members shall not act in an arbitrary, capricious or unreasonable manner. In the event that (1) the Monitoring Committee fails to act as

herein provided, (2) any party disputes the Monitoring Committee's recommended resolution or (3) any party fails to implement the Monitoring Committee's recommended resolution within the time allowed, any party to this MOU may seek any legal or equitable remedy available as hereinafter provided.

b. Arbitration. If all of the parties agree that a factual dispute exists regarding any recommendation of the Monitoring Committee made pursuant hereto, or implementation thereof, such dispute shall, be submitted to binding arbitration before a single neutral arbitrator appointed by unanimous consent and, in the absence of such consent, appointed by the presiding judge of the Kern County Superior Court. The neutral arbitrator shall be a registered civil engineer, registered geologist, or other person agreeable to the parties, preferably with a background in groundwater hydrology. The arbitration shall be called and conducted in accordance with such rules as the contestants shall agree upon, and, in the absence of such agreement, in accordance with the procedures set forth in California Code of Civil Procedure section 1282, et seq. Any other dispute may be pursued through a court of competent jurisdiction as otherwise provided by law.

c. Burden of Proof. In the event of arbitration or litigation under this MOU, all parties shall enjoy the benefit of such presumptions as are provided by law but, in the absence thereof, neither party shall bear the burden of proof on any contested legal or factual issue.

d. Landowner Remedies. Nothing in this MOU shall prevent any landowner within the boundaries of any party from pursuing any remedy at law or in equity in the event such landowner is damaged as a result of projects within the Kern Fan Area.

6. Term. The Effective Date of this MOU shall be January 1, 2003 regardless of the date of actual execution. This MOU shall continue in force and effect from and after the Effective Date

until terminated by (1) operation of law, (2) unanimous consent of the parties, or (3) abandonment of the Project and a determination by the Monitoring Committee that all adverse impacts have been fully eliminated or mitigated as provided in this MOU.

7. Complete Agreement/Incorporation Into Banking Agreements. This MOU constitutes the whole and complete agreement of the parties regarding Project operation, maintenance and monitoring. Rosedale shall incorporate this MOU by reference into any further agreement it enters into respecting banking of water in or withdrawal of water from the Project Site.

8. Future Projects. With respect to any future project within the Kern Fan Area, the Parties hereto shall use good faith efforts to negotiate an agreement substantially similar in substance to this MOU.

9. Notice Clause. All notices required by this MOU shall be sent via first class United States mail to the addresses shown on the signature page of this agreement and shall be deemed delivered three days after deposited in the mail. Notice of changes in the representative or address of a party shall be given in the same manner.

10. California Law Clause. All provisions of this MOU and all rights and obligations of the parties hereto shall be interpreted and construed according to the laws of the State of California.

11. Amendments. This MOU may be amended by written instrument executed by all of the parties. In addition, recognizing that the parties may not now be able to contemplate all the implications of the Project, the parties agree that on the tenth anniversary of implementation of the Project, if facts and conditions not envisioned at the time of entering into this MOU are present, the parties will negotiate in good faith amendments to this MOU. If the parties cannot agree on whether conditions have changed necessitating an amendment and/or upon appropriate amendments to the

MOU, such limited issues shall be submitted to an arbitrator or court, as the case may be, as provided above.

12. Successors and Assigns. This MOU shall bind and inure to the benefit of the successors and assigns of the parties.

13. Severability. The rights and privileges set forth in this MOU are severable and the failure or invalidity of any particular provision of this MOU shall not invalidate the other provisions of this MOU; rather all other provisions of this MOU shall continue and remain in full force and effect notwithstanding such partial failure or invalidity.

14. Force Majeure. All obligations of the parties shall be suspended for so long as and to the extent the performance thereof is prevented, directly or indirectly, by earthquakes, fires, tornadoes, facility failures, floods, drownings, strikes, other casualties, acts of God, orders of court or governmental agencies having competent jurisdiction, or other events or causes beyond the control of the parties. In no event shall any liability accrue against a party, or its officers, agents or employees, for any damage arising out of or connected with a suspension of performance pursuant to this paragraph.

15. Counterparts. This MOU, and any amendment or supplement thereto, may be executed in two or more counterparts, and by each party on a separate counterpart, each of which, when executed and delivered, shall be an original and all of which together shall constitute one instrument, with the same force and effect as though all signatures appeared on a single document. In proving this MOU or any such amendment, supplement, document or instrument, it shall not be necessary to produce or account for more than one counterpart thereof signed by the party against whom enforcement is sought.

IN WITNESS WHEREOF the parties have executed this MOU as of _____,

2004 (Effective Date) at Bakersfield, California.

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
P. O. Box 867
Bakersfield, CA 93302-0867

By: _____

By: _____

ROSEDALE RANCH I.D.
NORTH KERN WATER STORAGE DISTRICT
P. O. Box 81435
Bakersfield, CA 93380-1435

By: _____

By: _____

SEMITROPIC WATER STORAGE DISTRICT
P. O. Box Z
Wasco, CA 93280-0877

By: _____

By: _____

BUENA VISTA WATER STORAGE DISTRICT
P. O. Box 756
Buttonwillow, CA

By: _____

By: _____

HENRY MILLER WATER DISTRICT
P. O. Box 9759
Bakersfield, CA 93389-9759

By:_____

By:_____

BERRENDA MESA WATER DISTRICT
2100 F Street, Suite 100
Bakersfield, CA 93301

By:_____

By:_____

KERN COUNTY WATER AGENCY
P. O. Box 58
Bakersfield, CA 93302-0058

By: Gene A. Lundquist

By: President

KERN WATER BANK AUTHORITY
P. O. Box 80607
Bakersfield, CA 93380-0607

By:_____

By:_____

IMPROVEMENT DISTRICT NO. 4
KERN COUNTY WATER AGENCY
P. O. Box 58
Bakersfield, CA 93302-0058

By: Gene A. Lundquist

By: President

WEST KERN WATER DISTRICT
P. O. Box 1105
Taft, CA 93268-1105

By:_____

By:_____

RRB banking MOU - select included - final.wpd

EXHIBIT 'A'

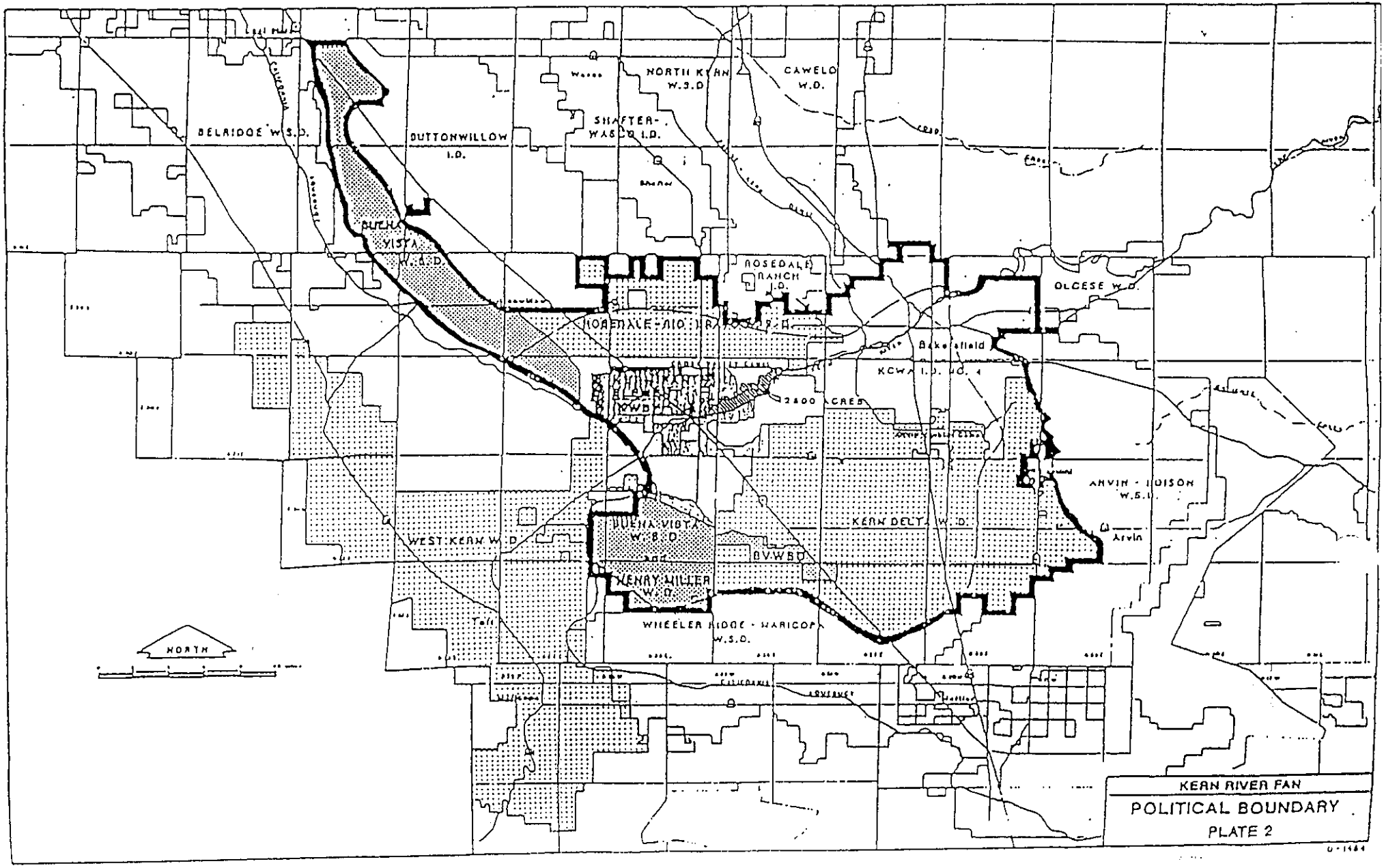

BELRIDGE W.S.D.
BUTTONWILLOW I.D.
NORTH KERN W.S.D
CAWELO W.D.
SHAFTER-WASCO I.D.
BUENA VISTA W.S.D.
ROSEDALE RANCH I.D.
ROSEDALE-RIO BRAVO W.S.D.
OLCESE W.D.
Bakersfield
KCWA I.D. NO. 4
2800 ACRE
ARVIN - EDISON W.S.D.
Arvin
KERN DELTA W.D.
WEST KERN W.D.
BUENA VISTA W.S.D.
BVWSD
HENRY MILLER W.D.
WHEELER RIDGE - MARICOPA W.S.D.
NORTH
KERN RIVER FAN
POLITICAL BOUNDARY
PLATE 2

EXHIBIT 'B'

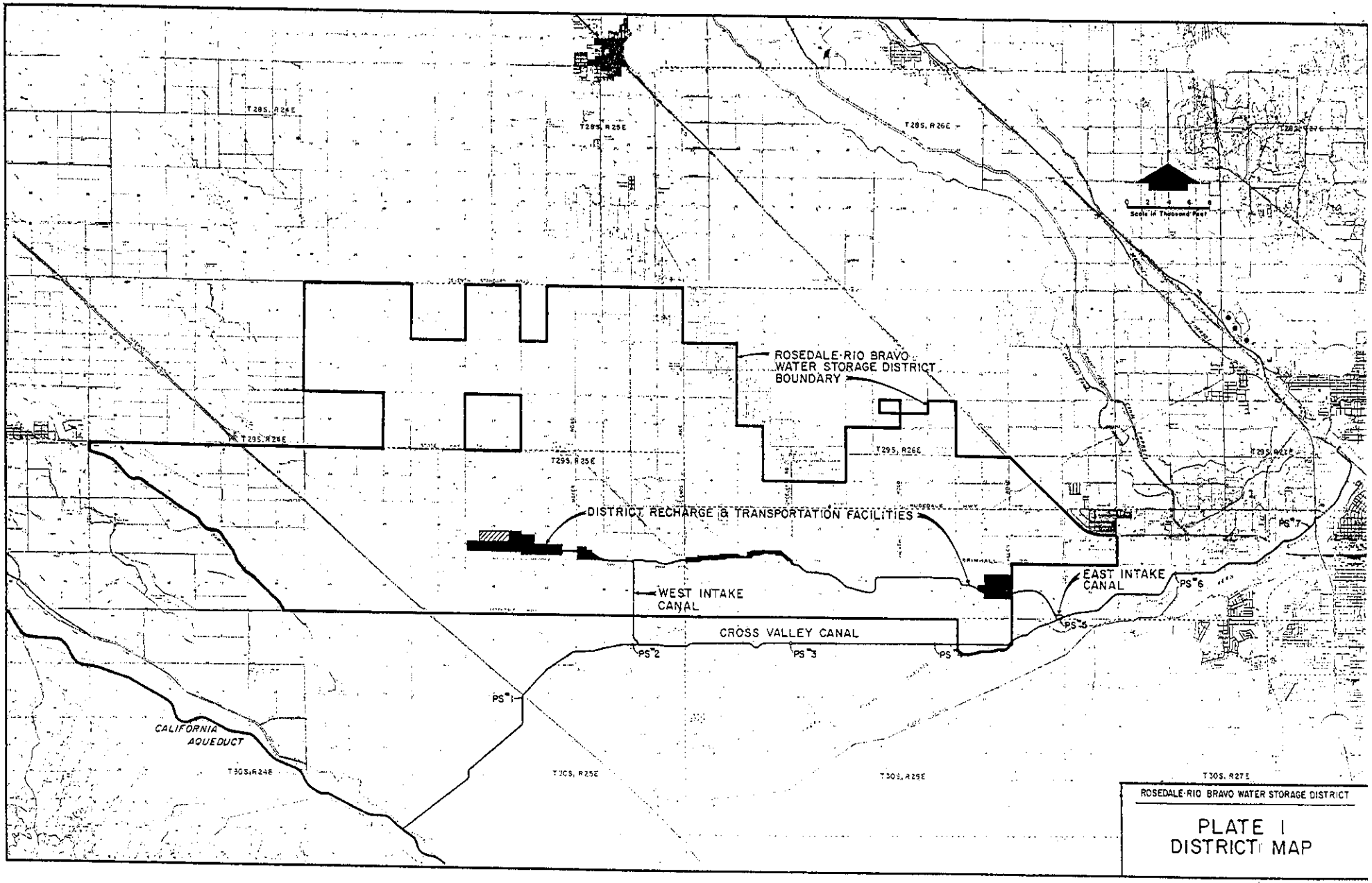
PROJECT DESCRIPTION

The Project involves the recharge, groundwater banking, recovery and sale of water by Rosedale-Rio Bravo Water Storage District (RRBWSD). Kern-Tulare Water District, Arvin-Edison Water Storage District (AEWSD) and other acquired waters will be captured and recharged within the RRBWSD service area. These recharged waters will be banked along with water previously recharged within the Kern River Fan Area by RRBWSD. Waters included in the banking program will originate from imported supplies that RRBWSD is able to put to beneficial use through direct or in-lieu recharge, or from captured local supplies that would have historically left Kern County, percolated into areas of poor quality or unusable groundwater, flooded agricultural land, or would otherwise not have been put to beneficial use within the groundwater basin.

RRBWSD has tentative agreement with Glorious Land Company (GLC). Said agreement calls for the sale and delivery of a total 220,000 acre-feet of water to GLC by RRBWSD over an initial term of 33 years (average 6,667 acre-feet per year). The maximum annual delivery at full build-out will not exceed 9,500 acre-feet. RRBWSD is negotiating a further agreement with The Metropolitan Water District of Southern California (MWD), which is expected to provide that MWD make actual annual deliveries to GLC and RRBWSD provide its water to MWD by way of exchange. Under the terms of the proposed MWD agreement, MWD may take direct delivery of water from RRBWSD annually or may choose to store water in RRBWSD. If and to the extent that the storage option is exercised, MWD will be limited to 60,000 acre-feet maximum storage at any one time and 20,000 acre-feet maximum annual delivery (which amount is inclusive of and not in addition to the 9,500 acre-feet maximum annual delivery provided in the letter of intent).

RRBWSD will improve District-owned lands in the South½ of Section 25, T29S, R25E, MDB&M to add approximately 80 net acres of additional recharge ponds for project purposes. RRBWSD will construct approximately 10 additional extraction wells (8 new and 2 replacement wells) in RRBWSD's west-side well field. A pipeline will be constructed to connect the wells to the District's system and the Cross Valley Canal. RRBWSD will acquire and improve additional lands to increase the District's recharge capacity to 600 cfs.

EXHIBIT 'C'


ROSEDALE-RIO BRAVO
WATER STORAGE DISTRICT
BOUNDARY
DISTRICT RECHARGE & TRANSPORTATION FACILITIES
WEST INTAKE
CANAL
EAST INTAKE
CANAL
CROSS VALLEY CANAL
PS 1
PS 2
PS 3
PS 4
PS 5
PS 6
PS 7
CALIFORNIA
AQUEDUCT
T28S, R24E
T28S, R25E
T28S, R26E
T29S, R24E
T29S, R25E
T29S, R26E
T30S, R24E
T30S, R25E
T30S, R26E
T30S, R27E
Scale in Thousand Feet
ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
PLATE I
DISTRICT MAP

Appendix B-3

Long Term Project Recovery Operations Plan

LONG TERM PROJECT RECOVERY
OPERATIONS PLAN
REGARDING ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT PROJECTS

Purpose.

Consistent with Rosedale-Rio Bravo Water Storage District's (Rosedale) Memorandums of Understanding governing its banking projects (MOUs), this Long Term Operations Plan Regarding Rosedale-Rio Bravo Water Storage District Projects ("Plan") designates specific measures to be employed to *"... prevent, eliminate or mitigate significant adverse impacts"* resulting from project operations within areas of concern (AOC's). All Rosedale projects which are subject to an MOU with adjoining entities shall be subject to and operated consistent with this Plan. Rosedale will carry out its duties and responsibilities under this Plan in good faith and in cooperation with its landowners, to the end that the objectives and purposes of this Plan will be achieved and/or carried out to the greatest extent practicable.

Plan Components:

A. Establish a Protocol for Monitoring and Reporting Groundwater Conditions to the Board of Directors and the Public.

1. During years when Rosedale is recovering (or is expected to recover) groundwater from a Rosedale project, Rosedale will conduct monitoring of groundwater conditions, as necessary, in addition to the monitoring conducted by the Kern Fan Monitoring Committee (pursuant to the MOUs), and provide reports on groundwater levels as described below.
2. Rosedale will report current groundwater levels to its Board of Directors at each monthly regular meeting, and will make the reports available to the public on its website (http://www.rrbwsd.com/).
3. Rosedale will regularly update its Groundwater Model (Model) to actual conditions and use the Model to project future groundwater conditions. Rosedale will endeavor to use the best and latest science and information available in all modeling and technical matters. Rosedale will report the results of its modeling to its Board of Directors and will make the results available to the public on its website (http://www.rrbwsd.com/). Recovery in any calendar year shall not commence until the Model has been run for projected operations and the results have been reported to the Board and made available to the public.

B. Implement Proactive Measures (in addition to A. above).

1. Rosedale will be obligated to collect and/or contribute funds to meet mitigation obligations hereunder (**"Action Fund")**, which shall be initially set at $2.00/AF

of recovered water from all prospective project operations (actually pumped, not exchanged), until the Action Fund balance reaches $_____. If the Action Fund balance drops below $_____ contributions shall be resumed until the Action Fund balance again reaches $_____. In addition, Rosedale shall initially provide $50,000 to the Action Fund. Rosedale shall maintain an accounting of funds and shall serve as fiscal agent for the Action Fund; Rosedale shall report the balance of the fund to its Board of Directors at its regular monthly meetings.

2. Rosedale will use its Model as a tool to evaluate groundwater impacts resulting from its project operations. The Model will be periodically run and updated as projected recovery plans become known or change and the Model will assume such conditions.
3. The Model has been and will be used to:
   (a) Forecast groundwater levels.
   (b) Forecast and predict the contribution of Rosedale's projects to groundwater level declines in the area.
   (c) Determine water level conditions in the "No Project" Condition for purposes of evaluating the impact of project operations. The "No Project" condition is the water level that would have been at any particular well location absent the Rosedale project.
   (d) Identify, based upon an analysis of "No Project" and Project conditions, if a **negative project impact ("NPI")** has or is likely to occur for which the measures described at D, E, F and G may be operative. NPI is determined according to C., 2., below.
   (e) Forecast any localized areas for special attention and/or monitoring, i.e., AOC's.
   (f) Identify wells at risk of impacts during recovery operations.

C. Establish Triggers and Actions within any identified AOC.

As described below at sections D, E, F, and G, these actions will be implemented in consultation with affected landowners that make a claim to Rosedale of well impacts relating to Rosedale's recovery operations and groundwater level declines. The triggers and actions below are for wells within any identified AOC, subject to the following:

.

1. These actions would not occur in years when average water levels (measured at the following wells: 29S/25E-27N1&2, 29S/25E-25M1&2, 29S/26E-31H1&2, and 29S/25E-35G01) are less than 140 feet from the surface as measured on March 31 of each year because it is expected that water levels will not decline during such year to an extent resulting in adverse impacts to wells.
2. The trigger for whether mitigation is warranted shall be based upon an analysis

and comparison of Model generated "No Project" conditions to Model generated "Project" conditions. When the Project conditions are 30 feet deeper than the No Project conditions at an operative well, and the well has (or is expected to) experience mechanical failure or other operational problems due to declining water levels, a negative project impact ("NPI") is triggered.

3. It is the intent of Rosedale to mitigate and/or compensate for legitimate Project impacts; it is not the intent of the Rosedale or the Plan to generate a windfall for landowners. Accordingly, reasonable adjustments in the form or level of mitigation and/or compensation may be made where it can be demonstrated that the affected well requires remediation for reasons other than temporary groundwater level declines resulting from Project operations (i.e., general overdraft conditions, lack of well maintenance, normal wear and tear, failure of well equipment, casing degradation, etc.).

4. For a well owner to be eligible for mitigation as provided below, the affected landowner shall submit a claim to Rosedale, which shall, at a minimum, provide information concerning the condition of the well and casing and pumping equipment of the well, and other information that is relevant to the landowner's claim. Upon receipt of a claim, Rosedale shall use the Model (or the results of modelling as reported to the Board and the public) to determine whether an NPI exists at the landowner's well and respond with the appropriate action described below.

D. Action for Ag Wells – Well Adjustment Needed and Available

1. Trigger: When the Model predicts NPI for an operational ag well outside the current operating range of the pump but within the potential operating range of the well.
2. Actions:
   (a) Field verify (with the affected landowner if requested) static depth to groundwater levels within the well and compare to Model values.
   (b) Compare pump setting information with Model projected pumping water levels throughout the year to determine pump submergence levels and evaluate the necessity and feasibility of lowering the well pump to meet the landowner's needs.
   (c) Secure an estimate to complete the necessary work.
   (d) Using the Action Fund, pay all costs associated with the landowner claim, including the cost to complete the necessary work (less negotiated offsets), upon the landowner executing a release.

E. Action for Ag Wells – Well Adjustment Unavailable

1. Trigger: When the Model predicts NPI for an operational ag well outside the current and potential operating range of the well.
2. Action:
   (a) Field verify (with the affected landowner if requested) static depth to groundwater levels within the well and compare to Model values.
   (b) Supply equivalent water supply to the affected landowner from an alternate source at no greater cost to the affected landowner; or
   (c) With the consent of the affected landowner, provide other acceptable mitigation; or
   (d) Reduce or adjust pumping as necessary to prevent, avoid or eliminate the NPI. Use the Model(s) to identify the well or wells that may require reduction or adjustment in pumping.

F. Action for Domestic Wells.

1. Trigger: Emergency health and safety concerns exist because a domestic well production ceases or is likely to cease as a result of pumping by Rosedale's project.
2. Actions:
   (a) Field verify (with the affected landowner if requested) if flow stoppage is due to groundwater level decline.
   (b) Obtain right-of-entry permit and well data release from well owner.
   (c) Collect pump manufacture data, the in-situ pump setting and the casing depth information.
   (d) If it is determined that no NPI exists at the well, or if flow stoppage is due to causes unrelated to groundwater level decline (i.e., pump failure, casing degradation, etc.) repairs are the responsibility of the landowner.
   (d) If flow stoppage is due to groundwater level decline in the aquifer proximate to the impacted well and an NPI exists at the well, offer to fund from the Action Fund one of the following in order to provide the least cost short and long term solution:
      (1) Lower the domestic submersible pump bowl setting sufficient to restore and maintain service.
      (2) Provide a one-time permanent connection to the nearest water service provider.
      (3) Drill and equip a new domestic well, the cost of which may be subject to offset by the landowner based on betterment.
      (4) If necessary, provide interim in-home water supplies until action (1), (2) or (3) above is completed.
   (e) Using the Action Fund, pay all costs associated with the landowner claim, including the cost to complete the necessary work (less negotiated offsets), upon the landowner executing a release.

G. Action for Other Landowner Claims.

1. Trigger: A landowner makes a claim of impact on his groundwater use (which could be due to Rosedale's projects, adjacent landowners, or a combination) that does not relate to the actual (or likely) cessation of production at a well.
2. Actions:
   (a) Refer claim to the Board of Directors to evaluate and respond to landowner claim at its next regularly scheduled meeting.
   (b) Process claim according to agreed upon dispute resolution process (e.g., mediation, arbitration, etc.) in the event the affected landowner does not agree with the Board of Directors' response.

H. Release; Rosedale's Rights Against Others

In all instances when Rosedale takes action to mitigate the effects of declining groundwater levels under this Plan, the affected landowner shall be required to execute an appropriate release in favor of Rosedale. Nothing in this Plan or any action taken by Rosedale hereunder shall affect Rosedale's rights or remedies against any other person or entity (e.g., adjacent landowners, other recovery projects in the area and participants in such projects, etc.) which may have caused or contributed to the effects for which Rosedale has mitigated; if appropriate, an affected landowner that receives assistance from Rosedale hereunder shall assign its rights against such other person(s) or entity(ies) to Rosedale.

Appendix B-4

Interim Project Recovery Operations Plan

INTERIM PROJECT RECOVERY
OPERATIONS PLAN
REGARDING KERN WATER BANK AUTHORITY (KWB) AND ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT (ROSEDALE) PROJECTS

Purpose.

Consistent with the MOUs governing their respective projects, this interim Operations Plan ("Plan") designates measures to be employed to *"... prevent, eliminate or mitigate significant adverse impacts"* resulting from project operations within areas of concern (AOC's).

Projects included within this Plan are the following:

1. Kern Water Bank Project.

2. All Rosedale Projects which are subject to an MOU wherein the KWBA is a signatory as an "adjoining entity."

Plan Components:

A. Establish a separate KWB/Rosedale Operations Plan Implementation Committee ("Joint Operations Committee") for the following purposes.

1. The Joint Operations Committee will be separate from the Kern Fan Monitoring Committee. Rosedale and the KWBA will jointly participate in the Joint Operations Committee. Each party will have equal representation on the Joint Operations Committee and an equal voice in its determinations. The Parties will agree on an appropriate level of Director participation.

2. The Committee will not duplicate the water quality and water level monitoring conducted by the Kern Fan Monitoring Committee, but conduct additional monitoring as needed.

3. The Committee will regularly update and compare the AMEC and Harder Models to actual conditions; and for purposes of making determinations hereunder an average of the output for the two models shall be utilized. The Joint Operations Committee may, based on experience gained, select and regularly update a mutually agreeable groundwater model capable of accurately predicting groundwater impacts resulting from project operations ("Model"). As a matter of practice, the Committee will use the best and latest science and information available in all modeling and technical matters. In case of a dispute concerning a model or its application, the Parties shall consult with a third party to resolve the matter.

4. Provide status of groundwater conditions, pumping rates and volumes, and model projections to each entity to identify any developing problems.

5. Provide a forum for and facilitate discussions within any localized area of concern ("AOC").

6. Fund the actions described below at D, E, F and G in recognition of the joint impact (both positive and possibly negative) on landowners by both the KWB and Rosedale banking projects.

B. Implement Proactive Measures (in addition to A. above).

1. KWBA and Rosedale will be obligated to contribute funds to meet mitigation obligations hereunder ("Action Fund"), which shall be $2.00/AF of recovered water from future project operations (actually pumped, not exchanged), until the Action Fund balance reaches $1.0 million. If the Action Fund balance drops below $500,000 contributions shall be resumed until the Action Fund balance again reaches $1.0 million. In addition, KWBA and Rosedale shall initially provide $250,000 and $50,000, respectively. Rosedale shall maintain an accounting of funds obligated by the parties and shall serve as fiscal agent for the Action Fund. As actions are taken by the Joint Operations Committee pursuant to D, E, F and G, the fiscal agent shall invoice to the extent funds are obligated to the Action Fund, and each shall remit the requested funds within 30 days of invoice.

2. KWBA and Rosedale will use the Models as a tool to evaluate groundwater impacts as well as the With Project verses Without Project groundwater levels. For purposes of this Plan, the Parties have agreed the Without Project Condition shall assume no farming on the KWB lands and the KWB shall receive a basin credit of 6,000 acre-feet per year. The Models will be periodically run and updated as the Parties projected recovery plans become known or change and With Project conditions will assume such conditions. Recovery in any calendar year shall not commence until the Models have been run for the projected operations and the Committee has met to review the results.

3. The models have been and will be used to:

   (a) forecast groundwater levels.

   (b) forecast when With Project water levels become deeper than Without Project water levels (with both KWB and Rosedale projects). For purposes of this plan a condition shall be considered a negative project impact ("NPI") for which the measures described at D, E, F and G may be

operative where the With Project water level is 45 feet deeper than the Without Project water level, as forecasted by the Model.

(c) forecast any localized areas for special attention and/or monitoring, i.e., AOC's.

(d) identify domestic wells at risk of impacts.

4. KWBA and Rosedale will jointly research potential emergency response for domestic well health and safety issues within Rosedale and Buena Vista and jointly respond as described below at F.

5. The Joint Operations Committee will:

(a) establish a process to respond to and evaluate landowner claims associated with Project operations.

(b) determine whether landowner outreach should be proactive, reactive or both.

6. In the event the Joint Operations Committee cannot agree on the implementation of this agreement or the proper action in response to a landowner claim, such dispute shall be submitted to binding arbitration before a single neutral arbitrator appointed by the Parties, and in absence of such consent, appointed by the presiding judge of the Kern County Superior Court. The arbitration shall be called and conducted in accordance with such rules as the Parties shall agree upon, and if the absence of such agreement, in accordance with the procedures set forth in California Code of Civil Procedure section 1282, et seq. The parties shall attempt to jointly appoint the neutral arbitrator within ten days after a dispute arises, and in the event the parties cannot agree to a neutral arbitrator within said ten-day period, either party may make a request to the presiding judge of the Kern County Superior Court immediately thereafter. Notwithstanding the time periods prescribed by the Code of Civil Procedure section 1282, et seq., all arbitration conducted hereunder shall be commenced within thirty days of the selection of the neutral arbitrator, unless agreed to otherwise by the Joint Operations Committee and the affected landowner, if any. The dispute resolution process selected by the Parties shall be the exclusive remedy for landowners agreeing to participate in and receive the benefits hereunder.

7. With respect to the interpretation and enforcement of this Plan, and with respect to the resolution of any matter left for future determination or implementation, the Parties agree to carry out such duties and responsibilities in good faith and in cooperation with one another, to the end that the objectives and purposes of this agreement will be achieved and/or carried out to the greatest extent practicable.

C. Establish Triggers and Actions within any identified AOC.

As described below at sections D, E, F, and G, these actions will be implemented in consultation with the Parties through the Joint Operations Committee. The triggers and actions below are for wells within any identified AOC, subject to the following:

1. These actions would not occur in years when average water levels (measured at the following wells: 29S/25E-27N1&2, 29S/25E-25M1&2, 29S/26E-31H1&2, and 29S/25E-35G01) are less than 140 feet from the surface as measured on March 31 of a given year because it is expected that water levels will not decline during such year to an extent resulting in an NPI.

2. It is the intent of the Parties to mitigate and/or compensate for legitimate Project impacts; it is not the intent of the Parties or the Plan to generate a windfall for landowners. Accordingly, reasonable adjustments in the form or level of mitigation and/or compensation will be made where it can be demonstrated that the affected well requires remediation for reasons other than temporary groundwater level declines resulting from Project operations (i.e., general overdraft conditions, lack of well maintenance, normal wear and tear, failure of well equipment, etc.).

3. For agricultural wells to be eligible for mitigation as provided below, the affected landowner shall provide information concerning the condition of the well and casing and pumping equipment, as determined appropriate by the Joint Operations Committee.

D. Action for Ag Wells – Well Adjustment Needed and Available

1. Trigger: When the Model predicts NPI for an operational ag well outside the current operating range of the pump but within the potential operating range of the well.

2. Actions:

   (a) Jointly field verify static depth to groundwater levels within the well and compare to Model values.

   (b) Compare pump setting information with Model projected pumping water levels throughout the year to determine pump submergence levels and evaluate the necessity and feasibility of lowering the well pump to meet the landowner's needs.

   (c) Secure an estimate to complete the necessary work.

(d) Using the Action Fund, pay all costs associated with the landowner claim, including the cost to complete the necessary work (less negotiated offsets), upon the landowner executing a release.

E. Action for Ag Wells – Well Adjustment Unavailable

1. Trigger: When the Model predicts NPI for an operational ag well outside the current and potential operating range of the well.

2. Actions:

(a) Jointly field verify static depth to groundwater levels within the well and compare to Model values.

(b) Supply equivalent water supply to the affected landowner from an alternate source at no greater cost to the affected landowner; or

(c) With the consent of the affected landowner, provide other acceptable mitigation; or

(d) Reduce or adjust pumping as necessary to prevent, avoid or eliminate the NPI. Use the Model(s) to identify the well or wells that may require reduction or adjustment in pumping. The Parties agree to share available Project water supplies in a manner such that the burden of reduced pumping shall be borne by the Parties in proportion to the Model(s) projection of their respective impacts.

F. Action for Domestic Wells.

1. Trigger: Emergency health and safety concerns exist because a domestic submersible pump production ceases or is likely to cease as a result of pumping by either or both of the Parties' Projects.

2. Actions:

(a) Jointly field verify if flow stoppage is due to groundwater level decline.

(b) Obtain joint right-of-entry permit and well data release from well owner.

(c) Collect pump manufacture data, the in-situ pump setting and the casing depth information.

(d) If flow stoppage is due to causes unrelated to groundwater level decline (i.e., pump failure, casing degradation, etc.) repairs are the responsibility of the landowner.

(e) If flow stoppage is due to groundwater level decline in the aquifer proximate to the impacted well, regardless of cause, offer to fund from the Action Fund one of the following, as determined by the Joint Operations Committee, if possible, in order to provide the least cost short and long term solution:

(1) Lower the domestic submersible pump bowl setting sufficient to restore and maintain service.

(2) Provide a one-time permanent connection to the nearest water service provider.

(3) Drill and equip a new domestic well. Joint Operating Committee to decide if the landowner should contribute based on betterment.

(4) If necessary, provide interim in-home water supplies until action (1), (2) or (3) above is completed.

(f) Using the Action Fund, pay all costs associated with the landowner claim, including the cost to complete the necessary work (less negotiated offsets), upon the landowner executing a release.

G. Action for Other Landowner Claims.

1. Trigger: A landowner makes a claim of impact on his groundwater use (which could be due to the projects, adjacent landowners, or a combination)

2. Actions:

(a) Refer claim to the Joint Operations Committee to evaluate and respond to landowner claim.

(b) Process claim according to agreed upon dispute resolution process (see B.6., above) in the event the Joint Operations Committee does not agree on an appropriate response.

H. Additional Actions and Miscellaneous.

1. Subject to H.3, this interim operations Plan will become effective on September 5, 2014.

2. The Joint Operations Committee will evaluate and, if appropriate, mitigate 2010 landowner claims according to the process set forth in this Plan, provided the claims have not been dismissed or are intended to be dismissed in the pending Pioneer Litigation.

3. Petitioners Rosedale and Buena Vista Water Storage District shall support and not object to this Plan in any and all of its filings and argument for the remedies hearing(s) in *Rosedale v. DWR* and *CDWA v. DWR*, currently set for September 5, 2014. The effectiveness of this Plan is conditioned on issuance of a remedy order by the Court pursuant to CEQA and Public Resources Code section 21168.9 that does not restrict KWB operations, while DWR is conducting further CEQA review of same, provided the operations are conducted subject to the Plan. This Plan shall be in effect until DWR's certification of its environmental document prepared in response to the Court's order in *Rosedale v. DWR* and *CDWA v. DWR*, and filing of its Return to Writ in such proceeding. The parties have negotiated a remedy order in the form of a peremptory writ which incorporates this Operations Plan and which will be jointly presented to the Court for signature. If the Court accepts the negotiated peremptory writ in the form presented and issues a judgment consistent with the same in both cases, then the Kern Water Bank Authority and its member entities waive any right to appeal or challenge both (i) the peremptory writ and (ii) the order on which it is based (i.e., March 5, 2014 decision in *Rosedale-Rio Bravo Water Storage District, et al. vs. Department of Water Resources, et al.*).

4. This interim Plan is not intended to and shall not establish any precedent for the supplemental environmental document DWR is required to prepare in *Rosedale v. DWR* and *CDWA v. DWR,* or its compliance with CEQA, including, but not limited to, with respect to the appropriate baseline(s), significance threshold(s), and what appropriate mitigation measure(s), if any, should apply following the term of this interim Plan. Nothing in this Plan is intended to act or be construed as a waiver of the parties respective rights to challenge any increase in facilities or operations of the other parties, either in the *Rosedale v. DWR* action (pursuant to the continuing jurisdiction of the Court), or in other legal proceedings, as appropriate.

5. While this Plan is in effect, KWBA may repair or replace existing facilities but shall not take any action that would increase or augment their ability to recover water beyond their existing capacity, as of the date of this Plan, to and including not increasing the horsepower of any well beyond that currently in place. KWBA shall provide Rosedale and Buena Vista a copy of energy statements demonstrating the horsepower of each well operational on the KWBA and provide access to Buena Vista and Rosedale to physically inspect each well. Additionally, the three new wells to be constructed by the KWBA as part of the IRWMP grant program shall be replacement wells with the KWBA to eliminate production from at least one well located within 1.5 miles of Stockdale Highway. Further, the three replacement wells shall be not be constructed within 1.5 miles of Stockdale Highway, and shall not be subject to the horsepower limitations provided above.

6. This agreement will not prejudice petitioners' (Rosedale and/or Buena Vista's) right to claim costs and reasonable attorneys' fees incurred in connection with the *Rosedale v. DWR* litigation. Nothing herein shall be construed as a waiver of any party's right to appeal from any order regarding the recovery of attorneys' fees.

APPROVED this ___day of _____, 2014

KERN WATER BANK AUTHORITY

By_____

ROSEDALE-RIO BRAVO WATER STORAGE DISTIRCT

By_____

BUENA VISTA WATER STORAGE DISTRICT

By_____

Appendix C

Air Quality URBEMIS Output Data Sheets

IRWD Stockdale West Joint Banking

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	200.00	Acre	200.00	8,712,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	3			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Parking land use input as representative of the basins. 200 acres assumed to be disturbed on Stockdale East.

Construction Phase - 6 phases, 6 months per phase per the Project Description; Construction anticipated to begin in summer 2015.

Off-road Equipment - Mix of tractors/loaders/backhoes (4) and trencher (1) assumed for Central Intake Canal construction

Off-road Equipment - Default equipment for Grading

Off-road Equipment - Default equipment for Site Prep

Off-road Equipment - Added a bore/drill rig to the default equipment for Well Construction

Off-road Equipment - Mix of tractors/loaders/backhoes (3), crane (1), trencher (1), generator (1), and welders (2) assumed for Wellhead/Pipeline construction

Trips and VMT - Assumes average of 20 workers and 1 delivery truck per day

On-road Fugitive Dust - Assumed 95 % of on-road vehicle travel would be on paved roads

Grading - 200 acres total disturbed, no soil import/export assumed

Consumer Products - Consumer products not applicable to project

Area Coating - No architectural coatings anticipated

Landscape Equipment - Natural grazing rather than landscape equipment

Construction Off-road Equipment Mitigation - Mitigations applied: water 2x/day, limit vehicle speed to 15 mph on unpaved roads

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Interior	13068000	0
tblConstructionPhase	NumDays	3,100.00	261.00
tblConstructionPhase	NumDays	310.00	109.00
tblConstructionPhase	NumDays	120.00	24.00
tblConstructionPhase	PhaseStartDate	12/31/2016	1/1/2017
tblGrading	AcresOfGrading	272.50	200.00
tblGrading	AcresOfGrading	0.00	200.00
tblOnRoadDust	HaulingPercentPave	100.00	95.00
tblOnRoadDust	HaulingPercentPave	100.00	95.00
tblOnRoadDust	HaulingPercentPave	100.00	95.00
tblOnRoadDust	HaulingPercentPave	100.00	95.00
tblOnRoadDust	HaulingPercentPave	100.00	95.00
tblOnRoadDust	VendorPercentPave	100.00	95.00
tblOnRoadDust	VendorPercentPave	100.00	95.00
tblOnRoadDust	VendorPercentPave	100.00	95.00
tblOnRoadDust	VendorPercentPave	100.00	95.00
tblOnRoadDust	VendorPercentPave	100.00	95.00
tblOnRoadDust	WorkerPercentPave	100.00	95.00
tblOnRoadDust	WorkerPercentPave	100.00	95.00
tblOnRoadDust	WorkerPercentPave	100.00	95.00
tblOnRoadDust	WorkerPercentPave	100.00	95.00
tblOnRoadDust	WorkerPercentPave	100.00	95.00
tblProjectCharacteristics	OperationalYear	2014	2018
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	VendorTripNumber	0.00	2.00

tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	1,428.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	18.00	40.00
tblTripsAndVMT	WorkerTripNumber	20.00	40.00
tblTripsAndVMT	WorkerTripNumber	3,659.00	40.00
tblTripsAndVMT	WorkerTripNumber	20.00	40.00
tblTripsAndVMT	WorkerTripNumber	13.00	40.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.4470	5.0254	3.5028	4.2900e-003	3.8489	0.2448	4.0937	0.6364	0.2252	0.8617	0.0000	401.0302	401.0302	0.1109	0.0000	403.3586
2016	0.5153	4.4646	3.0660	5.5300e-003	6.0674	0.2778	6.3452	0.6161	0.2606	0.8767	0.0000	490.8567	490.8567	0.1140	0.0000	493.2499
2017	0.5039	3.8856	2.9806	4.8000e-003	6.0442	0.2549	6.2991	0.6138	0.2403	0.8541	0.0000	409.4303	409.4303	0.0876	0.0000	411.2695
2018	0.1107	0.9920	0.9449	1.4900e-003	3.0453	0.0703	3.1156	0.3092	0.0647	0.3739	0.0000	126.8921	126.8921	0.0310	0.0000	127.5434
Total	**1.5769**	**14.3675**	**10.4942**	**0.0161**	**19.0059**	**0.8478**	**19.8537**	**2.1756**	**0.7908**	**2.9663**	**0.0000**	**1,428.2093**	**1,428.2093**	**0.3434**	**0.0000**	**1,435.4213**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.4470	5.0254	3.5028	4.2900e-003	2.2464	0.2448	2.4912	0.3405	0.2252	0.5657	0.0000	401.0298	401.0298	0.1109	0.0000	403.3582
2016	0.5153	4.4646	3.0660	5.5300e-003	3.7398	0.2778	4.0175	0.3834	0.2606	0.6439	0.0000	490.8562	490.8562	0.1140	0.0000	493.2494
2017	0.5039	3.8856	2.9806	4.8000e-003	3.7255	0.2549	3.9804	0.3819	0.2403	0.6222	0.0000	409.4299	409.4299	0.0876	0.0000	411.2691
2018	0.1107	0.9919	0.9449	1.4900e-003	1.8771	0.0703	1.9474	0.1924	0.0647	0.2571	0.0000	126.8920	126.8920	0.0310	0.0000	127.5433
Total	**1.5769**	**14.3675**	**10.4942**	**0.0161**	**11.5887**	**0.8478**	**12.4365**	**1.2981**	**0.7908**	**2.0889**	**0.0000**	**1,428.2078**	**1,428.2078**	**0.3434**	**0.0000**	**1,435.4199**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**39.03**	**0.00**	**37.36**	**40.33**	**0.00**	**29.58**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/30/2015	7/31/2015	5	24	Phase 1
2	Grading	Grading	8/1/2015	12/31/2015	5	109	Phase 1
3	Well Construction	Building Construction	1/1/2016	12/30/2016	5	261	Phases 2 & 3
4	Wellheads/Pipelines	Trenching	1/1/2017	1/1/2018	5	261	Phases 4 & 5
5	Central Intake Canal Construction	Trenching	1/2/2018	7/2/2018	5	130	Phase 6

Acres of Grading (Site Preparation Phase): 200

Acres of Grading (Grading Phase): 200

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Well Construction	Bore/Drill Rigs	1	8.00	205	0.50
Well Construction	Cranes	1	7.00	226	0.29
Well Construction	Forklifts	3	8.00	89	0.20
Well Construction	Generator Sets	1	8.00	84	0.74
Well Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Well Construction	Welders	1	8.00	46	0.45
Wellheads/Pipelines	Cranes	1	8.00	226	0.29
Wellheads/Pipelines	Generator Sets	1	8.00	84	0.74
Wellheads/Pipelines	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Wellheads/Pipelines	Trenchers	1	8.00	80	0.50
Wellheads/Pipelines	Welders	2	8.00	46	0.45
Central Intake Canal Construction	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Central Intake Canal Construction	Trenchers	1	8.00	80	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	40.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	40.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Well Construction	10	40.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Wellheads/Pipelines	8	40.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Central Intake Canal Construction	5	40.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3229	0.0000	0.3229	0.1306	0.0000	0.1306	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0631	0.6827	0.5116	4.7000e-004		0.0371	0.0371		0.0341	0.0341	0.0000	44.7613	44.7613	0.0134	0.0000	45.0420
Total	**0.0631**	**0.6827**	**0.5116**	**4.7000e-004**	**0.3229**	**0.0371**	**0.3599**	**0.1306**	**0.0341**	**0.1647**	**0.0000**	**44.7613**	**44.7613**	**0.0134**	**0.0000**	**45.0420**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2000e-004	2.5700e-003	3.7300e-003	1.0000e-005	0.0108	5.0000e-005	0.0108	1.1000e-003	4.0000e-005	1.1400e-003	0.0000	0.4769	0.4769	0.0000	0.0000	0.4770
Worker	2.3300e-003	3.6800e-003	0.0360	8.0000e-005	0.5472	5.0000e-005	0.5472	0.0556	4.0000e-005	0.0556	0.0000	5.9433	5.9433	3.2000e-004	0.0000	5.9499
Total	**2.6500e-003**	**6.2500e-003**	**0.0398**	**9.0000e-005**	**0.5579**	**1.0000e-004**	**0.5580**	**0.0567**	**8.0000e-005**	**0.0567**	**0.0000**	**6.4202**	**6.4202**	**3.2000e-004**	**0.0000**	**6.4270**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1453	0.0000	0.1453	0.0588	0.0000	0.0588	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0631	0.6827	0.5116	4.7000e-004		0.0371	0.0371		0.0341	0.0341	0.0000	44.7613	44.7613	0.0134	0.0000	45.0419
Total	**0.0631**	**0.6827**	**0.5116**	**4.7000e-004**	**0.1453**	**0.0371**	**0.1823**	**0.0588**	**0.0341**	**0.0929**	**0.0000**	**44.7613**	**44.7613**	**0.0134**	**0.0000**	**45.0419**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2000e-004	2.5700e-003	3.7300e-003	1.0000e-005	6.6500e-003	5.0000e-005	6.6900e-003	6.9000e-004	4.0000e-005	7.3000e-004	0.0000	0.4769	0.4769	0.0000	0.0000	0.4770
Worker	2.3300e-003	3.6800e-003	0.0360	8.0000e-005	0.3372	5.0000e-005	0.3373	0.0346	4.0000e-005	0.0346	0.0000	5.9433	5.9433	3.2000e-004	0.0000	5.9499
Total	**2.6500e-003**	**6.2500e-003**	**0.0398**	**9.0000e-005**	**0.3439**	**1.0000e-004**	**0.3440**	**0.0353**	**8.0000e-005**	**0.0353**	**0.0000**	**6.4202**	**6.4202**	**3.2000e-004**	**0.0000**	**6.4270**

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Fugitive Dust					0.4343	0.0000	0.4343	0.1919	0.0000	0.1919	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3692	4.3080	2.7708	3.3700e-003		0.2072	0.2072		0.1906	0.1906	0.0000	320.6900	320.6900	0.0957	0.0000	322.7006
Total	**0.3692**	**4.3080**	**2.7708**	**3.3700e-003**	**0.4343**	**0.2072**	**0.6415**	**0.1919**	**0.1906**	**0.3825**	**0.0000**	**320.6900**	**320.6900**	**0.0957**	**0.0000**	**322.7006**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4400e-003	0.0117	0.0170	2.0000e-005	0.0489	2.1000e-004	0.0491	5.0000e-003	1.9000e-004	5.1900e-003	0.0000	2.1661	2.1661	2.0000e-005	0.0000	2.1665
Worker	0.0106	0.0167	0.1637	3.5000e-004	2.4850	2.2000e-004	2.4852	0.2523	2.0000e-004	0.2525	0.0000	26.9925	26.9925	1.4300e-003	0.0000	27.0226
Total	**0.0120**	**0.0284**	**0.1806**	**3.7000e-004**	**2.5339**	**4.3000e-004**	**2.5343**	**0.2573**	**3.9000e-004**	**0.2577**	**0.0000**	**29.1586**	**29.1586**	**1.4500e-003**	**0.0000**	**29.1891**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1954	0.0000	0.1954	0.0863	0.0000	0.0863	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3692	4.3080	2.7708	3.3700e-003		0.2072	0.2072		0.1906	0.1906	0.0000	320.6897	320.6897	0.0957	0.0000	322.7002

Total	**0.3692**	**4.3080**	**2.7708**	**3.3700e-003**	**0.1954**	**0.2072**	**0.4026**	**0.0863**	**0.1906**	**0.2770**	**0.0000**	**320.6897**	**320.6897**	**0.0957**	**0.0000**	**322.7002**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4400e-003	0.0117	0.0170	2.0000e-005	0.0302	2.1000e-004	0.0304	3.1300e-003	1.9000e-004	3.3200e-003	0.0000	2.1661	2.1661	2.0000e-005	0.0000	2.1665
Worker	0.0106	0.0167	0.1637	3.5000e-004	1.5316	2.2000e-004	1.5319	0.1570	2.0000e-004	0.1572	0.0000	26.9925	26.9925	1.4300e-003	0.0000	27.0226
Total	**0.0120**	**0.0284**	**0.1806**	**3.7000e-004**	**1.5618**	**4.3000e-004**	**1.5623**	**0.1601**	**3.9000e-004**	**0.1605**	**0.0000**	**29.1586**	**29.1586**	**1.4500e-003**	**0.0000**	**29.1891**

3.4 Well Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4899	4.4047	2.6824	4.6400e-003		0.2768	0.2768		0.2597	0.2597	0.0000	423.4759	423.4759	0.1108	0.0000	425.8025
Total	**0.4899**	**4.4047**	**2.6824**	**4.6400e-003**		**0.2768**	**0.2768**		**0.2597**	**0.2597**	**0.0000**	**423.4759**	**423.4759**	**0.1108**	**0.0000**	**425.8025**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0600e-003	0.0243	0.0376	6.0000e-005	0.1172	4.2000e-004	0.1176	0.0120	3.9000e-004	0.0124	0.0000	5.1249	5.1249	4.0000e-005	0.0000	5.1259
Worker	0.0223	0.0356	0.3459	8.3000e-004	5.9503	4.9000e-004	5.9508	0.6042	4.5000e-004	0.6046	0.0000	62.2559	62.2559	3.1200e-003	0.0000	62.3215
Total	**0.0253**	**0.0599**	**0.3835**	**8.9000e-004**	**6.0674**	**9.1000e-004**	**6.0683**	**0.6161**	**8.4000e-004**	**0.6170**	**0.0000**	**67.3808**	**67.3808**	**3.1600e-003**	**0.0000**	**67.4474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4899	4.4047	2.6824	4.6400e-003		0.2768	0.2768		0.2597	0.2597	0.0000	423.4754	423.4754	0.1108	0.0000	425.8020
Total	**0.4899**	**4.4047**	**2.6824**	**4.6400e-003**		**0.2768**	**0.2768**		**0.2597**	**0.2597**	**0.0000**	**423.4754**	**423.4754**	**0.1108**	**0.0000**	**425.8020**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0600e-003	0.0243	0.0376	6.0000e-005	0.0723	4.2000e-004	0.0727	7.4900e-003	3.9000e-004	7.8700e-003	0.0000	5.1249	5.1249	4.0000e-005	0.0000	5.1259
Worker	0.0223	0.0356	0.3459	8.3000e-004	3.6675	4.9000e-004	3.6680	0.3759	4.5000e-004	0.3763	0.0000	62.2559	62.2559	3.1200e-003	0.0000	62.3215
Total	**0.0253**	**0.0599**	**0.3835**	**8.9000e-004**	**3.7398**	**9.1000e-004**	**3.7407**	**0.3834**	**8.4000e-004**	**0.3842**	**0.0000**	**67.3808**	**67.3808**	**3.1600e-003**	**0.0000**	**67.4474**

3.5 Wellheads/Pipelines - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4820	3.8327	2.6437	3.9200e-003		0.2541	0.2541		0.2396	0.2396	0.0000	344.8588	344.8588	0.0847	0.0000	346.6374
Total	**0.4820**	**3.8327**	**2.6437**	**3.9200e-003**		**0.2541**	**0.2541**		**0.2396**	**0.2396**	**0.0000**	**344.8588**	**344.8588**	**0.0847**	**0.0000**	**346.6374**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-003	0.0214	0.0348	6.0000e-005	0.1167	3.5000e-004	0.1171	0.0119	3.2000e-004	0.0123	0.0000	5.0185	5.0185	4.0000e-005	0.0000	5.0194
Worker	0.0192	0.0315	0.3021	8.3000e-004	5.9275	4.7000e-004	5.9280	0.6018	4.3000e-004	0.6023	0.0000	59.5530	59.5530	2.8400e-003	0.0000	59.6127
Total	**0.0219**	**0.0529**	**0.3369**	**8.9000e-004**	**6.0442**	**8.2000e-004**	**6.0450**	**0.6138**	**7.5000e-004**	**0.6145**	**0.0000**	**64.5715**	**64.5715**	**2.8800e-003**	**0.0000**	**64.6321**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4820	3.8327	2.6437	3.9200e-003		0.2541	0.2541		0.2396	0.2396	0.0000	344.8584	344.8584	0.0847	0.0000	346.6370
Total	**0.4820**	**3.8327**	**2.6437**	**3.9200e-003**		**0.2541**	**0.2541**		**0.2396**	**0.2396**	**0.0000**	**344.8584**	**344.8584**	**0.0847**	**0.0000**	**346.6370**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-003	0.0214	0.0348	6.0000e-005	0.0720	3.5000e-004	0.0724	7.4600e-003	3.2000e-004	7.7800e-003	0.0000	5.0185	5.0185	4.0000e-005	0.0000	5.0194
Worker	0.0192	0.0315	0.3021	8.3000e-004	3.6534	4.7000e-004	3.6539	0.3744	4.3000e-004	0.3749	0.0000	59.5530	59.5530	2.8400e-003	0.0000	59.6127
Total	**0.0219**	**0.0529**	**0.3369**	**8.9000e-004**	**3.7255**	**8.2000e-004**	**3.7263**	**0.3819**	**7.5000e-004**	**0.3826**	**0.0000**	**64.5715**	**64.5715**	**2.8800e-003**	**0.0000**	**64.6321**

3.5 Wellheads/Pipelines - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6000e-003	0.0131	9.8300e-003	2.0000e-005		8.3000e-004	8.3000e-004		7.8000e-004	7.8000e-004	0.0000	1.3121	1.3121	3.2000e-004	0.0000	1.3188
Total	**1.6000e-003**	**0.0131**	**9.8300e-003**	**2.0000e-005**		**8.3000e-004**	**8.3000e-004**		**7.8000e-004**	**7.8000e-004**	**0.0000**	**1.3121**	**1.3121**	**3.2000e-004**	**0.0000**	**1.3188**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	7.0000e-005	1.3000e-004	0.0000	4.5000e-004	0.0000	4.5000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0190	0.0190	0.0000	0.0000	0.0190
Worker	6.0000e-005	1.1000e-004	1.0200e-003	0.0000	0.0228	0.0000	0.0228	2.3100e-003	0.0000	2.3200e-003	0.0000	0.2197	0.2197	1.0000e-005	0.0000	0.2199
Total	**7.0000e-005**	**1.8000e-004**	**1.1500e-003**	**0.0000**	**0.0233**	**0.0000**	**0.0233**	**2.3600e-003**	**0.0000**	**2.3700e-003**	**0.0000**	**0.2387**	**0.2387**	**1.0000e-005**	**0.0000**	**0.2389**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6000e-003	0.0131	9.8300e-003	2.0000e-005		8.3000e-004	8.3000e-004		7.8000e-004	7.8000e-004	0.0000	1.3121	1.3121	3.2000e-004	0.0000	1.3188

Total	**1.6000e-003**	**0.0131**	**9.8300e-003**	**2.0000e-005**		**8.3000e-004**	**8.3000e-004**		**7.8000e-004**	**7.8000e-004**	**0.0000**	**1.3121**	**1.3121**	**3.2000e-004**	**0.0000**	**1.3188**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	7.0000e-005	1.3000e-004	0.0000	2.8000e-004	0.0000	2.8000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0190	0.0190	0.0000	0.0000	0.0190
Worker	6.0000e-005	1.1000e-004	1.0200e-003	0.0000	0.0141	0.0000	0.0141	1.4400e-003	0.0000	1.4400e-003	0.0000	0.2197	0.2197	1.0000e-005	0.0000	0.2199
Total	**7.0000e-005**	**1.8000e-004**	**1.1500e-003**	**0.0000**	**0.0143**	**0.0000**	**0.0143**	**1.4700e-003**	**0.0000**	**1.4700e-003**	**0.0000**	**0.2387**	**0.2387**	**1.0000e-005**	**0.0000**	**0.2389**

3.6 Central Intake Canal Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0994	0.9550	0.7843	1.0300e-003		0.0691	0.0691		0.0636	0.0636	0.0000	94.3124	94.3124	0.0294	0.0000	94.9290
Total	**0.0994**	**0.9550**	**0.7843**	**1.0300e-003**		**0.0691**	**0.0691**		**0.0636**	**0.0636**	**0.0000**	**94.3124**	**94.3124**	**0.0294**	**0.0000**	**94.9290**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2400e-003	9.6200e-003	0.0165	3.0000e-005	0.0584	1.6000e-004	0.0585	5.9600e-003	1.5000e-004	6.1100e-003	0.0000	2.4655	2.4655	2.0000e-005	0.0000	2.4659
Worker	8.3700e-003	0.0141	0.1332	4.1000e-004	2.9637	2.3000e-004	2.9640	0.3009	2.1000e-004	0.3011	0.0000	28.5634	28.5634	1.3000e-003	0.0000	28.5908
Total	**9.6100e-003**	**0.0237**	**0.1497**	**4.4000e-004**	**3.0221**	**3.9000e-004**	**3.0225**	**0.3069**	**3.6000e-004**	**0.3072**	**0.0000**	**31.0289**	**31.0289**	**1.3200e-003**	**0.0000**	**31.0567**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0994	0.9550	0.7843	1.0300e-003		0.0691	0.0691		0.0636	0.0636	0.0000	94.3123	94.3123	0.0294	0.0000	94.9289
Total	**0.0994**	**0.9550**	**0.7843**	**1.0300e-003**		**0.0691**	**0.0691**		**0.0636**	**0.0636**	**0.0000**	**94.3123**	**94.3123**	**0.0294**	**0.0000**	**94.9289**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2400e-003	9.6200e-003	0.0165	3.0000e-005	0.0360	1.6000e-004	0.0362	3.7300e-003	1.5000e-004	3.8800e-003	0.0000	2.4655	2.4655	2.0000e-005	0.0000	2.4659
Worker	8.3700e-003	0.0141	0.1332	4.1000e-004	1.8267	2.3000e-004	1.8270	0.1872	2.1000e-004	0.1874	0.0000	28.5634	28.5634	1.3000e-003	0.0000	28.5908
Total	**9.6100e-003**	**0.0237**	**0.1497**	**4.4000e-004**	**1.8627**	**3.9000e-004**	**1.8631**	**0.1909**	**3.6000e-004**	**0.1913**	**0.0000**	**31.0289**	**31.0289**	**1.3200e-003**	**0.0000**	**31.0567**

IRWD Stockdale West Joint Banking - Operations

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	200.00	Acre	200.00	8,712,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	3			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Parking land use input as representative of the basins.

Construction Phase - Schedule assumes that 2 rounds of grading basins would occur within a one year period, at Stockdale East and either Stockdale West or the 3rd unknown site, for instance.

Off-road Equipment - Mix of tractors/loaders/backhoes (4) and trencher (1) assumed for Central Intake Canal construction

Trips and VMT - Assumes average of 4 workers and 1 delivery truck per day

On-road Fugitive Dust - Assumed 95 % of on-road vehicle travel would be on paved roads

Grading - 200 acres total disturbed per site, no soil import/export assumed

Construction Off-road Equipment Mitigation - Mitigations applied: water 2x/day, limit vehicle speed to 15 mph on unpaved roads

Off-road Equipment - Equipment list provided in Project Description -- grader (1), loader (1), tractor (1)

Off-road Equipment - Equipment list provided in Project Description -- grader (1), loader (1), tractor (1)

Energy Use - Total electrical use of project operations (Stockdale East and West) = 9,633,000 kwh/yr (worse-case, per Project Description), or 1.106 kWhr/sf/yr

Area Coating - No architectural coatings anticipated

Consumer Products - Consumer products not applicable to project

Landscape Equipment - Natural grazing rather than landscape equipment

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	4356000	0
tblAreaCoating	Area_Nonresidential_Interior	13068000	0
tblConstructionPhase	NumDays	310.00	23.00
tblConstructionPhase	NumDays	310.00	23.00
tblConstructionPhase	PhaseEndDate	3/5/2018	7/3/2018
tblConstructionPhase	PhaseStartDate	2/1/2018	6/1/2018
tblEnergyUse	T24E	0.00	1.11
tblGrading	AcresOfGrading	57.50	200.00
tblGrading	AcresOfGrading	57.50	200.00
tblOnRoadDust	HaulingPercentPave	100.00	95.00
tblOnRoadDust	HaulingPercentPave	100.00	95.00
tblOnRoadDust	VendorPercentPave	100.00	95.00
tblOnRoadDust	VendorPercentPave	100.00	95.00
tblOnRoadDust	WorkerPercentPave	100.00	95.00
tblOnRoadDust	WorkerPercentPave	100.00	95.00
tblProjectCharacteristics	OperationalYear	2014	2018
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	20.00	8.00
tblTripsAndVMT	WorkerTripNumber	20.00	8.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0324	0.3165	0.2301	3.2000e-004	0.5810	0.0194	0.6004	0.1224	0.0178	0.1403	0.0000	29.0038	29.0038	8.2300e-003	0.0000	29.1766
Total	**0.0324**	**0.3165**	**0.2301**	**3.2000e-004**	**0.5810**	**0.0194**	**0.6004**	**0.1224**	**0.0178**	**0.1403**	**0.0000**	**29.0038**	**29.0038**	**8.2300e-003**	**0.0000**	**29.1766**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0324	0.3165	0.2301	3.2000e-004	0.2998	0.0194	0.3192	0.0591	0.0178	0.0770	0.0000	29.0038	29.0038	8.2300e-003	0.0000	29.1766
Total	**0.0324**	**0.3165**	**0.2301**	**3.2000e-004**	**0.2998**	**0.0194**	**0.3192**	**0.0591**	**0.0178**	**0.0770**	**0.0000**	**29.0038**	**29.0038**	**8.2300e-003**	**0.0000**	**29.1766**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**48.40**	**0.00**	**46.84**	**51.70**	**0.00**	**45.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2,803.0693	2,803.0693	0.1268	0.0262	2,813.8602
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2,803.0693**	**2,803.0693**	**0.1268**	**0.0262**	**2,813.8602**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2,803.0693	2,803.0693	0.1268	0.0262	2,813.8602
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2,803.0693**	**2,803.0693**	**0.1268**	**0.0262**	**2,813.8602**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Stockdale East	Grading	1/1/2018	1/31/2018	5	23	
2	Additional Site	Grading	6/1/2018	7/3/2018	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Additional Site	Graders	1	8.00	174	0.41
Stockdale East	Graders	1	8.00	174	0.41
Stockdale East	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Additional Site	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Additional Site	8	8.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Stockdale East	8	8.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Stockdale East - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1753	0.0000	0.1753	0.0495	0.0000	0.0495	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0157	0.1561	0.1074	1.4000e-004		9.6600e-003	9.6600e-003		8.8800e-003	8.8800e-003	0.0000	13.0550	13.0550	4.0600e-003	0.0000	13.1403
Total	**0.0157**	**0.1561**	**0.1074**	**1.4000e-004**	**0.1753**	**9.6600e-003**	**0.1850**	**0.0495**	**8.8800e-003**	**0.0584**	**0.0000**	**13.0550**	**13.0550**	**4.0600e-003**	**0.0000**	**13.1403**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-004	1.7000e-003	2.9100e-003	0.0000	0.0103	3.0000e-005	0.0104	1.0500e-003	3.0000e-005	1.0800e-003	0.0000	0.4362	0.4362	0.0000	0.0000	0.4363
Worker	3.0000e-004	5.0000e-004	4.7100e-003	1.0000e-005	0.1049	1.0000e-005	0.1049	0.0107	1.0000e-005	0.0107	0.0000	1.0107	1.0107	5.0000e-005	0.0000	1.0117
Total	**5.2000e-004**	**2.2000e-003**	**7.6200e-003**	**1.0000e-005**	**0.1152**	**4.0000e-005**	**0.1152**	**0.0117**	**4.0000e-005**	**0.0117**	**0.0000**	**1.4469**	**1.4469**	**5.0000e-005**	**0.0000**	**1.4480**

3.2 Stockdale East - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0789	0.0000	0.0789	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0157	0.1561	0.1074	1.4000e-004		9.6600e-003	9.6600e-003		8.8800e-003	8.8800e-003	0.0000	13.0550	13.0550	4.0600e-003	0.0000	13.1403
Total	**0.0157**	**0.1561**	**0.1074**	**1.4000e-004**	**0.0789**	**9.6600e-003**	**0.0886**	**0.0223**	**8.8800e-003**	**0.0312**	**0.0000**	**13.0550**	**13.0550**	**4.0600e-003**	**0.0000**	**13.1403**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-004	1.7000e-003	2.9100e-003	0.0000	6.3700e-003	3.0000e-005	6.4000e-003	6.6000e-004	3.0000e-005	6.9000e-004	0.0000	0.4362	0.4362	0.0000	0.0000	0.4363
Worker	3.0000e-004	5.0000e-004	4.7100e-003	1.0000e-005	0.0646	1.0000e-005	0.0647	6.6200e-003	1.0000e-005	6.6300e-003	0.0000	1.0107	1.0107	5.0000e-005	0.0000	1.0117
Total	**5.2000e-004**	**2.2000e-003**	**7.6200e-003**	**1.0000e-005**	**0.0710**	**4.0000e-005**	**0.0711**	**7.2800e-003**	**4.0000e-005**	**7.3200e-003**	**0.0000**	**1.4469**	**1.4469**	**5.0000e-005**	**0.0000**	**1.4480**

3.3 Additional Site - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1753	0.0000	0.1753	0.0495	0.0000	0.0495	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0157	0.1561	0.1074	1.4000e-004		9.6600e-003	9.6600e-003		8.8800e-003	8.8800e-003	0.0000	13.0550	13.0550	4.0600e-003	0.0000	13.1403
Total	**0.0157**	**0.1561**	**0.1074**	**1.4000e-004**	**0.1753**	**9.6600e-003**	**0.1850**	**0.0495**	**8.8800e-003**	**0.0584**	**0.0000**	**13.0550**	**13.0550**	**4.0600e-003**	**0.0000**	**13.1403**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-004	1.7000e-003	2.9100e-003	0.0000	0.0103	3.0000e-005	0.0104	1.0500e-003	3.0000e-005	1.0800e-003	0.0000	0.4362	0.4362	0.0000	0.0000	0.4363
Worker	3.0000e-004	5.0000e-004	4.7100e-003	1.0000e-005	0.1049	1.0000e-005	0.1049	0.0107	1.0000e-005	0.0107	0.0000	1.0107	1.0107	5.0000e-005	0.0000	1.0117
Total	**5.2000e-004**	**2.2000e-003**	**7.6200e-003**	**1.0000e-005**	**0.1152**	**4.0000e-005**	**0.1152**	**0.0117**	**4.0000e-005**	**0.0117**	**0.0000**	**1.4469**	**1.4469**	**5.0000e-005**	**0.0000**	**1.4480**

3.3 Additional Site - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0789	0.0000	0.0789	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0157	0.1561	0.1074	1.4000e-004		9.6600e-003	9.6600e-003		8.8800e-003	8.8800e-003	0.0000	13.0550	13.0550	4.0600e-003	0.0000	13.1403
Total	**0.0157**	**0.1561**	**0.1074**	**1.4000e-004**	**0.0789**	**9.6600e-003**	**0.0886**	**0.0223**	**8.8800e-003**	**0.0312**	**0.0000**	**13.0550**	**13.0550**	**4.0600e-003**	**0.0000**	**13.1403**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-004	1.7000e-003	2.9100e-003	0.0000	6.3700e-003	3.0000e-005	6.4000e-003	6.6000e-004	3.0000e-005	6.9000e-004	0.0000	0.4362	0.4362	0.0000	0.0000	0.4363
Worker	3.0000e-004	5.0000e-004	4.7100e-003	1.0000e-005	0.0646	1.0000e-005	0.0647	6.6200e-003	1.0000e-005	6.6300e-003	0.0000	1.0107	1.0107	5.0000e-005	0.0000	1.0117
Total	**5.2000e-004**	**2.2000e-003**	**7.6200e-003**	**1.0000e-005**	**0.0710**	**4.0000e-005**	**0.0711**	**7.2800e-003**	**4.0000e-005**	**7.3200e-003**	**0.0000**	**1.4469**	**1.4469**	**5.0000e-005**	**0.0000**	**1.4480**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.351816	0.055390	0.136889	0.180566	0.057178	0.010448	0.023026	0.171783	0.001516	0.001821	0.005963	0.001093	0.002510

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,803.0693	2,803.0693	0.1268	0.0262	2,813.8602
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,803.0693	2,803.0693	0.1268	0.0262	2,813.8602
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	9.63547e+006	2,803.0693	0.1268	0.0262	2,813.8602
Total		**2,803.0693**	**0.1268**	**0.0262**	**2,813.8602**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	9.63547e+006	2,803.0693	0.1268	0.0262	2,813.8602
Total		**2,803.0693**	**0.1268**	**0.0262**	**2,813.8602**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

IRWD Stockdale Integrated Banking Project
CalEEMod Raw Information

Construction Emissions:

	CO_2	CH_4	CH_4 (CO_2e)	N_2O	N_2O (CO_2e)	CO_2e
			MT/year			
2015	401.03	0.1109	2.7725	0	0	403.80
2016	490.86	0.114	2.85	0	0	493.71
2017	409.43	0.0876	2.19	0	0	411.62
2018	126.89	0.031	0.775	0	0	127.67
						1,436.80

Amortized (over 30 years): 47.89322667

Operational Emissions:

		CO_2	CH_4	CH_4 (CO_2e)	N_2O	N_2O (CO_2e)	CO_2e
				MT/year			
Off-Road	Stockdale East	13.06	0.00406	0.1015	0	0	13.16
	Additional Site	13.06	0.00406	0.1015	0	0	13.16
On-Road	Stockdale East	1.45	0.00005	0.00125	0	0	1.45
	Additional Site	1.45	0.00005	0.00125	0	0	1.45
							29.21

Off-road Equipment - Operational Maintenance	26.31
On-road Motor Vehicle Trips - Operational Maintenance	2.90

EMISSIONS OF GREENHOUSE GAS EMISSIONS FROM ELECTRICITY CONSUMPTION

Project Name: IRWD Stockdale West Joint Banking
Analysis Year: 2018
Analysis Scenario: Project Operations

ELECTRICITY DEMAND

Total Megawatt Hours (MWh) per Year: 10,312.5

GREENHOUSE GAS EMISSIONS

Emissions	Emission Factors (lbs/MWh)	Emissions (metric tons)	CO_2 Equivalency Factors	CO_2 Equivalent Emissions (tons per year)
Carbon Dioxide	641.35	3,000.03	1	3,000.03
Methane	0.029	0.136	25	3.39
Nitrous Oxide	0.006	0.028	298	8.36
	Total Emissions:	3,000.19		3,011.78

Source of Emission Factors: CalEEMod.2013.2.2 - emission factors for Pacific Gas & Electric Company
Source of CO2e factors: CARB. 2014. First Update to the Climate Change Scoping Plan. May.

Appendix D-1

Biological Technical Report

STOCKDALE INTEGRATED BANKING PROJECT

Biological Technical Report

Prepared for
Irvine Ranch Water District and
Rosedale-Rio Bravo Water Storage District

September 2013

ESA

STOCKDALE INTEGRATED BANKING PROJECT

Biological Technical Report

Prepared for
Irvine Ranch Water District and
Rosedale-Rio Bravo Water Storage District

September 2013

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EXECUTIVE SUMMARY

IRWD Stockdale Integrated Banking Project Biological Technical Report

A biological resource reconnaissance was conducted for the Stockdale Integrated Banking Project (proposed project) to gather baseline biological resources data prior to development. The proposed project would convert agricultural lands into water recharge basins. A background investigation of the proposed project site was conducted that included a literature search, queries of the California Natural Diversity Database, and California Native Plant Society Inventory of Rare and Endangered Plants. Results of the reconnaissance, in combination with the findings of the background investigation, were used to assess the potential for the proposed project site to support special-status plant and animal species, and natural communities; and to investigate the potential for jurisdictional resources to occur on the proposed project site. Also provided is an analysis of the potential impacts to these biological resources that may result from implementing the proposed project.

The proposed project site is mostly developed and currently supports three vegetation communities: Developed Agriculture, Developed Water Recharge Basin Land Cover, and non-native grassland. Because the site is largely developed and lacks native plant communities no special-status plant species are anticipated to occur there, and no special-status natural communities were identified during the reconnaissance. Therefore, no impacts to special-status plants or natural communities are expected to occur from implementing the proposed project. However, the vegetation communities on the proposed project site support a diversity of common, rare, and special-status wildlife species that may be impacted during construction. Impacts to special-status species or their habitat would be considered significant under CEQA and will require mitigation to reduce the effects to a less than significant level.

Special-status wildlife species that have the potential to be impacted by the proposed project include burrowing owl, Swainson's hawk, tricolored blackbird, and San Joaquin kit fox. A biologist observed three individual burrowing owls occupying non-native grassland on the proposed project site. The remaining special-status wildlife species listed above have not been observed on the proposed project site but were assessed as having a medium or high potential to occur there. The tricolored blackbird and American badger have been observed by biologists in the immediate vicinity of the proposed project site during previous surveys conducted for unrelated projects.

The proposed project is not expected to result in a substantial loss of habitat that would affect the ability of species to disperse throughout the proposed project site and surrounding habitats. After construction is complete, much of the Developed Agriculture found on the proposed project site

will continue to support agriculture for eight months of the year. No mitigation for these impacts is necessary because the Metropolitan Bakersfield Habitat Conservation Plan, which assists urban development applicants in complying with State and federal endangered species laws, provides a mitigation fee exemption to impacts to wildlife habitat that occurs from development of "commercial agriculture".

No Waters of the U.S., Waters of the State, or any other additional jurisdictional riparian habitat occurs within the proposed project site, and no impacts are anticipated to occur to canals identified during surveys of the Developed Recharge Basin vegetation community. No mitigation is required.

Several mitigation measures are recommended in Section 6 of this report that would reduce potential impacts to biological resources to a level that is less than significant.

IRWD STOCKDALE INTEGRATED BANKING PROJECT

Biological Technical Report

1. Introduction

This Biological Technical Report (BTR) describes effects to biological resources that would result from implementation of the Stockdale Integrated Banking Project (proposed project). The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for the proposed project, and recommends measures to avoid, minimize or mitigate significant impacts anticipated from construction and operation of the proposed project. Impacts are assessed relative to existing laws and regulations relevant to biological resources, as described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with implementation of the proposed project.

1.1 Project Location

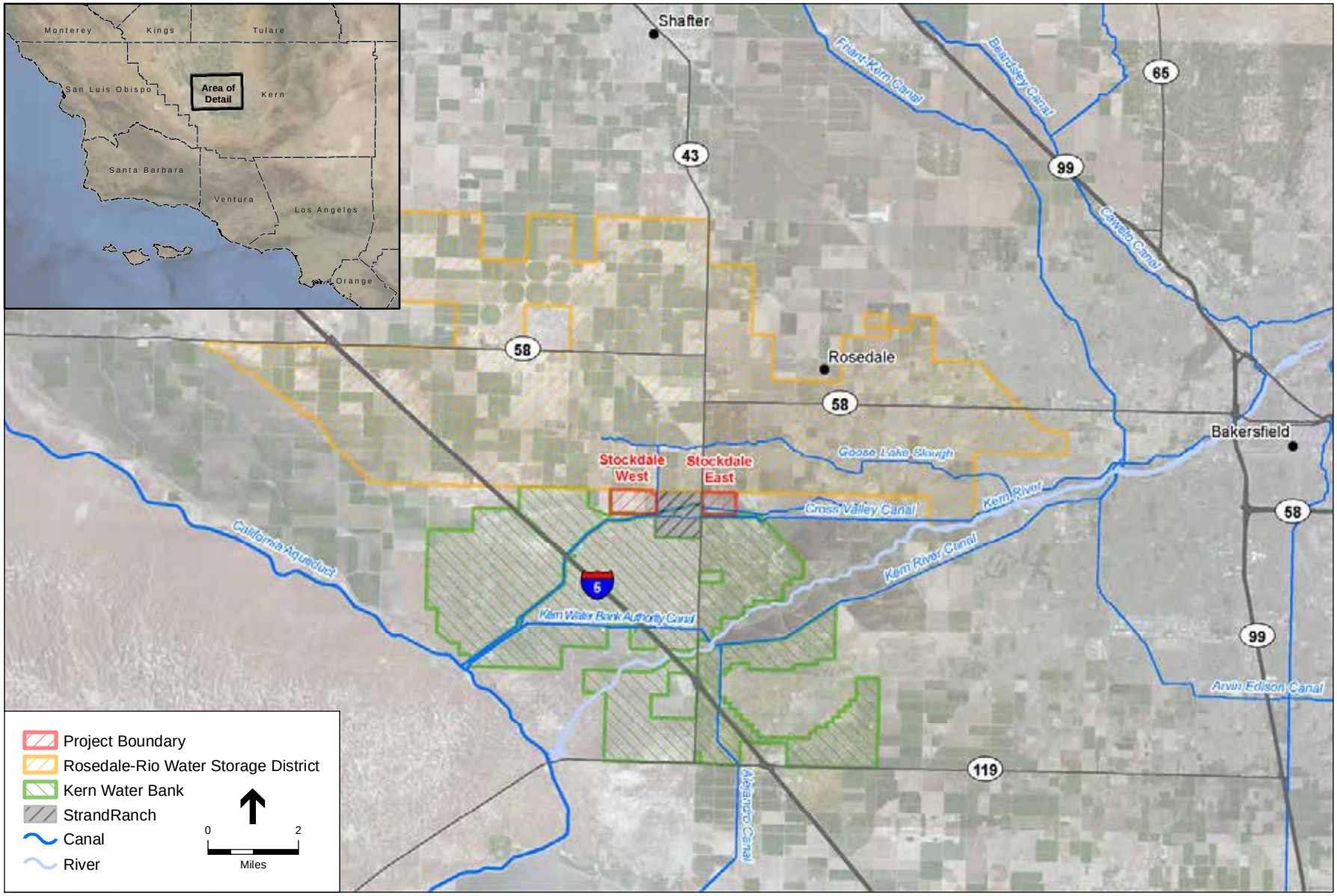
The proposed project is located in western Kern County, approximately six miles west of the City of Bakersfield, 10 miles southwest of the Friant-Kern Canal, 2.50 miles south of the City of Shafter, and six miles east of the California Aqueduct (see **Figure 1**). The project sites consist of Stockdale East, Stockdale West, and a third property that may be acquired by either agency within a site radius shown in Figure 1. This BTR focuses specifically on Stockdale East and Stockdale West, collectively referred to as the "project site." Stockdale East consists of approximately 230 acres of agricultural land and is located adjacent to and north of the Cross Valley Canal (CVC). Currently the crops grown on Stockdale East are cotton and alfalfa. There is a small pilot groundwater banking facility on Stockdale East as well. Stockdale West consists of approximately 323 acres of land and is located north of the Pioneer Canal and the CVC. Existing conditions at Stockdale West include four recharge basins that cover 265 acres, built as part of a one-year Pilot Recharge Project.

1.2 Project Description

The proposed project would integrate the Stockdale East and Stockdale West properties depicted in **Figure 1** into Rosedale-Rio Bravo Water Storage District's (Rosedale) existing Conjunctive Use Program. Rosedale's Conjunctive Use Program is a groundwater recharge, storage, and recovery program for land owners and other water districts. The Stockdale East property is owned by Rosedale and the Stockdale West property is owned by Irvine Ranch Water District (IRWD). Both properties are located immediately adjacent to IRWD's Strand Ranch Integrated Banking Project, which also is part of Rosedale's Conjunctive Use Program. Although the proposed

project is located adjacent to the Strand Ranch, the proposed project would be considered a new and separate project. The project will be designed to avoid suitable habitat for special-status species, if feasible.

The proposed project would result in the construction and operation of groundwater recharge and recovery facilities. The proposed project would provide for the coordinated use and operation of facilities at both Stockdale sites. Rosedale would operate and maintain all project facilities at both Stockdale West and Stockdale East in a manner similar to existing facilities within the Conjunctive Use Program.



SOURCE: Bing Maps; ESA, 2012.

Stockdale Integrated Banking Project . 211181

Figure 1

Regional Map

Stockdale West

In 2011, IRWD constructed four recharge basins and one overspill containment basin on the Stockdale West property as part of the one-year Pilot Recharge Project. The Pilot Recharge Project facilities include basins and earthen berms consisting of varying shape, size and depth covering 265 acres (or 82 percent) of the property. The existing basin layout avoids the edges of the Pioneer Canal and the CVC as shown in **Figure 2**. The proposed project would utilize the existing recharge basins on Stockdale West. No other recharge basins would be constructed on Stockdale West. However, embankments may be constructed to divide the existing basins into smaller impoundments as may be necessary in the future.

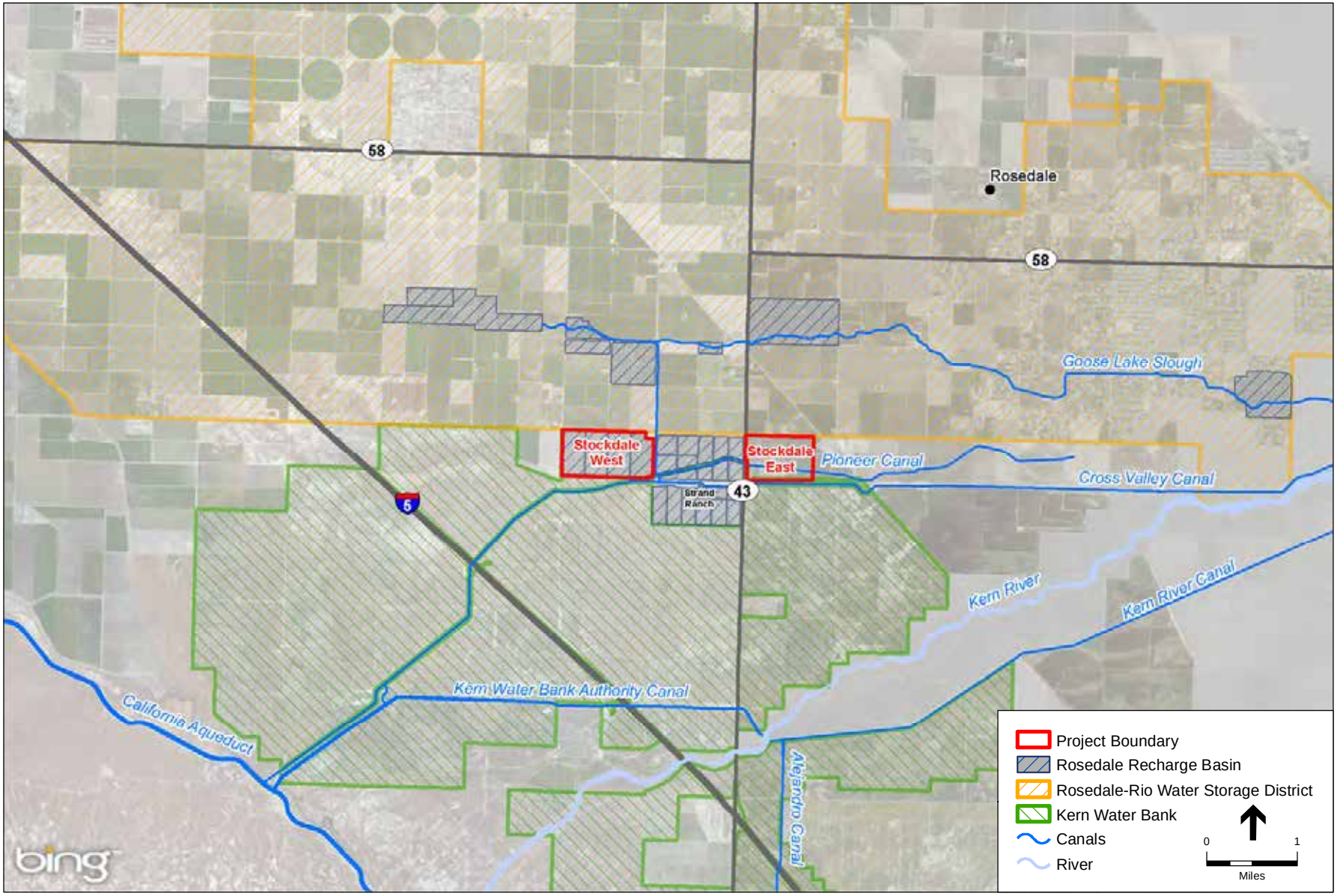
Stockdale East

Stockdale East currently has small pilot groundwater banking facilities onsite. The proposed project would construct new recharge and conveyance facilities on the Stockdale East property, including basins and berms that would occupy approximately 200 acres (or 87 percent) of the property. Recharge facilities would consist of up to eight recharge basins of varying shape, size, and depth. The basins would be constructed to avoid the CVC. The basins would be set back 55 feet from section lines around Stockdale East as required by Kern County. Basins would be formed by excavating and contouring existing soils and using excavated soils to form earthen berm walls. Basin depths would average four to five feet, and basin berms would extend up to six feet above ground level. The basins and berms would be reseeded to blend the berms into the surrounding landscape and to allow agricultural land uses to continue, such as farming or grazing. Dirt roads would run along the perimeter of and in between all basins to provide access to facilities during operation and maintenance activities.

The Stockdale East property currently is actively cultivated for agricultural purposes but also contains an active oilfield (Ram Environmental, 2009). Stockdale East currently has three operating oil wells with pumping units, one tank farm, one produced water injection well, three idle, and two plugged wellheads onsite. The oilfields would remain active during project implementation and operation. As such, the basins also would avoid developing the drill islands to maintain access to underlying mineral rights.

Recovery Facilities

The proposed recovery facilities at Stockdale East and Stockdale West would be designed to minimize impacts to wells pumping on adjacent properties. Recovery capacity and the number of wells to be constructed will be determined based on modeling of specific subsurface conditions at each site. Wells would be constructed using a standard drill rig. Well components would be installed and the immediate area graded for construction of the concrete pad. The aboveground wellheads and pump houses would be installed and connected to nearby electric junction boxes. The recovery wells would be connected to a conveyance system of underground pipelines to deliver pumped groundwater to the CVC or Rosedale's Intake Channel. Installation of the recovery well conveyance system would require trenching to a depth of about seven feet below existing ground surface. Construction staging would be located on-site within the boundaries of Stockdale West and Stockdale East.



SOURCE: Bing Maps; Kern County GIS, 2012.

Stockdale Integrated Banking Project . 211181

Figure 2

Proposed Project Facilities

2. Methods

The information and analysis presented in this report have been derived from the following sources:

- *Final Environmental Impact Report for the Strand Ranch Integrated Banking Project* (ESA 2008)
- *Metropolitan Bakersfield Habitat Conservation Plan* (City of Bakersfield and Kern County 2002)
- California Department of Fish and Game California Natural Diversity Data Base (CNDDB) (CDFG[1] 2012a)
- State and federally listed endangered and threatened animals of California (CDFG 2011)
- Inventory of Rare and Endangered Vascular Plants of California (online edition, v7-09a). (CNPS 2012)
- Review of relevant literature on biological resources on and around the project site
- Review of maps and aerial photographs of the project and the project vicinity.
- United States Fish and Wildlife Service Critical Habitat Mapper online (USFWS 2012a)
- United States Fish and Wildlife Service National Wetlands Inventory online wetlands mapper (USFWS 2012b)
- United States Fish and Wildlife Service Species Reports (Environmental Conservation Online System)
- United States Department of Agriculture Soil Survey Geographic Data Base online (USDA 2012)

In addition, a reconnaissance level survey was conducted at Stockdale East and Stockdale West, as described below, to identify vegetation and wildlife, and to delineate potential wetlands and waters of the United States (U.S.) that occur or potentially occur at the project site.

2.1 Biological Resource Reconnaissance

On July 27, 2012, Environmental Science Associates (ESA) biologist Matthew South conducted a biological resource reconnaissance survey to identify, map and characterize natural resources present or with the potential to occur on and adjacent to the proposed project site. During this reconnaissance, the biologist characterized and quantified onsite and adjacent plant communities and habitats according to *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Common plant names are taken from J.C. Hickman (1993).

[1] The California Department of Fish and Game (CDFG) changed its name on January 1, 2013 to The California Department of Fish and Wildlife (CDFW). In this document, references to literature published by CDFW prior to Jan. 1, 2013 are cited as 'CDFG'. The agency is otherwise referred to by its new name, CDFW.

The biological reconnaissance survey was conducted between 1100 and 1400. Weather conditions at the time of the survey were sunny with an average temperature of 80 degrees Fahrenheit (ºF) and wind speeds ranging from zero to five miles per hour (mph).

2.2 Special-Status Species Habitat Assessment

The reconnaissance survey included a preliminary assessment of habitat for the special-status species that, based on available data, have known occurrences in the vicinity of the project site.

2.3 Jurisdictional Waters and Wetlands Investigation

An investigation of potentially jurisdictional waters and wetlands was conducted to determine the location and size of the areas that could be defined as waters of the U.S. (WoUS), waters of the State (WoS), wetlands, or riparian habitat. Preliminary identification of potential jurisdictional areas within the project site was based on U.S. Geological Survey (USGS) 7.5-minute topographical maps, *USDA Soil Survey Geographic Data Base* and *State Soil Geographic Data Base* soil maps, a review of both the *National Wetland Inventory* online mapper and the *FEMA flood zone* online mapper, and previous U.S. Army Corps of Engineers (USACE) jurisdictional determinations in the area. During the reconnaissance survey, ESA biologist Matthew South visually estimated the structure and composition of onsite streambeds and vegetation in order to identify all areas potentially under USACE or California Department of Fish and Wildlife (CDFW) jurisdiction. Active floodplains were identified using recent aerial photography and by identifying changes in the characteristics of vegetation and substrate composition.

3. Natural Resource Setting

The project site is located in the San Joaquin Valley and in Kern County near the cities of Bakersfield, Wasco, McFarland and Shafter and within the Pacific Flyway.[2] This area is also located within the California Floristic Province (CA-FP), Great Central Valley (GV) Region, San Joaquin Valley (SnJV) Subregion (Hickman, 1993). The CA-FP is the largest geographic unit in California and comprises much of the state west of the dry regions of the Great Basin (GB) and Desert (D) Provinces in northern and southern California (Hickman, 1993). The GV Region is entirely contained within the CA-FP, is roughly the same area as the California Central Valley, and was once comprised of grassland (California prairie), marshes, extensive riparian woodlands, and islands of valley-oak savanna, but is now predominantly agricultural (Hickman, 1993). The GV Region is divided into two subregions: the Sacramento Valley (ScV) Subregion to the north and the SnJV Subregion to the south (Hickman, 1993). The SnJV Subregion is the larger subregion and is hotter and drier than the ScV Subregion with desert elements in the south (Hickman, 1993). Land use within the vicinity of the proposed project is primarily agriculture.

As discussed previously, the project site consists of the Stockdale East property and the Stockdale West property and is almost entirely developed for agricultural and water recharge purposes, with only a small portion of the Stockdale West property left undisturbed. The majority of the

[2] The Pacific Flyway is an established air route of waterfowl and other birds migrating between wintering grounds in Central and South America and nesting grounds in Pacific Coast and provinces of North America.

Stockdale East property is currently used for agriculture supporting crops such as onion (*Allium* sp.), alfalfa (*Medicago sativa*), and squash (*Cucurbita* sp.) (Photos 1 and 2 below). The southwest corner of the property has been left fallow (Photo 3). Several structures and open storage areas comprised of bare ground have been developed for the operation and maintenance of the fields. There is also a small vegetated recharge basin in the northwest corner of the property (Photo 5). Several residential houses and buildings associated with surrounding agricultural land uses occur to the north of the property, across Stockdale Highway. Agriculture, as well as a railroad track and loading station associated with a local business, occur to the east of the property. The Pioneer Canal directly abuts the southern boundary and is dry during the summer months (Photo 6). The canal consists of an unpaved channel comprised of dirt and sandy soils dominated by weedy plant species, such as Russian thistle (*Salsola tragus*), which is typically found in disturbed areas. Its sandy berms provide habitat (breeding and foraging) for numerous local and migratory species of wildlife (Photo 8). South of the Pioneer Canal is the CVC; a paved canal with consistent, year-round water flow. The land south of the CVC is open land and includes recharge basins owned and maintained by the Kern Water Bank Authority Conservation Bank (KWBACB).

The recharge basins at the Stockdale West property are dominated by intentionally planted safflower (*Carthamus tinctorius*). The recharge basins are separated by elevated roads with culverts installed underneath each road, allowing water to flow between the basins. Adjacent lands north and west of the property are comprised mainly of agricultural fields. The area adjacent to the southwest corner of the property is undisturbed native Saltbush (*Atriplex* ssp.) Scrub (Holland 1986). A small area within the southwest portion of the western property boundary consists of non-native grassland (Holland 1986) (Photo 4). Directly south of the property is the Pioneer Canal and CVC, however a gap exists between the property and the canals that mostly consists of disturbed areas dominated by Russian thistle, but becomes the aforementioned undeveloped non-native grassland as it progresses west.

3.1 Climate

The climate of the proposed project area is characterized by hot, dry summers with daytime temperatures frequently above 100 degrees Fahrenheit (NOAA 2012). The winter months are cool and foggy with temperatures seldom below freezing and, on average, there are between 250 and 300 frost-free days per year. Average rainfall is less than 10 inches per year with the heaviest rains occurring between January and March (NOAA 2012).

3.2 Soils and Topography

In general, the topography of the project site is flat at approximately 310 feet above mean sea level (amsl). Soils on the project site are deep to very deep, well drained, with slow to moderately rapid permeability (NRCS 2012). Descriptions of the four soil types found within the project site are discussed below.

Excelsior Series

Excelsior sandy loam is mapped as occurring within the project site. The Excelsior series consists of very deep, well-drained soils on alluvial fans and bars and channels on flood plains with slopes

ranging from 0 to 2 percent. These soils allow negligible to medium runoff and moderate to slow permeability. The Excelsior series is used for irrigated cropland growing alfalfa, barley, cotton, and grapes; and for dairy and cattle production and building site development.

Kimberlina Series

Kimberlina fine sandy loam, 0 to 2 percent slopes, and Kimberlina sandy loam, 2 to 5 percent slopes are mapped as occurring within the project site. The Kimberlina series consists of deep, well drained soils on flood plains and recent alluvial fans on slopes from 0 to 9 percent. These soils allow negligible to medium runoff, and moderately rapid and moderate permeability. The Kimberlina series is used for growing irrigated field, forage, and row crops. Some areas are also used for livestock grazing. When not irrigated, the soils support annual grasses, forbs, and *Atriplex* ssp. in the San Joaquin Valley.

Wasco Series

Wasco fine sandy loam and Wasco sandy loam are mapped as occurring within the project site. The Wasco series consists of very deep, well-drained soils on recent alluvial fans and flood plain on 0 to 5 percent slopes. These soils allow negligible or very low runoff, and moderately rapid permeability. The Wasco series is used for growing field, forage, and row crops. Some areas are used for livestock grazing, wildlife habitat, recreation, and residential sites. Native vegetation supported by this series includes *Atriplex* spp., annual grasses, and forbs.

Westhaven Series

Westhaven fine sandy loam is mapped as occurring within the project site. The Westhaven series consists of very deep, well drained soils that formed in stratified mixed alluvium weathered from sedimentary and/or igneous rocks, on 0 to 5 percent slopes. These soils allow low runoff and moderately slow permeability. The Westhaven series is used for irrigated cropland to grow wheat, lettuce, cotton, tomatoes, almonds, grapes, and peaches. Native vegetation supported by this series includes *Atriplex* spp., and annual grasses and forbs.

3.3 Vegetation Communities and Habitat

Vegetation communities are assemblages of plant species that occur together in the same area. Three distinct plant communities are found on the project site: Developed Agriculture, Developed Recharge Basins, and non-native grassland (Holland 1986) (See **Figure 3**). A description and representative photograph of each vegetation community found at the project site is provided below.

Developed Agriculture

Developed Agriculture is not a vegetation community defined by Holland (1986). However, the majority of the Stockdale East property, and the parcels surrounding both properties, are agricultural land supporting orchards, row crops, and fallow land. Crops found within this vegetation community include alfalfa, onions, safflower, and squash divided by dirt access roads.

Several small areas of bare ground occur along the edges of the access roads where equipment and materials are being stored. Two cottonwood trees (*Populus fremontii*) and one unidentified ornamental tree occur in the southwestern portion of the Stockdale East property.

The total area for Developed Agriculture within the project boundaries equates to approximately 232.32 acres. This includes alfalfa, onions, squash, and fallow fields.

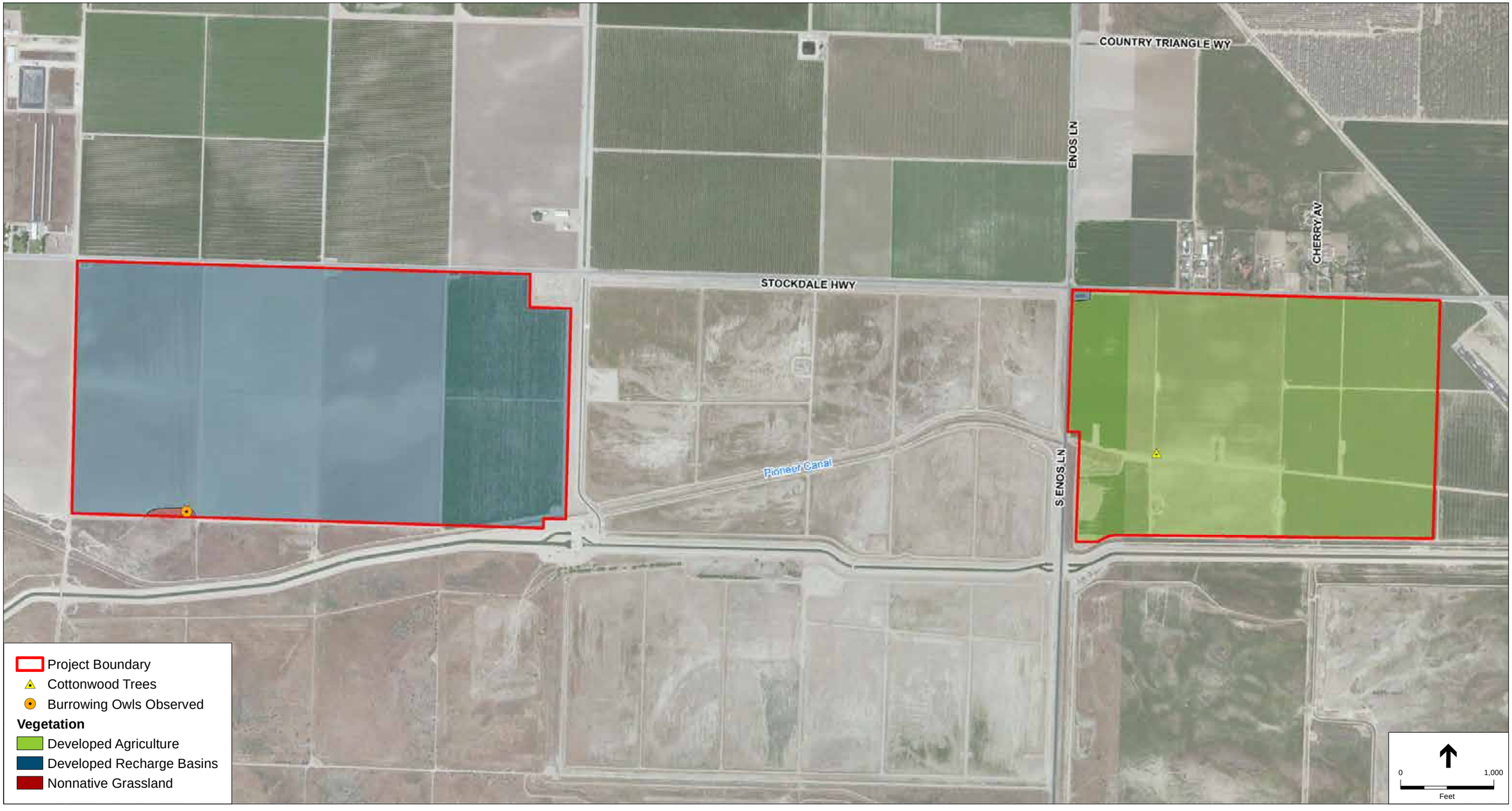
Developed Recharge Basins Land Cover

Developed Recharge Basin is not a vegetation community defined by Holland (1986). However, the majority of the Stockdale West property has been developed similar to Strand Ranch; it has been converted from agricultural fields into water basins planted with safflower. Raised access roads run between the basins with large culverts under each road to connect the basins. The culverts are reinforced with rip rap comprised of large rocks/boulders on both ends and around the road. There is also a small vegetated recharge basin in the northwest corner of the Stockdale East property.

The total area for Developed Recharge Basins within the project boundaries equates to approximately 329.5 acres. This area is dominated by a monoculture of safflower but has weedy, ruderal species such as Russian thistle in areas that are disturbed along the basin and road edges.

Non-native Grassland (Holland Code 42200)

A small sliver of non-native grassland occurs near the southwestern edge of the Stockdale West property and was elevated slightly above the rest of the landscape and adjacent access road. This area had sparse vegetation dominated by Arabian schismus (*Schismus arabicus*). The total area for Nonnative Grassland within the project boundaries equates to approximately 0.91 acre.



SOURCE:

Stockdale Integrated Banking Project . 211181

Figure 3

Vegetation Communities

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Photo 1 – Photo depicts the alfalfa fields on the Stockdale East property

Photo 2 – Photo depicts the alfalfa fields on the Stockdale East property

Photo 3 – Photo depicts the fallow agricultural fields on the Stockdale East property

Photo 4 – Photo depicts the Non-natve Grassland in the southwest portion of the Stockdale West property

Photo 5 – Photo depicts the shallow vegetated water recharge basin in the northwest corner of the Stockdale East property

Photo 6 – Photo depicts the Pioneer Canal running along the southern boundary of the Stockdale East property

Photo 7 – Photo depicts the culverts associated with the water recharge basins on the Stockdale West property

Photo 8 – Photo depicts the potential kit fox burrow found in the canal wall just south of the Stockdale East property

3.4 Wildlife

Wildlife species observed at the project site are typical for the region. Nomenclature for wildlife species observed or expected to occur in the project area follow Jameson & Peeters (2004) for mammals, Jennings & Hayes (1994) and Stebbins (1985) for amphibians and reptiles, and Sibley (2003) for birds. Surveys conducted previously at Strand Ranch (ESA 2008) identified many common wildlife species that would be expected to occur at the project site because of the close proximity and similar habitat types found there. These are discussed below.

No amphibians or reptiles were observed during the survey. Reptiles not observed but expected to be present include California kingsnake (*Lampropeltis getula californiae*), long-tailed brush lizard (*Urosaurus graciosus*), glossy snake (*Arizona* elegans), and western diamondback (*Crotalus* atrox). Though a vegetated water recharge basin occurs in the northwest corner of Stockdale East, it is likely that this feature does not hold water perennially; therefore no suitable habitat for amphibians occurs and no amphibians were observed or are expected to occur at the project site.

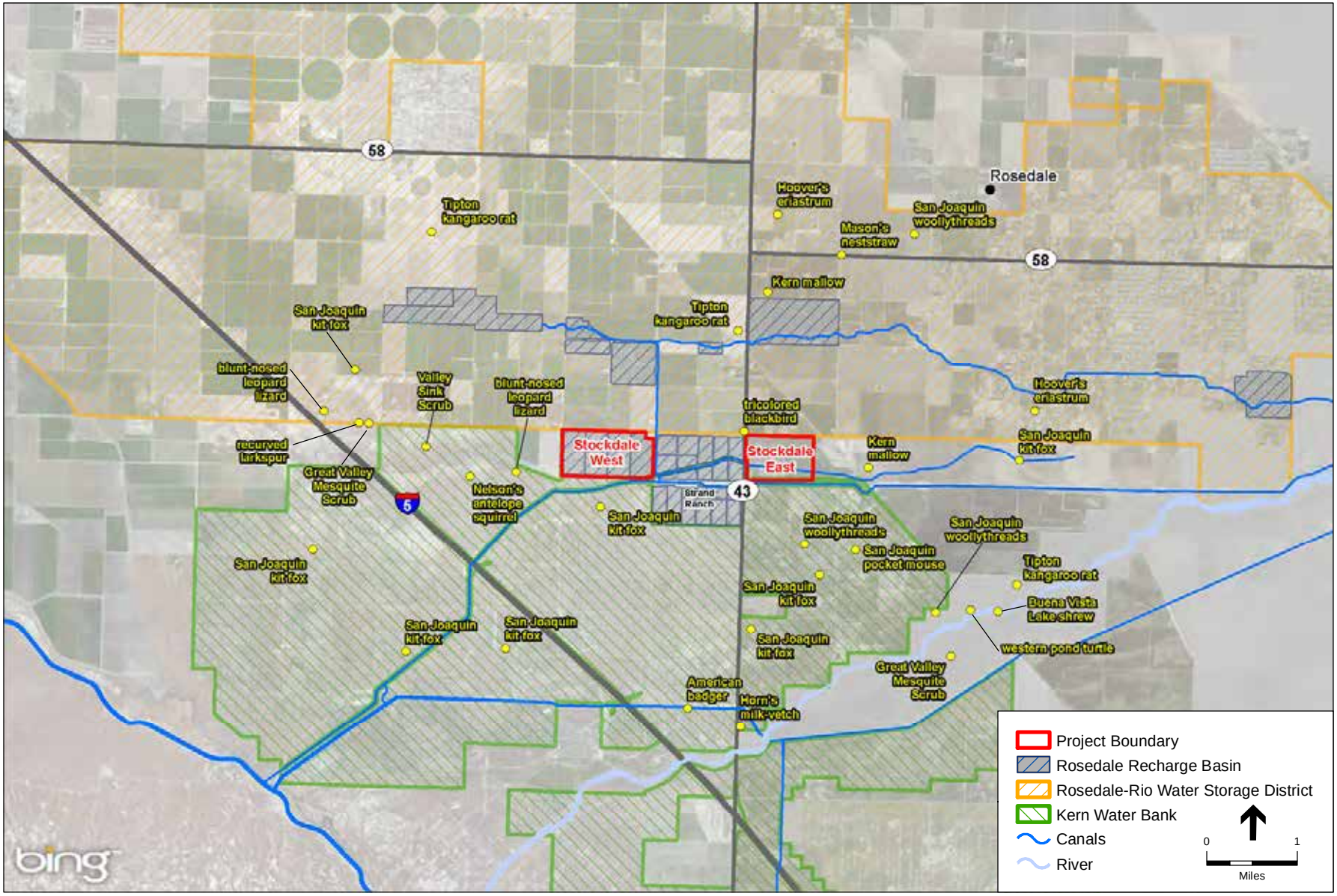
Mammals observed include, California ground squirrel (*Spermophilus beechyi*), and desert cottontail (*Sylvilagus audubonii*). A potential San Joaquin kit fox (*Vulpes macrotis mutica*) burrow was found in the canal wall just south of Stockdale East during the 2012 survey. The burrow occurs where the north-south road that bisects Stockdale East intersects the canal on the southern border just outside of the project boundaries. Other mammals not observed but expected to be present include mule deer (*Odocoileus hemionus*), desert kit fox (*Vulpes macrotis*), Gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), round-tailed ground squirrel (*Spermophilus tereticaudus*), desert woodrat (*Neotoma lepida*), and other species of common mice and rats typical of the western Mojave Desert region.

The vegetation communities within the project site and immediate vicinity support a wide variety of resident, nesting, and migratory song birds typical of the region and habitat types present. The proposed project area also supports suitable foraging and hunting habitat for a number of raptors, including burrowing owl, red-tailed hawk (*Buteo jamaicensis*), and Swainson's hawk (*Buteo swainsoni*). Bird activity was low during the reconnaissance survey; observed avian species included burrowing owl and red-tailed hawk.

3.5 Special-Status Species and Natural Communities

Due to a general decline in population and habitat of certain species throughout California as a result of urbanization, agriculture, and industrial development, state and federal agencies, particularly the USFWS and CDFW, have listed a number of wildlife and plant species as threatened, endangered, or otherwise vulnerable to decline. Moreover, a number of state, federal, and local laws have been adopted to restrict and/or mitigate activities that could potentially impact a listed species or its habitat directly, indirectly, or cumulatively. Provided below in **Tables 1, 2,** and **3** is a list of special-status wildlife species, plant species, and natural communities, respectively, that have been previously recorded in the region according to the CNDDB and or the CNPS. A map depicting the approximate location of these recorded occurrences of these species is provided in **Figure 4**. The "Potential for Occurrence" category is defined as follows:

- **Unlikely:** The project site and/or immediate area do not support suitable habitat for a particular species, and therefore the project is unlikely to impact this species.
- **Low Potential:** The project site and/or immediate area only provide limited habitat for a particular species. In addition, the known range for a particular species may be outside of the immediate project area.
- **Medium Potential:** The project site and/or immediate area provide suitable habitat for a particular species, and proposed development may impact this species.
- **High Potential:** The project site and/or immediate area provide ideal habitat conditions for a particular species and/or known populations occur in the immediate area.
- **Present:** The species is know from the project site or was observed onsite during surveys.



SOURCE: CNDDB; Bing Maps; Kern County GIS, 2012.

Stockdale Integrated Banking Project . 211181

Figure 4

CNDDB Records within 3 miles of Project Site

TABLE 1
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR IN PROJECT AREA

Species	Status: Federal/State	Preferred Habitat	Probability of Occurrence in Project Area
Amphibians			
western spadefoot (*Spea hammondii*)	--/SSC	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	**Low.** Suitable habitat exists on the project site. Only known occurrence record for the species was recorded in an irrigation ditch 4 miles east of the project site in 1996
Reptiles			
western pond turtle (*Emys marmorata*)	--/SSC	Ponds and small lakes with abundant vegetation. Also seen in marshes, slow-moving streams, reservoirs, and occasionally in brackish water.	**Unlikely.** The small recharge pond on the eastern property of the project site provides a very small amount of poor quality habitat, which is not capable of supporting a population of the species. The species has the potential to occur in the open water canals in the vicinity of the project. There are no occurrence records for the species in the vicinity of the project site.
silvery legless lizard (*Anniella pulchra pulchra*)	--/SSC	Sandy or loose loamy soils in chaparral, coastal dunes, and coastal scrub. Requires soils with high moisture content.	**Unlikely.** The project site does contain the loose loamy soils preferred by the species but the area does not support the preferred habitat for the species.
blunt-nosed leopard lizard (*Gambelia sila*)	FE/SE, FP	Blunt-nosed leopard lizards live in the San Joaquin Valley region in expansive, arid areas with scattered vegetation. Today they inhabit non-native grassland and alkali sink scrub communities of the Valley floor marked by poorly drained, alkaline, and saline soils, mainly because remaining natural land is of this type. Use small mammal burrows for permanent shelter and dormancy.	**Medium.** Suitable habitat on site (Nonnative Grassland) provides marginal habitat for the species on the project site; however the community is unlikely to support a population of the species. The Saltbush Scrub community in the vicinity of the project area provides higher quality habitat for the species. There is an occurrence record for the species within the vicinity of the project site.

TABLE 1
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR IN PROJECT AREA

Species	Status: Federal/State	Preferred Habitat	Probability of Occurrence in Project Area
San Joaquin whipsnake (*Masticophis flagellum ruddocki*)	--/SSC	Associated with open, dry habitats, with little to no tree cover; found in valley grassland and saltbush scrub in the San Joaquin valley. Species needs mammal burrows for refuge and ovipositor sites.	**Medium.** Suitable habitat exists on the project site and in the vicinity of the project site. There are 5 occurrence records for the species in the vicinity of the project site.
coast horned lizard (*Phrynosoma blainvillii*)	--/SSC	Found in a wide variety of vegetation types including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest.	**Low.** Minimal suitable habitat for the species exists in the Nonnative Grassland on the project site.
giant garter snake (*Thamnophis gigas*)	FT/ST	Ideal habitat would be characterized as having dense emergent vegetation for escape from predation, deep and shallow pools of water (which persist throughout the seasonal cycle of activity) in which to forage and seek cover, open areas along the margins to allow for basking, and upland habitat with access to structures suitable for hibernation and escape from flooding.	**Low.** Suitable habitat exists on the project site and immediate vicinity. The species has been recorded on two occasions within four miles of the project site.
Birds			
tricolored blackbird (*Agelaius tricolor*)	--/SSC	Tricolored blackbirds have three basic requirements for selecting their breeding colony sites: open, accessible water; a protected nesting substrate, including flooded, thorny, or spiny vegetation; and a suitable foraging space providing adequate insect prey within a few miles of the nesting colony.	**High** Open water canals and agriculture on and near the project site can support this species. This species was observed foraging in the region by ESA biologists during surveys conducted for an unrelated project. The species is known to occur within and adjacent to the project site according to the CNDDB
burrowing owl (*Athene cunicularia*)	--/SSC	Found in open, dry grasslands, agricultural and range lands, and desert habitats often associated with burrowing animals, particularly prairie dogs, ground squirrels and badgers.	**Present.** Three individuals of this species were observed utilizing burrows within the Nonnative Grasslands on the western property of the project site during the 2012 survey of the project area.

TABLE 1
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR IN PROJECT AREA

Species	Status: Federal/State	Preferred Habitat	Probability of Occurrence in Project Area
Swainson's hawk *(Buteo swainsoni)*	--/ST	Forages in a wide variety of open habitats, ranging from prairie and shrublands to desert and intensive agricultural systems. Within California, the species is strongly associated with riparian areas within desert, shrubsteppe, grassland, and agricultural habitats.	**Medium.** The species has been observed foraging in the vicinity of the project area during surveys conducted by ESA biologists for an unrelated project. The species is unlikely to nest in the immediate vicinity of the project site due to the lack of suitable nesting substrata; although two cottonwood trees exist on the project site, no raptor nests were observed during the 2012 survey.
western snowy plover (*Charadrius alexandrines nivosus*)	FT/SSC	Nest beside or near tidal waters, and nesting colonies are found on the mainland coast, peninsulas, offshore islands, adjacent bays and estuaries from southern Washington to southern Baja California, Mexico.	**Unlikely.** The species is believed to be extirpated from the region. The species' only occurrence record in the vicinity of the project area was recorded in 1912.
mountain plover (*Charadrius montanus*)	--/SSC	Favored habitats include prairie dog towns, areas heavily grazed by domestic livestock or wild herbivores, bare ground areas near artificial watering structures, recently burned or mowed areas, and recently fallowed or tilled crop fields. Found in grasslands, freshly plowed and newly sprouting grain fields, and sod farms. Prefers grazed areas and areas with burrowing rodents.	**Low.** The project site provides suitable habitat for the species; however, the only occurrence for the species in the vicinity of the project area was recorded over 20 years ago.
western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FC/SE	Prefers open woodlands with clearings and a dense shrub layer. They are often found in woodlands near streams, rivers or lakes.	**Unlikely.** The project vicinity does not provide suitable habitat for the species. The only occurrence record for the species in the vicinity of the project area was recorded in 1922.
Fulvous whistling-duck (*Dendrocygna bicolor*)	--/SSC	Rice fields, swamplands, marshes with lots of reeds and swamp vegetation.	**Unlikely.** The project vicinity does not provide suitable habitat for the species. The only occurrence record for the species in the vicinity of the project area was recorded in 1922.

TABLE 1
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR IN PROJECT AREA

Species	Status: Federal/State	Preferred Habitat	Probability of Occurrence in Project Area
white-tailed kite (*Elanus leucurus*)	--/FP	Found in rolling foothills, and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodlands. Foraging habitat includes open grasslands, meadows, or marshes close to dense topped trees for nesting and perching	**Unlikely.** The project vicinity does not provide suitable habitat for the species. The only occurrence record for the species in the vicinity of the project area was recorded in 1992.
white-faced ibis (*Plegadis chihi*)	--/SSC	Frequents marshes, swamps, ponds and rivers.	**Unlikely.** Suitable habitat for this species is not present on the project site.
Le Conte's thrasher (*Toxostoma lecontei*)	--/SSC	Generally found in open desert scrub, alkali desert scrub, and desert succulent scrub. In the San Joaquin Valley, the species is found primarily in habitats dominated by saltbush, and often frequents desert washes and flats with scattered saltbush.	**Low.** The species may occur in the vicinity of the project site, but is unlikely to occur within the project boundaries due to the low quality and minimal availability of suitable habitat.
yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	--/SSC	Nests in freshwater emergent wetlands in dense vegetation and deep water, often along lakes or ponds. Nests only where large insects, such as coonata are abundant, nesting is timed with emergence of aquatic insects.	**Unlikely.** Minimal suitable habitat exists within the project site and the only occurrence record for the species in the region was recorded in 1923.
Mammals			
Nelson's antelope squirrel (*Ammospermophilus nelsoni*)	--/ST	In the southern and western San Joaquin Valley, San Joaquin antelope squirrels are associated with open, gently sloping land with shrubs. Typical vegetation includes saltbushes and *Ephedra* sp. and sparsely vegetated, loamy soils.	**Medium.** Suitable habitat for the species exists on the project site. The species has been recorded within a mile of the project site.
giant kangaroo rat (*Dipodomys ingens*)	FE/SE	Prefer annual grassland on gentle slopes of generally less than 10 degrees, with friable, sandy-loam soils in the San Joaquin Valley.	**Low.** The species may occur in the vicinity of the project, but is unlikely to occur within the project boundaries. The Nonnative Grassland and fallow agricultural fields on the project site provide minimal suitable habitat for the species. There are no records of the species occurring within five miles of the project site.

TABLE 1
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR IN PROJECT AREA

Species	Status: Federal/State	Preferred Habitat	Probability of Occurrence in Project Area
short-nosed kangaroo rat (*Dipodomys nitratoides brevinasus*)	--/SSC	Found in the western San Joaquin Valley; mostly on flat and gently sloping terrain and on hilltops in desert-shrub associations, primarily saltbushes and California ephedra.	**Low.** The species may occur in the vicinity of the project, but is unlikely to occur within the project boundaries. The Nonnative Grassland and fallow agricultural fields on the project site provide minimal suitable habitat for the species. There are no records of the species occurring within five miles of the project site.
Tipton's kangaroo rat (*Dipodomys nitratoides nitratiodes*)	FE/SE	Limited to arid-land communities occupying the Valley floor of the Tulare Basin of the San Joaquin Valley, on level or nearly level terrain.	**Medium.** Suitable habitat for the species exists within the project boundaries. The species has been known to occur within one mile of the project site.
western mastiff bat (*Eumops perotis californicus*)	--/SSC	Found in open, semi-arid to arid habitats including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	**Low.** The project area does not provide suitable roosting habitat and provides marginal foraging habitat. The occurrence records for the species in the vicinity include a single occurrence, with unknown details of observer or date observed, that was added to the CNDDB in 2006, and a second occurrence record from 1959.
Tulare grasshopper mouse (*Onychomys torridus tularensis*)	--/SSC	Tulare grasshopper mice typically inhabit arid shrubland communities in hot, arid grassland and shrubland associations.	**Low.** The species may occur in the vicinity of the project, but is unlikely to occur within the project boundaries. The Nonnative Grassland and fallow agricultural fields on the project site provide minimal suitable habitat for the species. The species has not been recorded within 5 miles of the project site.
Buena Vista Lake shrew (*Sorex ornatus relictus*)	FE/SSC	Occupies the marshlands of the San Joaquin Valley and the Tulare Basin.	**Unlikely.** Suitable habitat for this species is not present on the project site.
American badger (*Taxidea taxus*)	--/SSC	Prefers to live in dry, open grasslands, farmlands, fields, and pastures	**High.** Ideal habitat for this species exists on the project site and ESA biologists have observed the species in the immediate vicinity of the project site during surveys conducted for other projects.

TABLE 1
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR IN PROJECT AREA

Species	Status: Federal/State	Preferred Habitat	Probability of Occurrence in Project Area
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE/ST	Include grasslands and scrublands with active oil fields, wind turbines, and an agricultural matrix of row crops, irrigated pasture, orchards, vineyards, and grazed annual grasslands (non-irrigated pasture).	**High.** A potential burrow was found in the canal wall just south of the eastern property during the 2012 survey. There is also ideal habitat for this species on the project site and there is a record of the species occurring within or immediately adjacent to the project area. There is an additional 147 occurrence records of the species within the vicinity of the project site.

1. Federal status: USFWS Listing, other non-CA specific listing
   - **FE** = Listed as endangered under the federal Endangered Species Act (ESA)
   - **FT** = Listed as threatened under ESA

2. State status: CDFW Listing
   - **SE** = Listed as endangered under the California Endangered Species Act (CESA)
   - **ST** = Listed as threatened under the CESA
   - **SSC** = Species of Special Concern as identified by the CDFW
   - **FP** = Listed as fully protected under California Fish and Game Code

3. Habitat description: Habitat description information from the California Wildlife Habitat Relationships System maintained by the CDFW

SOURCES: USFWS 2012; CDFG 2012

Table 2 includes a list of rare and special-status plants that have been recorded in the region of the proposed project site and briefly describes the habitat suitability required for each plant species.

TABLE 2
RARE PLANTS WITH POTENTIAL TO OCCUR IN PROJECT AREA

Species	Status/ CNPS List	Growth Habit	Elevation (m)	Habitat	Flowering Period	Probability of Occurrence in Project Area
Horn's milk-vetch *Astragalus hornii* var. *hornii*	--/1B.1	annual herb	60 - 850	Meadows and seeps, Playas/lake margins in alkaline soils.	May - Oct	**Unlikely**. Suitable habitat for this species is not present on the project site.
heartscale *Atriplex cordulata* var. *cordulata*	--/1B.2	annual herb	0 – 560	Chenopod scrub, Meadows and seeps, Valley and foothill grassland in sandy/saline or alkaline soils.	Apr - Oct	**Low**. Suitable soils for this species exist on portions of the project site but the habitat on site is marginal at best.
Lost Hills crownscale *Atriplex coronata* var. *vallicola*	--/1B.2	annual herb	50 – 635	Chenopod scrub, Valley and foothill grassland, Vernal pools in alkaline soils.	Apr - Aug	**Low**. Suitable soils for this species exist on portions of the project site but the habitat on site is marginal at best.
lesser saltscale *Atriplex minuscula*	--/1B.1	annual herb	15 – 200	Chenopod scrub, Playas, Valley and foothill grassland in alkaline or sandy soils.	May - Oct	**Low**. Suitable soils for this species exist on portions of the project site but the habitat on site is marginal at best.
subtle orache *Atriplex subtilis*	--/1B.2	annual herb	40 – 100	Valley and foothill grassland.	Jun - Aug (Oct)	**Low**. Suitable soils for this species exist on portions of the project site but the habitat on site is marginal at best.
Bakersfield smallscale *Atriplex tularensis*	SE/1A	annual herb	90 - 200	Chenopod scrub.	Jun - Oct	**Low**. Suitable soils for this species exist on portions of the project site but the habitat on site is marginal at best.
alkali mariposa lily *Calochortus striatus*	--/1B.2	perennial bulbiferous herb	70 – 1595	Chaparral, Chenopod scrub, Mojavean desert scrub, Meadows and seeps in alkaline/ mesic soils.	Apr - Jun	**Unlikely**. Suitable habitat for this species is not present on the project site.

TABLE 2
RARE PLANTS WITH POTENTIAL TO OCCUR IN PROJECT AREA

Species	Status/ CNPS List	Growth Habit	Elevation (m)	Habitat	Flowering Period	Probability of Occurrence in Project Area
California jewel-flower *Caulanthus californicus*	FE, SE/1B.1	annual herb	61 – 1000	Chenopod scrub, Pinyon and juniper woodland, and Valley and foothill grassland in sandy soils.	Feb - May	**Low**. Suitable habitat for this species occurs in the Nonnative Grassland on site but is marginal at best.
hispid bird's-beak *Chloropyron molle* ssp. *hispidum*	--/1B.1	annual herb	1 - 155	Alkaline soils supporting Meadows and seeps, Playas, and Valley and foothill grasslands.	Jun - Sep	**Low**. Suitable habitat for this species occurs in the Nonnative Grassland on site but is marginal at best.
slough thistle *Cirsium crassicaule*	--/1B.1	annual/perennial herb	3 – 100	Chenopod scrub, Marshes and swamps(sloughs), and Riparian scrub.	May - Aug	**Unlikely**. Suitable habitat for this species is not present on the project site.
recurved larkspur *Delphinium recurvatum*	--/1B.2	perennial herb	3 – 750	Chenopod scrub, Cismontane woodland, and Valley and foothill grassland in alkaline soils.	Mar - Jun	**Low**. Suitable habitat for this species occurs in the Nonnative Grassland on site but is marginal at best.
Kern mallow *Eremalche kernensis*	FE/1B.1	annual herb	70 – 1290	Chenopod scrub and Valley and foothill grassland.	Mar - May	**Low**. Suitable habitat for this species occurs in the Nonnative Grassland on site but is marginal at best.
Hoover's eriastrum *Eriastrum hooveri*	FD/4.2	annual herb	50 - 915	Gravelly soils supporting Chenopod scrub, Pinyon and juniper woodland, and Valley and foothill grassland.	Mar - Jul	**Low**. Suitable habitat for this species occurs in the Nonnative Grassland on site but is marginal at best.
Tejon poppy *Eschscholzia lemmonii* ssp. *kernensis*	--/1B.1	annual herb	160 – 1000	Chenopod scrub and Valley and foothill grassland.	Mar - May	**Low**. Suitable habitat for this species occurs in the Nonnative Grassland on site but is marginal at best.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	--/1B.1	annual herb	1 – 1220	Marshes and swamps (coastal salt), Playas, and Vernal pools.	Feb - Jun	**Unlikely**. Suitable habitat for this species is not present on the project site.
San Joaquin woollythreads *Monolopia congdonii*	FE/1B.2	annual herb	60 – 800	Chenopod scrub and Valley and foothill grassland in sandy soils.	Feb - May	**Low**. Suitable habitat for this species occurs in the Nonnative Grassland on site but is marginal at best.
Bakersfield cactus *Opuntia basilaris* var. *treleasei*	FE, SE/1B.1	perennial stem succulent	120 - 1140	Sandy or gravelly soils supporting Chenopod scrub, Cismontane woodland, and Valley and foothill grasslands.	Apr - May	**Unlikely**. Suitable habitat for this species is not present on the project site.

TABLE 2
RARE PLANTS WITH POTENTIAL TO OCCUR IN PROJECT AREA

Species	Status/ CNPS List	Growth Habit	Elevation (m)	Habitat	Flowering Period	Probability of Occurrence in Project Area
California chalk moss *Pterygoneurum californicum*	--/1B.1	ephemeral moss	10 - 100	Chenopod scrub and Valley and foothill grassland in alkali soils	N/A	**Low**. Suitable habitat for this species occurs in the Nonnative Grassland on site but is marginal at best.
oil neststraw *Stylocline citroleum*	--/1B.1	annual herb	50 – 400	Chenopod scrub, Coastal scrub, Valley and Foothill grassland in clay soils.	Mar - Apr	**Low**. Suitable habitat for this species occurs in the Nonnative Grassland on site but is marginal at best.
Mason's neststraw *Stylocline masonii*	--/1B.1	annual herb	100 - 1200	Chenopod scrub and Pinyon and juniper woodland in sandy soils.	Mar - May	**Unlikely**. Suitable habitat for this species is not present on the project site.

CNPS Status

List 1B = Plants Rare, Threatened, Endangered in California and elsewhere

List 2 = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

List 4 = Plants of Limited Distribution - A Watch List

Threat ranks

.1 = seriously Endangered in California

.2 = fairly Endangered in California

.3 = Not very threatened in California (low degree/immediacy of threats or no current threats known)

Table 3 includes a list of sensitive or rare natural communities that have been recorded in the region of the project site and provides a brief description of the community and a short discussion of its presence on the project site.

TABLE 3
NATURAL COMMUNITIES OFSPECIAL CONCERN

Community Name	CNDDB Element Rank: Global/State	Community Description (Holland, 1986)	Presence on Project Site
Great Valley Cottonwood Riparian Forest	G2/S2.1	A dense, broad-leafed, winter-deciduous riparian forest dominated by cottonwood trees (*Populus fremontii*) and Gooding's willow (*Salix goodingii*). Understories are dense, with abundant vegetative reproduction of canopy dominants. Found at sites with fine-grained alluvial soils near perennial or nearly perennial streams that provide subsurface irrigation even when the channel is dry.	**Absent.** This community was not observed within the project boundaries during a survey of the project site.
Great Valley Mesquite Scrub	G1/S1.1	An open woodland or savanna dominated by honey mesquite (*Prosopis glandulosa torreyana*) and alkali saltbush (*Atriplex polycarpa*). Understories are grassy in good rainfall years, though usually dominated by introduced annuals. Perennial cover usually is low. Found at sites with sandy loam soils of alluvial origin.	**Absent.** This community was not observed within the project boundaries during a survey of the project site.
Valley Sacaton Grassland	G1/S1.1	Midheight (to 3 feet) tussock-forming grassland dominated by alkali Sacaton (*Sporobolus airoides*). Found at sites with fine-textured, poorly drained, usually alkali soils. Most sites have seasonally high water tables or are overflowed during winter flooding.	**Absent.** This community was not observed within the project boundaries during a survey of the project site.
Valley Saltbush Scrub	G2/S2.1	Open, gray or blue-green chenopod scrubs (10-40% cover), usually over a low herbaceous annual understory. Cover types dominated by alkali saltbush or spiny saltbush (*Atriplex spinifera*). Typically found at sites with sandy to loamy soils without surface alkalinity; largely on rolling, dissected alluvial fans with low relief.	**Absent.** This community was not observed within the project boundaries during a survey of the project site.
Valley Sink Scrub	G1/S1.1	Low, open to dense succulent shrublands dominated by alkali-tolerant Chenopodiaceae, especially iodine bush (*Allenrolfea occidentalis*) or several *Sueda* species. Understories usually are lacking, though sparse herbaceous cover dominated by red brome (*Bromus rubens*) develop occasionally. Found at sites with heavy, saline and/or alkaline clays of lakebeds or playas. Soil surfaces often have a brilliant white salty crust over dark, sticky clay.	**Absent.** This community was not observed within the project boundaries during a survey of the project site.

Global Ranking	The global rank (G-rank) is a reflection of the overall condition of an element throughout its global range.
Species or Community Level	G1 = Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres. G2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres.
State Ranking	The state rank (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank. S1 = Less than 6 EOs OR less than 1,000 individuals OR less than 2,000 acres S1.1 = very threatened S2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres S2.1 = very threatened SNR = National, sub-national, or State conservation status not yet assessed.

3.6 Connectivity and Wildlife Movement Corridors

Habitat linkages provide a connection between two or more habitat areas that are often larger or superior in quality to the linkage. Such linkages can be quite small or constricted, but can be vital to the long-term health of connected habitats. Wildlife movement corridors are features that allow wildlife movement between patches of habitat, allowing for dispersal and genetic interchange. The Pioneer Canal and CVC to the south of the project areas provide opportunities for wildlife movement. In addition, the project area connects to an adjacent area of open space, the KWBACB, along the southern borders of the properties, and thus linkage value is deemed high quality.

4. Regulatory Framework

The proposed project is subject to a number of federal, state, and local regulations regarding biological resources. A summary of the primary regulations pertaining to the proposed project is provided below.

4.1 Federal

Federal Endangered Species Act

Under the federal Endangered Species Act (FESA), the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as threatened or endangered (16 USC 1533(c)). Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed or proposed species may be present in the project region and determine whether the proposed project would have a potentially significant impact on such species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536(3), (4)). Project-related impacts to these species or their habitats would be considered "significant." Section 7 of FESA contains a "take" prohibition which prohibits any action conducted, funded, or approved by a federal agency that adversely affects a member of an endangered or threatened species without prior formal consultation with the USFWS. Formal consultation with the USFWS would result in the issuance of a Biological Opinion (BO) that includes either a jeopardy or non-jeopardy decision issued by the USFWS to the consulting federal agency. The BO would also include the possible issuance of an "incidental take" permit. If such authorization is given, the project proponent must provide the USFWS with a Habitat Conservation Plan (HCP) for the affected species and publish notification of the application for a permit in the Federal Register.

Section 4(a)(3) and (b)(2) of the FESA requires the designation of critical habitat to the maximum extent possible and prudent based on the best available scientific data and after considering the economic impacts of any designations. Critical habitat is defined in section 3(5)(A) of the FESA as (1) areas within the geographic range of a species that are occupied by individuals of that species and contain the primary constituent elements (physical and biological features) essential

to the conservation of the species, thus warranting special management consideration or protection, and (2) areas outside of the geographic range of a species at the time of listing but that are considered essential to the conservation of the species.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, domestically implements a series of treaties between the United States and Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds; the act provides that it shall be unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird…" (U.S. Code Title 16, Section 703). This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species protected by the MBTA includes several hundred species and essentially includes all native birds. Permits for take of nongame migratory birds can be issued only for specific activities, such as scientific collecting, rehabilitation, propagation, education, taxidermy, and protection of human health and safety and personal property.

Clean Water Act

Section 404 and Wetlands

In accordance with Section 404 of the federal Clean Water Act (CWA), the USACE regulates discharge of dredged or fill material into waters of the United States. Waters of the United States and their lateral limits are defined in Title 33, Part 328.3(a) of the Code of Federal Regulations to include navigable waters of the United States, interstate waters, all other waters subject to the ebb and flow of the tide, and all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Waters of the United States are often categorized as "jurisdictional wetlands" (i.e., wetlands over which USACE exercises jurisdiction under Section 404) and "other waters of the United States" when habitat values and characteristics are being described. "Fill" is defined as any material that replaces any portion of a water of the United States with dry land or that changes the bottom elevation of any portion of a water of the United States. Any activity resulting in the placement of dredged or fill material within waters of the United States requires a permit from USACE.

Wetlands are a subset of "waters of the United States" and receive protection under Section 404 of the CWA. Wetlands are defined by the federal government (CFR, Section 328.3(b), 1991) as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with U.S. Environmental Protection Agency (EPA) (328.3(a)(8) added 58 FR 45035, August 25, 1993).

The USACE regulates the discharge of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act. As described in Section 5.3.1 of this report, the jurisdictional delineation performed for the study area determined that no USACE jurisdictional wetlands are present on or adjacent to the project site.

Section 401

Under Section 401 of the federal CWA, the Central Valley Regional Water Quality Control Board (RWQCB) must certify that actions receiving authorization under section 404 of the CWA also meet state water quality standards.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, waters of the state fall under the jurisdiction of the appropriate RWQCB. Under the act, the RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Projects that affect wetlands or waters must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under Section 401 of the CWA. The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for impacts to wetlands and/or waters of the state. The RWQCB also has jurisdiction over waters deemed 'isolated' or not subject to Section 404 jurisdiction under *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC)[3]. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the state and prospective dischargers are required obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and comply with other requirements of Porter-Cologne Act.

4.2 State

CEQA Guidelines Section 15380

Although threatened and endangered species are protected by specific federal and state statutes, *CEQA Guidelines* Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is

[3] Based on the Supreme Court ruling (SWANCC) concerning the Clean Water Act jurisdiction over isolated waters (January 9, 2001), non-navigable, isolated, intrastate waters based solely on the use of such waters by migratory birds are no longer defined as waters of the United States. Jurisdiction of non-navigable, isolated, intrastate waters may be possible if their use, degradation, or destruction could affect other waters of the Unites States, or interstate or foreign commerce. Jurisdiction over such other waters are analyzed on a case-by-case basis. Impoundments of waters, tributaries of waters, and wetlands adjacent to waters should be analyzed on analyzed on a case-by-case basis.

reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected, and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the *CEQA Guidelines* for addressing impacts. Local planning documents such as general plans often identify these resources as well.

State Endangered Species Act (CESA)

Under CESA, the CDFW is responsible for maintaining a list of threatened and endangered species (California Fish and Game Code 2007), candidate species, and species of special concern. Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state listed endangered or threatened species may be present on the project region and determine whether the proposed project would have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may impact a candidate species. If there were project-related impacts to species on the CESA threatened and endangered list, they would be considered "significant." Impacts to "species of concern" would be considered "significant" under certain circumstances, discussed below.

State Fish and Game Code

Section 2080 - Threatened and Endangered Species

Section 2080 of the State Fish and Game Code states, "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to Section 2081 of the Code, the CDFW may authorize individuals or public agencies to import, export, take, or possess, any state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding if: (1) the take is incidental to an otherwise lawful activity; (2) impacts of the authorized take are minimized and fully mitigated; (3) the permit is consistent with any regulations adopted pursuant to any recovery plan for the species; and (4) the applicant ensures adequate funding to implement the measures required by CDFW. The CDFW makes this determination based on available scientific information and considers the ability of the species to survive and reproduce. Due to the potential presence of state-listed rare, threatened, or endangered species on the project site, Sections 2080 and 2081 of the Code were considered in this evaluation.

Section 3503 – Nesting Birds and Raptors

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations of these codes include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of Section 3503.5 could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction. This statute does not provide for the issuance of any type of incidental take permit.

Section 1600 – Lake and Streambed Alteration

CDFW regulates activities that would interfere with the natural flow of, or substantially alter, a channel, bed, or bank of a lake, river, or stream. These activities are regulated under the California Fish and Game Code Sections 1600-1616. Under Section 1602, it is unlawful for any person, governmental agency, or public utility to do the following without first notifying CDFW: substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. Requirements may include avoidance or minimization of the use of heavy equipment, limitations on work periods to avoid impacts on wildlife and fisheries resources, and measures to restore degraded sites or compensate for permanent habitat losses. A Streambed Alteration Agreement may be required by CDFW for construction activities that could result in an accidental release into a jurisdictional area.

A stream is defined as a body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A CDFW streambed alteration agreement must be obtained for any project that would result in an impact on a river, stream, or lake.

Unlike the federal government, California has adopted the Cowardin, et al. (1979) definition of wetlands. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes (at least 50 percent of the aerial vegetative cover); (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.

Under normal circumstances, the federal definition of wetlands requires all three wetland identification parameters to be met, whereas the Cowardin definition requires the presence of at least one of these parameters. For this reason, identification of wetlands by state agencies consists of the union of all areas that are periodically inundated or saturated, or in which at least seasonal dominance by hydrophytes may be documented, or in which hydric soils are present.

Both state and federal wetland laws require that the biological and hydrological functions, which are lost when a wetland or water is altered or filled, be replaced as part of the respective permit processes. Compensatory actions include replacement of lost wetland acreage, usually in amounts substantially greater than the amount lost.

Sections 3511, 4700, 5050 and 5515 – Fully Protected Species

Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species. CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species. CDFW has informed nonfederal agencies and private parties that they must avoid take of any fully protected species in carrying out projects.

Native Plant Protection Act

The Native Plant Protection Act includes measures to preserve, protect, and enhance rare and endangered native plants. The list of native plants afforded protection pursuant to the Native Plant Protection Act includes those listed as rare and endangered under the CESA. The Native Plant Protection Act provides limitations on take as follows: "No person will import into this State, or take, possess, or sell within this State" any rare or endangered native plant, except in compliance with provisions of the act. Individual landowners are required to notify the CDFW at least 10 days in advance of changing land uses to allow the CDFW to salvage any rare or endangered native plant material. Due to the absence of state-listed rare, threatened, or endangered plant species on the project site, the Native Plant Protection Act was not considered in this evaluation.

4.3 Local

Kern County General Plan

This regulatory framework identifies the federal, state, and local statutes, ordinances, or policies that govern the conservation and protection of biological resources that must be considered by the County during the decision-making process for projects that have the potential to affect biological resources. The Kern County General Plan includes the following goals related to biological resources:

1.10.5 Threatened and Endangered Species

Policies

Policy 27 Threatened or endangered plant and wildlife species should be protected in accordance with state and federal laws.

Policy 28 The County should work closely with state and federal agencies to assure that discretionary projects avoid or minimize impacts on fish, wildlife, and botanical resources.

Policy 29 The County will seek cooperative efforts with local, state, and federal agencies to protect listed threatened and endangered plant and wildlife species through the

use of conservation plans and other methods promoting management and conservation of habitat lands.

Policy 30 The County will promote public awareness of endangered species laws to help educate property owners and the development community of local, State, and federal programs concerning endangered species conservation issues.

Policy 31 Under the provisions of CEQA, the County, as lead agency, will solicit comments from the CDFG and the USFWS when an environmental document (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report) is prepared.

Policy 32 Riparian areas will be managed in accordance with the USACE and the CDFG rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.

Implementation Measures

Q. Discretionary projects shall consider effects to biological resources as required by the CEQA.

R. Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to the CEQA.

S. Pursue the development and implementation of conservation programs with State and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.

Bakersfield General Plan

The project site is also located within the area governed by the *Metropolitan Bakersfield General Plan* (City of Bakersfield and Kern County, 2002). Within the Conservation Element Biological Resources Section of the Bakersfield General Plan, there are goals, policies, and an implementation measure that are applicable to the Proposed Project:

- Goal 1: Conserve and enhance Bakersfield's biological resources in a manner which facilitates orderly development and reflect the sensitivities and constraints of these resources.
- Goal 2: To conserve and enhance habitat areas for designated "sensitive" animal and plant species.
- Policy 1: Direct development away from "sensitive biological resource" areas, unless effective mitigation can be implemented.
- Policy 2: Preserve areas of riparian vegetation and wildlife habitat within floodways and along rivers and streams, in accordance with the Kern River Plan Element and channel maintenance programs designed to maintain flood flow discharge capacity.
- Implementation 3: Preserve habitat and avoid "take" of protected species as required in the Metropolitan Bakersfield Habitat Conservation Plan.

Metropolitan Bakersfield Habitat Conservation Plan

The Metropolitan Bakersfield Habitat Conservation Plan (MBHCP) addresses the effect of urban growth on federally and State protected plant and animal species within the Metropolitan Bakersfield 2010 General Plan area. The MBHCP is a joint program of the City of Bakersfield and Kern County that was undertaken to assist urban development applicants in complying with State and federal endangered species laws. The MBHCP utilizes a mitigation fee paid by applicants for grading or building permits to fund the purchase and maintenance of habitat land to compensate for the effects of urban development on endangered species habitat. Half of the proposed project falls within the MBHCP area. However, the MBHCP finds that "commercial agricultural" activities are exempt from the requirements of the plan. Therefore, the proposed project would not be subject to MBHCP requirements.

5. Survey Results

This section describes results of a background and literature search, reconnaissance, and jurisdictional investigation conducted for the proposed project.

5.1 Sensitive Wildlife Species

This section describes the special-status wildlife species that are known, or have a medium to high potential to occur on or in the vicinity of the proposed project site, and the status of their presence based on field surveys and documented references as discussed in Table 1 above.

5.1.1 Reptiles

Blunt-Nosed Leopard Lizard

The blunt-nosed leopard lizard is a federally endangered and state endangered/fully protected species. It is endemic to the San Joaquin Valley of central California. This species typically inhabits open, sparsely vegetated areas of low relief on the San Joaquin Valley floor and in the surrounding foothills. Holland (1986) described the vegetative communities that blunt-nosed leopard lizards are most commonly found in as non-native grassland and Valley Sink Scrub communities. Other suitable habitat types on the Valley floor for this species include Valley Needlegrass Grassland (Holland 1986), Alkali Playa (Holland 1986), and Atriplex Grassland (USFWS 2010a).

The species is a relatively large lizard in the Iguanidae family with a long, regenerative tail; long, powerful hind limbs; and a short, blunt snout. Blunt-nosed leopard lizards use small rodent burrows for shelter from predators and temperature extremes. Burrows are usually abandoned ground squirrel tunnels, or occupied or abandoned kangaroo rat tunnels (*Dipodomys* spp.). Each lizard uses several burrows without preference, but will avoid those occupied by predators or other leopard lizards. In areas of low mammal burrow density, lizards would construct shallow, simple tunnels in earth berms or under rocks. Blunt-nosed leopard lizards feed primarily on insects (mostly grasshoppers, crickets, and moths) and other lizards, although some plant material is rarely eaten or, perhaps, unintentionally consumed with animal prey. They appear to feed

opportunistically on animals, eating whatever is available in the size range they can overcome and swallow (USFWS 2010a).

No blunt-nosed leopard lizards were observed on the project site during the 2012 reconnaissance. Suitable habitat does occur on the proposed project site within the non-native grassland and fallow agricultural fields, and many of the earthen berms along the access roads on the western property contain many small mammal burrows that could be utilized by the species; however, the habitat on the proposed project site is marginal at best and these areas are unlikely to support a population of the species. The saltbush scrub community in the vicinity of the proposed project provides higher quality habitat for the species. There is also one CNDDB occurrence record for the species within the vicinity of the proposed project (CDFG 2012a).

San Joaquin Whipsnake

The San Joaquin whipsnake is a California Species of Special Concern. The range of this species extends from west of Arbuckle in the Sacramento Valley southward to the Kern County portion of the San Joaquin Valley and westward into the inner South Coast Ranges.

San Joaquin whipsnake habitat includes open dry valley grassland with little or no tree cover and sandy or rocky soils. It occurs in open terrain and is most abundant in grassland, desert scrub, chaparral, and pasture habitats. They seek cover in rodent burrows, bushes, and rock piles, and hibernate in soil or sand approximately 0.3 meters below the surface. In the western San Joaquin Valley, the species occurs in valley grassland and saltbush scrub habitats. Whipsnakes are mainly terrestrial, but occasionally climb bushes to bask, seek prey and cover (Jennings and Hayes 1994).

Suitable habitat does occur on the proposed project site within the non-native grassland and fallow agricultural fields, and many of the earthen berms along the access roads on the Stockdale West property contain small mammal burrows that could be utilized by the species; however, the habitat on the proposed project site is marginal at best and these areas are unlikely to support a population of the species. The Saltbush Scrub community in the vicinity of the proposed project provides higher quality habitat for the species. There are 5 occurrences of the species in the vicinity of the proposed project site that are recorded to the CNDDB (CDFG 2012a).

5.1.2 Birds

Swainson's Hawk

The Swainson's hawk is a state threatened species and protected by the federal Migratory Bird Treaty Act. These birds sometimes travel in huge flocks and migrate from North America to Argentina but are monogamous and solitary nesters. They nest in strands with few trees in juniper-sage flats, riparian areas, and in oak savannahs. They require suitable adjacent foraging areas such as grasslands or alfalfa and grain fields which support rodent populations (PPA, 2006).

The species has been observed foraging in the vicinity of the proposed project during surveys conducted by ESA biologists for an unrelated project. The species is unlikely to nest in the

immediate vicinity of the proposed project site due to the lack of suitable nesting substrate; although two cottonwood trees exist on the proposed project site. No raptor nests were observed during the 2012 reconnaissance.

Burrowing Owl

Burrowing owl is a California Species of Special Concern. This small, ground-dwelling owl lives in ground squirrel and other mammal burrows that it appropriates and enlarges for its purposes. It typically is found in short-grass grasslands, open scrub habitats, and a variety of open, human-altered environments, such as golf courses, airport runways and agricultural fields. This owl is active at twilight, feeding on insects, amphibians, reptiles and small mammals. Burrowing owls have shown significant declines throughout California in recent years due principally to the conversion of grassland and pasturelands to agricultural and urban uses, and to poisoning programs to control California ground squirrels (CDFG 2012).

No focused burrowing owl surveys were conducted; however, the reconnaissance-level habitat assessment found that the project area contains suitable burrowing owl habitat within the non-native grassland, fallow agricultural field, the earthen berms that line the agricultural fields and access roads, and the adjacent Saltbush Scrub. Three burrowing owls were observed utilizing two separate burrows within the non-native grassland on the Stockdale West property during the reconnaissance. Many of the earthen berms along the access roads on the Stockdale West property also contain small mammal burrows that could be utilized by the species in the future.

Tricolored Blackbird

The tricolored blackbird prefers wetland and grassland habitats, although most native types of these habitats have been lost. Within the San Joaquin Valley, breeding colonies live mainly in the pasturelands, but can also be found in chaparral, orange and avocado groves, sagebrush grasslands, and salt-marsh habitat. Nesting takes place in native emergent marshes, grain fields, thickets of Himalayan blackberry, and other flooded and upland habitats (NatureServe 2012a).

No tricolored blackbirds were observed during the 2012 reconnaissance; however, the open water canals and agricultural fields on and near the proposed project site can support this species. Tricolored blackbirds were observed foraging in the region by ESA biologists during surveys conducted for an unrelated project. A CNDDB occurrence record for the species is located adjacent to the proposed project site.

5.1.3 Mammals

Nelson's Antelope Squirrel

Nelson's antelope squirrel is a state threatened species. It is a permanent resident of the western San Joaquin Valley from 60-360 meters in elevation on dry, sparsely vegetated, loam soils. It can be found from southern Merced County south to Kern, Kings, and Tulare Counties. The species also occurs in portions of eastern San Luis Obispo and Santa Barbara Counties. In 1979, only about 20% of the original range was occupied. Loss of habitat to cultivation and overgrazing, and

the effects of rodenticides have contributed to the decline of this species (Zeiner *et al.* 1988-1990).

Nelson's antelope squirrels feed primarily on insects, green vegetation, seeds, and occasionally on small vertebrates. These squirrels dig burrows, or use kangaroo rat burrows for cover and nesting. They also use cover provided by rocks, vegetation such as *Atriplex* spp. and *Ephedra* spp. and other topographic features. Suitable habitat has widely scattered alkali scrub vegetation and shrubs, annual forbs and grasses, and is distributed over broken terrain with small gullies and dry washes with sandy loam soils (Zeiner *et al.* 1988-1990).

No Nelson's antelope squirrels were observed during the 2012 survey. Suitable habitat for the species exists on the proposed project site within the non-native grassland and fallow agricultural fields, and many of the earthen berms along the access roads on the western property contain many small mammal burrows that could be utilized by the species; however, the habitat on the proposed project site is marginal at best and these areas are unlikely to support a population of the species. The Saltbush Scrub community in the vicinity of the proposed project provides a higher quality habitat for the species. Occurrence records for the species have also been recorded to the CNDDB within a mile of the proposed project site (CDFG 2012a).

Tipton Kangaroo Rat

The Tipton kangaroo rat is a California and federally listed endangered species. Tipton kangaroo rats eat mostly seeds, with small amounts of green, herbaceous vegetation and insects supplementing their diet when available. Burrow systems are usually in open areas but may occur in areas of thick scrub. Current occurrences are limited to scattered, isolated areas. In the southern San Joaquin Valley this includes the Kern National Wildlife Refuge, Delano, and other scattered areas within Kern County.

The Tipton kangaroo rat or kangaroo rat sign were not observed during the 2012 reconnaissance. Suitable habitat for the species exists on the proposed project site in the non-native grassland and fallow agricultural fields, and many of the earthen berms along the access roads on the Stockdale West property contain many small mammal burrows that could be utilized by the species; however, the habitat on the proposed project site is marginal at best and these areas are unlikely to support a population of the species. The Saltbush Scrub community in the vicinity of the proposed project provides higher quality habitat for the species. An occurrence record for the species is documented in the CNDDB within one mile of the proposed project site (CDFG 2012a).

San Joaquin Kit Fox

The San Joaquin kit fox is a state threatened and federally listed endangered species. They feed primarily on ground squirrels, kangaroo rats, desert cottontails, mice, insects, carrion and ground-nesting birds. Their habitat includes the San Joaquin Valley and Kern County area (USFWS 2010b).

A potential kit fox burrow was found in the canal wall just south of the Stockdale East property during the 2012 survey. The burrow occurs where the north-south road that bisects the property intersects the canal on the southern border just outside of the boundaries of the proposed project site. No kit fox sign was observed at or near the burrow. Only one entrance to the burrow was observed so the potential for the den to be used for pupping is low; however, due to the species' known presence in the region and the existence of suitable habitat in the immediate vicinity of the proposed project, there is a high probability that kit fox utilize the proposed project site.

American Badger

The American badger is a California Species of Special Concern. The range of the American badger includes most of the State, with the exception of the northwestern forests. Badgers occupy a variety of habitats, including grasslands, savannas, and mountain meadows where soils are suitable for digging for their preferred prey, large rodents such as ground squirrels, gophers, and kangaroo rats (NatureServe 2012b).

Ideal habitat for this species exists on the proposed project site and ESA biologists observed a potential active badger den in the immediate vicinity of the project site during surveys conducted for an unrelated project. No badgers, potential badger burrows or badger sign were observed during the 2012 reconnaissance.

5.2 Special-Status Plant Species

Precipitation for 2011-2012 was typical in the project region as well as throughout most of the State (NOAA 2012). Therefore, floristic representation at the time of the survey would have been typical for the month of July.

Based on the database search results (Table 2), special-status plant species known to occur in the vicinity of the project site included 16 annual species, three perennial herbaceous, bulbiferous, or stem succulent species, and one moss. Although none of the 16 annual special-status plant species identified in the database search would have likely been blooming during the July 2012 habitat assessment, all are considered to have a low potential for occurrence or are unlikely to occur on the proposed project site due to the lack of suitable habitat.

No special-status plant species were found within the proposed project site and none are expected to occur based on the database search and habitat assessment.

5.3 Jurisdictional Resources

The Stockdale East property abuts the Pioneer Canal on the southern boundary. The canal was dry during the reconnaissance. The canal consists of an unpaved channel comprised of dirt and sandy soils dominated by weedy plant species, such as Russian thistle. Its sandy berms provide habitat (breeding and foraging) for numerous local and migratory species of wildlife. Just south of the Pioneer Canal is the CVC; a paved canal with consistent, year-round water flow. There is also a small, shallow, vegetated recharge basin (0.5 acres) in the northwest corner of the Stockdale East property.

The Stockdale West property was recently converted from agricultural fields into water bank recharge basins planted with safflower. Raised access roads run between the basins with large culverts under each road to connect the basins. The culverts are reinforced with rip rap comprised of large rocks and boulders on both ends and around the road, allowing water to flow between the basins. Directly south of the western property is the Pioneer Canal and CVC, however a gap exists between the property and the canals that mostly consists of disturbed areas dominated by Russian thistle and non-native grassland.

The hydrophytic vegetation within the onsite canals and water features are being maintained only by a man-made source of water and hydrology. Should these sources of water (i.e., irrigation) be terminated, the vegetation would no longer exist and, therefore the areas are not be considered wetlands. The canals are man-made water supply conveyance facilities and thus are not considered WoUS or WoS. The shallow vegetated recharge basin on the Stockdale East property is used to store water for the adjacent agricultural fields. These three features are not under the jurisdiction of (or subject to regulation by) the USACE (per Section 404 of the CWA), the CDFW (per Section 1600 of the Fish and Game Code), or the RWQCB (per Section 401 of the CWA).

The CVC is the water source for the slough that exists south of the CVC on Strand Ranch. The slough consists of a canal and borrow pit. Historically, the canal has been used by neighboring KWBACB to convey water from the CVC to its recharge ponds east of Strand Ranch. Water conveyed through the canal to KWBA floods the slough. Although the riparian vegetation and conditions found in the slough meet the requirements of a wetland as defined by the USACE, there is no natural hydrological connection between the slough and any jurisdictional navigable waters, and therefore the slough is not a jurisdictional wetland. The proposed project would not impact the CVC, Pioneer Canal or slough. The proposed project would have no impact on riparian areas or wetlands.

6. Project Impacts and Mitigation Measures

Significance Criteria

A number of direct, indirect, and cumulative impacts to biological resources could occur as a result of implementation of the proposed project. Under the stipulations of CEQA, potential impacts to biological resources could be considered significant if actions associated with the proposed project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool,

coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Construction Impacts

Impacts to biological resources would result primarily during habitat clearing, earth removal, grading, digging, and equipment movement. More mobile species like birds and larger mammals are expected to disperse into nearby habitat areas during construction. The use of access roads by construction/maintenance vehicles would result in accidental road-killed wildlife if these species occur on roads during construction activities. Vehicle collisions with San Joaquin kit fox, burrowing owl and other medium-large species may occur. Injury to or mortality of a special-status species during construction would be significant. However, implementation of the mitigation measures that are recommended below would reduce the potential for injury or mortality of special-status species during construction through monitoring and relocation of special-status species in the work area, worker environmental training, pre-construction sweeps for special-status wildlife, and covering all steep-walled excavations.

Operational Impacts

Vehicle and equipment travel on access roads during operation and maintenance may also disturb wildlife. Vehicles could cause direct mortality or injury to wildlife that are unable to move out of the way of vehicle traffic. As with construction, injury to or mortality of a special-status species during operations and maintenance would be significant. However, use of roads on the proposed project site during operations and maintenance would be of low volume, and speeds would be limited to 15 MPH. In addition, exterior lighting on the proposed project site will be kept to a minimum and nighttime vehicular traffic will be minimized.

6.1 Special-Status Species and Their Habitats

6.1.1 Wildlife

Reptiles

Based on the conditions at the proposed project site, CNDDB records, and the 2012 reconnaissance, no suitable habitat exists for the blunt-nosed leopard lizard and the San Joaquin whipsnake; impacts to the species is highly unlikely and no mitigation is required.

Birds

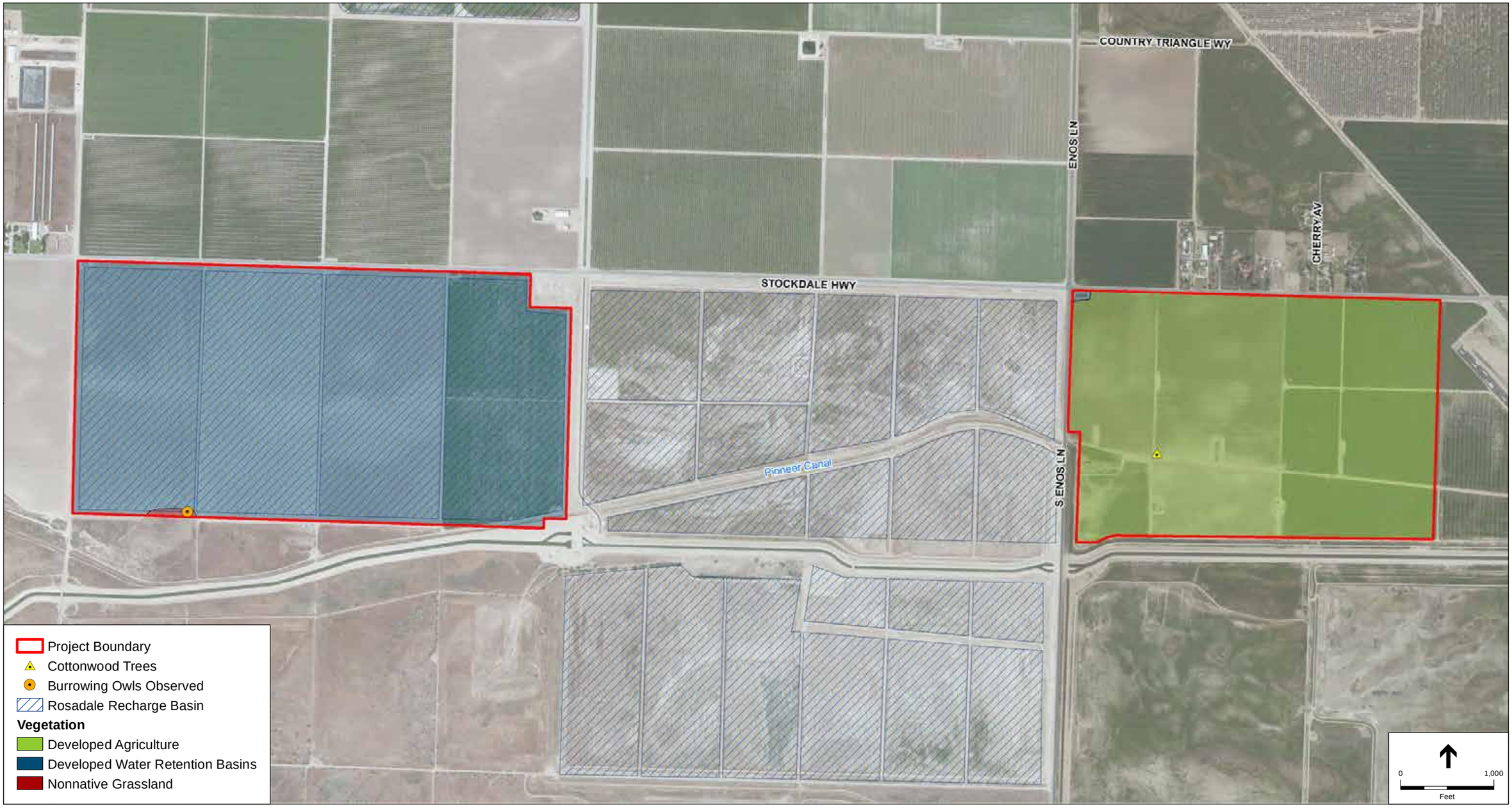
Activities associated with the construction of the proposed project could result in adverse impacts to migratory birds protected under the MBTA and special-status bird species, including Swainson's hawk, burrowing owl and tricolored blackbird.

Foraging Habitat: Swainson's hawks have been observed foraging in the vicinity of the proposed project. Implementation of the project would not impact foraging habitat of this species because a monoculture of safflower would be maintained, which would provide foraging habitat for the species.

Nesting Habitat: Direct impacts to migratory birds and special-status bird species would involve the removal/disturbance of the non-native grassland, fallow and active agricultural fields, and cottonwood trees, which have the potential to provide nesting opportunities for resident birds. Removal of nesting habitat during the breeding season could result in the direct mortality of birds. Tree removal, construction noise, vibrations, and human disturbance could cause nest abandonment, death of the young, or loss of reproductive potential at active nests located near proposed project activities. This would be a significant impact. Implementation of **MM-BIO-1, MM-BIO2, and MM-BIO-3** would reduce potential impacts to special-status nesting and migratory birds to a less than significant level.

Although no raptor nests were observed during the reconnaissance, the species may establish nests in suitable nesting habitat prior to construction, e.g., in the cottonwoods on the project site. The trees would also provide nesting opportunities for migratory birds. With implementation of **MM-BIO-1** through **MM-BIO-4**, any impacts to Swainson's hawk and other migratory bird nesting would be less than significant.

The proposed project could result in the displacement of burrowing owls. If burrowing owls nest on the proposed project site and these nesting birds are displaced by construction activities, this would be a significant impact. It is recommended that a Burrowing Owl Survey be conducted according to the Staff Report on Burrowing Owl Mitigation prepared by CDFG (2012). With implementation of **MM-BIO-1, MM-BIO-2** and **MM-BIO-5**, any impacts to the burrowing owl would be less than significant.



SOURCE: Bing Maps; Kern County GIS, 2012.

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Figure 5

Impacts to Vegetation Communities

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Mitigation Measures

MM-BIO-1: A biological monitor with documented experience monitoring construction projects for the protection of biological resources shall be appointed by the implementing agency. The biological monitor will be the contact source for any employee or contractor who might inadvertently kill or injure a special-status species or who finds a dead, injured or entrapped species. The biological monitor shall be present during all phases of construction in sensitive habitats as described below for individual special-status species. The biological monitor must possess any required permits or certifications to recover and relocate special-status species as encountered during construction, including kit fox. If an injured or dead special-status species is encountered during construction, the on-call biological monitor has the authority to stop work within the immediate vicinity until the issue has been resolved. The on-call biological monitor shall notify the Kern County Planning Department and the appropriate resources agency (e.g., USFWS or CDFW) before construction is allowed to proceed.

MM-BIO-2: The implementing agency shall develop a Worker's Environmental Awareness Program (WEAP), which will consist of presenting the status, biology and protection measures associated the project to promote their awareness, and implementation measures if a species is encountered or impacted. The project proponent shall provide the WEAP training to all personnel working on the site during proposed project construction and operation. The program should include the following: A description of the species that may be affected by the project, including San Joaquin kit fox and its habitat needs; an explanation of the status of the species and its protection; and a list of measures being taken to reduce impacts to the species during proposed 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 proposed project site.

MM-BIO-3: The following measures would reduce potential impacts to nesting and migratory birds and raptors to less than significant levels:

- Within 15 days of site clearing, a qualified biologist shall conduct a preconstruction, migratory bird and raptor nesting survey. The biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. This survey shall include species protected under the MBTA including the tricolored blackbird. The survey shall cover all reasonably potential nesting locations for the relevant species on or closely adjacent to the proposed project site.
- Nesting habitat should be removed prior to the bird breeding season (February 1).

  If an active nest is confirmed by the biologist and the habitat cannot be removed prior to the nesting season, no construction activities shall occur within at least 500 feet of the nesting site until the end of the breeding season (February 1 – September 30). An experienced ornithologist shall monitor the nest and 250-foot buffer until the nest has either failed or the birds have fledged.

MM-BIO-4: To assure that nesting Swainson's hawks are not disturbed by construction activities, a qualified ornithologist should conduct a pre-construction nesting survey within one-

half mile of the proposed project in areas with potentially suitable nesting habitat for Swainson's hawks. If a nest site is found, consultation with CDFW shall be required to ensure construction will not result in nest disturbance. No new disturbances or other project-related activities that may cause nest abandonment or forced fledging should be initiated within 0.5 mile of an active nest between 1 March and 15 September, or until 15 August if authorization is obtained for the proposed project from CDFW. These buffer zones may be adjusted as appropriate in consultation with a qualified ornithologist and CDFW. If construction or other proposed project-related activities that may cause nest abandonment by a Swainson's hawk or forced fledging occur, the work should be halted until the birds have fledged.

MM-BIO-5: A pre-construction survey shall be conducted for burrowing owls 14 to 30 days prior to clearing of the site by a qualified biologist in accordance with the most recent CDFW protocol, currently the Staff Report on Burrowing Owl Mitigation (CDFG 2012). Surveys shall cover suitable burrowing owl habitat disturbed by construction including a 500-foot buffer. The survey would identify adult and juvenile burrowing owls and signs of burrowing owl occupation. This survey shall include two early morning surveys and two evening surveys to ensure that all owl pairs have been located. If occupied burrowing owl habitat is detected on the proposed project site, measures to avoid, minimize, or mitigate impacts shall be incorporated into the proposed project and shall include the following:

- If owls are identified on or adjacent to the site, a qualified biologist shall provide a pre-construction WEAP to contractors and their employees that describes the life history and species protection measures that are in effect to avoid impacts to burrowing owls. Construction monitoring will also occur throughout the duration of construction activities to ensure no impacts occur to burrowing owl.
- Construction exclusion areas shall be established around the occupied burrows in which no disturbance shall be allowed to occur while the burrows are occupied. Buffer areas shall be determined based on the recommendations outlined in the most recent Staff Report on Burrowing Owl Mitigation (CDFG 2012).
- If occupied burrows cannot be avoided, methods for passive relocation and compensatory mitigation shall be incorporated into a Burrowing Owl Management Plan, subject to the approval of CDFW.

Significance After Mitigation*:* Less than significant.

Mammals

Activities associated with the construction of the proposed project could result in adverse impacts to San Joaquin kit fox.

Based on the conditions at the proposed project site, CNDDB records and the 2012 reconnaissance, no suitable habitat exists for the Nelson's Antelope squirrel and Tipton kangaroo rat. Therefore, no impact to these species is expected and no mitigation is required. While the site contains ideal habitat for badger, no sign was found; the species is highly mobile and therefore it is not likely that the species would be impacted. No mitigation is required.

There is a high probability that kit fox utilizes the project site as indicated by a kit fox burrow on the site. Any impact to this state threatened and federally endangered species would be significant. Implementation of **MM-BIO-1 and MM-BIO-2, and MM-BIO-6** and **MM-BIO-7** would reduce potential impacts to the San Joaquin kit fox to a less than significant level.

Mitigation Measures

MM-BIO-6: All steep-walled trenches or excavation pits more than two (2) feet deep shall be covered at the close of each working day by plywood or similar materials. Covers should be strong enough to prevent wildlife from falling through and should be designed to exclude small animals, including kit fox. The following measures shall be taken:

- 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 kit fox is discovered, the USFWS and the CDFW shall be contacted as noted below.
- Open trenches, or other excavations that could entrap wildlife should be inspected by the biological monitor a minimum of three times per day and immediately before backfilling. If present, construction should not occur until the animal has left the trench or been removed by a qualified biological monitor as feasible.
- Employees and contractors should look under vehicles and equipment for the presence of wildlife before movement. If wildlife is observed, no vehicles or equipment should be moved until the animal has left voluntarily or is removed by the biological monitor.
- If the trenches or excavations cannot be covered, exclusion fencing constructed of materials that would exclude both large and small wildlife species should be installed around the trench or excavation to prevent entrapment of wildlife.

MM-BIO-7: The implementing agency shall conduct a USFWS-approved "early evaluation" of the proposed project to determine if a San Joaquin kit fox survey must be completed. If the evaluation shows that the San Joaquin kit fox does not utilize the proposed project site, then no further mitigation shall be required. If the "early evaluation" finds potential for the presence of kit fox, USFWS may require a take authorization/permit. The take authorization/permit may include measures specific to the needs of the proposed project in accordance with the USFWS Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS 2011). These measures include:

- A 50-foot buffer will be implemented around any potential burrow. Placement of 4-5 flagged stakes 50 feet from the den entrance(s) will suffice to identify the den location; fencing will not be required, but the exclusion zone must be observed.
- Only essential vehicle operation on existing roads and foot traffic should be permitted. Otherwise, all construction, vehicle operation, material storage, or any other type of surface disturbing activity should be prohibited or greatly restricted within the exclusion zones. Proposed project-related vehicles should observe a daytime speed limit of 20-mph

throughout the site in all proposed project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Night-time 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 proposed project areas should be prohibited.

- Habitat subject to permanent and temporary construction disturbances and other types of ongoing proposed project-related disturbance activities should be minimized by adhering to the following activities. Proposed project designs should limit or cluster permanent proposed project features to the smallest area possible while still permitting achievement of proposed project goals. To minimize temporary disturbances, all proposed project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be included in preconstruction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts
- To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of the proposed project, all excavated, steep-walled holes or trenches more than 2-feet deep should be covered as described in MM-BIO-6.
- Kit foxes 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 kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, then that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
- 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 proposed project site.
- No firearms shall be allowed on the proposed project site.
- No pets, such as dogs or cats, should be permitted on the proposed project site to prevent harassment, mortality of kit foxes, or destruction of dens.
- Use of rodenticides and herbicides in proposed project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional proposed 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 kit fox.

- Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to the biological monitor. This biological monitor shall contact the CDFW immediately in the case of a dead, injured or entrapped kit fox. The CDFW contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or Mr. Paul Hoffman, the wildlife biologist, at (530) 934-9309. The USFWS should be contacted at the numbers below.
- The Sacramento USFWS and CDFW offices shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox 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.

  U.S. Fish and Wildlife Service
  Chief of the Division of Endangered Species
  Endangered Species Division
  2800 Cottage Way, Suite W2605
  Sacramento, California 95825-1846
  (916) 414-6620 or (916) 414-6600

  California Department of Fish and Wildlife
  Mr. Paul Hoffman
  1701 Nimbus Road, Suite A
  Rancho Cordova, California 95670
  (530) 934-9309.
- New sightings of kit fox shall be reported to the CNDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the Service at the address below.

Significance After Mitigation: Less than significant

6.1.2 Plant Species

No special-status plant species are known to occur or could potentially occur in the study area. No impacts are expected and no mitigation is required.

6.2 Riparian Habitats and Natural Communities

No riparian habitats or sensitive natural communities were found within the proposed project site during the 2012 reconnaissance. No significant impacts would occur and no mitigation is required.

6.3 Protected Wetlands and Jurisdictional Resources

No WoUS, WoS, or any other additional jurisdictional riparian habitat occurs within the proposed project site, and none of the identified canals are anticipated to be impacted by project activities. No significant impacts would occur and no mitigation is required.

6.4 Habitat Linkages and Wildlife Movement Corridors

The Pioneer Canal and CVC to the south of the project areas provide opportunities for wildlife movement. In addition, the project area connects to an adjacent area of open space along the southern borders of the properties, and thus linkage value is deemed high quality; however, the project is not anticipated to affect the continued movement of any fish or wildlife species in this agriculture-dominated landscape. No mitigation is required.

6.5 Local Policies and Ordinances

Local policies or ordinances governing biological resources will not be affected and no mitigation is required.

6.6 Habitat Conservation Plans

The Stockdale East property will continue to be used for agricultural purposes approximately eight months of the year. Therefore, the proposed project is considered exempt from the stipulations contained within the MBHCP, which exempts "commercial agriculture." As a result of this exemption, no mitigation fee is required. However, the proposed project is therefore not covered by the 10(a) USFWS or the 2081 CDFW incidental take permits provided by the MBHCP for impacts to sensitive species.

7. Contributing Biologists

Greg Ainsworth, Project Director, Senior Biologist

- Technical report author

Dallas Pugh, Managing Associate Biologist

- Technical report author

Matthew South, Senior Associate Biologist

- Technical report author
- Biological constraints analysis and biological surveys

Christina Schaefer, Director of Biological Resources

- Senior review

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Appendix D-2

Kit Fox Minimization Measures

San Joaquin Kit Fox Minimization Measures

Prior to construction, a qualified biological monitor shall implement the following measures:

1. Prior to construction, project plans shall clearly delineate that: *"Speeds signs of 25 mph maximum (or lower) shall be posted for all construction traffic, to minimize the probability of road mortality of the San Joaquin kit fox."* Speed limit signs shall be installed on the project site within 30 days prior to initiation of site disturbance and/or construction,

2. Within 30 days prior to initiation of site disturbance and/or construction, all personnel associated with the project shall attend a worker education training program, conducted by a qualified biologist, to avoid or reduce impacts on sensitive biological resources (i.e. San Joaquin kit fox). At a minimum, as the program relates to the kit fox, the training shall include the kit fox's life history, all mitigation measures specified by the District, as well as any related biological report(s) prepared for the project.

In accordance with the training provided by the qualified biological monitor, the construction contractor shall implement the following measures:

- During the site disturbance and/or construction phase, grading and construction activities after dusk shall be prohibited.

- During the site-disturbance and/or construction phase, to prevent entrapment of the San Joaquin kit fox, all excavation, steep-walled holes or trenches in excess of two feet in depth shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Trenches shall also be inspected for entrapped kit fox each morning prior to onset of field activities and immediately prior to covering with plywood at the end of each working day. Before such holes or trenches are filled, they shall be thoroughly inspected for entrapped kit fox. Any kit fox so discovered shall be allowed to escape before field activities resume, or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.

- During the site-disturbance and/or construction phase, any pipes, culverts, or similar structures with a diameter of four inches or greater, stored overnight at the project site shall be thoroughly inspected for trapped San Joaquin kit foxes before the subject pipe is subsequently buried, capped, or otherwise used or moved in any way. If during the construction phase a kit fox is discovered inside a pipe, that section of pipe will not be moved, or if necessary, be moved only once to remove it from the path of activity, until the kit fox has escaped.

- During the site-disturbance and/or construction phase, all food-related trash items such as wrappers, cans, bottles, and food scraps generated shall be disposed of in closed containers only and regularly removed from the site. Food items may attract San Joaquin kit foxes onto the project site, consequently exposing such animals to increased risk of injury or mortality. No deliberate feeding of wildlife shall be allowed.

- Prior to, during, and after the site-disturbance and/or construction phase, use of pesticides or herbicides shall be in compliance with all local, state and federal regulations. This is necessary to minimize the probability of primary or secondary poisoning of endangered species utilizing adjacent habitats, and the depletion of prey upon which San Joaquin kit foxes depend.

Exhibit C: San Joaquin Kit Fox Minimization Measures (con't)

- During the site-disturbance and/or construction phase, any contractor or employee that inadvertently kills or injures a San Joaquin kit fox or who finds any such animal either dead, injured, or entrapped shall be required to report the incident immediately to the applicant and District. In the event that any observations are made of injured or dead kit fox, the applicant shall immediately notify the U.S. Fish and Wildlife Service and the Department by telephone (see contact information below). In addition, formal notification shall be provided in writing within three working days of the finding of any such animal(s). Notification shall include the date, time, location and circumstances of the incident. Any threatened or endangered species found dead or injured shall be turned over immediately to the Department for care, analysis, or disposition.

- Prior to final inspection, should any long internal or perimeter fencing be proposed or installed, the applicant shall do the following to provide for kit fox passage:

  a. If a wire strand/pole design is used, the lowest strand shall be no closer to the ground than 12".
  b. If a more solid wire mesh fence is used, 8" x 12" openings near the ground shall be provided every 100 yards.

  Upon fence installation, the applicant shall notify the County to verify proper installation. Any fencing constructed after issuance of a final permit shall follow the above guidelines.

Contact Information

California Department of Fish and Game
1234 East Shaw Avenue
Fresno, CA 93710
(559) 243-4014
(559) 243-4020

U.S. Fish and Wildlife Service
Ventura Field Office
2493 Portola Road, Suite B
Ventura, CA 93003
(805) 644-1766

Appendix E

Analysis of Potential Groundwater Level Changes from Recharge and Recovery at the Stockdale West and Stockdale East Facilities

Rosedale-Rio Bravo Water Storage District
Irvine Ranch Water District

January 23, 2015

Proposed Stockdale Integrated Banking Project – Analysis of Potential Groundwater Level Changes from Recharge and Recovery at the Stockdale West and Stockdale East Facilities

Thomas Harder & Co.
Groundwater Consulting

IRVINE RANCH WATER DISTRICT

Rosedale-Rio Bravo WATER STORAGE DISTRICT

Proposed Stockdale Integrated Banking Project – Analysis of Potential Groundwater Level Changes from Recharge and Recovery at the Stockdale West and Stockdale East Facilities

1/23/2015

Prepared for

Rosedale-Rio Bravo Water Storage District
and
Irvine Ranch Water District

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Thomas Harder & Co.
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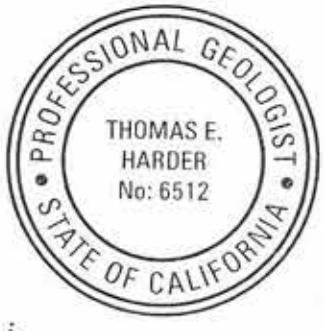

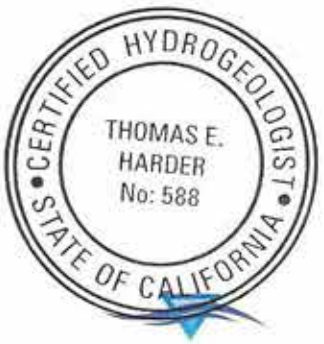

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Appendix

1 Introduction

This report summarizes an analysis of potential groundwater level changes from proposed artificial recharge and recovery operations at the Proposed Stockdale Integrated Banking Project (the Project), located west of Bakersfield, California (see Figure 1). The proposed Project includes two facilities: The Stockdale West property in the northern half of T30SR25E Section 3 and the Stockdale East property in the northern half of T30SR25E Section 1 (see Figure 2). The Project will be operated by the Rosedale-Rio Bravo Water Storage District (RRBWSD) in cooperation with the Irvine Ranch Water District (IRWD).

1.1 Purpose and Scope

The purpose of the analysis presented herein is to:

1. Estimate the annual recharge capacity of the proposed Project facilities.
2. Estimate the storage capacity of the aquifer system directly beneath the Project facilities.
3. Identify the number and location of extraction wells for the Project.
4. Evaluate potential changes in groundwater levels associated with recharge and recovery at the facilities.
5. Determine if predicted groundwater level changes result in potential adverse impacts.

The scope of work to address the objectives included:

1. Compiling and reviewing hydrogeological data for the immediate Project area.
2. Developing estimates of recharge capacity and aquifer storage capacity for the facilities.
3. Identifying the number, location, and conceptual construction of new wells for use in analysis of groundwater level impacts.
4. Developing recharge and recovery scenarios for analysis.
5. Analyzing the scenarios using a calibrated groundwater flow model.
6. Evaluating potential groundwater level changes from model results.

1.2 Sources of Data

The calibrated groundwater flow model used in the analysis of groundwater level changes incorporates a comprehensive hydrogeological database of the Project Area (TH&Co, 2011). The types of data used to develop the model included geology, soils/lithology, hydrogeology, surface water hydrology, climate, crop types/land use, topography, remote sensing and groundwater recharge and pumping.

The groundwater flow model has been updated with data specific to the Project Area. These data include:

- Strand Ranch and Stockdale West Infiltration Test Data from August 2011 and January 2012 (RRBWSD, 2012a)
- Strand Ranch Surface Water Deliveries (RRBWSD, 2012b)
- Lithology, pumping test data, groundwater levels, and groundwater quality from Strand Ranch Well Completion Reports (Wildermuth Environmental, 2010a-d and 2011a-e)
- Groundwater level data from Strand Ranch observation wells (Wildermuth Environmental, 2012c)

In addition, a number of reports and documents were reviewed as a basis for interpreting the analysis. These included:

- Strand Ranch Integrated Banking Project Environmental Impact Report (ESA, 2008)
- Draft Strand Ranch Groundwater Quality Summary and Blending Analysis (Wildermuth Environmental, 2012a)
- Draft Estimation of Aquifer System Properties and Characterization of Recharge Mounding at the Strand Ranch Water Bank (Wildermuth Environmental, 2012b)
- Determination of Aquifer Storage Capacity for the Rosedale-Rio Bravo Water Storage District (Sierra Scientific Services, 2003)

A comprehensive reference list is provided in Section 10.

1.3 Analysis Methodology

Potential groundwater level changes associated with Stockdale West and Stockdale East recharge and recovery operations were evaluated using a three-dimensional, numerical groundwater flow model previously developed for a large portion of the Kern River Fan area west of Bakersfield, California (TH&Co, 2011). The Project Area boundaries are completely within the model area (see Figure 1). A more detailed description of the model is provided in Section 6.

2 Evaluation of Annual Recharge Capacity at the Sites

For this analysis, annual recharge capacity is defined as the maximum volume of water that each Project facility can infiltrate into the subsurface in a year (see Table 1). The recharge capacity was estimated based on the size of the facilities (wetted area), the time available to accept water (assumed to be 365 days), and the infiltration rate. For Stockdale West, the wetted area is estimated to be 265 acres based on design drawings of the basins as provided by IRWD. For Stockdale East, the wetted area is estimated to be 186 acres, which is 80 percent of the total area of the property.

Infiltration rates for the Stockdale West and Stockdale East facilities were estimated based on recharge operations data for the adjacent Strand Ranch Integrated Banking Project Facility. In calendar year 2011, a total of 37,638 acre-ft of water was delivered to the Strand Ranch Integrated Banking Project recharge basins (17,500 acre-ft for IRWD and 20,138 acre-ft for RRBWSD). In many of the months, the basins were filled to capacity. The lowest infiltration rate necessary to accommodate the delivered water during months when the basin capacity (including surface storage) was maximized was 0.28 ft/day. This infiltration rate was used as a basis for estimating the recharge capacity at the Stockdale West and Stockdale East facilities. This infiltration rate is consistent with infiltration rates observed at other recharge basins in the area (TH&Co, 2011).

Using the infiltration rate estimated from 2011 Strand Ranch Integrated Banking Project operations and the wetted areas for the facilities, as described above, the potential annual recharge estimates for Stockdale West and Stockdale East are approximately 27,100 acre-ft/yr and 19,000 acre-ft/yr, respectively (see Table 1).

3 Evaluation of Aquifer Storage Capacity at the Sites

The aquifer storage capacity was estimated as the volume of groundwater that can be stored in the aquifer directly beneath the facilities. The aquifer storage capacity was estimated by multiplying the total aquifer volume beneath the sites by the specific yield of the aquifer sediments:

$$A_s = V \times S_y$$

where:

A_s = Aquifer storage capacity (acre-ft)

V = Total aquifer volume (acre-ft)

S_y = Specific yield of aquifer sediments (dimensionless)

The total aquifer volume is a function of the surface area of the sites, the depth of useable aquifer, and a minimum groundwater depth (see Table 2). The aquifer storage capacity estimates assume that only the aquifer directly beneath the sites is available for storage. Thus, the surface area of the Stockdale West and Stockdale East Sites multiplied by the useable aquifer thickness define the total aquifer volume. The useable aquifer thickness at Stockdale East is estimated to extend from 10 feet below ground surface (ft bgs) to 667 ft bgs. At Stockdale West, the useable aquifer thickness is estimated to extend from 14 ft bgs to 684 ft bgs. The top depth corresponds to the approximate invert depth of the Cross Valley Canal (CVC) at its closest location to each of the respective Sites. The bottom depth corresponds to the deepest useable aquifer, as determined from drilling and testing at the adjacent Strand Ranch Integrated Banking Project property (Wildermuth Environmental, 2011e).

Specific yield is the ratio between the volume of water the aquifer will release from storage due to gravity drainage to the total volume of aquifer. A specific yield of 0.14 was used for the shallow and intermediate aquifer system beneath the sites, based on pumping test data from a well on the adjacent Strand Ranch Integrated Banking Project property that was perforated in these aquifers (Wildermuth Environmental, 2010d). A specific yield of 0.10 was used for the deep aquifer based on the lithologic characteristics of the sediments from borehole logs near the Project (TH&Co, 2011).

Using the above methodology, the total storage capacity for the Stockdale West site is approximately 26,000 acre-ft and the total storage capacity for the Stockdale East site is approximately 18,400 acre-ft (see Table 2).

The methodology used herein to estimate aquifer storage capacity has been applied elsewhere in the area of the Kern Water Bank although assumptions for the useable aquifer thickness vary. The Kern Water Bank Authority (KWBA) has indicated they have 1.5 million acre-ft of readily accessible aquifer storage in their service area, which covers 20,000 acres (KWBA, 2012). Assuming a specific yield range of 0.10 to 0.14, the KWBA storage estimate requires a useable aquifer thickness between 535 ft and 750 ft, which is consistent with the aquifer thickness assumed for this analysis (approximately 675 ft).

4 Groundwater Quality Evaluation

As a preliminary evaluation of the groundwater quality at the Stockdale West and Stockdale East sites, TH&Co collected groundwater samples from two existing agricultural wells for analysis of a full suite of drinking water quality analytes (i.e. Title 22 suite). One agricultural well is located in the southeast portion of Stockdale West and one well is located in the south central portion of Stockdale East (see Figure 3). 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 ft to 700 ft bgs). Both wells are equipped with pumps and were in operation supplying irrigation water at the time of sampling.

TH&Co collected groundwater samples from sampling ports on the discharge lines for the two agricultural wells on 29-Aug-12. All water quality samples were transferred to properly labeled laboratory prepared sample containers and temporarily stored in sample coolers with ice. All samples were delivered to Fruit Grower's Laboratory (FGL) under chain-of-custody protocol on the same day collected.

Results of the groundwater quality analyses are summarized in Table 3. Laboratory reports are provided in Appendix A. The total dissolved solids (TDS) concentration measured in the samples ranged from 280 milligrams per liter (mg/L) in Stockdale East well to 400 mg/L in the Stockdale West well. Nitrate (as NO_3^-) was detected at concentrations ranging from 13.4 mg/L (Stockdale West) to 14.4 mg/L (Stockdale East). Arsenic was not detected.

Gross alpha was the only constituent detected above its maximum contaminant level (MCL). This constituent was detected in the sample from Stockdale West at 18.9 picocuries per liter (pCi/L) and in the sample from Stockdale East at 15 pCi/L. The MCL for this constituent is 15 pCi/L. Of the total gross alpha, uranium accounted for approximately 10 to 11 pCi/L. However, the uranium concentration did not exceed its MCL of 20 pCi/L.

It is noted that perchloroethene (PCE) and trichloroethene (TCE) were detected in the sample from Stockdale East and ethylene dibromide (EDB) was detected in the sample from Stockdale West. However, all concentrations were well below their respective MCLs (see Appendix A).

5 Potential Well Pumping Rates and Conceptual Well Design

5.1 Potential Well Pumping Rates in the Project Area

As a basis for determining the number and location of potential production wells for placement and analysis in the groundwater flow model, it was necessary to assess potential individual pumping rates for new wells. Pumping tests on recently constructed production wells on the adjacent Strand Ranch Integrated Banking Project property show instantaneous discharge rates ranging from approximately 2,300 gallons per minute (gpm) to 2,500 gpm (see Figure 4). The discharge rate for RRBWSD's Enns Well No. 3, located approximately 0.5-mile north of Stockdale West, is approximately 3,000 gpm (Zeiders Consulting, 2010).

5.2 Typical Well Designs for Existing Wells in the Project Area

Existing wells in the Project vicinity include Strand Ranch Integrated Banking Project wells, Kern Water Bank (KWB) wells, and private agricultural and domestic wells (see Figures 3 and 5). Recently constructed Strand Ranch Integrated Banking Project wells SREX-1 through SREX-5 and SREX-7 are perforated from approximately 380 ft to 660 ft bgs, which is the deeper portion of the aquifer (see Figure 4). Strand Ranch Integrated Banking Project well Strand No. 6 (SREX-6) is an older agricultural well that is being used for the project. This well is perforated from 195 to 390 ft bgs, which is typical of other private agricultural wells in the area (see Figure 5). KWB wells are typically perforated from approximately 200 ft to 700 ft bgs and include both the intermediate and shallow portions of the aquifer system.

5.3 Conceptual Well Design and Preliminary Discharge Rate for Proposed Stockdale Integrated Banking Project Wells

Although depth-specific groundwater quality testing is recommended to determine final production well design, for preliminary design and purposes of this analysis, it was assumed that production wells at Stockdale West and Stockdale East would be perforated from approximately 250 ft bgs to 650 ft bgs. Based on the analysis of potential discharge rates from existing wells and in consideration of the conceptual well design, it is assumed for this analysis that each new Stockdale West and Stockdale East well will have an instantaneous discharge rate of 2,800 gpm.

6 Evaluation of Potential Well Sites

The number of production wells identified for the Project was determined based on anticipated Project operations. For estimating the annual production capacity of each well, it was assumed that each well would pump at a rate of 2,800 gpm for a period of 10 months per year, which is the most likely annual operating extraction duration. This results in a maximum annual production of approximately 3,750 acre-ft/well (see Table 4). Thus, for Stockdale West, three wells are included that are capable of extracting up to approximately 11,250 acre-ft/yr. For Stockdale East, two wells are included that are capable of extracting up to 7,500 acre-ft/yr.

Project pumping wells assumed in the analysis are shown on Figure 3. Criteria for siting the wells included:

- Location as far from existing private and production wells as possible.
- Location at least 880 ft from the non-Strand Ranch Integrated Banking Project property boundaries.
- Spacing of at least 1,250 ft from each other.

7 Description of the Kern Fan Area Model

Potential groundwater level changes associated with Stockdale West and Stockdale East recharge and recovery operations were evaluated using a three-dimensional numerical groundwater flow model previously developed for the Kern Water Bank area west of Bakersfield, California (TH&Co, 2011).

7.1 Model Code

The numerical groundwater flow model code selected for use in this evaluation was MODFLOW. MODFLOW is a block centered, finite difference groundwater flow modeling code developed by the USGS for simulating groundwater flow (McDonald and Harbaugh, 1988). MODFLOW is one of the most widely used and critically accepted model codes available (Anderson and Woessner, 2002). In order to address the extreme hydraulic head changes observed in the historical groundwater level record and the conceptualization of layers that would become dry, TH&Co utilized a specialized version of MODFLOW called MODFLOW SURFACT (HydroGeoLogic, Inc., 2001). This model code includes a more robust numerical and matrix solution scheme that is necessary to address desaturation and resaturation of model layers and pumping from wells perforated across multiple layers.

7.2 Model Area and Grid Geometry

The Model Domain is approximately 15.8 miles long, 10.2 miles wide (approximately 161 square miles) and is orientated 20 degrees counter-clockwise from horizontal (roughly parallel to the Kern River). The model domain has been discretized into 417 columns and 268 rows with 200 ft by 200 ft cells. There are a total of 335,268 cells in the three layer model.

7.3 Model Layers

Three model layers were developed from the conceptualization of the aquifer system based on an analysis of the geology and hydrogeology of the model area. Layer 1 represents the shallow aquifer and generally includes the upper 100 to 150 ft of alluvial sediments. This layer is modeled as unconfined. Layer 2 represents the intermediate aquifer and is generally 250 to 350 ft thick. Layer 2 includes the upper screened intervals of many production wells. During periods of full saturation, this layer is modeled as semi-confined. During periods when groundwater levels drop below the top of the layer, it becomes unconfined. Layer 3 represents the deep aquifer and includes the 600 ft of aquifer below Layer 2. It is generally characterized by less permeable sediments than Layer 2 and is always confined.

7.4 Sources of Recharge and Discharge

Groundwater recharge and discharge were applied to the model in monthly stress periods for the period between October 1988 and December 2013. Recharge was applied to the uppermost active model layer within 113 individual recharge areas (i.e. defined recharge zones in the model). Recharge zones were assigned to each basin for the Kern Water Bank located adjacent and south of the Project. Recharge basins for other area projects were treated as individual recharge zones or grouped, depending on their size and availability of data. Various reaches of the Kern River were also modeled as recharge zones. Other recharge in the model includes septic system return flow, municipal and industrial return flow, agricultural return flow and canal losses.

Sources of groundwater discharge in the model include underflow out of the model, groundwater pumping, and evapotranspiration applied to surface water in channels and spreading basins. Monthly groundwater pumping was incorporated into the model from 259 municipal and project wells and 194 agricultural wells. Municipal and project pumping data was obtained from metered production records from the various agencies. Agricultural pumping was estimated based on land use data and crop demand estimates.

7.5 Model Calibration

The TH&Co (2014) Kern Fan Area groundwater flow model was calibrated using the history matching technique whereby model-generated groundwater levels are compared to measured groundwater levels in monitoring wells within the model area. The calibration is based on an acceptable match of 12,307 groundwater levels measured in 18 target monitoring wells[1] between October 1988 and December 2013. A common measure of the acceptability of model calibration is the normalized root mean squared (RMS) of the model residuals. A calibration residual is the difference between the model-generated groundwater level and the observed groundwater level. The RMS is normalized by dividing by the observed head range in the model. The normalized RMS is expressed as a percent with results less than 10 percent considered a reasonable model calibration. The groundwater flow model developed for this analysis was calibrated with a normalized RMS of 8.3 percent (see Figure 6).

[1] It is noted that many of the 18 target wells are "nested" monitoring wells with multiple depth-specific perforation intervals at each location.

8 Project Scenarios for Analysis Using the Groundwater Flow Model

The Stockdale West and Stockdale East sites will function as water recharge and recovery facilities. During periods when surface water is available for artificial recharge, water will be delivered to the facilities for infiltration and storage underground. During periods when RRBWSD or IRWD needs the stored water, it will be pumped out and delivered accordingly. The maximum volume of surface water stored underground and subsequently recovered will be limited to the aquifer storage capacity estimates from Section 3 and loss factors that apply to all recharge and recovery projects in the Kern Fan Area consistent with the Pioneer Project Participation Agreement (MOU) dated 27-Apr-98 (KCWA, 1998).

For this analysis, monthly artificial recharge and groundwater production associated with the Project was superimposed on a portion of the historical groundwater record that represents the range of potential groundwater level conditions that could be expected in the future. Significant changes in groundwater levels have occurred during the various recharge and recovery cycles in the Project area since 1995 when the Kern Water Bank and Pioneer Project began operations (see Figure 7). The most extreme changes occurred between 2004 and 2010 when groundwater levels fluctuated as much as 246 ft from an historical high level in 2007 to an historical low level in 2010. For Model simulations, this period of extreme groundwater level fluctuations was selected as the conditions upon which to superimpose Stockdale West and Stockdale East recharge and recovery in order to simulate the greatest potential cumulative impact with respect to groundwater levels at existing wells and CVC.

8.1 Baseline Groundwater Level Condition

The impact of Stockdale West and Stockdale East recharge and recovery scenarios was evaluated relative to a baseline groundwater level condition for the period from 2004 through 2010. The baseline condition includes all historical hydrological conditions, including recharge and recovery from other area banking projects (e.g. KWB, Pioneer Project, RRBWSD etc.), which resulted in the calibrated groundwater levels in the flow model. In addition, hypothetical maximum recharge and recovery operations from the Enns Pond and Strand Ranch Integrated Banking Project were incorporated into the model between 2004 and 2010 and are reflected in the groundwater level baseline (see Figure 7). A total of 51,300 acre-ft of Strand Ranch Integrated Banking Project recharge was simulated between January 2005 and January 2006. A total of 21,880 acre-ft of groundwater pumping was simulated for the Strand Ranch Integrated Banking Project facility for each of the 10-month periods of February 2004 through November 2004 and September 2009 through June 2010. A total of 5,060 acre-ft of Enns Pond groundwater pumping was simulated for each of the same 10-month periods. Enns Pond and Strand Ranch Integrated Banking Project recharge and recovery was simulated in the baseline to coincide with the hydrologic conditions under which this project is likely to operate. Proposed

Stockdale West and Stockdale East operations were simulated to coincide with likely Enns Pond and Strand Ranch Integrated Project operations during extreme hydrological conditions in order to provide a conservative impact evaluation.

8.2 Project Scenarios

Project-related groundwater recharge and pumping was superimposed on the Baseline condition in accordance with the Project scenarios summarized in Table 5. The purpose of the scenarios was to enable evaluation of potential Project-related groundwater level changes under a full range of groundwater level conditions. Groundwater recharge was simulated under 2005 to 2006 high recharge conditions (Scenario 1). Groundwater recovery was simulated under low groundwater conditions as was observed from 2004 to 2005 (Scenario 2) and historical low groundwater conditions as was observed from 2009 to 2010 (Scenario 3).

Groundwater level changes associated with the Project were evaluated with respect to existing surface and groundwater facilities in the area. For recharge during high groundwater conditions, model-predicted groundwater levels are compared to the invert elevation of the CVC. For pumping scenarios, model-predicted groundwater level changes were evaluated relative to the historical range of groundwater levels that have previously been observed in the area. Groundwater level changes were evaluated with respect to the shallow/intermediate aquifers (model Layers 1 and 2) and the deep aquifer system beneath the site (model Layer 3).

8.2.1 Scenario 1 – Recharge During High Groundwater Conditions

Scenario 1 was developed to assess potential groundwater level impacts associated with proposed Project recharge. For this scenario, Project recharge was introduced into the model between January 2005 and January 2006, which represents high groundwater conditions in the area (see Figure 7). Recharge was introduced into the Stockdale West and Stockdale East area simultaneously at a rate adequate to fill each facility's respective aquifer storage capacity while accounting for losses. Thus, the simulated recharge volume (see Table 5), is nine percent higher than the estimated storage capacity (see Table 2) to account for losses in accordance with the MOU. This rate of recharge is realistic based on infiltration rates estimated for the facilities (see Table 1).

8.2.2 Scenario 2 – Pumping During Low Groundwater Conditions

Scenario 2 was developed to assess potential groundwater level impacts associated with proposed Project pumping. For Scenario 2, pumping was simulated during a 10-month period between February 2004 and November 2004, which represents low groundwater conditions. Project pumping includes the simultaneous extraction of 11,250 acre-ft of groundwater from

three wells at Stockdale West and 7,500 acre-ft of groundwater from two wells at Stockdale East during the 10-month period (see Table 4). This extraction scenario is representative of how the Project is anticipated to be operated.

8.2.3 Scenario 3 – Pumping During Historical Low Groundwater Conditions

Scenario 3 was developed to assess potential groundwater level impacts associated with proposed Project pumping during historical low groundwater levels. For Scenario 3, pumping was simulated during a 10-month period between September 2009 and June 2010, which represents historical low groundwater conditions. Project pumping includes the simultaneous extraction of 11,250 acre-ft of groundwater from three wells at Stockdale West and 7,500 acre-ft of groundwater from two wells at Stockdale East during the 10-month period. This extraction scenario is representative of how the Project is anticipated to be operated.

9 Analysis of Potential Groundwater Level Changes

9.1 Scenario 1 - Groundwater Recharge during High Baseline Conditions

Analysis of Scenario 1 model simulation results shows a maximum groundwater mound, relative to the hydrologic baseline, of approximately 35 ft directly beneath Stockdale West and approximately 29 ft directly beneath Stockdale East (see Figure 8; Table 6). Model results show that groundwater levels are predicted to rise as much as 4 ft above the bottom of the CVC canal near the Stockdale West site under Scenario 1 recharge conditions (i.e. high groundwater conditions; see Figure 8). Groundwater levels are not predicted to rise within 10 ft of the bottom of the CVC canal near the Stockdale East site. The maximum mounding occurs in the shallow and intermediate aquifers (model Layers 1 and 2) with lesser mounding predicted in the deep aquifer (model Layer 3; see Figure 10).

Groundwater levels directly beneath the basins are predicted to decline relatively rapidly following a period of recharge (Figures 11 and 12). Groundwater levels in the shallow and intermediate aquifers (model Layers 1 and 2) decline to within 10 ft of their pre-recharge levels within one year after recharge is stopped (Figure 11). Groundwater levels in the deep aquifer (model Layer 3) decline to within 6 ft of the pre-recharge level within one year (Figure 12).

Groundwater recharge at the Stockdale West and Stockdale East facilities is not predicted to result in significant changes in the groundwater flow direction in the Project area. As shown on Figure 13, shallow and intermediate (model Layer 2) groundwater under baseline conditions flows to the northwest beneath Stockdale West and to the Northeast beneath Stockdale East. Although Scenario 1 groundwater contours show higher elevations beneath the facilities, the direction of groundwater flow is similar. Similarly, the groundwater flow direction for Scenario 1 was not observed to change significantly in the deeper aquifer (model Layer 3) relative to the Baseline (see Figure 14).

9.2 Scenario 2 - Groundwater Pumping during Low Groundwater Conditions

Analysis of Scenario 2 model simulation results shows maximum pumping drawdown, relative to the hydrologic baseline, is predicted to range from approximately 18 ft in the shallow/intermediate aquifer directly beneath Stockdale East (see Figure 15) to approximately 34 ft in the deep aquifer directly beneath Stockdale West (see Figure 16). Maximum pumping interference (i.e. Project-related drawdown) at the nearest existing production well (Kern Water Bank Well 6D03) is predicted to be approximately 27 ft and occurs in model Layer 3 (see Figure 17). Maximum pumping interference at the nearest existing private well to Stockdale West is predicted to be approximately 18 ft in the shallow/intermediate aquifer (model Layer 2) and 28 ft in the deeper aquifer (model Layer 3; see Figure 18). Maximum pumping interference

at the nearest existing private well to Stockdale East is predicted to be approximately 14 ft in the shallow/intermediate aquifer (model Layer 2) and 20 ft in the deeper aquifer (model Layer 3).

Groundwater level drawdown is predicted to recover relatively rapidly following a period of pumping (Figures 19 and 20). Groundwater levels in the shallow and intermediate aquifers (model Layers 1 and 2) recover to within 5 ft of their pre-recharge levels within six months after pumping is stopped (Figure 19). Groundwater levels in the deep aquifer (model Layer 3) recover to within 5 ft of the pre-recharge level within three months after pumping is stopped (Figure 20).

Groundwater pumping at the Stockdale West and Stockdale East facilities during low groundwater conditions is not predicted to result in significant changes in the groundwater flow direction in the Project area. As shown on Figure 21, groundwater in the shallow and intermediate aquifers, under baseline conditions, flows to the northwest beneath the Projects. Although Scenario 2 groundwater contours show localized pumping depressions beneath the facilities, the regional direction of groundwater flow is similar to the baseline. Similarly, the groundwater flow direction for Scenario 2 was not observed to change significantly in the deeper aquifer (model Layer 3) relative to the Baseline (see Figure 22).

9.3 Scenario 3 - Groundwater Pumping during Historical Low Groundwater Conditions

Analysis of Scenario 3 model simulation results shows maximum pumping drawdown, relative to the hydrologic baseline, is predicted to range from approximately 27 ft in the shallow/intermediate aquifer directly beneath Stockdale East (see Figure 23) to approximately 34 ft in the deep aquifer directly beneath Stockdale West (see Figure 24). Maximum pumping interference at the nearest existing production well (Kern Water Bank Well 6D03) is predicted to be approximately 28 ft and occurs in model Layer 3 (see Figure 25). Maximum pumping interference at the nearest existing private well to Stockdale West is predicted to be approximately 21 ft in the shallow/intermediate aquifer (model Layer 2) and 29 ft in the deeper aquifer (model Layer 3; see Figure 26 and Table 6). Maximum pumping interference at the nearest existing private well to Stockdale East is predicted to be approximately 16 ft in the shallow/intermediate aquifer (model Layer 2) and 21 ft in the deeper aquifer (model Layer 3).

Groundwater level drawdown in Scenario 3 is predicted to recover relatively rapidly following a period of pumping (Figures 27 and 28). Groundwater levels in the shallow and intermediate aquifers (model Layers 1 and 2) recover to within 8 ft of their pre-recharge levels within six months after pumping is stopped (Figure 27). Groundwater levels in the deep aquifer (model Layer 3) recover to within 5 ft of the pre-recharge level within three months after pumping is stopped (Figure 28).

Groundwater pumping at the Stockdale West and Stockdale East facilities under historical low groundwater conditions (2009 to 2010) is predicted to expand slightly the regional pumping depression that already existed south of the Project (see Figure 29). As shown on Figure 29, groundwater in the shallow and intermediate aquifers in the Project area, under baseline conditions, flowed to the south toward the Kern Water Bank. Although Scenario 3 groundwater contours show a slight expansion of this pumping depression beneath the facilities, the regional direction of groundwater flow is similar to the baseline (to the south). Similarly, the regional pumping depression and associated groundwater flow directions observed in the deeper aquifer for the Scenario 3 baseline was not observed to change significantly as a result of Stockdale West and Stockdale East pumping (see Figure 30).

10 Findings and Conclusions

The following summarizes the findings and conclusions that have been developed based on the analysis of Stockdale West and Stockdale East recharge and recovery scenarios:

Stockdale West

- Based on infiltration rates estimated from recharge operational data at the adjacent Strand Ranch Integrated Banking Project facility, Stockdale West can accommodate up to approximately 27,100 acre-ft of recharge in a year.
- The storage capacity of the aquifer system directly beneath the Stockdale West Site is estimated to be approximately 26,000 acre-ft.
- With the exception of gross alpha, the groundwater quality at the Stockdale West site meets all Title 22 drinking water criteria. Gross alpha concentrations are not significantly over the MCL and can be addressed through blending, as has been shown for the Strand Ranch Integrated Banking Project (Wildermuth, 2012a).
- Anticipated Project extraction operations will require at least three production wells, assuming each is pumped at a rate of 2,800 gpm for 10 months per year, in order to meet the goals of the Project.

Stockdale East

- Based on infiltration rates estimated from recharge operational data at the adjacent Strand Ranch Integrated Banking Project facility, Stockdale East can accommodate up to approximately 19,000 acre-ft of recharge in a year.
- The storage capacity of the aquifer system directly beneath the Stockdale East Site is estimated to be approximately 18,400 acre-ft.
- With the exception of gross alpha, the groundwater quality at the Stockdale East site meets all Title 22 drinking water criteria. Gross alpha concentrations are not significantly over the MCL and can be addressed through blending, as has been shown for the Strand Ranch Integrated Banking Project (Wildermuth, 2012a).
- Anticipated Project extraction operations will require at least two production wells, assuming each is pumped at a rate of 2,800 gpm for 10 months per year, in order to meet the goals of the Project.

Groundwater Level Changes Predicted for the Combined Stockdale West and Stockdale East Project

- Artificial recharge, as simulated in Scenario 1 for high groundwater conditions, is predicted to result in groundwater levels as much as 4 ft above the invert elevation of the CVC near the Project at Stockdale West. As such, recharge during high groundwater conditions should be managed in accordance with a groundwater monitoring and mitigation plan to avoid impacts to the CVC.
- Groundwater pumping during low groundwater conditions, as simulated in Scenario 2, is predicted to result in a maximum of approximately 27 ft of interference at the nearest production well (deep aquifer; see Table 6).
- Project-related groundwater drawdown in private wells that are perforated only in the shallow and intermediate aquifers near Stockdale West would be less than the drawdown in wells perforated in the deep aquifer or multiple aquifers.
- As most of the private wells near the Project are perforated in the shallow/intermediate aquifer, simulated Project pumping interference in the closest private well (near Stockdale West) is predicted to range from 18 ft (low groundwater conditions; Scenario 2) to 21 ft (historical low groundwater conditions; Scenario 3).
- Under normal conditions, maximum groundwater pumping interference predicted as a result of the proposed Project (up to 27 ft in the nearest production wells) is well within the historical fluctuation in groundwater levels previously observed (up to 246 ft; see Figure 7) and should not adversely impact the normal operation of existing wells. However, the Project should be managed in accordance with a groundwater monitoring and mitigation plan to avoid adverse impacts to existing wells.
- With the exception of localized pumping depressions in the immediate vicinity of the Stockdale West and Stockdale East facilities, the regional groundwater flow direction is not predicted to change significantly as a result of recharge or recovery associated with the Project.

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Tables

Proposed Stockdale Integrated Banking Project
Estimated Annual Recharge Capacity

	Stockdale West	Stockdale East
Total Basin Size (acres)	265	186[1]
Estimated Infiltration Rate (ft/day)	0.28	0.28
Monthly Recharge Capacity (acre-ft/month)[2]	2,300	1,600
Annual Recharge Capacity (acre-ft/yr)	27,100	19,000

Notes:

[1]Estimated as 80% of the property.
[2]acre-ft = acre-feet.

Proposed Stockdale Integrated Banking Project
Aquifer Storage Capacity Estimates

	Stockdale West	Stockdale East
Property Size (acres)	323	232
Shallow Subsurface Stockdale East (10-100 ft bgs[1]) Stockdale West (14-100 ft bgs)	86	90
Intermediate Subsurface (100-350 ft bgs)	250	250
Deep Subsurface Stockdale East (350-667 ft bgs) Stockdale West (350-684 ft bgs)	334	317
Shallow Subsurface Specific Yield[2]	0.14	0.14
Intermediate Subsurface Specific Yield	0.14	0.14
Deep Subsurface Specific Yield	0.10	0.10
Shallow Subsurface Storage Capacity (acre-ft)[3]	3,900	2,900
Intermediate Subsurface Storage Capacity (acre-ft)	11,300	8,100
Deep Subsurface Storage Capacity (acre-ft)	10,800	7,400
Total Storage Capacity (acre-ft)	**26,000**	**18,400**

Notes:

[1]bgs = below ground surface.

[2]Specific yield values from Wildermuth (2011) pumping test data and TH&Co (2012) calibrated groundwater flow model.

[3]acre-ft = acre-feet.

Proposed Stockdale Integrated Banking Project
Summary of Selected Groundwater Quality Data

Analyte	Stockdale West Analysis Result	Stockdale East Analysis Result	Units	Drinking Water Standards / MCL[1]
TDS[2]	400	280	mg/L[3]	500
Nitrate (as NO_3^-)	13.4	14.4	mg/L	45
Arsenic	ND[4]	ND	µg/L[5]	10
Chloride	81	51	mg/L	500
Gross α	18.9 ± 3.01	15.0 ± 2.54	pCi/L[6]	15
Uranium	10.2 ± 1.89	10.9 ± 1.95	pCi/L	20

Notes:

[1] MCL = Maximum Contaminant Level.
[2] TDS = Total Dissolved Solids.
[3] mg/L = Milligrams per liter.
[4] ND = Not detected above the detection limit of 2 µg/L.
[5] µg/L = Micrograms per liter.
[6] pCi/L = Picocuries per liter.

Proposed Stockdale Integrated Banking Project
One-Year Groundwater Recovery Analysis

	Total Storage Capacity (acre-ft)[1]	Instantaneous Production Rate (gpm)[2]	Annual Production Capacity Per Well[3] (acre-ft)	Prorated One-Year Production Goal (acre-ft)	Number of Wells Needed
Stockdale West	26,000	2,800	3,750	11,250	3
Stockdale East	18,400	2,800	3,750	7,500	2

Notes:

[1]acre-ft = acre-feet.

[2]gpm = gallons per minute.

[3]Assumes 10 months of extraction per year at an average discharge rate of 2,800 gpm/well.

Proposed Stockdale Integrated Banking Project
Model Scenario Summary

Scenario	Project Phase	Facility	Recharge/Recovery Rate (acre-ft/yr)[1]	Groundwater Level Conditions	Simulated Period of Recharge/Recovery
1	Recharge	Stockdale East	20,100	2005 (High)	Jan 2005 to Jan 2006
		Stockdale West	28,340		
2	Recovery	Stockdale East	7,500	2004 (Low)	Feb 2004 to Nov 2004
		Stockdale West	11,250		
3	Recovery	Stockdale East	7,500	2009 - 2010 (Historical Low)	Sept 2009 to June 2010
		Stockdale West	11,250		

Note:

[1] Recharge rates for Stockdale East and Stockdale West are equivalent to the aquifer storage capacity plus 9 percent to account for losses.

Summary of Maximum Model-Predicted Groundwater Level Change

Scenario	Project	Point of Reference Location	Maximum Change in Groundwater Level (ft)	
			Shallow and Intermediate Aquifer	Deep Aquifer
Scenario 1 (Recharge)	Stockdale West	Basin Center	34.9	6.9
		CVC[1]	29.7	7.0
	Stockdale East	Basin Center	28.9	9.0
		CVC	24.2	9.0
	Strand Ranch	Basin Center	20.7	7.9
Scenario 2 (Pumping during Low Groundwater Conditions)	Stockdale West	Basin Center	-23.9	-33.5
		Nearest Production Well	-16.7	-26.9
		Nearest Private Well	-17.5	-28.0
	Stockdale East	Basin Center	-18.4	-24.3
		Nearest Production Well	-10.8	-16.6
		Nearest Private Well	-13.5	-19.6
	Strand Ranch	Basin Center	-12.6	-21.5
Scenario 3 (Pumping during Historical Low Groundwater Conditions)	Stockdale West	Basin Center	-31.3	-34.4
		Nearest Production Well	-21.4	-27.7
		Nearest Private Well	-20.7	-28.7
	Stockdale East	Basin Center	-27.2	-25.9
		Nearest Production Well	-15.3	-17.8
		Nearest Private Well	-15.7	-20.5
	Strand Ranch	Basin Center	-15.2	-22.6

Note:

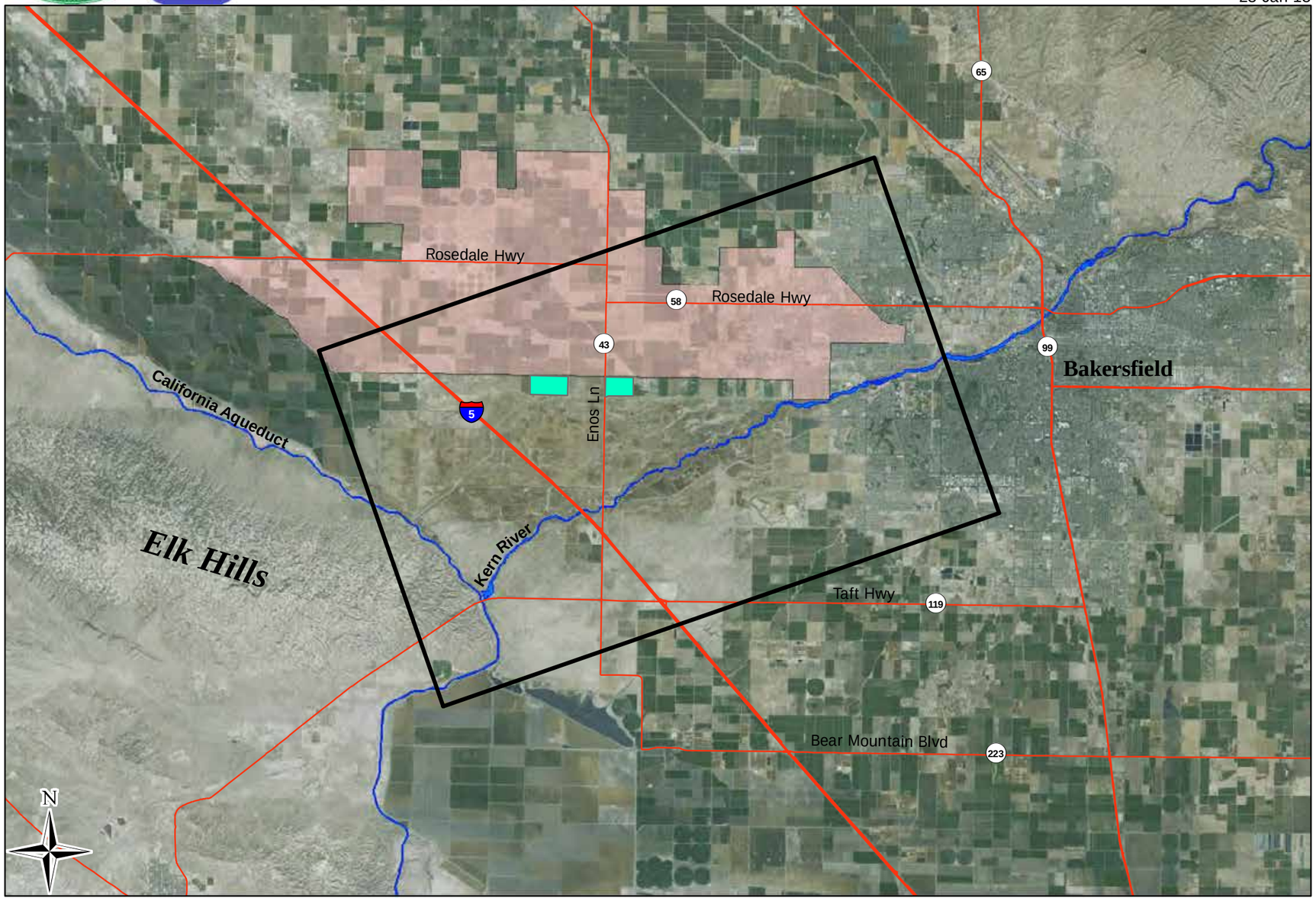
[1] CVC = Cross Valley Canal

Figures

Rosedale-Rio Bravo Water Storage District
Irvine Ranch Water District

23-Jan-15

Evaluation of Potential Groundwater Changes Associated with the Proposed Stockdale Integrated Banking Project



0 2 4 8 Miles

NAD 83 State Plane CA Zone 5
Central Meridian: -118

Basemape source: esri.com

Map Features

- Stockdale Project
- Model Domain
- Rosedale-Rio Bravo Water Storage District
- Interstate
- Major Road
- Water Course

Regional Setting

Regional Map

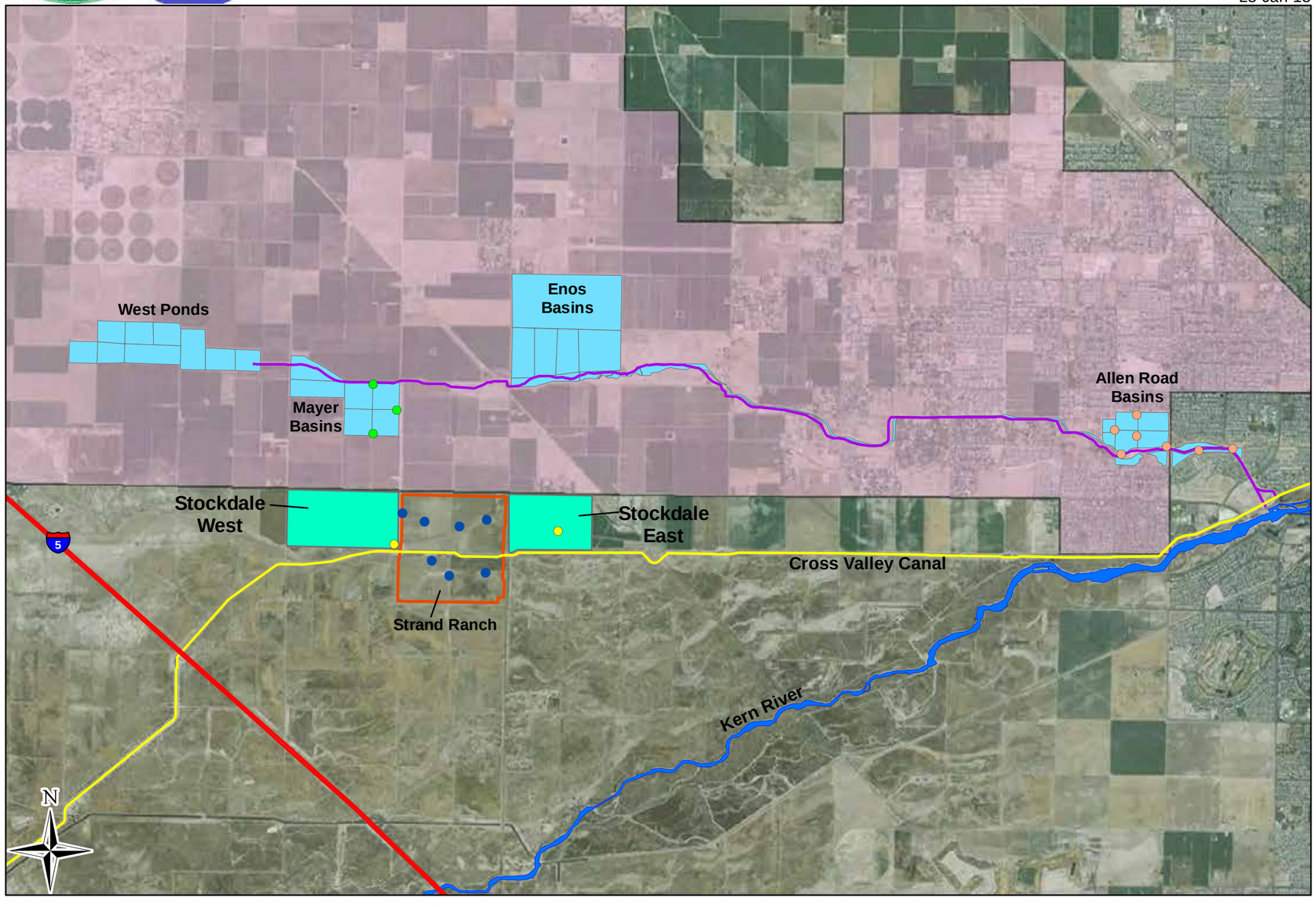
Figure 1

Thomas Harder & Co.
Groundwater Consulting

Rosedale-Rio Bravo Water Storage District
Irvine Ranch Water District

23-Jan-15

Evaluation of Potential Groundwater Changes Associated with the Proposed Stockdale Integrated Banking Project



Basemap source: esri.com

NAD 83 State Plane CA Zone 5
Central Meridian: -118

Map Features

- Existing Stockdale Agricultural Well
- Enns Well
- RRB-ID4 Well
- Strand Ranch Extraction Well
- Lined Canal
- Unlined Canal
- Strand Ranch Project
- Stockdale Project
- Rosedale-Rio Bravo Water Storage District Recharge Basins
- Rosedale-Rio Bravo Water Storage District Service Area
- Water Course
- Interstate 5

Project Area

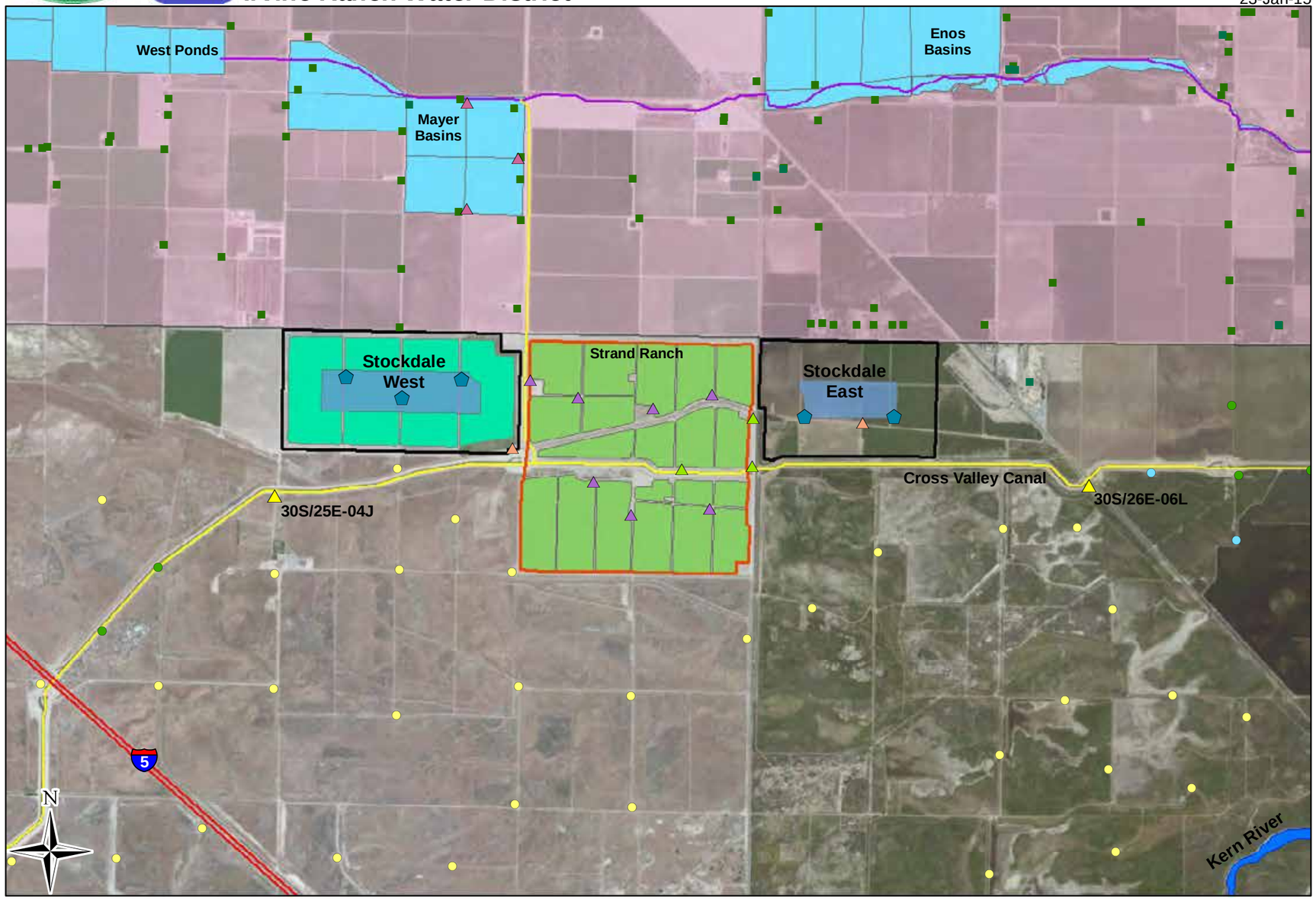
Figure 2

Thomas Harder & Co.
Groundwater Consulting

Rosedale-Rio Bravo Water Storage District
Irvine Ranch Water District

23-Jan-15

Evaluation of Potential Groundwater Changes Associated with the Proposed Stockdale Integrated Banking Project



0 0.5 1 2 Miles

Basemape source: esri.com

NAD 83 State Plane CA Zone 5
Central Meridian: -118

Map Features

- Proposed Well (3,000 ac-ft/yr)
- Existing Stockdale Agricultural Well
- Enns Well
- Strand Ranch Production Well
- Existing Strand Ranch Agricultural Well
- Nested Monitoring Well
- Private Wells in RRBWSD Service Area
- Berrenda Mesa Well
- Kern Water Bank Well
- Pioneer Project Well
- Stockdale West Basin
- Strand Ranch Recharge Basin
- Stockdale Project Property Boundary
- Strand Ranch Project
- Area Available for New Wells
- Rosedale-Rio Bravo Water Storage District Recharge Basins
- Rosedale-Rio Bravo Water Storage District Service Area
- Water Courses
- Unlined Canal
- Lined Canal
- Interstate 5

Area available for new wells is 880 ft inside of property line.

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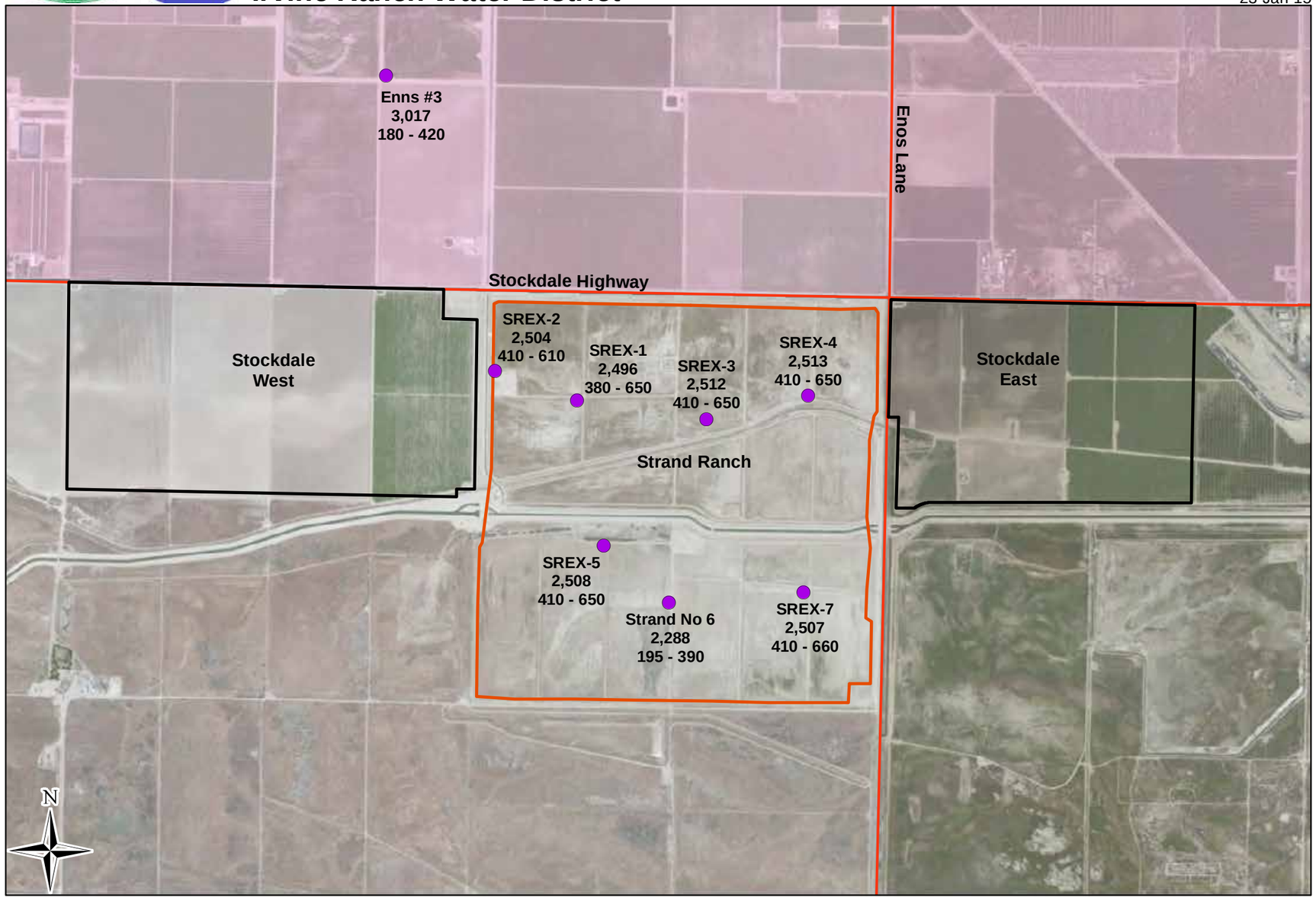
Proposed Project Production Well Locations

Figure 3

Rosedale-Rio Bravo Water Storage District
Irvine Ranch Water District

23-Jan-15

Evaluation of Potential Groundwater Changes Associated with the Proposed Stockdale Integrated Banking Project



NAD 83 State Plane CA Zone 5
Central Meridian: -118

Basemape source: esri.com

Map Features

- **2,504** Discharge Rate (gpm)
- **410 - 610** Perforation Interval (ft bgs)
- Existing Well
- Stockdale Properties
- Strand Ranch Project
- Rosedale-Rio Bravo Water Storage District Service Area
- Road

Sources of Data:
Wildermuth Environmental, 2010d
Wildermuth Environmental, 2011a-e
Zeiders Consulting, 2010, unpublished well data

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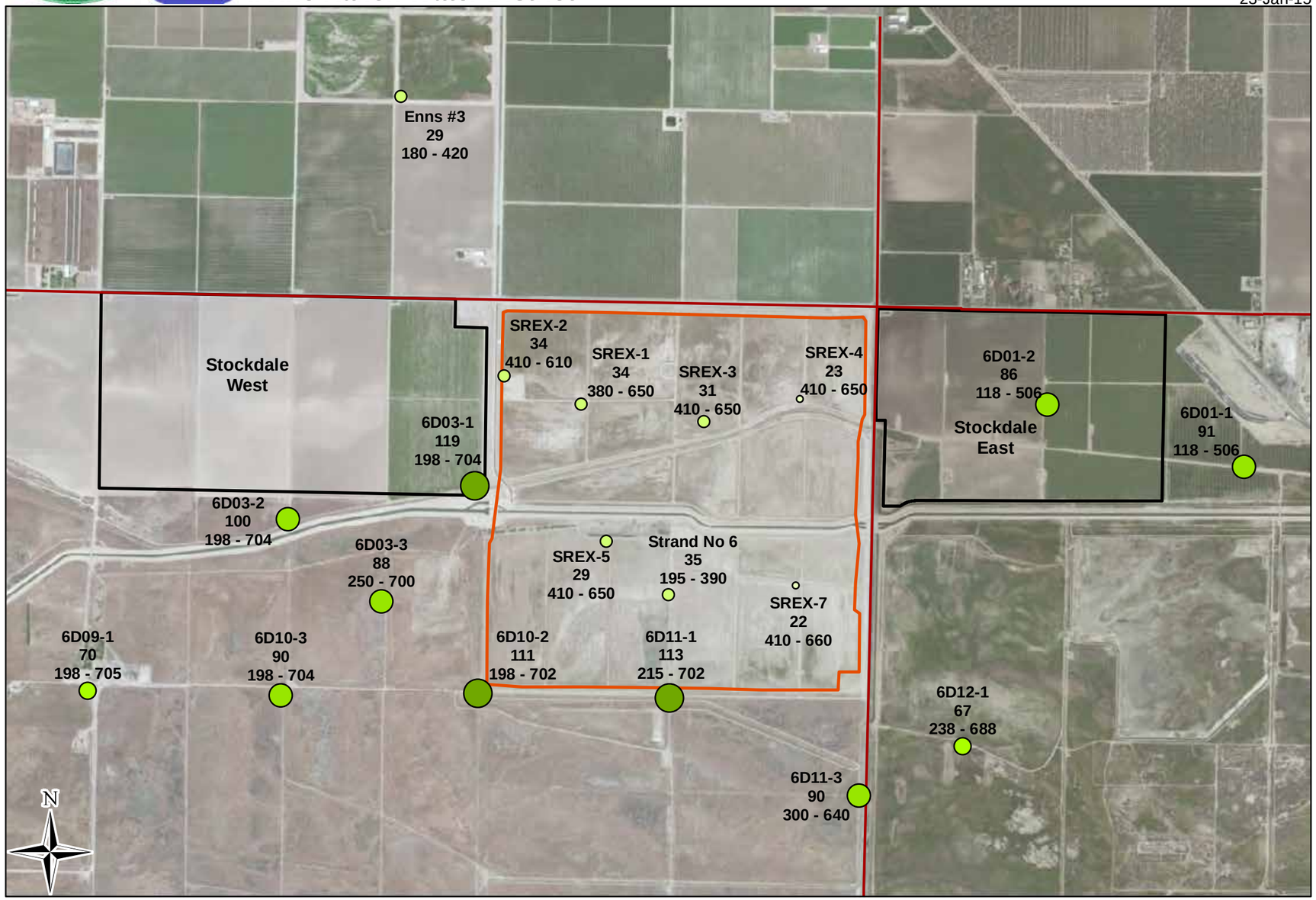
Instantaneous Pumping Rates in the Stockdale East and West Area

Figure 4

Rosedale-Rio Bravo Water Storage District
Irvine Ranch Water District

23-Jan-15

Evaluation of Potential Groundwater Changes Associated with the Proposed Stockdale Integrated Banking Project



NAD 83 State Plane CA Zone 5
Central Meridian: -118

Basemape source: esri.com

Map Features

Existing Well with Specific Capacity and Perforation Interval

23 Specific Capacity (gpm/ft)
410 - 650 Perforation Interval (ft bgs)

- <25
- 25 - 50
- 50 - 75
- 75 - 100
- >100
- Stockdale Properties
- Strand Ranch Project
- Road

Note: Perforation interval in feet below ground surface.

Sources of Data:
Wildermuth Environmental, 2010d
Wildermuth Environmental, 2011a-e
Zeiders Consulting, 2010, unpublished well data

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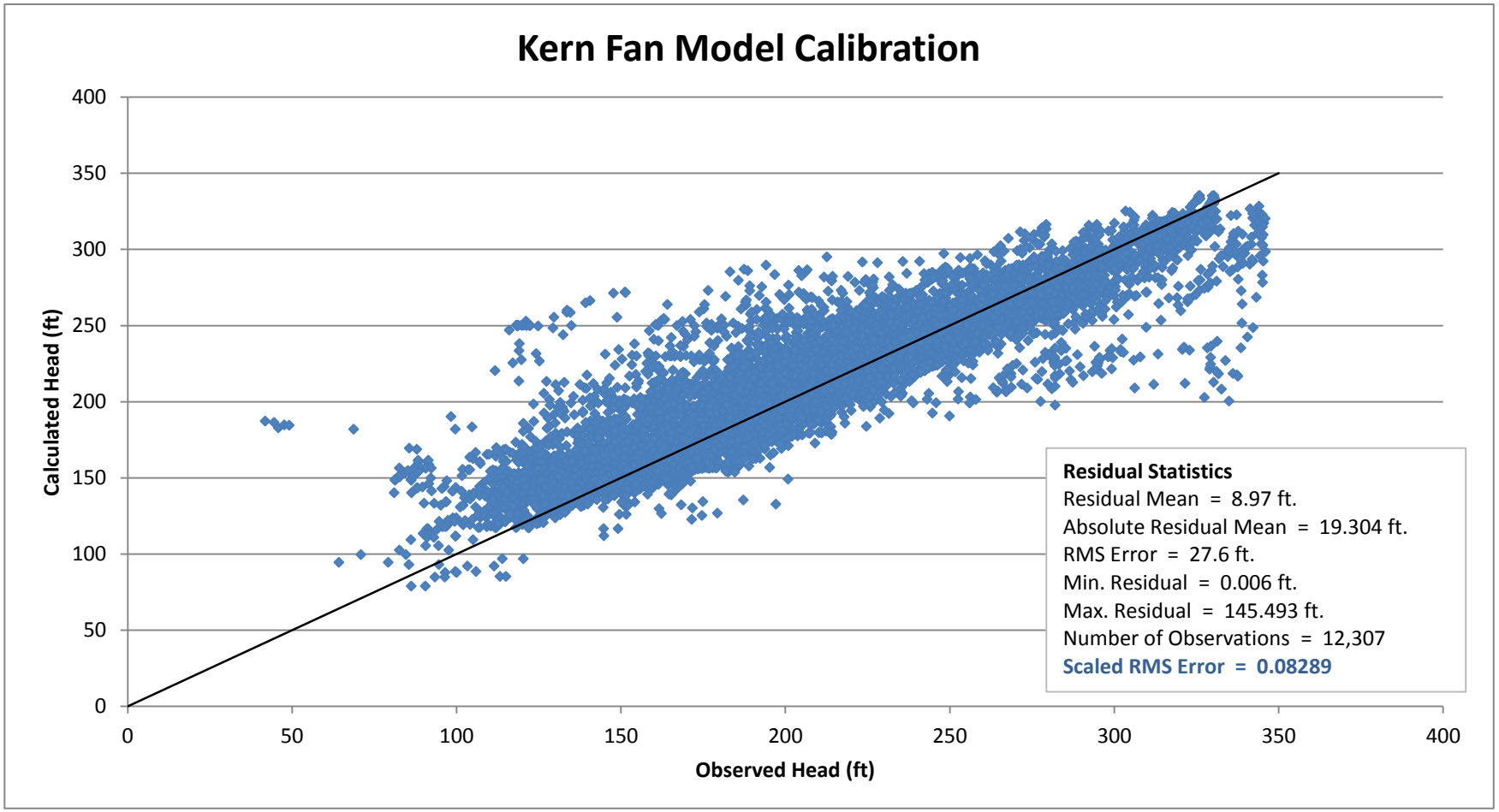
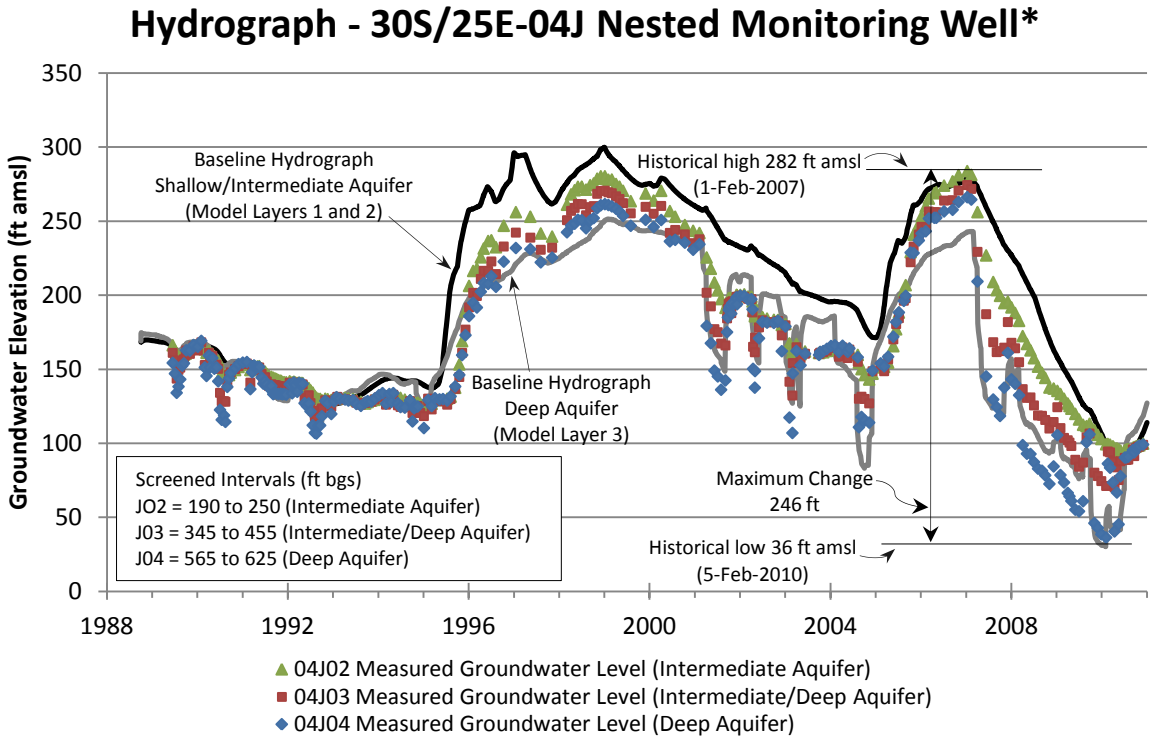
Groundwater Consulting

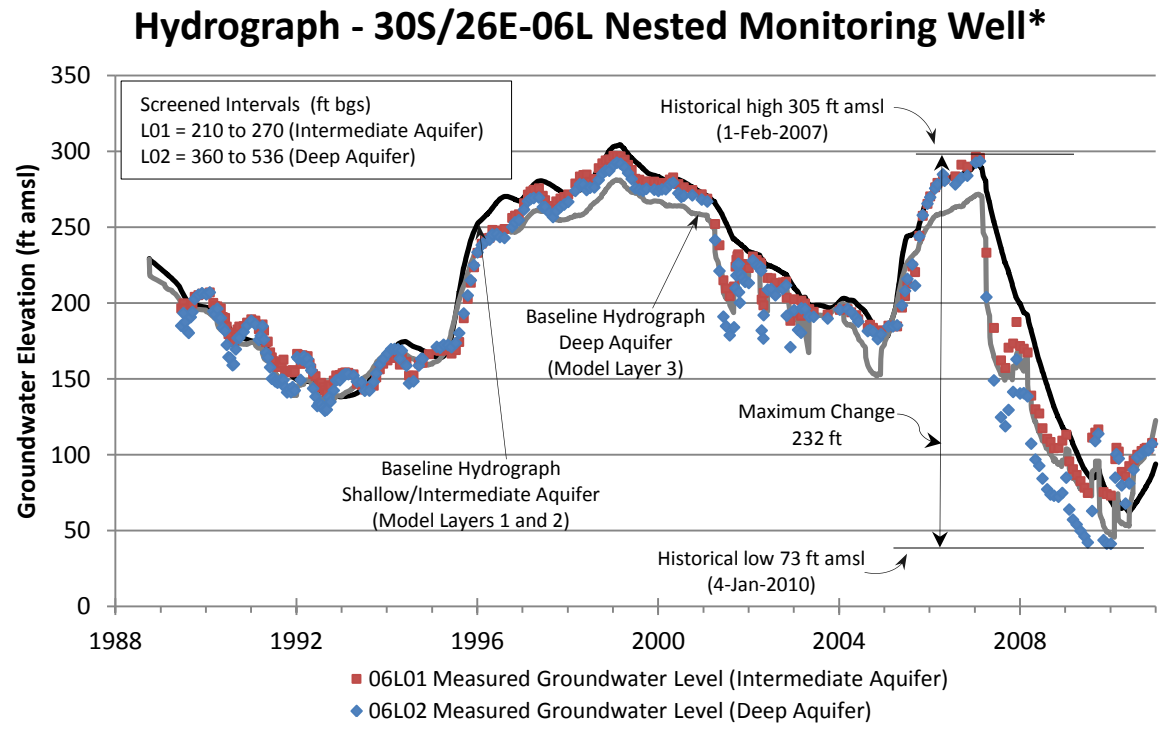
Specific Capacities in the Stockdale East and West Area

Figure 5

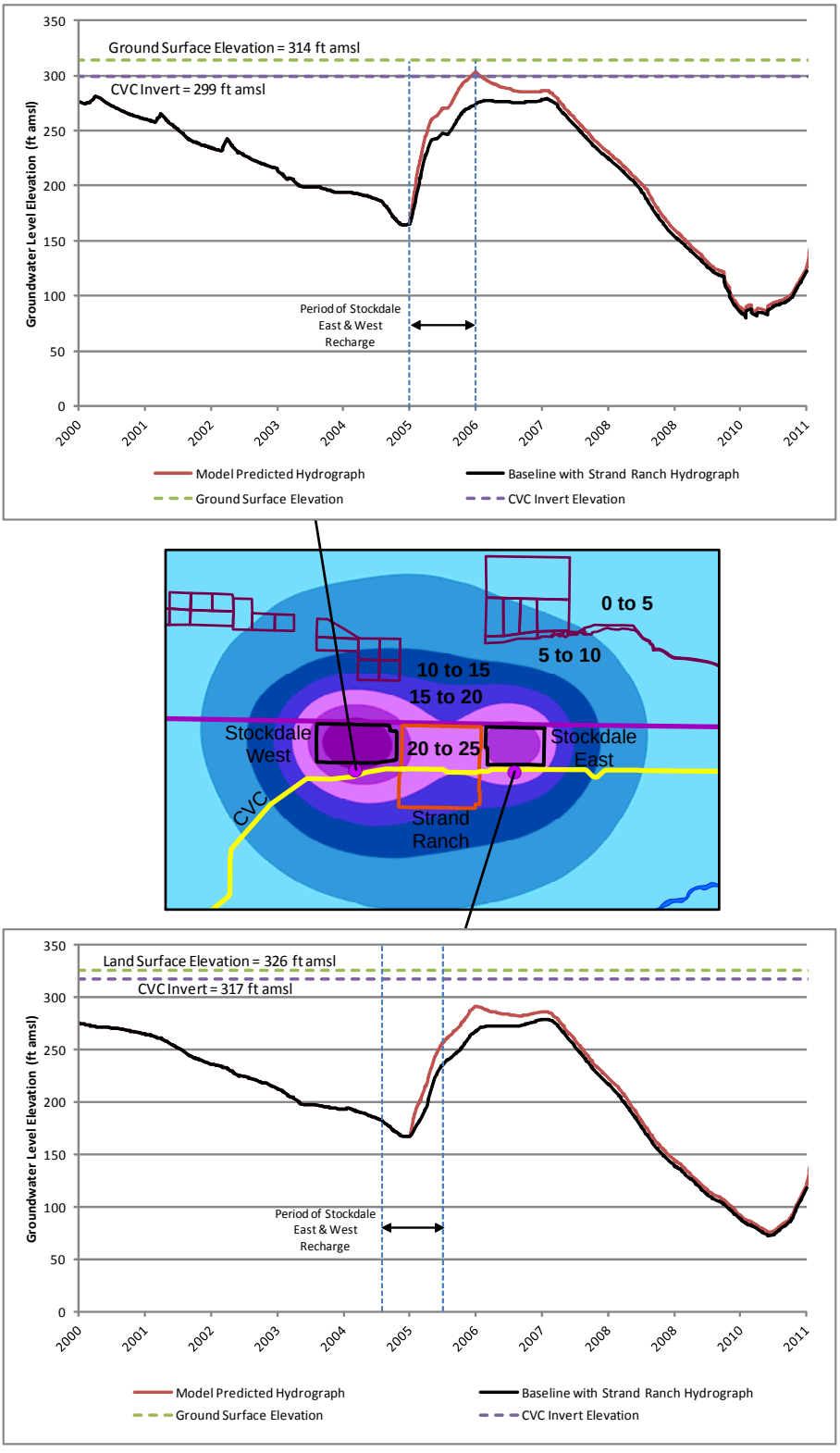
Figure 6


Kern Fan Model Calibration
Calculated Head (ft)
Observed Head (ft)
0
50
100
150
200
250
300
350
400
Residual Statistics
Residual Mean = 8.97 ft.
Absolute Residual Mean = 19.304 ft.
RMS Error = 27.6 ft.
Min. Residual = 0.006 ft.
Max. Residual = 145.493 ft.
Number of Observations = 12,307
Scaled RMS Error = 0.08289





*See Figure 3 for well locations.



Scenario 1 Predicted Groundwater Mounding Relative to the Cross Valley Canal Shallow/Intermediate Aquifers

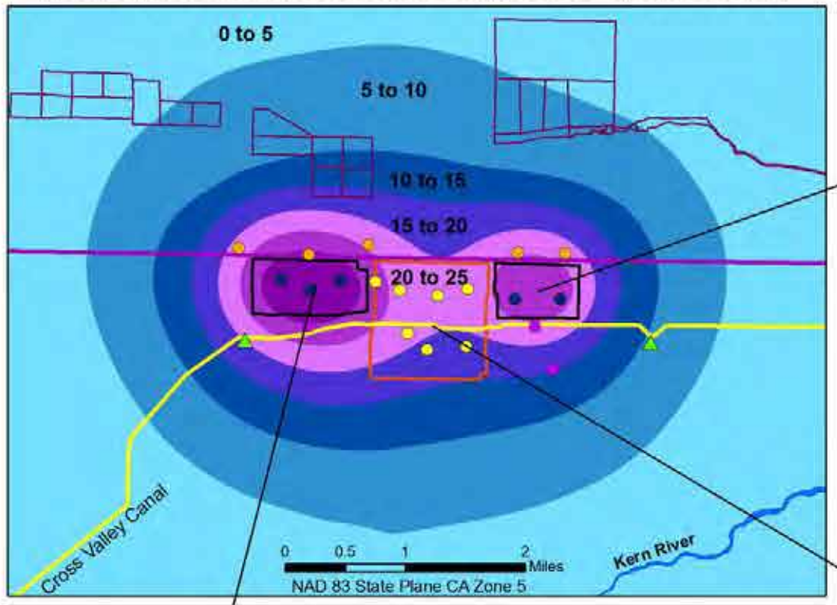
Figure 8

Thomas Harder & Co. Groundwater Consulting

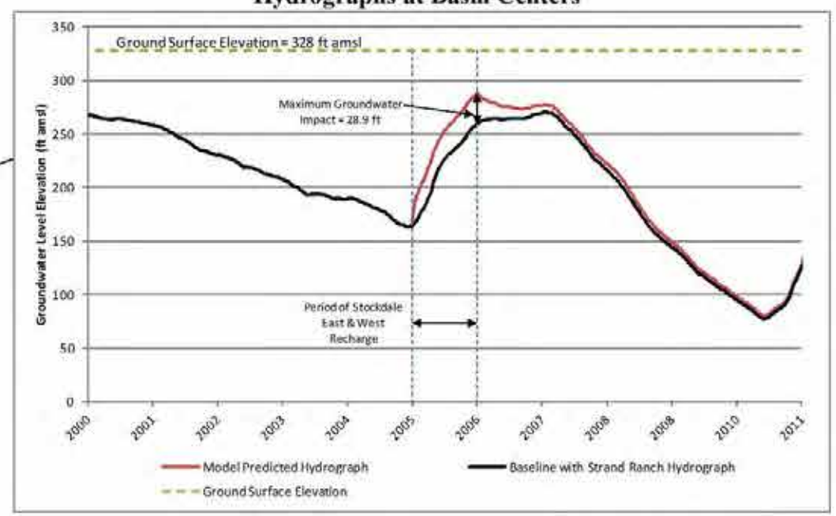
Rosedale-Rio Bravo Water Storage District
Irvine Ranch Water District

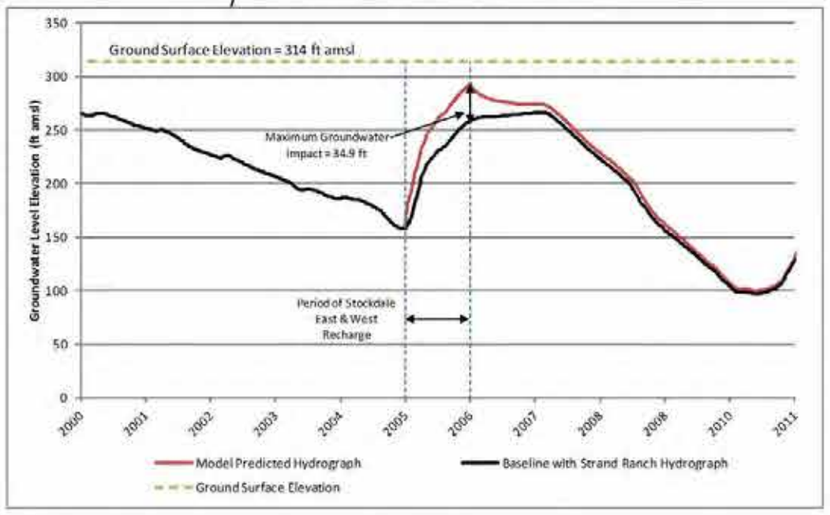
Evaluation of Potential Groundwater Changes Associated with the Proposed Stockdale Integrated Banking Project

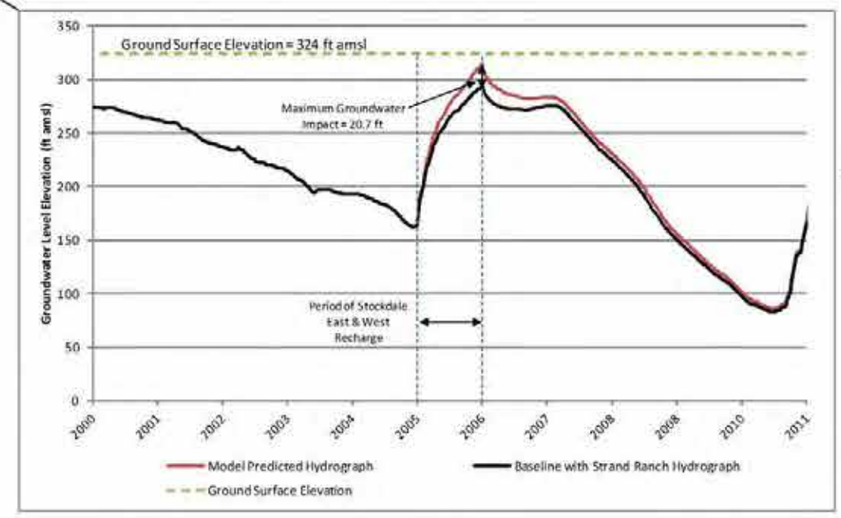
Model - Predicted Recharge Mounding Relative to Baseline Shallow and Intermediate Aquifers (Model Layers 1 and 2)



Hydrographs at Basin Centers







Map Features

- Groundwater Level Change (ft)
  - 30 to 35
  - 25 to 30
  - 20 to 25
  - 15 to 20
  - 10 to 15
  - 5 to 10
  - 0 to 5
- Preliminary Stockdale Well
- Observation Point
- Private Well
- Monitoring Well
- Strand Ranch Production Well
- Stockdale Recharge Basin
- Strand Ranch Recharge Basin
- Rosedale-Rio Bravo Water Storage District Recharge Basin
- Rosedale-Rio Bravo Water Storage District
- Cross Valley Canal
- Water Course

This figure shows that Project recharge during high groundwater level conditions is predicted to result in a maximum increase in the shallow and intermediate aquifers (layers 1 and 2), relative to the hydrologic baseline, of approximately 35 ft beneath Stockdale West and 29 ft beneath Stockdale East.

23-Jan-15

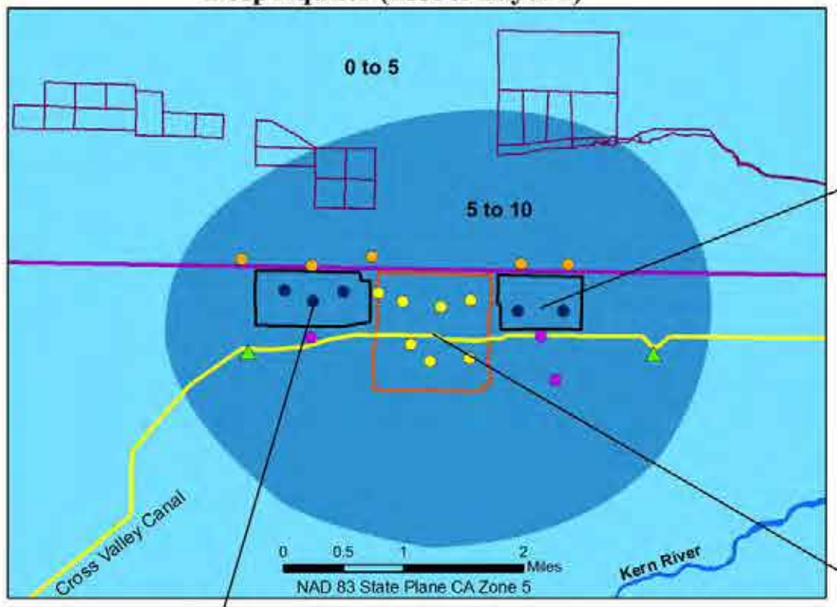
Scenario 1 Model-Predicted Groundwater Recharge Mounding Relative to Baseline Shallow/Intermediate Aquifers
Figure 9

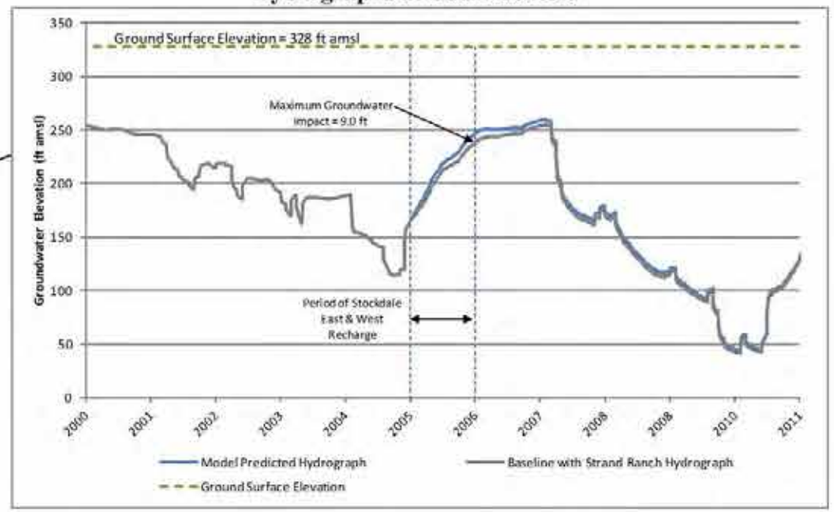
Thomas Harder & Co.
Groundwater Consulting

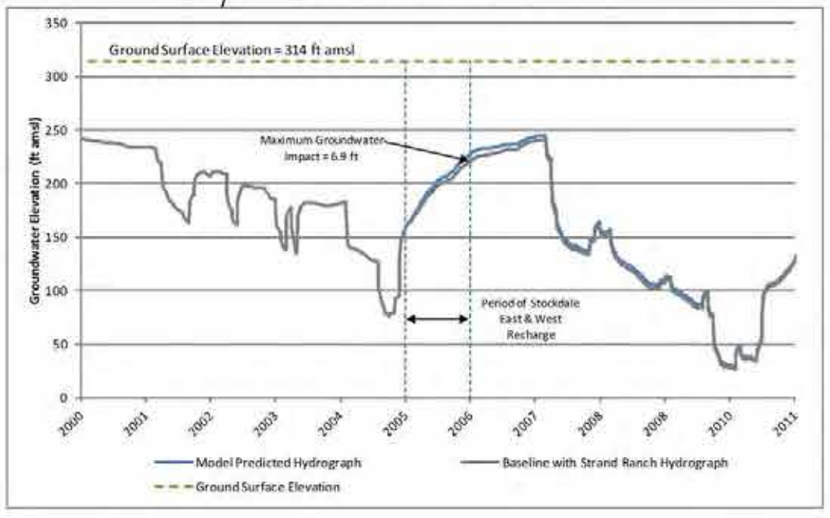
Rosedale-Rio Bravo Water Storage District
Irvine Ranch Water District

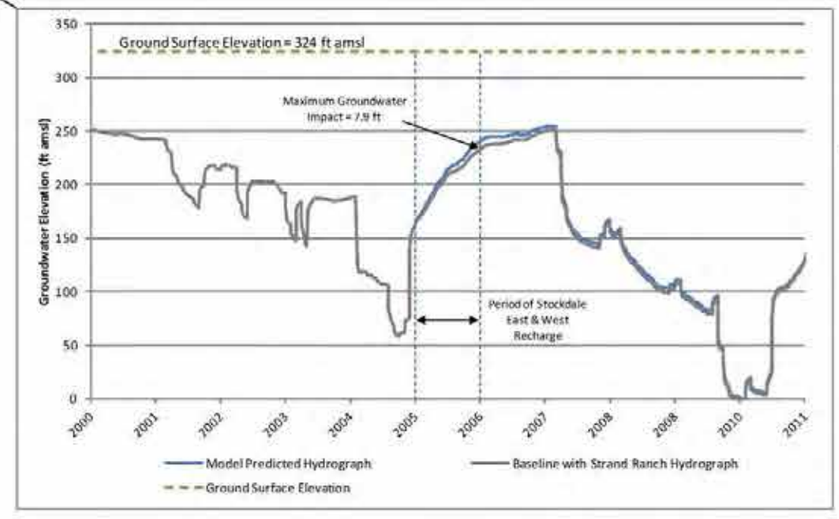
Evaluation of Potential Groundwater Changes Associated with the Proposed Stockdale Integrated Banking Project

Model-Predicted Recharge Mounding Relative to Baseline Deep Aquifer (Model Layer 3)









Map Features

- Groundwater Level Change (ft)
  - 5 to 10
  - 0 to 5
- Preliminary Stockdale Well
- Observation Point
- Private Well
- Monitoring Well
- Strand Ranch Production Well
- Stockdale Recharge Basin
- Strand Ranch Recharge Basin
- Rosedale-Rio Bravo Water Storage District Recharge Basin
- Rosedale-Rio Bravo Water Storage District
- Cross Valley Canal
- Water Course

This figure shows that Project recharge during high groundwater level conditions is predicted to result in a maximum increase in the deeper aquifer (layer 3), relative to the hydrologic baseline, of approximately 7 ft beneath Stockdale West and 9 ft beneath Stockdale East.

23-Jan-15

Scenario 1 Model-Predicted Groundwater Recharge Mounding Relative to Baseline Deep Aquifer

Figure 10

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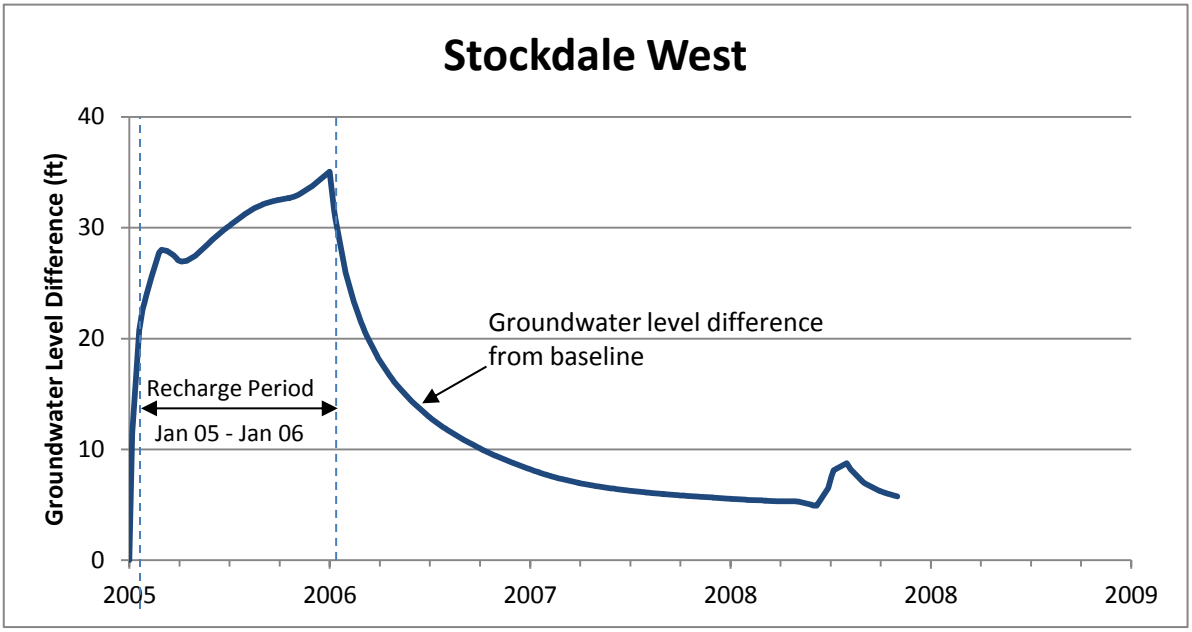
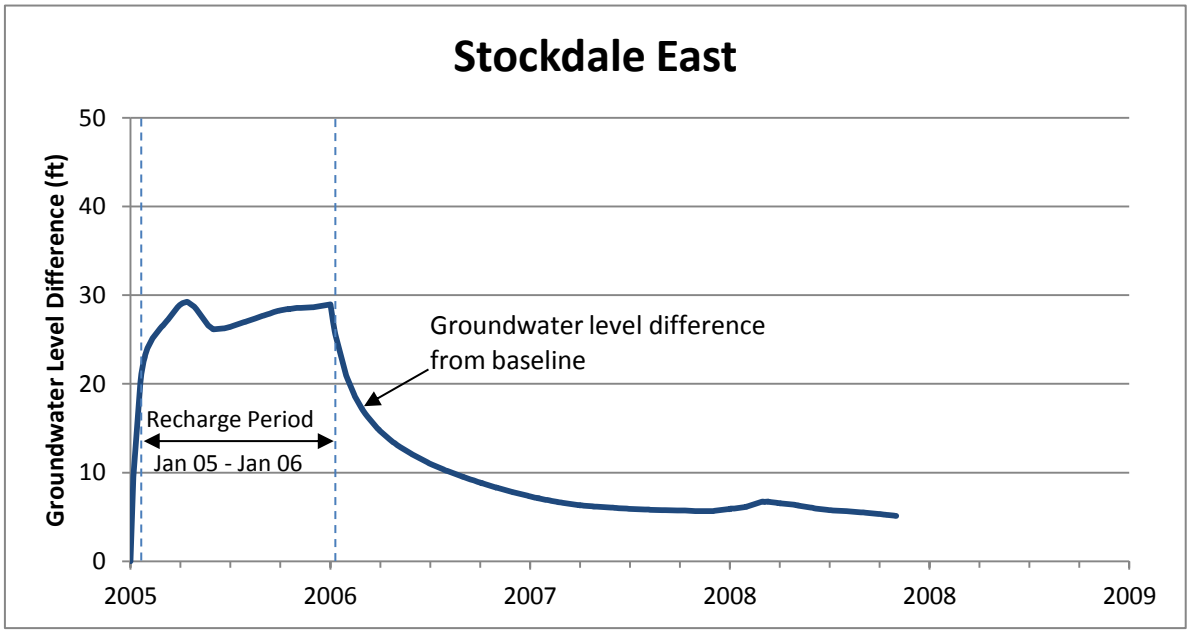
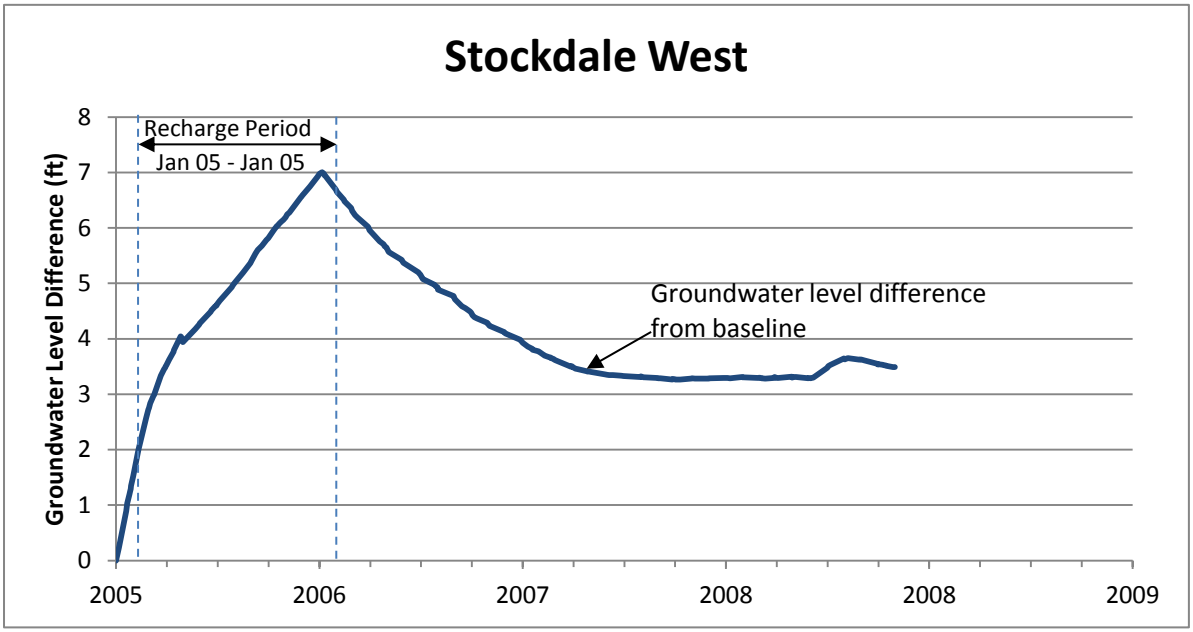
Model-Predicted Groundwater Level Change Over Time
Scenario 1, Shallow/Intermediate Aquifers - Groundwater Recharge



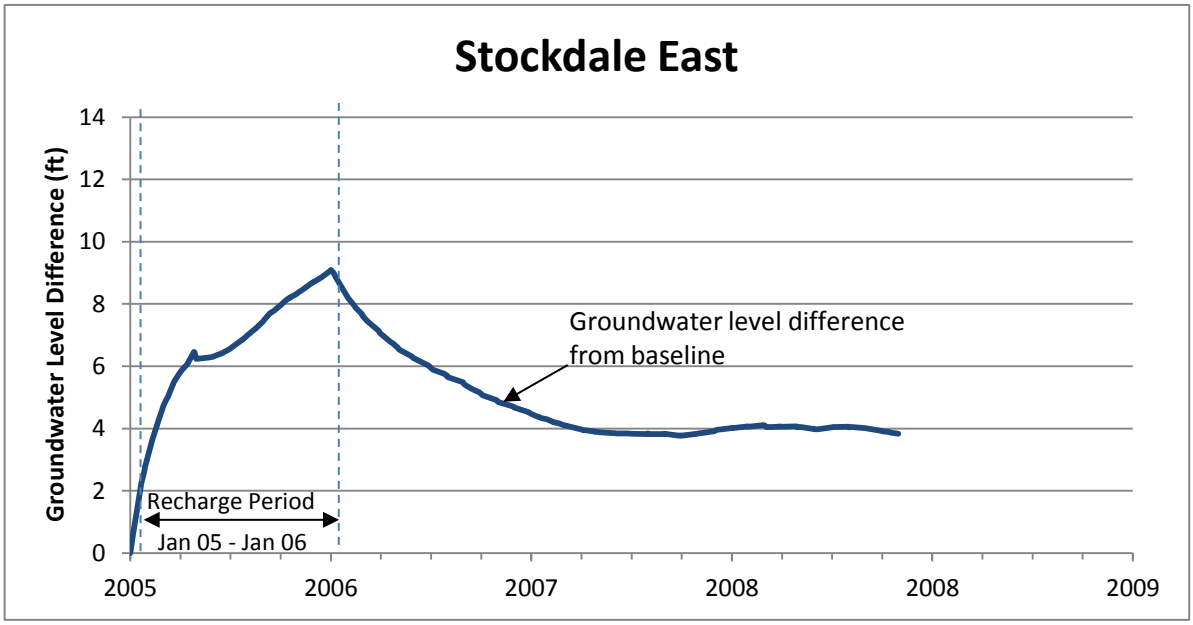
This figure shows the rate that groundwater mounding subsides following the recharge event. As shown, the groundwater mound associated with the Project subsides to within 10-ft of the pre-recharge groundwater level in less than 1 year.



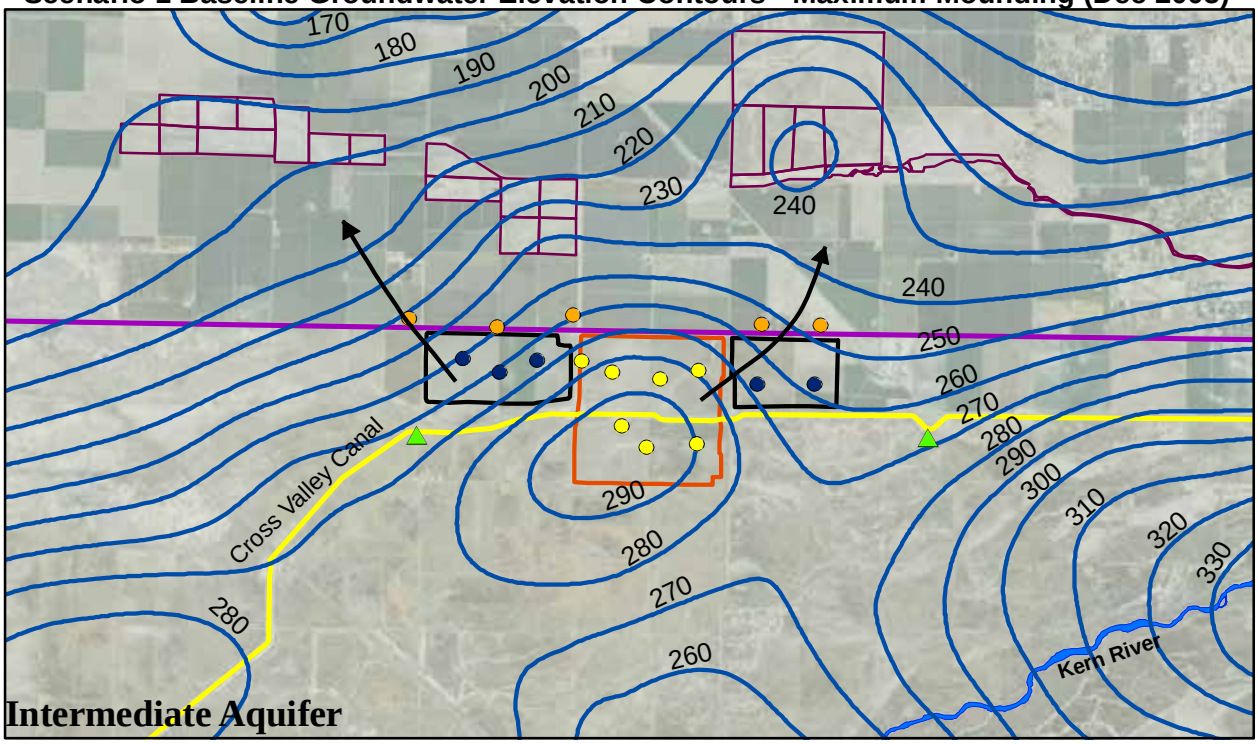
Model-Predicted Groundwater Level Change Over Time
Scenario 1, Deep Aquifer - Groundwater Recharge



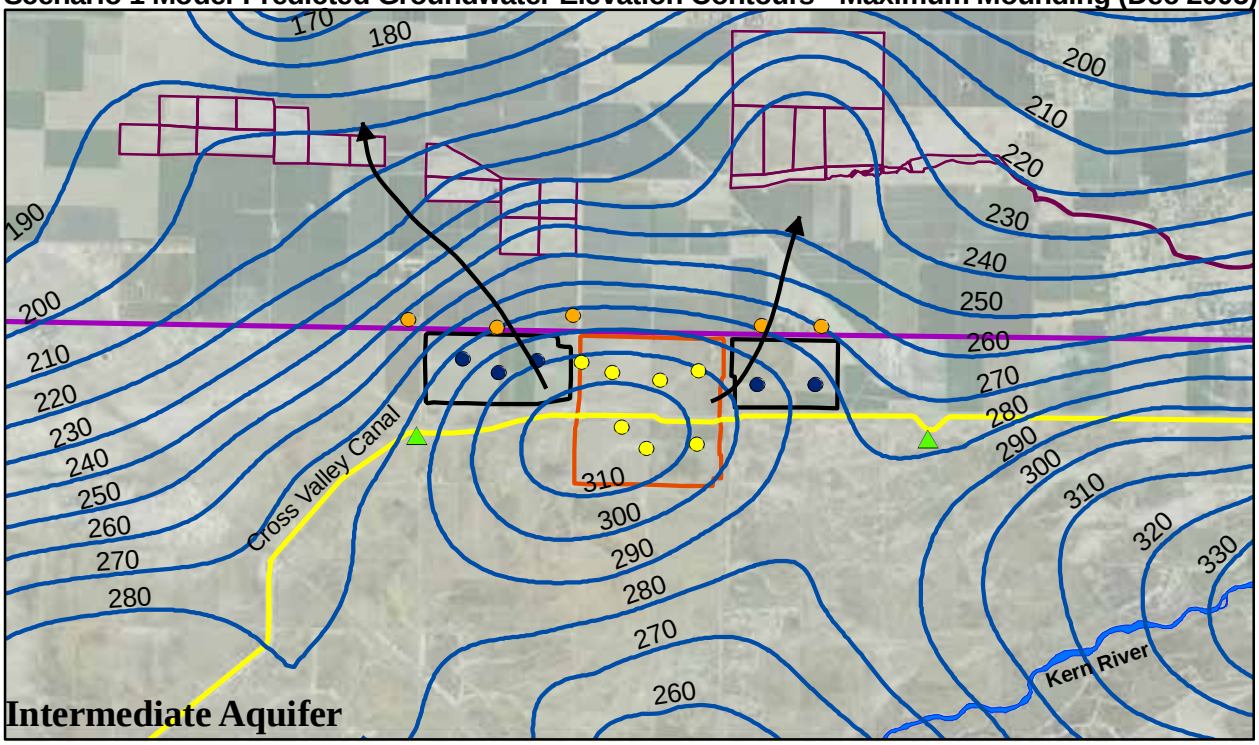
This figure shows the rate that groundwater mounding subsides following the recharge event. As shown, the groundwater mound associated with the Project subsides to within 5-ft of the pre-recharge groundwater level in less than 1 year.



Scenario 1 Baseline Groundwater Elevation Contours - Maximum Mounding (Dec 2005)



Scenario 1 Model-Predicted Groundwater Elevation Contours - Maximum Mounding (Dec 2005)



Groundwater Flow Direction

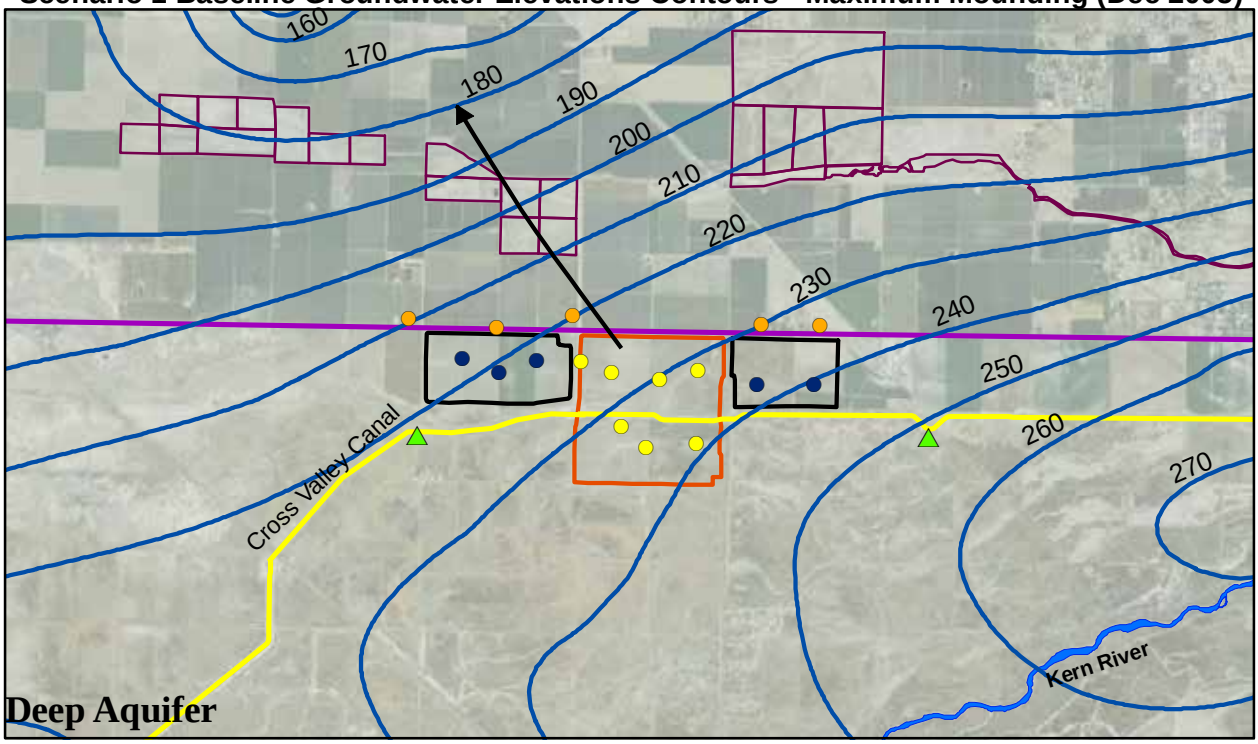
0 0.5 1 2 Miles

NAD 83 State Plane CA Zone 5
Groundwater contours in ft amsl

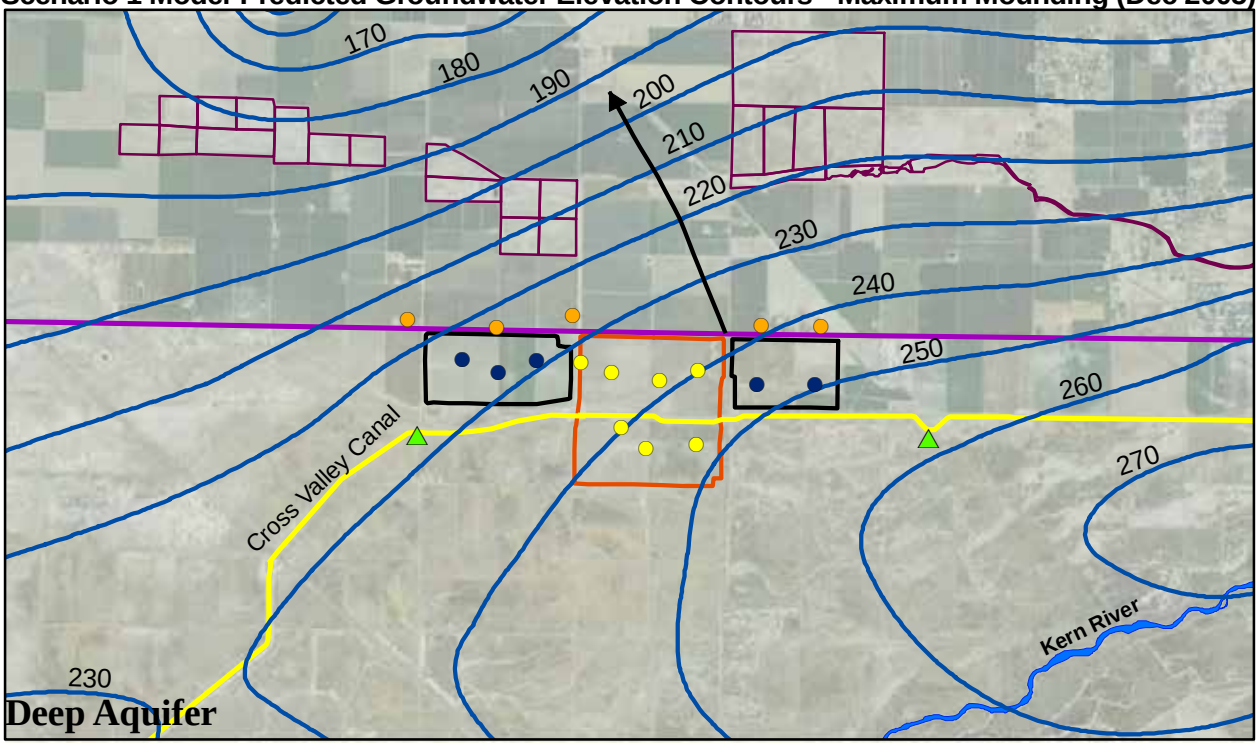
Thomas Harder & Co.
Groundwater Consulting

Figure 13

Scenario 1 Baseline Groundwater Elevations Contours - Maximum Mounding (Dec 2005)



Scenario 1 Model-Predicted Groundwater Elevation Contours - Maximum Mounding (Dec 2005)



Groundwater Flow Direction

0 0.5 1 2 Miles

NAD 83 State Plane CA Zone 5
Groundwater contours in ft amsl

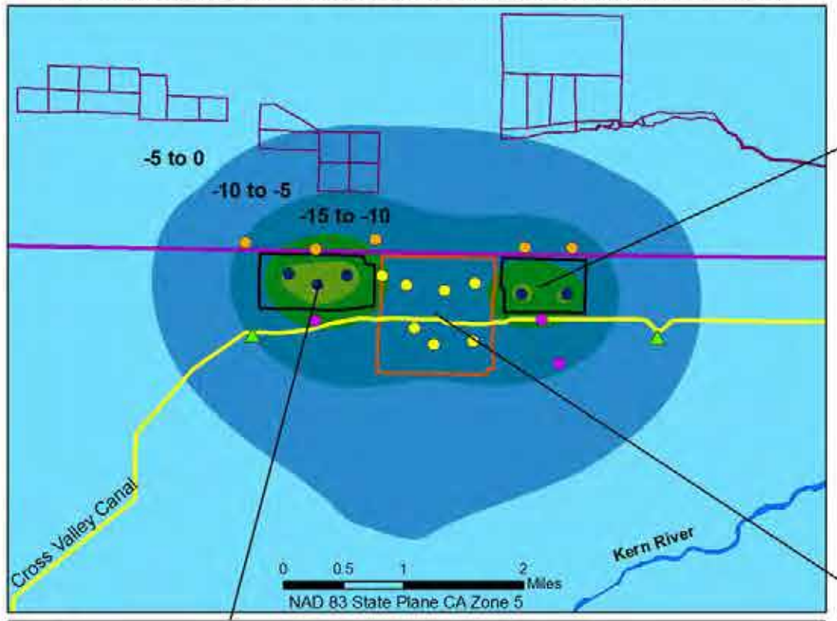
Thomas Harder & Co.
Groundwater Consulting

Figure 14

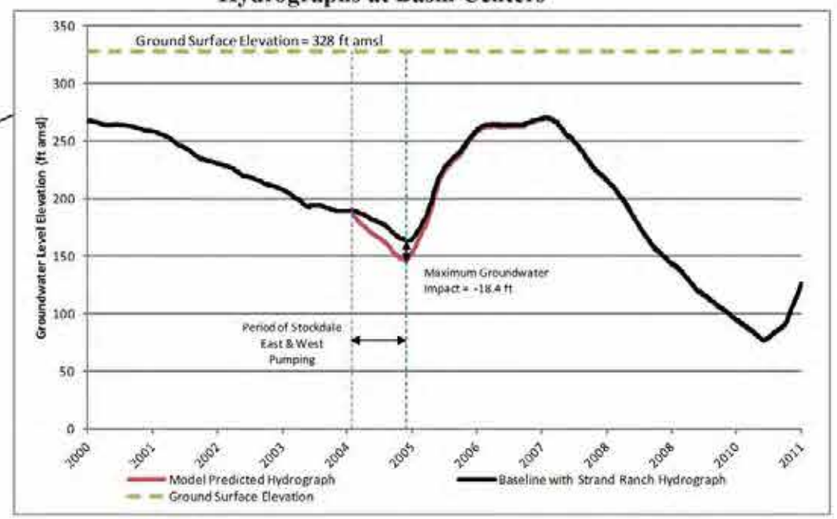
Rosedale-Rio Bravo Water Storage District
Irvine Ranch Water District

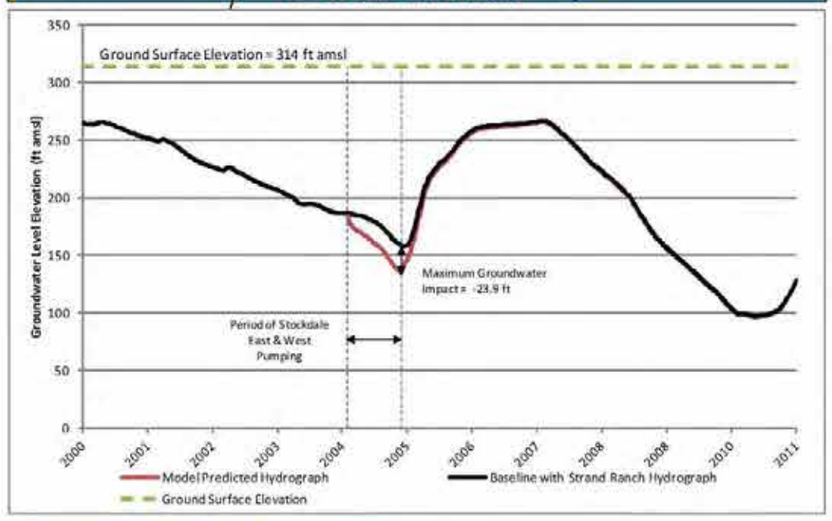
Evaluation of Potential Groundwater Changes Associated with the Proposed Stockdale Integrated Banking Project

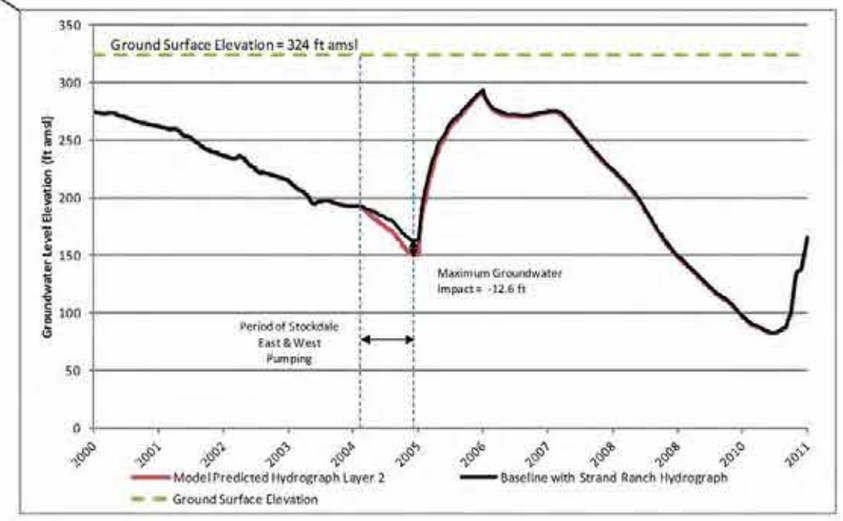
Model - Predicted Pumping Drawdown Relative to Baseline Shallow and Intermediate Aquifers (Model Layers 1 and 2)



Hydrographs at Basin Centers







Map Features

Groundwater Level Change (ft)
- -5 to 0
- -10 to -5
- -15 to -10
- -20 to -15
- -25 to -20
- -30 to -25

Observation Point
Private Well
Preliminary Stockdale Well
Monitoring Well
Strand Ranch Production Well
Stockdale Recharge Basin
Strand Ranch Recharge Basin
Rosedale-Rio Bravo Water Storage District Recharge Basin
Rosedale-Rio Bravo Water Storage District
Cross Valley Canal
Water Course

This figure shows that combined Project pumping during low groundwater level conditions is predicted to result in a maximum drawdown, relative to the baseline, of approximately 24 ft beneath Stockdale West and approximately 18 ft beneath Stockdale East. Maximum drawdown at existing wells is expected to range from approximately 11 to 17 ft.

23-Jan-15

Scenario 2 Model-Predicted Pumping Drawdown Relative to Baseline Shallow/Intermediate Aquifers

Figure 15

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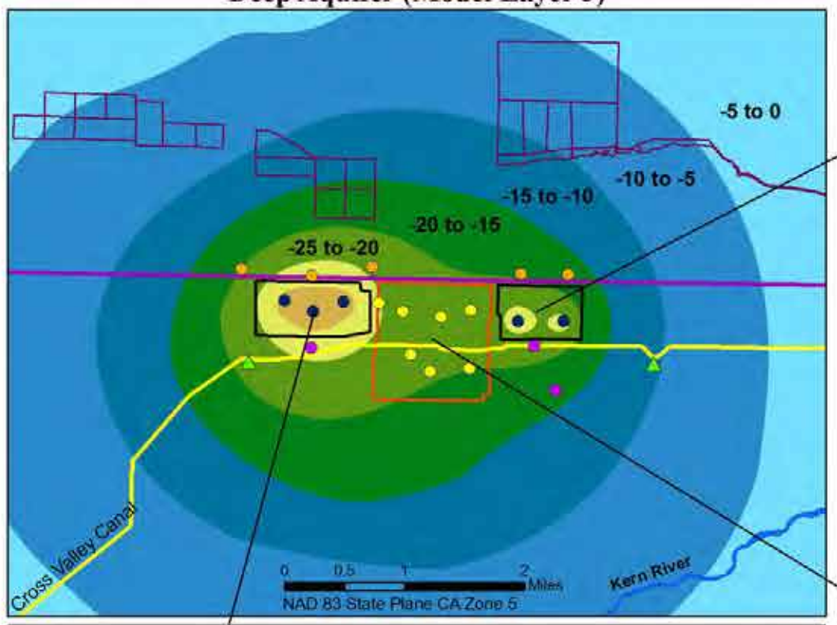
Groundwater Consulting

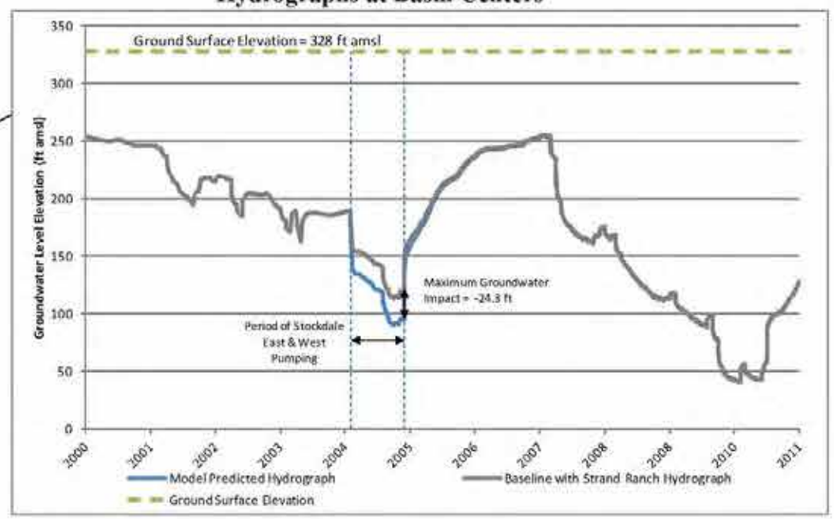
Rosedale-Rio Bravo Water Storage District
Irvine Ranch Water District

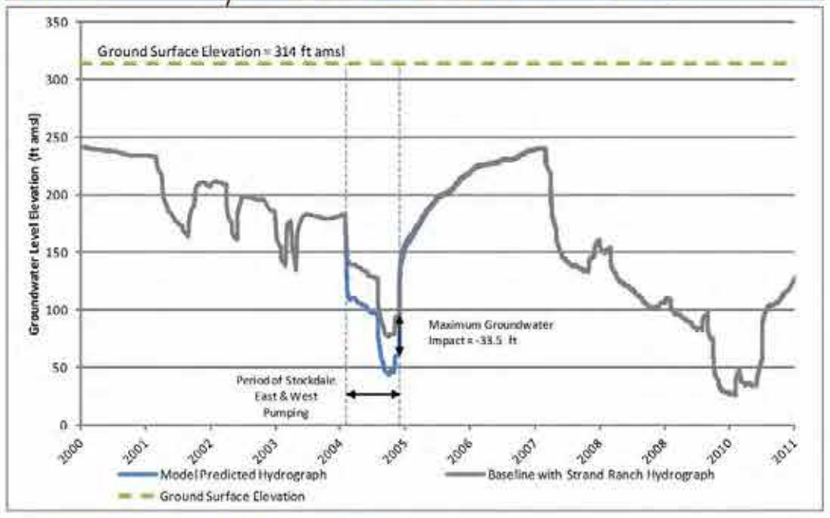
Evaluation of Potential Groundwater Changes Associated with the Proposed Stockdale Integrated Banking Project

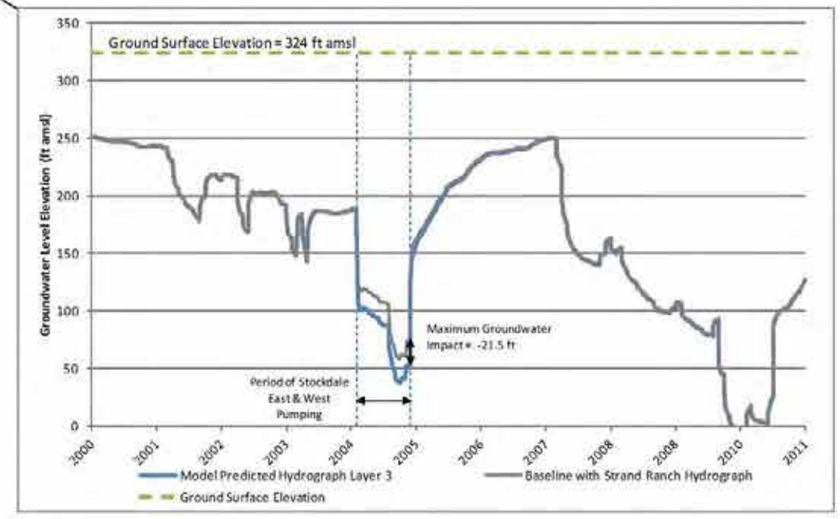
Model-Predicted Pumping Drawdown Relative to Baseline Deep Aquifer (Model Layer 3)



Hydrographs at Basin Centers







Map Features

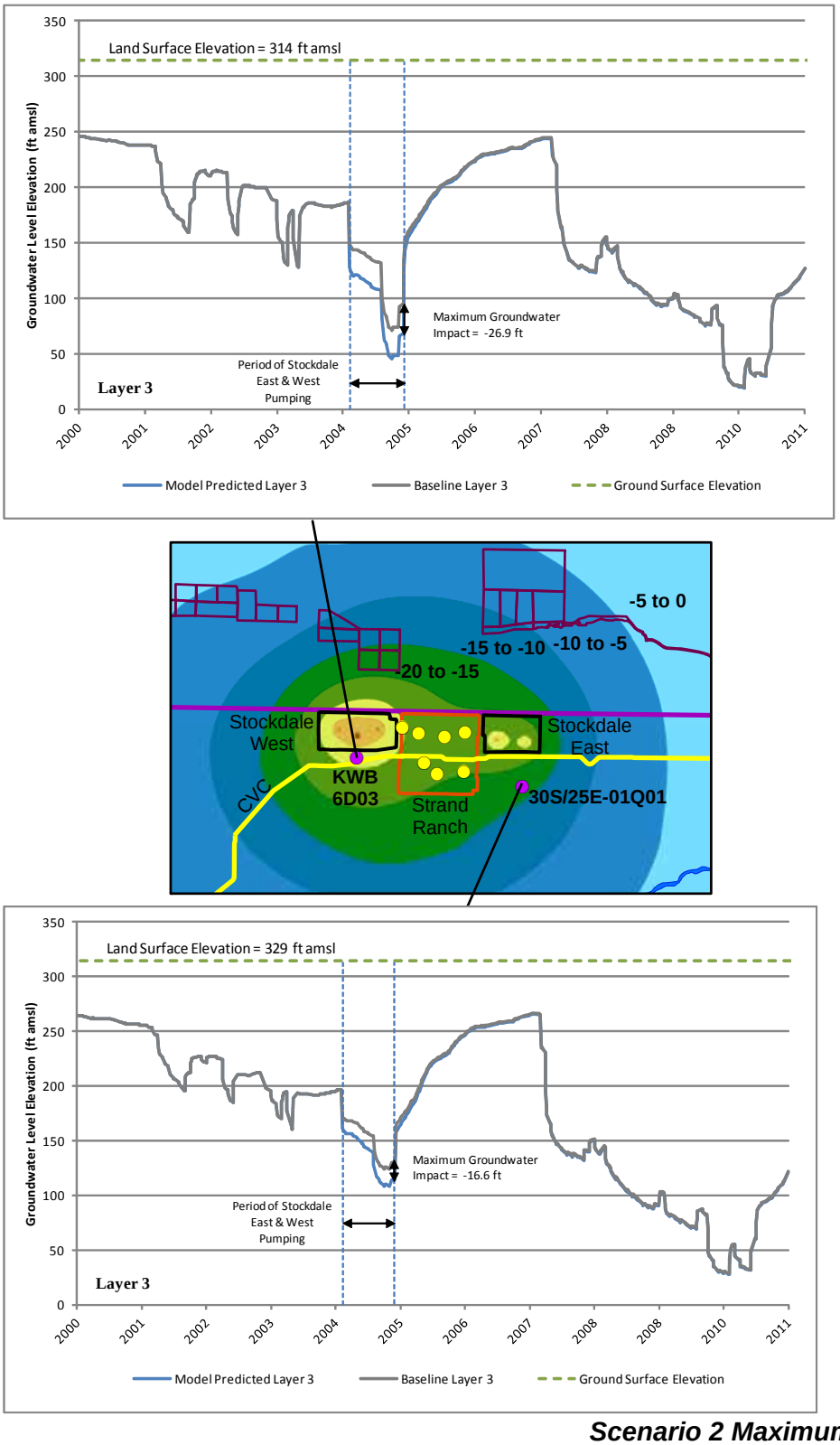
- Groundwater Level Change (ft)
  - -5 to 0
  - -10 to -5
  - -15 to -10
  - -20 to -15
  - -25 to -20
  - -30 to -25
  - -35 to -30
  - -40 to -35
- Preliminary Stockdale Well
- Observation Point
- Private Well
- Monitoring Well
- Strand Ranch Production Well
- Stockdale Recharge Basin
- Strand Ranch Recharge Basin
- Rosedale-Rio Bravo Water Storage District Recharge Basin
- Rosedale-Rio Bravo Water Storage District
- Cross Valley Canal
- Water Course

This figure shows that combined Project pumping during low groundwater level conditions is predicted to result in a maximum drawdown, relative to the baseline, of approximately 34 ft beneath Stockdale West and approximately 24 ft beneath Stockdale East. Maximum drawdown at existing wells is expected to range from approximately 20 to 28 ft.

23-Jan-15

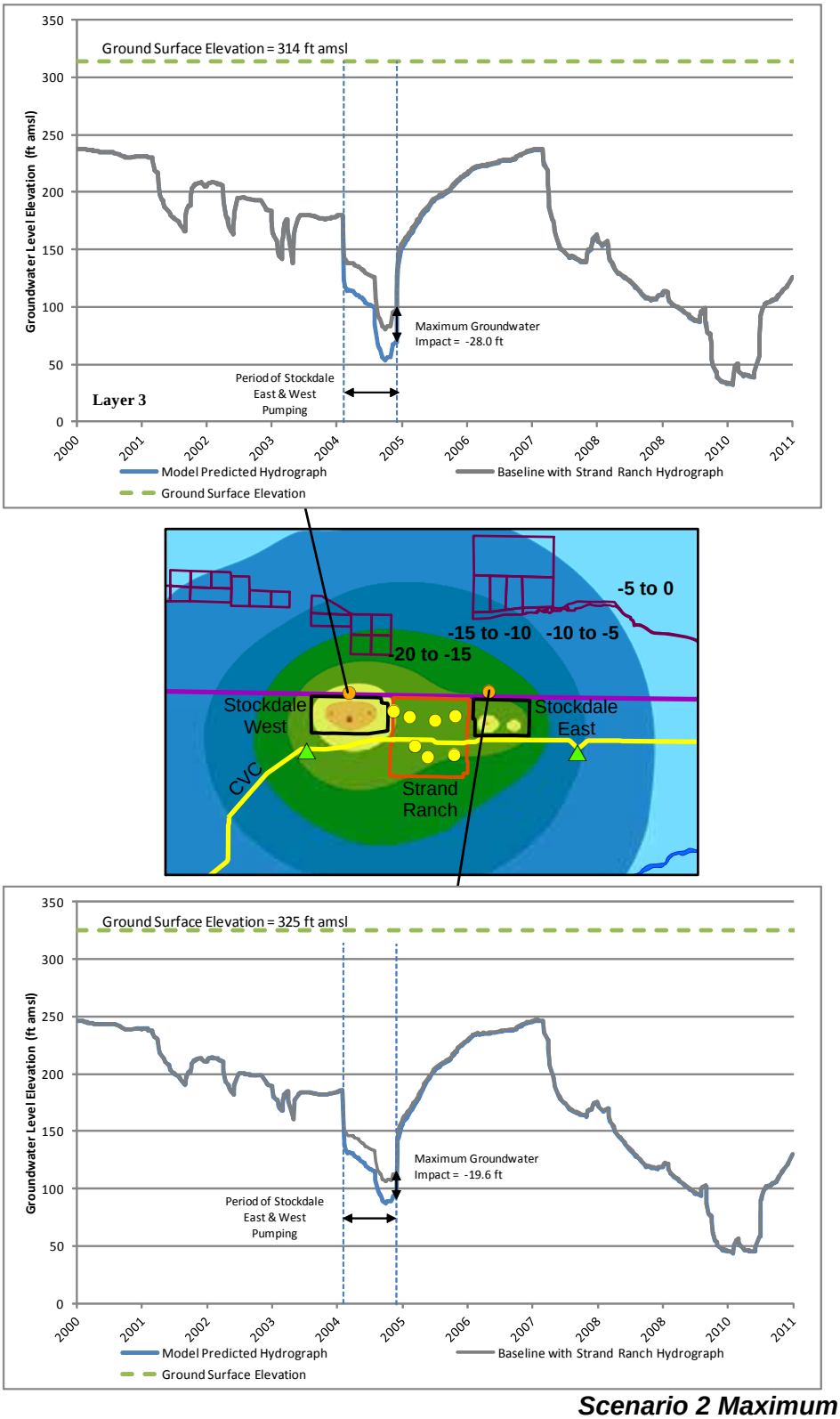
Scenario 2 Model-Predicted Pumping Drawdown Relative to Baseline Deep Auqifer
Figure 16

Thomas Harder & Co.
Groundwater Consulting



Scenario 2 Maximum Predicted Pumping Drawdown at Nearest Production Wells Deep Aquifer

Figure 17

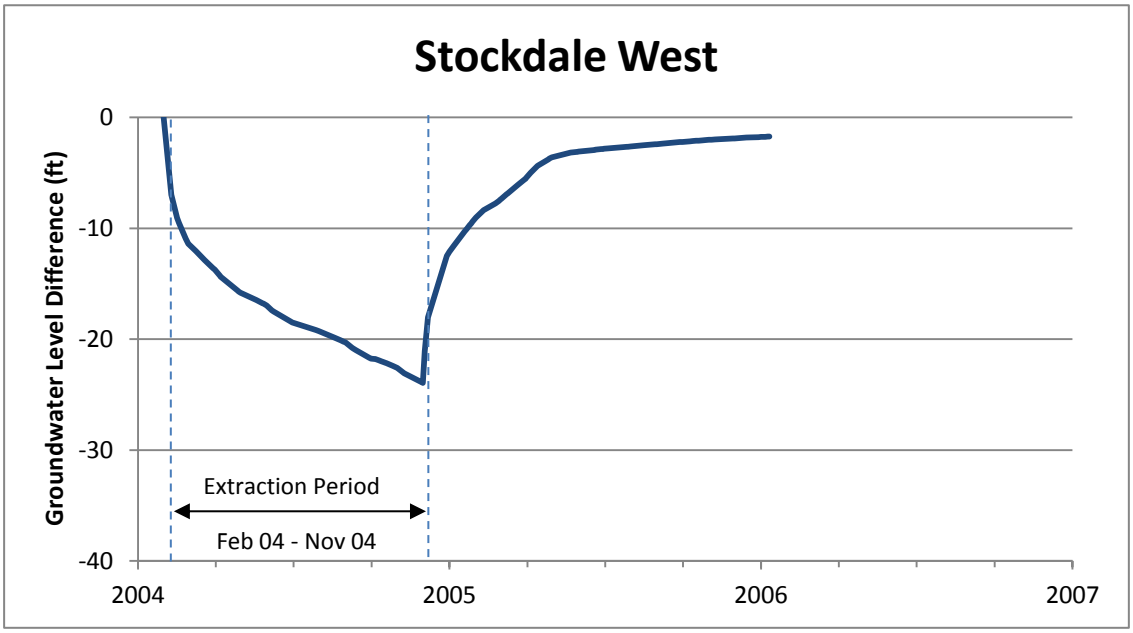


Scenario 2 Maximum Predicted Pumping Drawdown at Nearest Private Wells Deep Aquifer

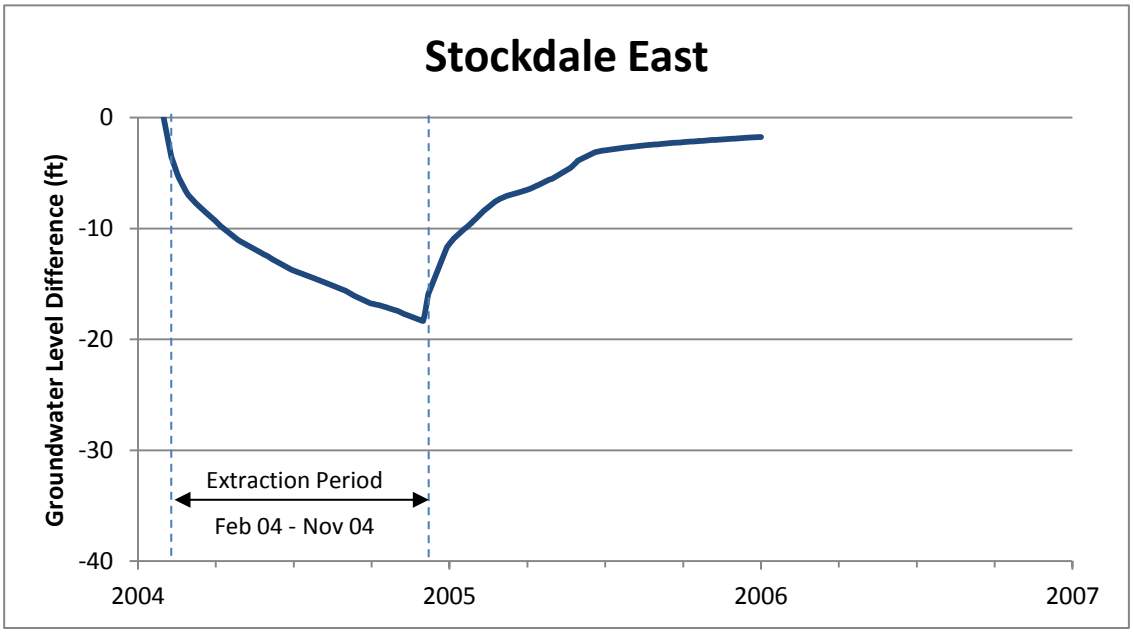
Figure 18

Thomas Harder & Co. Groundwater Consulting

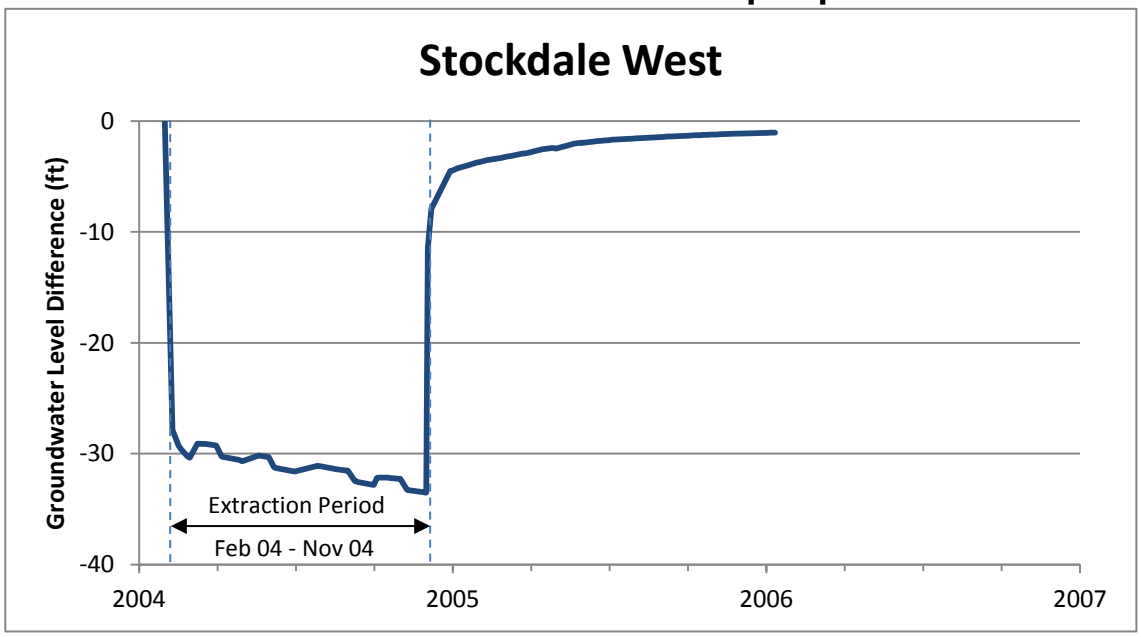
Model-Predicted Groundwater Level Change Over Time Scenario 2 - Groundwater Pumping during Low Groundwater Conditions - Shallow/Intermediate Aquifers



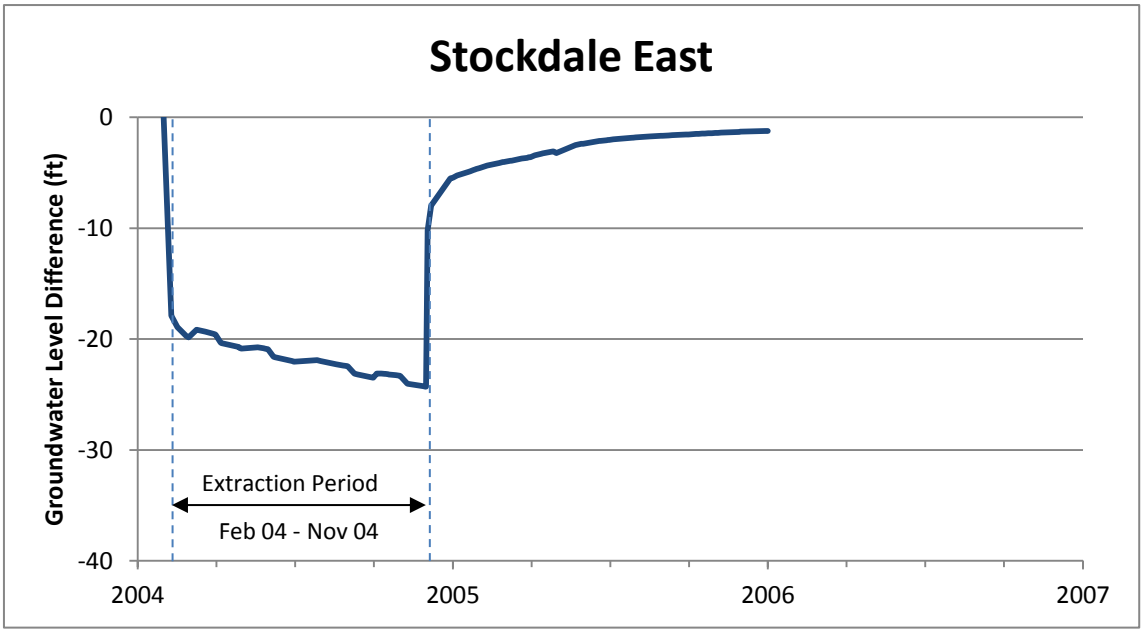
This figure shows the rate that groundwater levels recover following the simulated extraction period from February 2004 to November 2004. As shown, groundwater levels recover to within 5 ft of their pre-extraction level within 6 months after Project pumping stops.



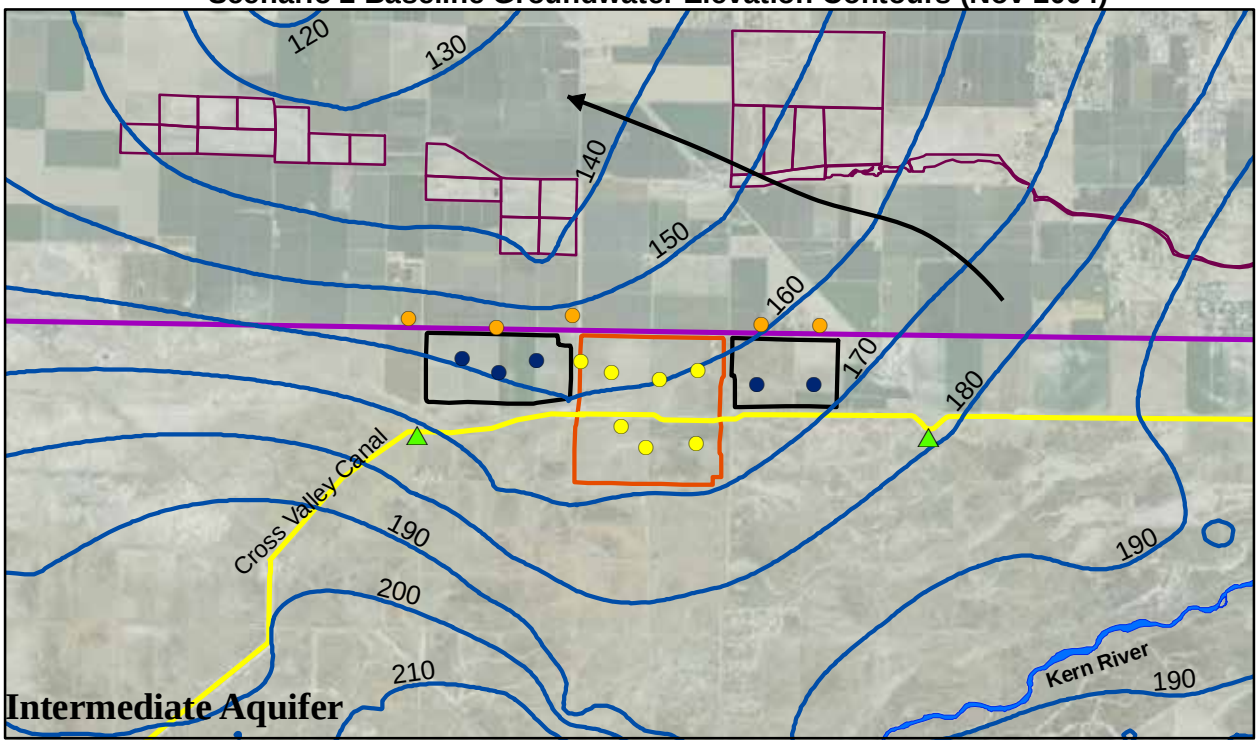
Model-Predicted Groundwater Level Change Over Time
Scenario 2 - Groundwater Pumping during Low Groundwater Conditions - Deep Aquifer



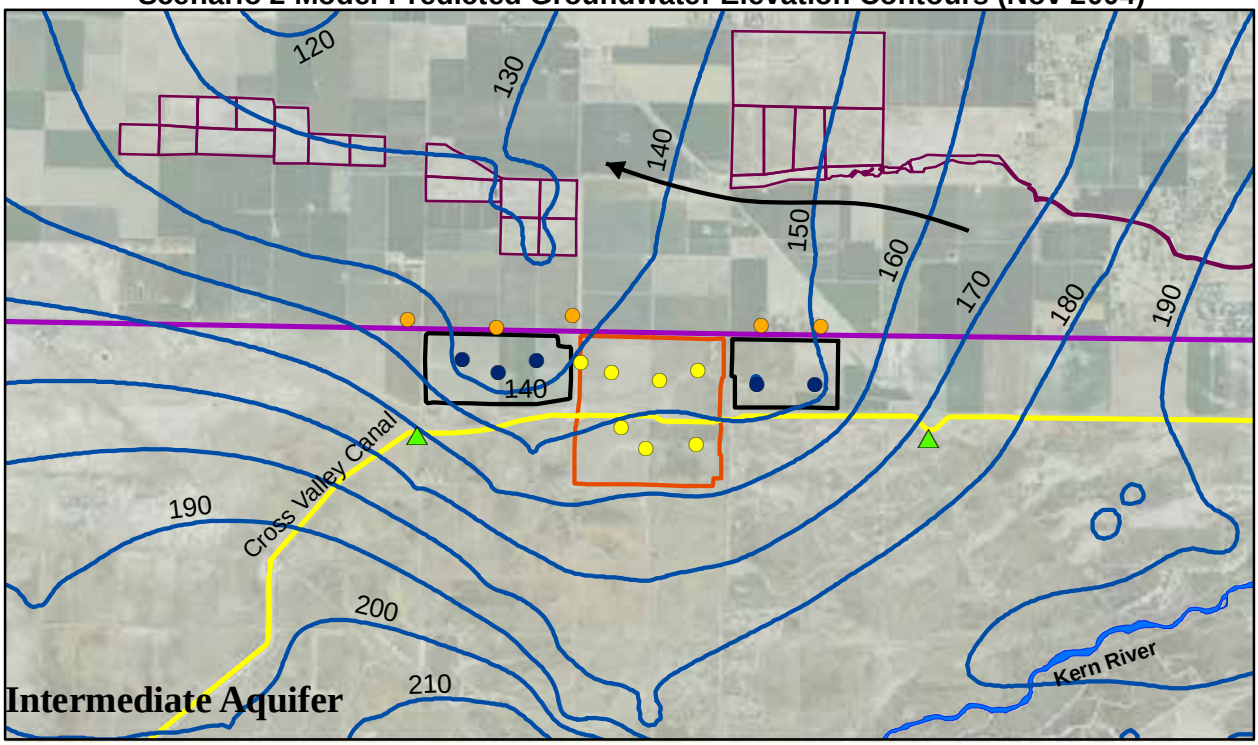
This figure shows the rate that groundwater levels recover following the simulated extraction period from February 2004 to November 2004. As shown, groundwater levels recover to within 5 ft of their pre-extraction level within 6 months after Project pumping stops.



Scenario 2 Baseline Groundwater Elevation Contours (Nov 2004)



Scenario 2 Model-Predicted Groundwater Elevation Contours (Nov 2004)



Groundwater Flow Direction

0 0.5 1 2 Miles

NAD 83 State Plane CA Zone 5
Groundwater contours in ft amsl

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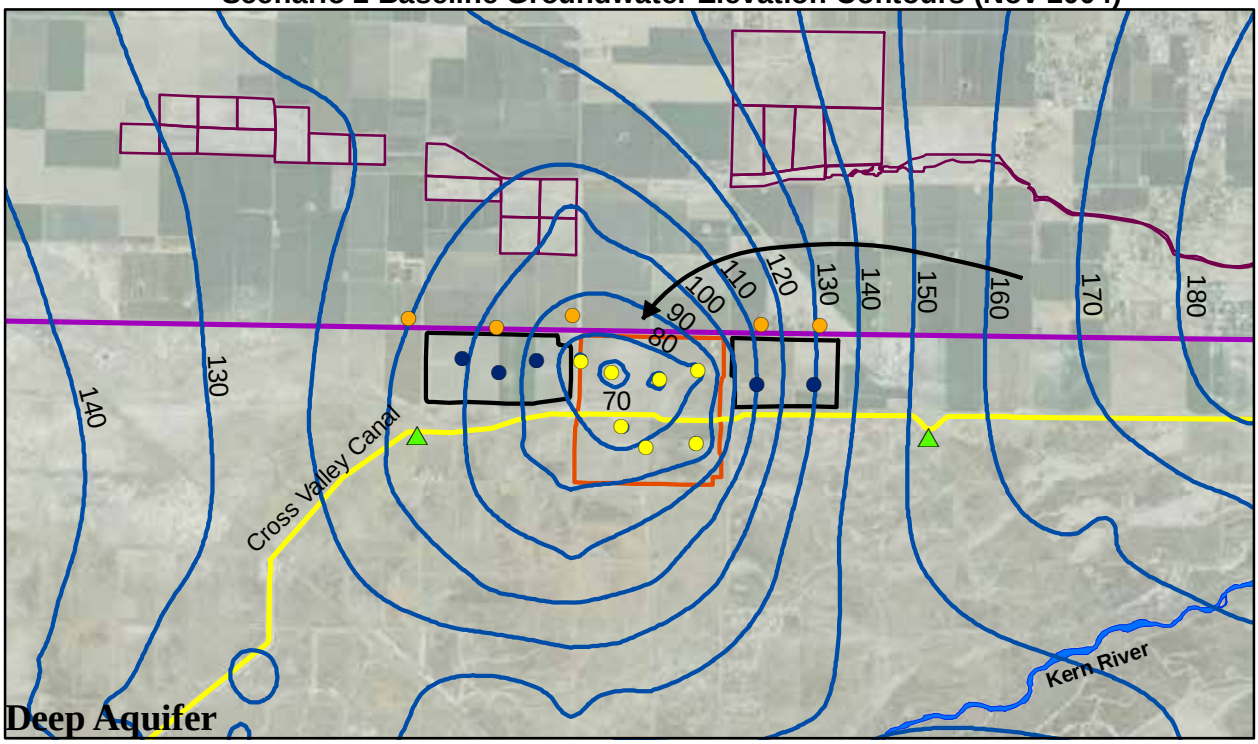
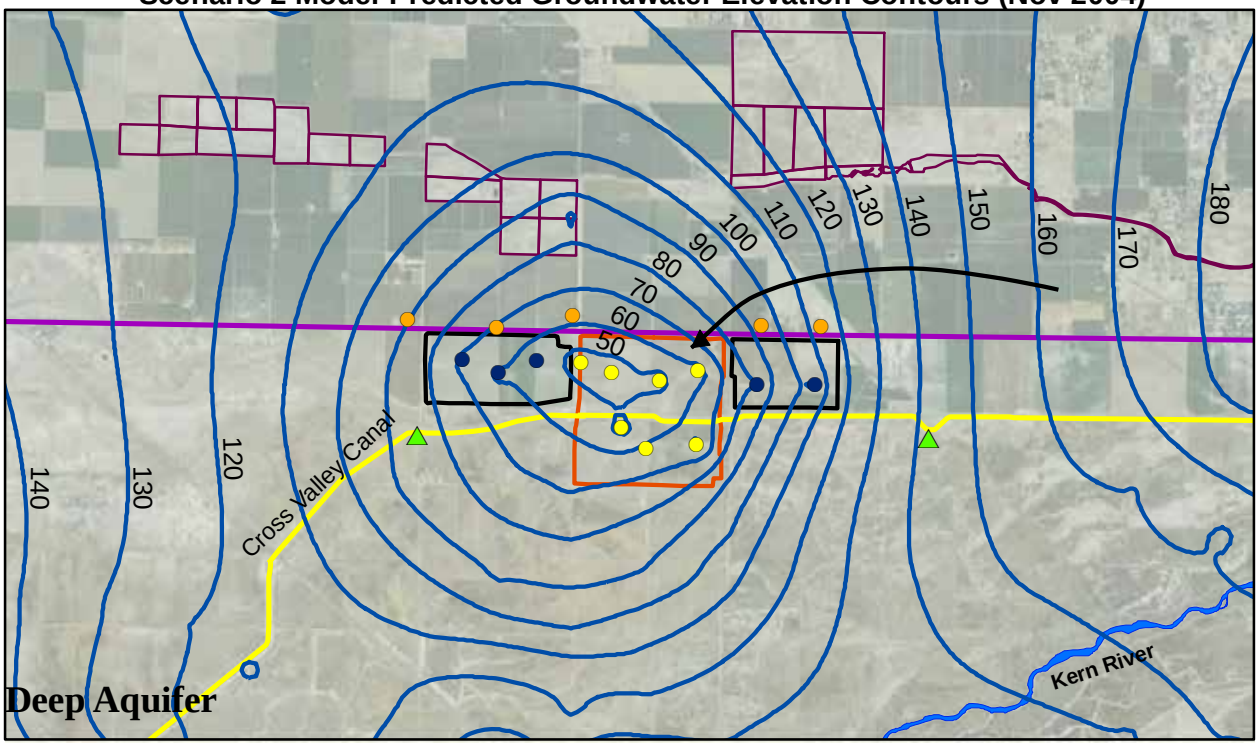
Groundwater Consulting

Figure 21

Scenario 2 Baseline Groundwater Elevation Contours (Nov 2004)



Scenario 2 Model-Predicted Groundwater Elevation Contours (Nov 2004)



Groundwater Flow Direction

0 0.5 1 2 Miles

NAD 83 State Plane CA Zone 5
Groundwater contours in ft amsl

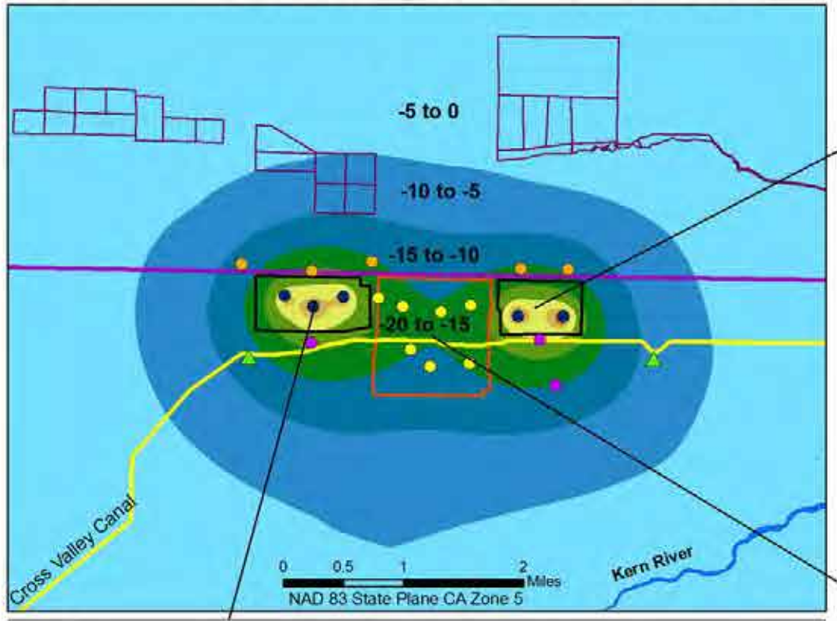
Thomas Harder & Co.
Groundwater Consulting

Figure 22

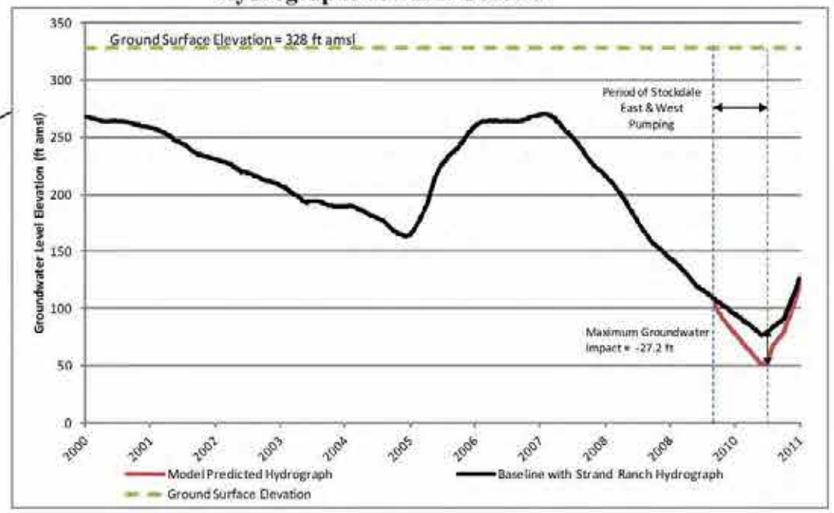
Rosedale-Rio Bravo Water Storage District
Irvine Ranch Water District

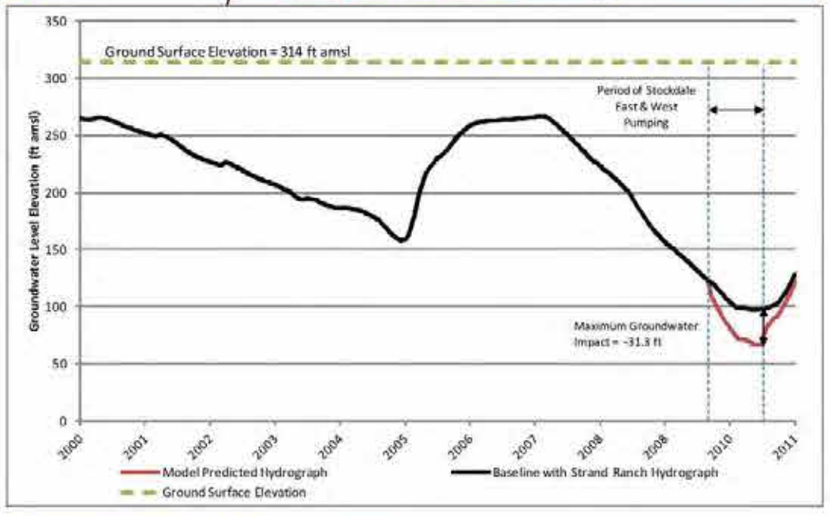
Evaluation of Potential Groundwater Changes Associated with the Proposed Stockdale Integrated Banking Project

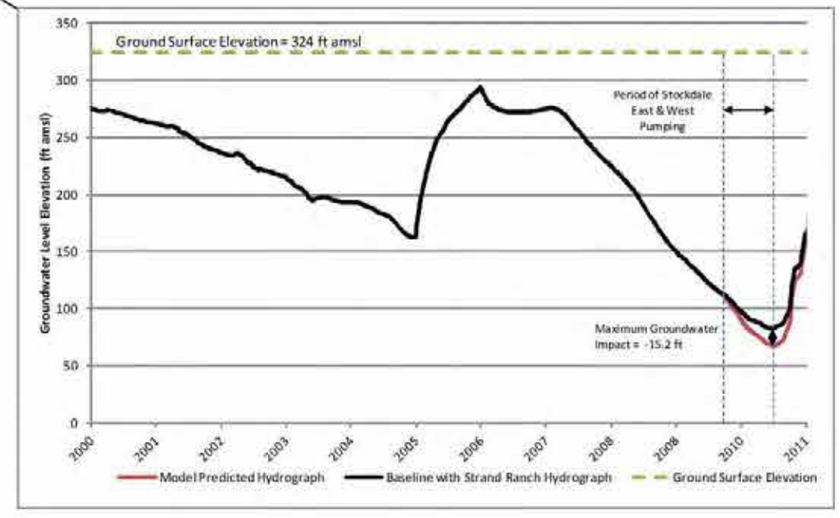
Model-Predicted Pumping Drawdown Relative to Baseline Shallow and Intermediate Aquifers (Model Layers 1 and 2)



Hydrographs at Basin Centers







Map Features

- Groundwater Level Change (ft)
  - -5 to 0
  - -10 to -5
  - -15 to -10
  - -20 to -15
  - -25 to -20
  - -30 to -25
  - -35 to -30
  - -40 to -35
- Preliminary Stockdale Well
- Observation Point
- Private Well
- Monitoring Well
- Strand Ranch Production Well
- Stockdale Recharge Basins
- Strand Ranch Recharge Basin
- Rosedale-Rio Bravo Water Storage District Recharge Basin
- Rosedale-Rio Bravo Water Storage District
- Cross Valley Canal
- Water Course

This figure shows that combined Project pumping during low groundwater level conditions is predicted to result in a maximum drawdown, relative to the hydrologic baseline, of approximately 31 ft beneath Stockdale West and approximately 27 ft beneath Stockdale East. Maximum drawdown at existing wells is expected to range from approximately 16 to 21 ft.

23-Jan-15

Scenario 3 Model-Predicted Pumping Drawdown Relative to Baseline Shallow/Intermediate Aquifers

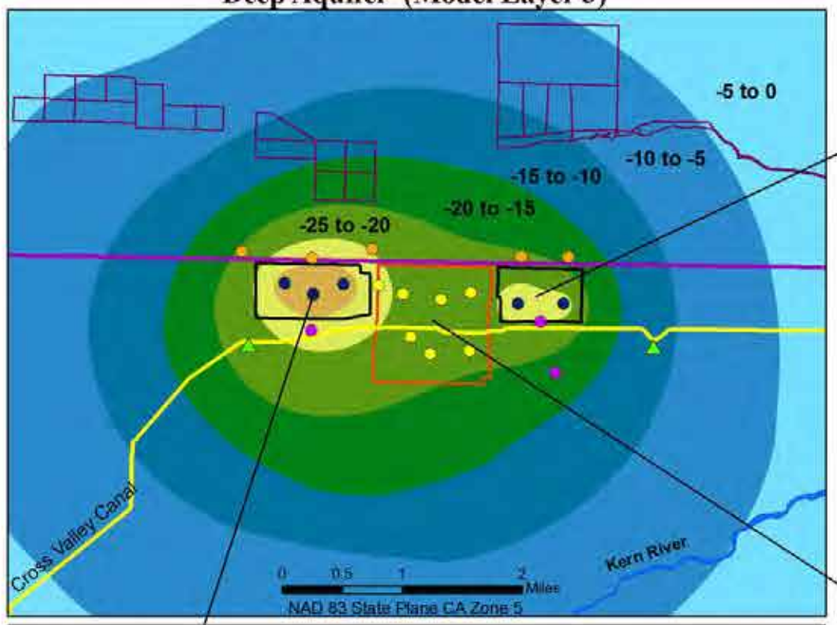
Figure 23

Thomas Harder & Co.
Groundwater Consulting

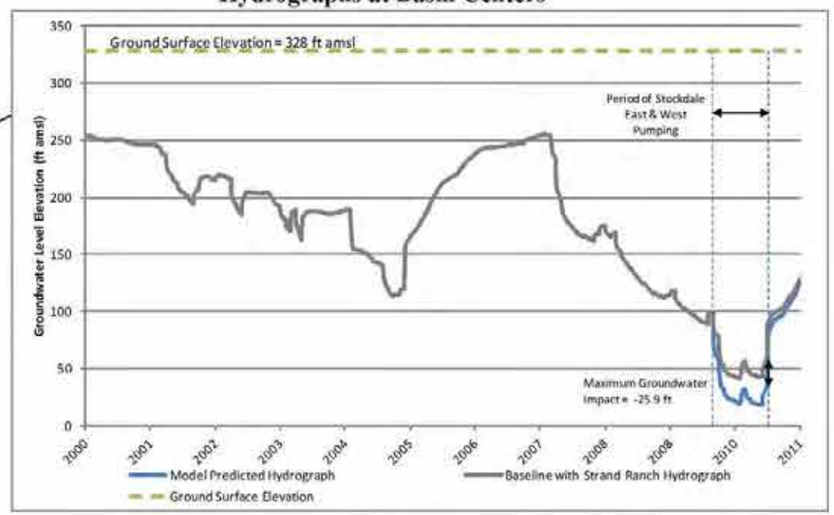
Rosedale-Rio Bravo Water Storage District
Irvine Ranch Water District

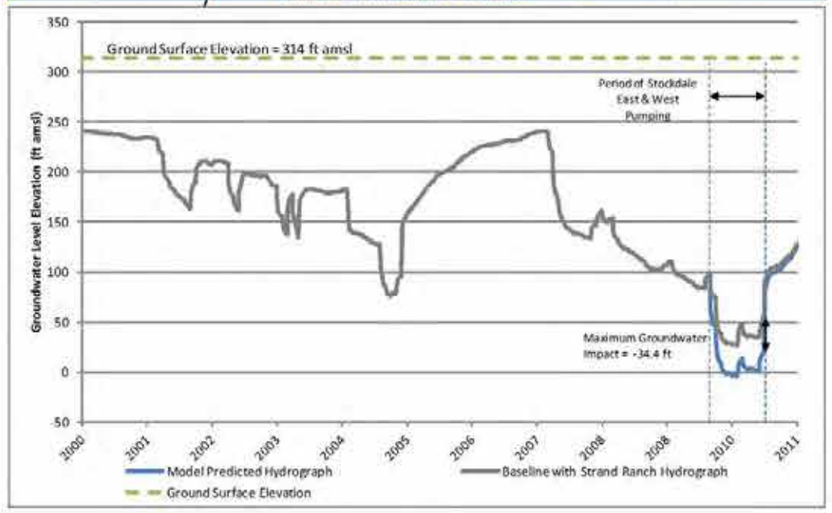
Evaluation of Potential Groundwater Changes Associated with the Proposed Stockdale Integrated Banking Project

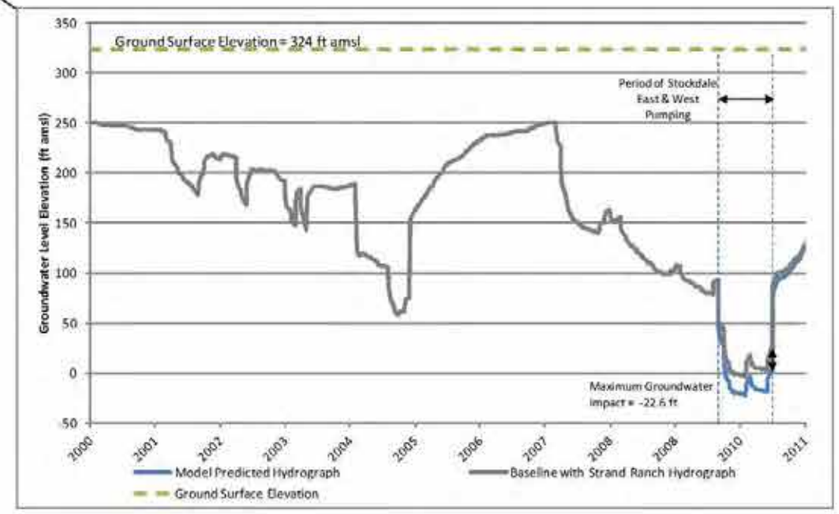
Model-Predicted Pumping Drawdown Relative to Baseline Deep Aquifer (Model Layer 3)



Hydrographs at Basin Centers







Map Features

- Groundwater Level Change (ft)
  - -5 to 0
  - -10 to -5
  - -15 to -10
  - -20 to -15
  - -25 to -20
  - -30 to -25
  - -35 to -30
  - -40 to -35
- Preliminary Stockdale Well
- Observation Point
- Private Well
- Monitoring Well
- Strand Ranch Production Well
- Stockdale Recharge Basin
- Strand Ranch Recharge Basin
- Rosedale-Rio Bravo Water Storage District Recharge Basin
- Rosedale-Rio Bravo Water Storage District
- Cross Valley Canal
- Water Course

This figure shows that combined Project pumping during low groundwater level conditions is predicted to result in a maximum drawdown, relative to the baseline, of approximately 34 ft beneath Stockdale West and approximately 26 ft beneath Stockdale East. Maximum drawdown at existing wells is expected to range from approximately 21 to 29 ft.

23-Jan-15

Scenario 3 Model-Predicted Pumping Drawdown Relative to Baseline Deep Aquifer

Figure 24

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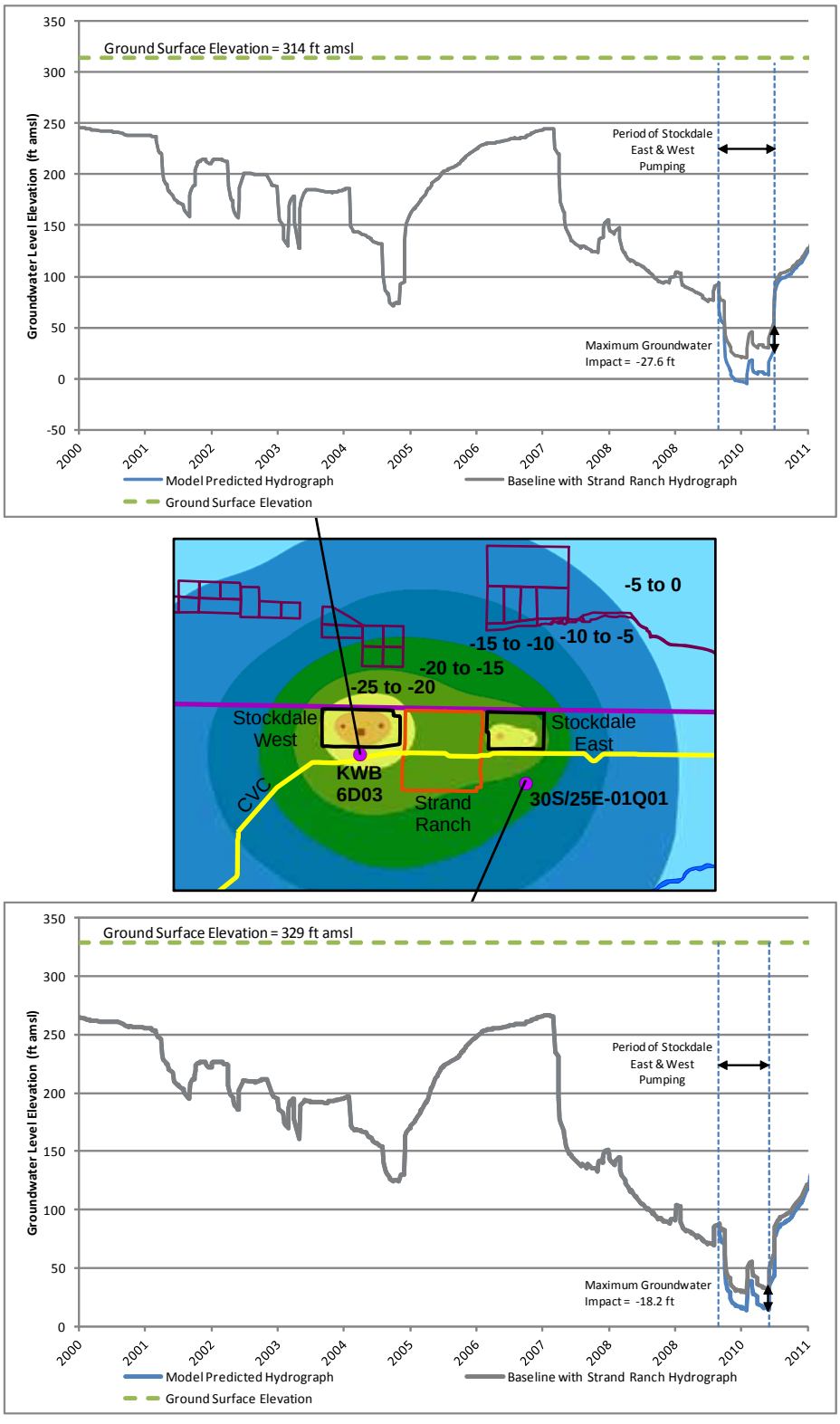
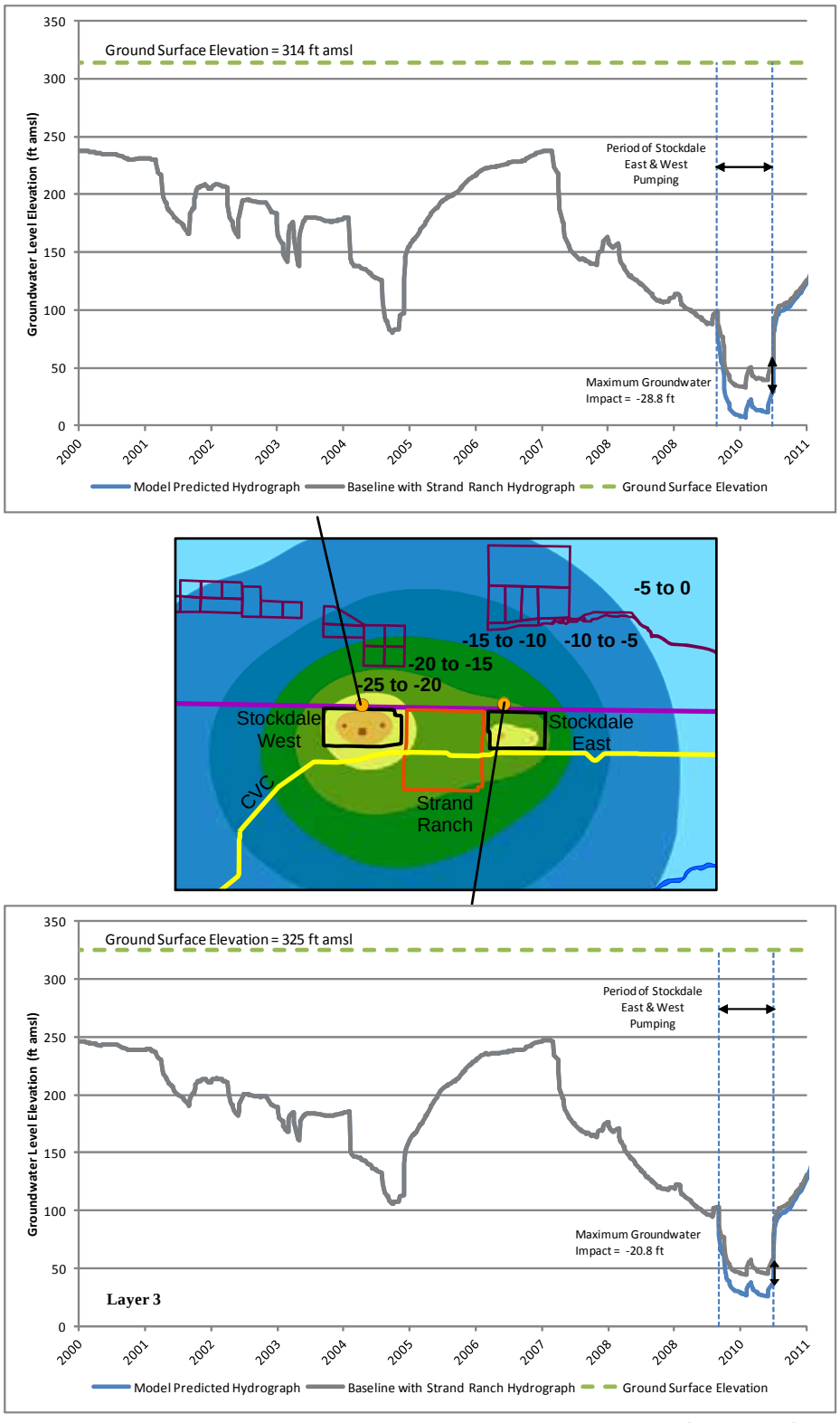
Groundwater Consulting



Scenario 3 Maximum Predicted Pumping Drawdown at Nearest Production Wells Deep Aquifer

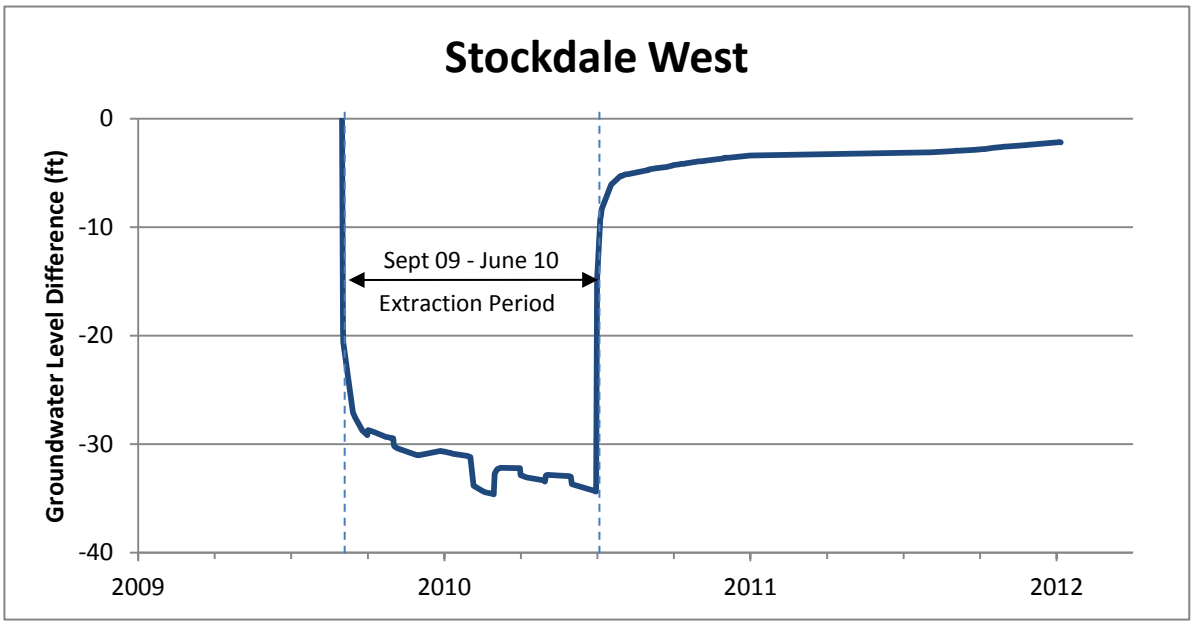
Figure 25



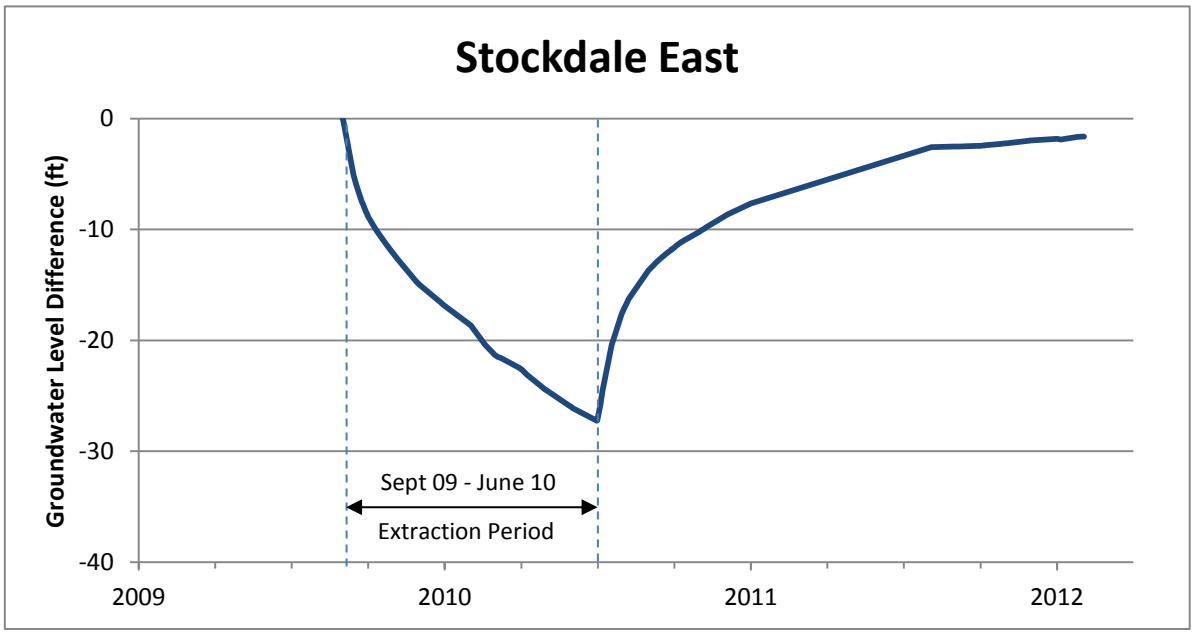
Scenario 3 Maximum Predicted Pumping Drawdown at Nearest Private Wells Deep Aquifer

Figure 26

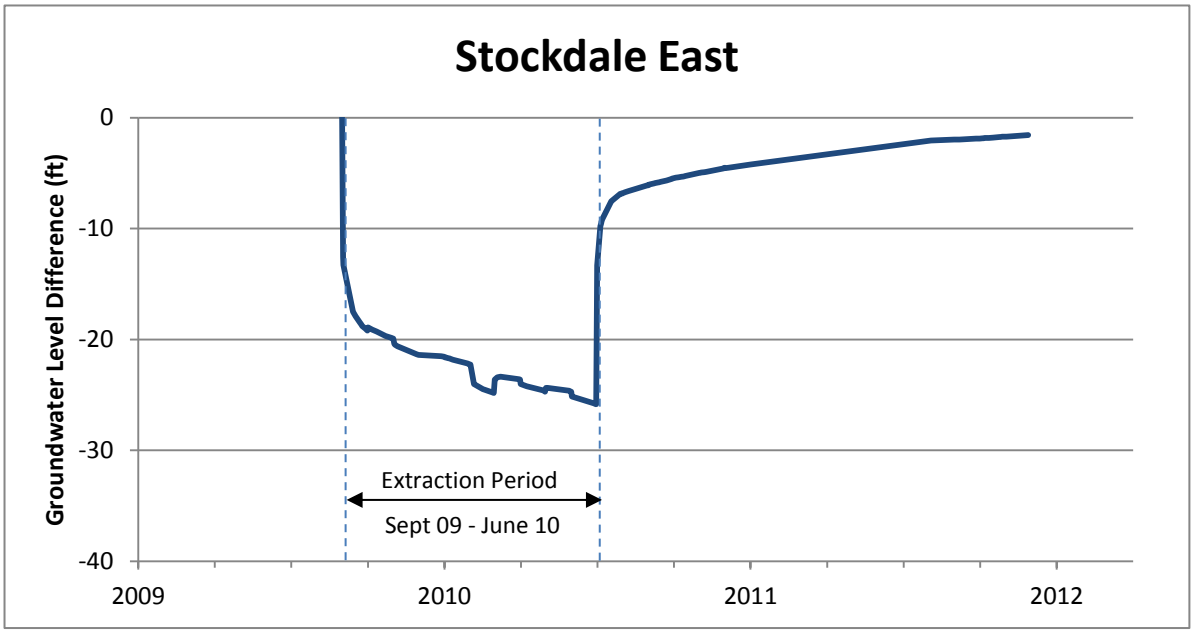
Model-Predicted Groundwater Level Change Over Time Scenario 3 - Pumping during Historical Low Groundwater Conditions - Shallow/Intermediate Aquifers



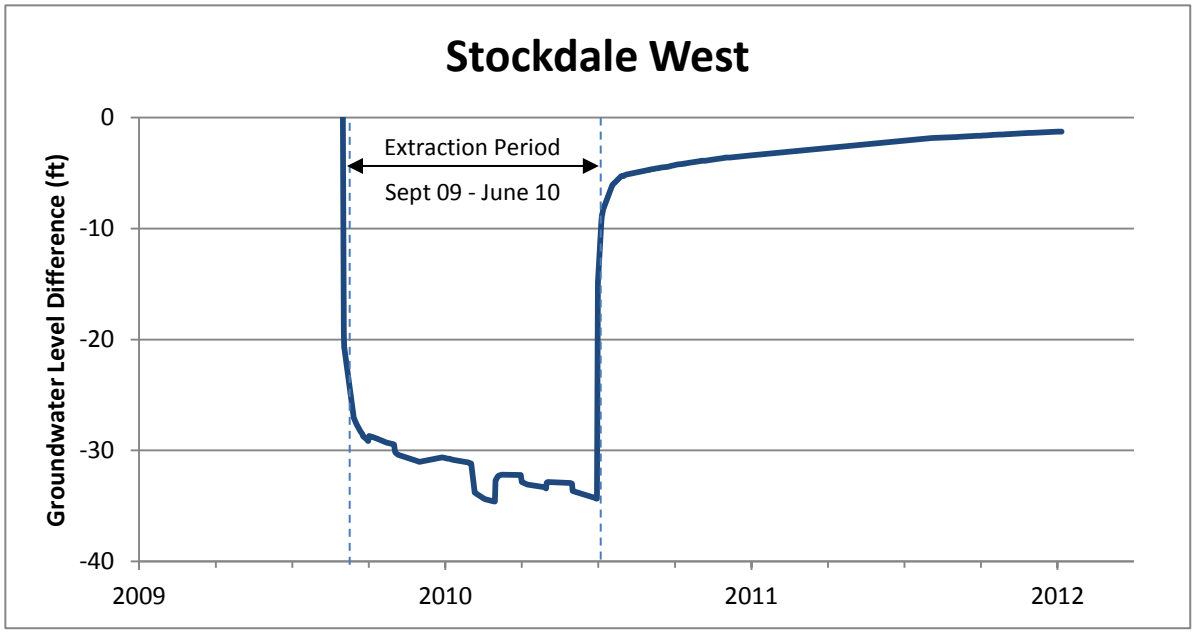
This figure shows the rate that groundwater levels recover following the simulated extraction period from September 2009 to June 2010. As shown, groundwater levels recover to within 10 ft of their pre-extraction level within 6 months after Project pumping stops.



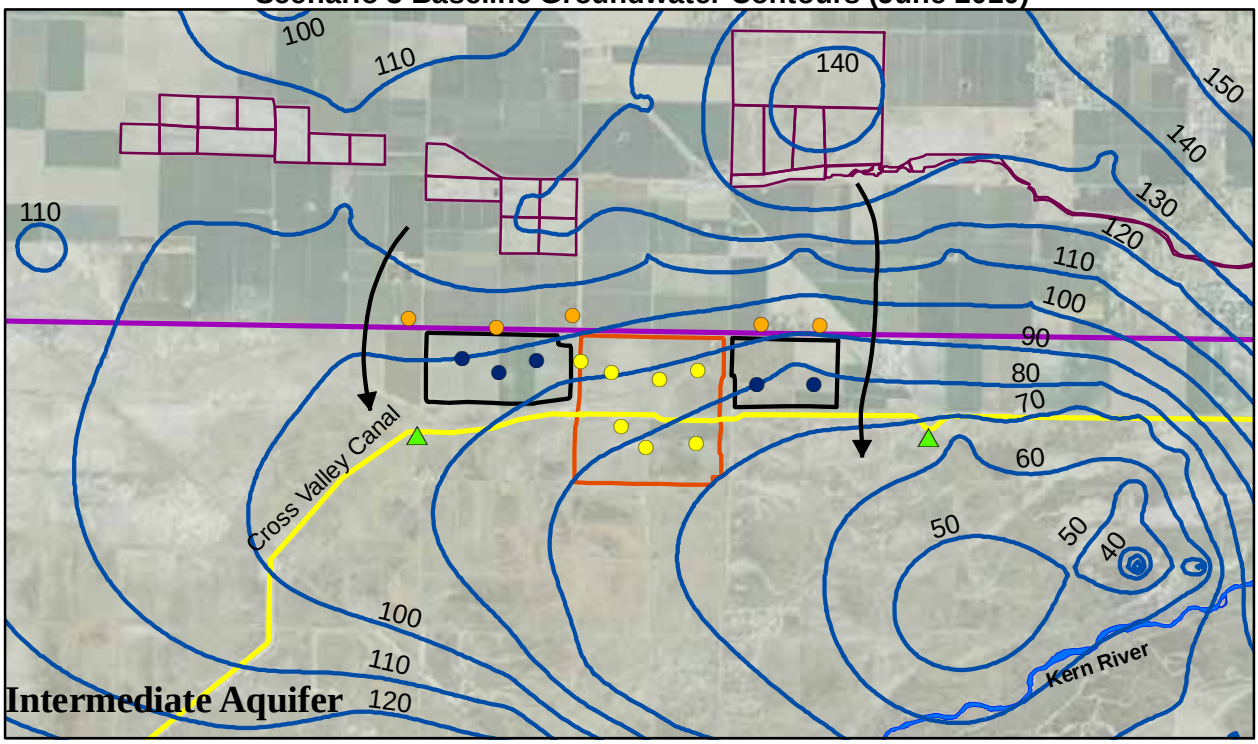
Model-Predicted Groundwater Level Change Over Time
Scenario 3 - Pumping during Historical Low Groundwater Conditions - Deep Aquifer



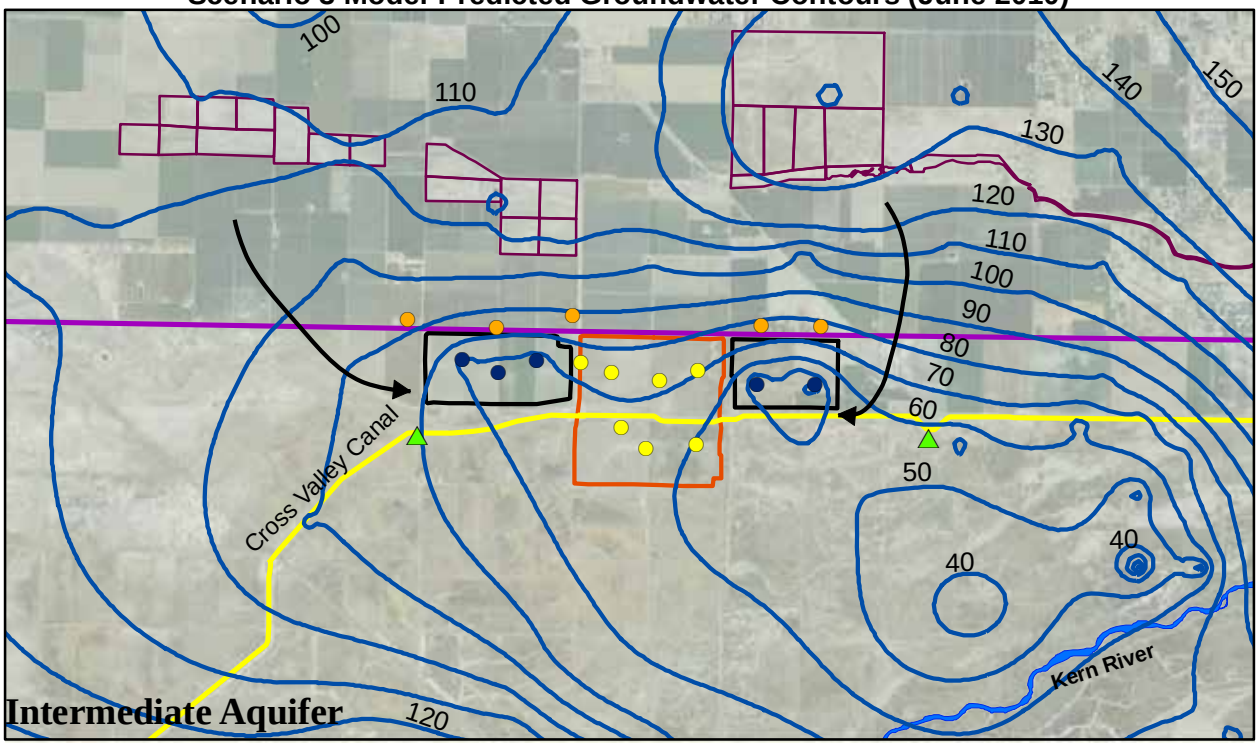
This figure shows the rate that groundwater levels recover following the simulated extraction period from September 2009 to June 2010. As shown, groundwater levels recover to within 5 ft of their pre-extraction level within 6 months after Project pumping stops.



Scenario 3 Baseline Groundwater Contours (June 2010)



Scenario 3 Model-Predicted Groundwater Contours (June 2010)



Groundwater Flow Direction

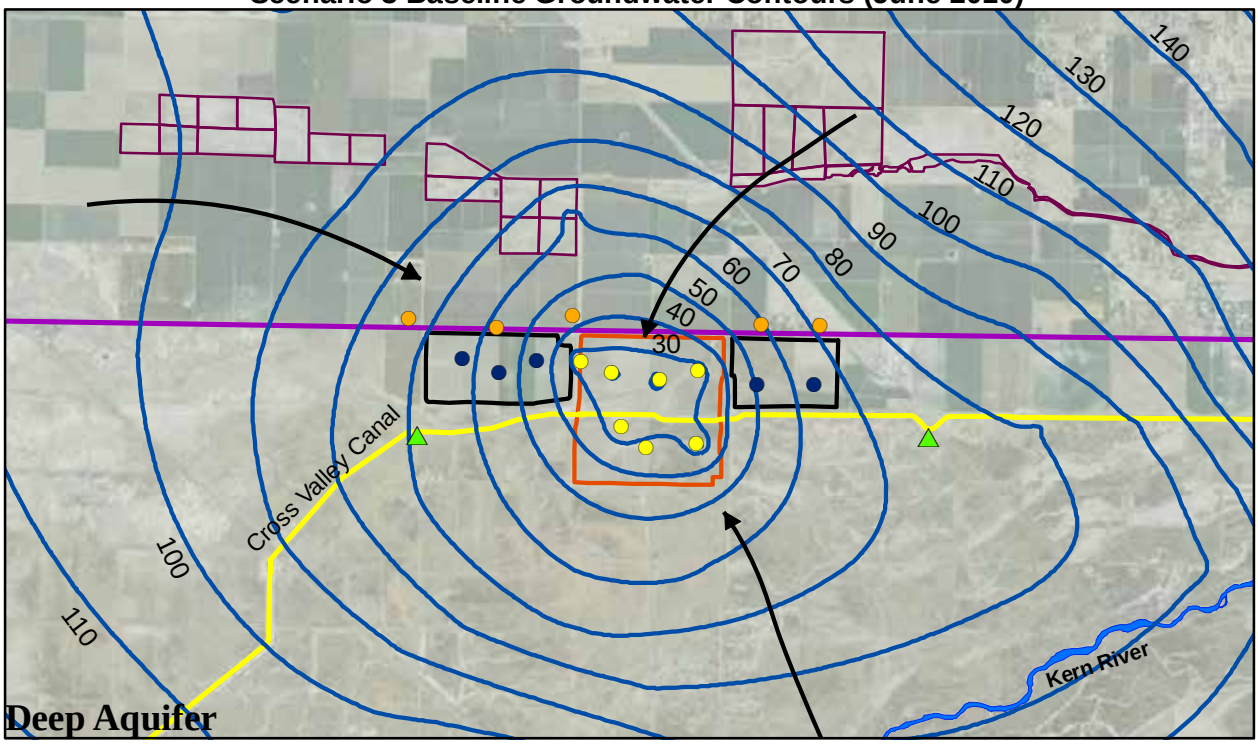
0 0.5 1 2 Miles

NAD 83 State Plane CA Zone 5
Groundwater contours in ft amsl

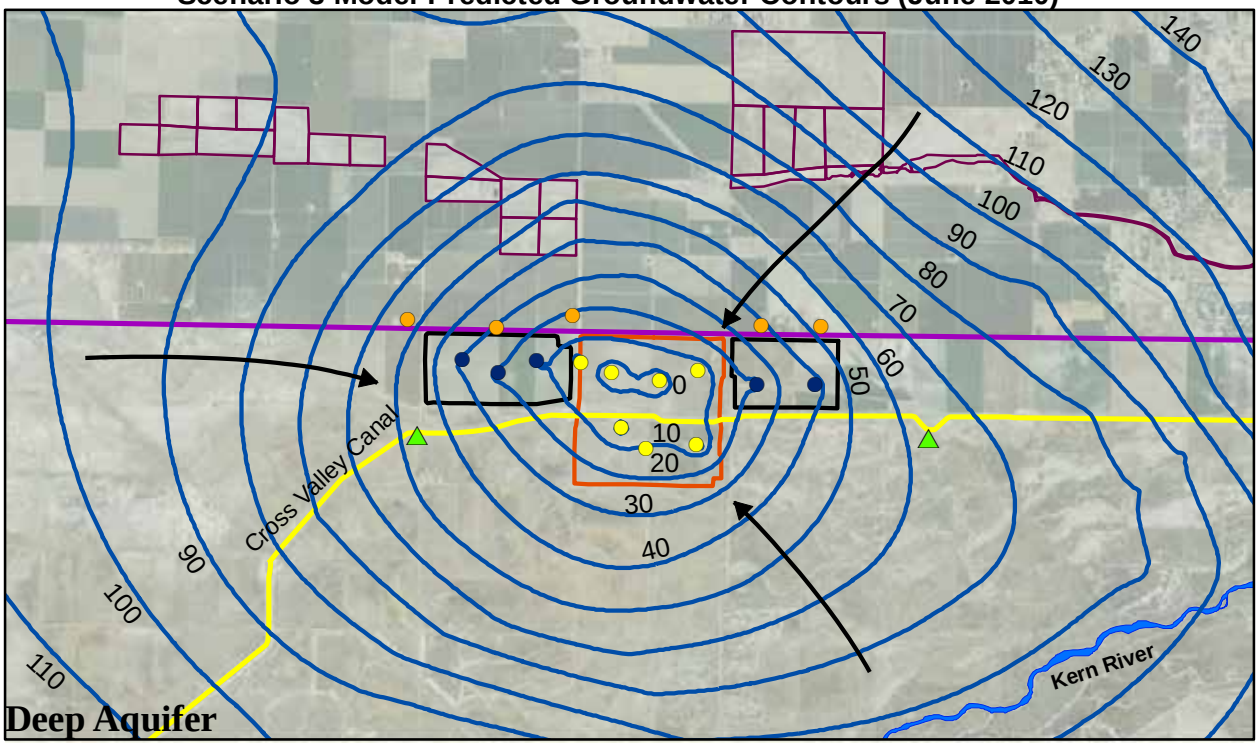
Thomas Harder & Co.
Groundwater Consulting

Figure 29

Scenario 3 Baseline Groundwater Contours (June 2010)



Scenario 3 Model-Predicted Groundwater Contours (June 2010)



Groundwater Flow Direction

0 0.5 1 2 Miles

NAD 83 State Plane CA Zone 5
Groundwater contours in ft amsl

Thomas Harder & Co.
Groundwater Consulting

Figure 30

Appendix

September 17, 2012

Thomas Harder & Co.
801 E. Yorba Linda Blvd.
Suite 3a
Placentia, CA 92870

Subject: Subcontract Analyses for FGL Lab No. SP 1208765

Enclosed please find results for the following sample(s) which were received by FGL.

- Sub Contracted-1,4 Dioxane
- Sub Contracted-EPA 525.2

Please note that this analysis was performed by Weck Laboratories, Inc. (NELAP Certified Laboratory)

Thank you for using FGL Environmental.

Sincerely,

Cindy Aguirre Digitally signed by Cindy Aguirre
Title: Customer Service Rep
Date: 2012-09-17

Enclosure

Certificate of Analysis

Report Date: 09/13/12 16:48
Received Date: 08/30/12 09:40
Turnaround Time: Normal

Project: SP 1208765 - (2-24140)

Phones: (805) 392-2012
Fax: (805) 525-4172

P.O. #:

Attn: Cindy Aquire

Client: FGL Environmental
853 Corporation Street
Santa Paula, CA 93060

Dear Cindy Aquire :

Enclosed are the results of analyses for samples received 8/30/2012 with the Chain of Custody document. The samples were received in good condition, at 3.9 °C and on ice. All analysis met the method criteria except as noted below or in the report with data qualifiers.

Lab Sample ID: 2H30009-01 **Sample ID: Travel Blank** **Matrix:** Water
Sampled by: Andrew Hausheer **Sampled: 08/29/12 00:00**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
Benzo (a) pyrene	ND		0.10	ug/l	1	EPA 525.2	9/6/12	9/11/12 15:10	W2I0128	
Bis(2-ethylhexyl)adipate	ND		5.0	ug/l	1	EPA 525.2	9/6/12	9/11/12 15:10	W2I0128	
Bis(2-ethylhexyl)phthalate	**7.2**		3.0	ug/l	1	EPA 525.2	9/6/12	9/11/12 15:10	W2I0128	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*109 %*		*73-136*	%		Concentration: *5.43*				
Surrogate: Perylene-d12	*144 %*		*48-141*	%		Concentration: *7.21*				*S-GC*
Surrogate: Triphenyl phosphate	*122 %*		*71-150*	%		Concentration: *6.08*				

Lab Sample ID: 2H30009-02 **Sample ID: Stockdale West** **Matrix:** Water
Sampled by: Andrew Hausheer **Sampled: 08/29/12 09:30**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
Benzo (a) pyrene	ND		0.10	ug/l	1	EPA 525.2	9/6/12	9/11/12 15:38	W2I0128	
Bis(2-ethylhexyl)adipate	ND		5.0	ug/l	1	EPA 525.2	9/6/12	9/11/12 15:38	W2I0128	
Bis(2-ethylhexyl)phthalate	ND		3.0	ug/l	1	EPA 525.2	9/6/12	9/11/12 15:38	W2I0128	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*110 %*		*73-136*	%		Concentration: *5.51*				
Surrogate: Perylene-d12	*118 %*		*48-141*	%		Concentration: *5.92*				
Surrogate: Triphenyl phosphate	*94 %*		*71-150*	%		Concentration: *4.70*				
1,4-Dioxane	ND		0.50	ug/l	1	EPA 8270M	8/31/12	9/5/12 12:22	W2H1348	

Lab Sample ID: 2H30009-03 **Sample ID: Stockdale East** **Matrix:** Water
Sampled by: Andrew Hausheer **Sampled: 08/29/12 10:30**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
Benzo (a) pyrene	ND		0.10	ug/l	1	EPA 525.2	9/6/12	9/11/12 16:06	W2I0128	
Bis(2-ethylhexyl)adipate	ND		5.0	ug/l	1	EPA 525.2	9/6/12	9/11/12 16:06	W2I0128	
Bis(2-ethylhexyl)phthalate	ND		3.0	ug/l	1	EPA 525.2	9/6/12	9/11/12 16:06	W2I0128	

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www.wecklabs.com

Certificate of Analysis

Lab Sample ID: 2H30009-03 **Sample ID: Stockdale East** **Matrix:** Water
Sampled by: Andrew Hausheer **Sampled: 08/29/12 10:30**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*112 %*		*73-136*	%	Concentration: *5.61*					
Surrogate: Perylene-d12	*120 %*		*48-141*	%	Concentration: *6.02*					
Surrogate: Triphenyl phosphate	*101 %*		*71-150*	%	Concentration: *5.03*					
1,4-Dioxane	ND		0.50	ug/l	1	EPA 8270M	8/31/12	9/5/12 12:41	W2H1348	

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Quality Control Section

1,4-Dioxane Low Level by isotopic dilution GC/MS - Quality Control

Batch W2H1348 - EPA 8270M

Blank (W2H1348-BLK1) **Prepared: 08/31/12 Analyzed: 09/05/12 11:28**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
1,4-Dioxane		ND		ug/l					

LCS (W2H1348-BS1) **Prepared: 08/31/12 Analyzed: 09/05/12 11:46**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
1,4-Dioxane		10.1		ug/l	10.0	101	76-131		

LCS Dup (W2H1348-BSD1) **Prepared: 08/31/12 Analyzed: 09/05/12 12:04**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
1,4-Dioxane		10.0		ug/l	10.0	100	76-131	0.6	30

Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W2I0128 - EPA 525.2

Blank (W2I0128-BLK1) **Prepared: 09/06/12 Analyzed: 09/11/12 11:25**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,3-Dimethyl-2-nitrobenzene		*5.40*		ug/l	*5.00*	*108*	*73-136*		
Surrogate: Triphenyl phosphate		*4.80*		ug/l	*5.00*	*96*	*71-150*		
Surrogate: Perylene-d12		*6.28*		ug/l	*5.00*	*126*	*48-141*		
Bis(2-ethylhexyl)phthalate		ND		ug/l					
Bis(2-ethylhexyl)adipate		ND		ug/l					
Benzo (a) pyrene		ND		ug/l					

LCS (W2I0128-BS1) **Prepared: 09/06/12 Analyzed: 09/11/12 11:53**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,3-Dimethyl-2-nitrobenzene		*5.38*		ug/l	*5.00*	*108*	*73-136*		
Surrogate: Triphenyl phosphate		*4.97*		ug/l	*5.00*	*99*	*71-150*		
Surrogate: Perylene-d12		*6.08*		ug/l	*5.00*	*122*	*48-141*		
Bis(2-ethylhexyl)phthalate		4.06		ug/l	5.00	81	54-142		
Bis(2-ethylhexyl)adipate		3.71		ug/l	5.00	74	50-145		
Benzo (a) pyrene		4.44		ug/l	5.00	89	54-136		

LCS Dup (W2I0128-BSD1) **Prepared: 09/06/12 Analyzed: 09/11/12 12:21**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,3-Dimethyl-2-nitrobenzene		*5.69*		ug/l	*5.00*	*114*	*73-136*		
Surrogate: Triphenyl phosphate		*4.55*		ug/l	*5.00*	*91*	*71-150*		
Surrogate: Perylene-d12		*6.46*		ug/l	*5.00*	*129*	*48-141*		
Bis(2-ethylhexyl)phthalate		4.48		ug/l	5.00	90	54-142	10	30
Bis(2-ethylhexyl)adipate		3.54		ug/l	5.00	71	50-145	5	30
Benzo (a) pyrene		4.27		ug/l	5.00	85	54-136	4	30

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Certificate of Analysis

Notes:
The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

An Absence of Total Coliform meets the drinking water standards as established by the State of California Department of Health Services.
The Reporting Limit (RL) is referenced as laboratory's Practical Quantitation Limit (PQL).
For Potable water analysis, the Reporting Limit (RL) is referenced as Detection Limit for reporting purposes (DLRs) defined by EPA.

If sample collected by Weck Laboratories, sampled in accordance to lab SOP MIS002

Authorized Signature

Contact: Kim G Tu (Project Manager)

ELAP # 1132
LACSD # 10143
NELAC # 04229CA

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Weck Laboratories certifies that the test results meet all requirements of NELAC unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Flags for Data Qualifiers:

S-GC	Surrogate recovery outside of control limits due to a possible matrix effect. The data was accepted based on valid recovery of the remaining surrogate.
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
Sub	Subcontracted analysis, original report enclosed.
DL	Method Detection Limit
RL	Method Reporting Limit
MDA	Minimum Detectable Activity
NR	Not Reportable

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Sample Receipt Acknowledgement

WORK ORDER: 2H30009
Printed: 8/31/2012 11:38:57AM

Client: FGL Environmental
Project: 525.2
Project Manager: Kim G Tu
Project Number: SP 1208765 - (2-24140)

Report To:
FGL Environmental
Cindy Aquire
853 Corporation Street
Santa Paula, CA 93060
Phone: (805) 392-2012
Fax: (805) 525-4172

Invoice To:
FGL Environmental
Accounts Payable
853 Corporation Street
Santa Paula, CA 93060
Phone :(805) 392-2000
Fax: (805) 525-4172

Date Due: **09/14/12 15:00 (10 day TAT)**

Received By: Stephanie J Gochez
Date Received: 08/30/12 09:40
Logged In By: Stephanie J Gochez
Date Logged In: 08/30/12 10:29

Samples Received at:	**3.9°C**	All containers intact:	**Yes**	Chain of custody completed:	**Yes**
Number of Ice chests/packages:	**1**	Custody seals presen	**NA**	Sample labels & COC agree:	**Yes**
		Custody seals intact:	**NA**	Samples preserved properly:	**Yes**
Appropriate Sample Containers:	**Yes**	Samples received on ice	**Yes**	Sample volume sufficient:	**Yes**
		Custody Seals	**No**	Sufficient holding time for all tests:	**Yes**

Analysis	TAT	Expires	Comments
2H30009-01 Travel Blank [Water] Sampled 08/29/12 00:00 Pacific			
525.2 Regulated	10	09/12/12 00:00	
2H30009-02 Stockdale West [Water] Sampled 08/29/12 09:30 Pacific			
525.2 Regulated	10	09/12/12 09:30	
1,4-Dioxane_w	10	09/05/12 09:30	
2H30009-03 Stockdale East [Water] Sampled 08/29/12 10:30 Pacific			
525.2 Regulated	10	09/12/12 10:30	
1,4-Dioxane_w	10	09/05/12 10:30	

Comments:

Authorized Signature

8/31/2012
Date

14859 East Clark Avenue, City of Industry, California 91745-1396 (626) 336-2139 FAX (626) 336-2634
www.wecklabs.com

Sample Receipt Acknowledgement

WORK ORDER:	2H30009	Printed: 8/31/2012 11:38:57AM	
Client:	FGL Environmental	Project Manager:	Kim G Tu
Project:	525.2	Project Number:	SP 1208765 - (2-24140)

Note:
If any of the information included in this sample receipt acknowledgement is incorrect (sample information, analysis, etc), please contact the lab at (626) 336-2139. Thank you.

14859 East Clark Avenue, City of Industry, California 91745-1396 (626) 336-2139 FAX (626) 336-2634
www.wecklabs.com

Subcontract to
Weck Laboratories, Inc.

2H30009

Client: **Fruit Growers Laboratory, Inc.**

Address: FGL Environmental, Inc.
853 Corporation St.
Santa Paula, CA 93060-3005

Phone: (805)392-2039 Fax: (805)525-6264

Contact Person:

Project Name: **SP 1208765 - (2-24140)**

Purchase Order Number:

Sampler(s) Andrew Hausheer

Compositor Setup Date: ____/____/____ Time: ____/____

Lab Number:

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE***	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Sub Contracted-EPA 525.2 1000ml(AGT)	Sub Contracted-1,4 Dioxane 1000ml(AGJ)	Map Ref.
0	Travel Blank	08/29/12	00:00	G	LBW				1		
1	Stockdale West	08/29/12	09:30	G	GW				1	1	
2	Stockdale East	08/29/12	10:30	G	GW				1	1	

Remarks:

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
BA	8/29/12	17:30	Ontrac					
Received By:	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**
Ontrac			[illegible]	8.30.12	9:40			

3.9.C

September 17, 2012

Thomas Harder & Co.
801 E. Yorba Linda Blvd.
Suite 3a
Placentia, CA 92870

Subject: Subcontract Analysis for FGL Lab No. SP 1208765

Enclosed please find results for the following sample(s) which were received by FGL.

- Dioxin-Dioxin EPA 1613B (2,3,7,8 TCDD Only)

Please note that this analysis was performed by Test America Sacramento (NELAP Certified Laboratory)

Thank you for using FGL Environmental.

Sincerely,

Cindy Aguirre Digitally signed by Cindy Aguirre
Title: Customer Service Rep
Date: 2012-09-17

Enclosure

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica West Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: G2H310438
Client Project/Site: SP 1208765-(2-24140)

For:
FGL Environmental
853 Corporation Street
P.O. Box 272
Santa Paula, CA 93060-0272

Attn: Cindy Aguirre

Authorized for release by:
9/17/2012 10:54:55 AM

David Alltucker
Project Manager
david.alltucker@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Client: FGL Environmental
Project/Site: SP 1208765-(2-24140)

TestAmerica Job ID: G2H310438

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

TestAmerica West Sacramento Project Number G2H310438

There are no anomalies associated with this project.

Detection Summary

Client: FGL Environmental
Project/Site: SP 1208765-(2-24140)

TestAmerica Job ID: G2H310438

Client Sample ID: STOCKDALE WEST **Lab Sample ID: G2H310438001**

No Detections

Client Sample ID: STOCKDALE EAST **Lab Sample ID: G2H310438002**

No Detections

Client: FGL Environmental
Project/Site: SP 1208765-(2-24140)

TestAmerica Job ID: G2H310438

Client Sample ID: STOCKDALE WEST

Lab Sample ID: G2H310438001

Date Collected: 08/29/12 09:30
Date Received: 08/31/12 09:10

Matrix: Water

Method: 1613B-Tetras - Dioxins/Furans, HRGC/HRMS (1613B-Tetras Only)

Analyte	Result	Qualifier	ML	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		9.9	9.2	pg/L		09/06/12 09:00	09/11/12 16:14	0.99

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*116*		*42 - 164*	*09/06/12 09:00*	*09/11/12 16:14*	*0.99*

Internal Standard	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*71*		*31 - 137*	*09/06/12 09:00*	*09/11/12 16:14*	*0.99*

Client Sample ID: STOCKDALE EAST

Lab Sample ID: G2H310438002

Date Collected: 08/29/12 10:30
Date Received: 08/31/12 09:10

Matrix: Water

Method: 1613B-Tetras - Dioxins/Furans, HRGC/HRMS (1613B-Tetras Only)

Analyte	Result	Qualifier	ML	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		10	3.7	pg/L		09/06/12 09:00	09/11/12 16:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*116*		*42 - 164*	*09/06/12 09:00*	*09/11/12 16:51*	*1*

Internal Standard	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*60*		*31 - 137*	*09/06/12 09:00*	*09/11/12 16:51*	*1*

Surrogate Summary

Client: FGL Environmental
Project/Site: SP 1208765-(2-24140)

TestAmerica Job ID: G2H310438

Method: 1613B-Tetras - Dioxins/Furans, HRGC/HRMS (1613B-Tetras Only)

Matrix: Water **Prep Type: Total**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	37TCDD (42-164)								
G2H310438001	STOCKDALE WEST	116								
G2H310438002	STOCKDALE EAST	116								
G2I050000100B	Method Blank	116								

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B-Tetras - Dioxins/Furans, HRGC/HRMS (1613B-Tetras Only)

Matrix: Water **Prep Type: Total**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	37TCDD (37-158)								
G2I050000100C	Lab Control Sample	115								

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Internal Standards Summary

Client: FGL Environmental
Project/Site: SP 1208765-(2-24140)

TestAmerica Job ID: G2H310438

Method: 1613B-Tetras - Dioxins/Furans, HRGC/HRMS (1613B-Tetras Only)

Matrix: Water **Prep Type: Total**

		Percent Internal Standard Recovery (Acceptance Limits)								
		TCDD								
Lab Sample ID	Client Sample ID	(31-137)								
G2H310438001	STOCKDALE WEST	71								
G2H310438002	STOCKDALE EAST	60								
G2I050000100B	Method Blank	69								

Internal Standard Legend

TCDD = 13C-2,3,7,8-TCDD

Method: 1613B-Tetras - Dioxins/Furans, HRGC/HRMS (1613B-Tetras Only)

Matrix: Water **Prep Type: Total**

		Percent Internal Standard Recovery (Acceptance Limits)								
		TCDD								
Lab Sample ID	Client Sample ID	(25-141)								
G2I050000100C	Lab Control Sample	72								

Internal Standard Legend

TCDD = 13C-2,3,7,8-TCDD

Client: FGL Environmental
Project/Site: SP 1208765-(2-24140)

TestAmerica Job ID: G2H310438

Method: 1613B-Tetras - Dioxins/Furans, HRGC/HRMS (1613B-Tetras Only)

Lab Sample ID: G2I050000100B
Matrix: Water
Analysis Batch: 2249100

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 2249100_P

Analyte	MB Result	MB Qualifier	ML	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		10	2.8	pg/L		09/06/12 09:00	09/12/12 10:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*116*		*42 - 164*	*09/06/12 09:00*	*09/12/12 10:23*	*1*

Internal Standard	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*69*		*31 - 137*	*09/06/12 09:00*	*09/12/12 10:23*	*1*

Lab Sample ID: G2I050000100C
Matrix: Water
Analysis Batch: 2249100

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 2249100_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,3,7,8-TCDD			200	253		pg/L		126	73 - 146		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*115*		*37 - 158*

Internal Standard	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*72*		*25 - 141*

QC Association Summary

Client: FGL Environmental
Project/Site: SP 1208765-(2-24140)

TestAmerica Job ID: G2H310438

Specialty Organics

Analysis Batch: 2249100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
G2H310438001	STOCKDALE WEST	Total	Water	1613B-Tetras	
G2H310438002	STOCKDALE EAST	Total	Water	1613B-Tetras	
G2I050000100B	Method Blank	Total	Water	1613B-Tetras	
G2I050000100C	Lab Control Sample	Total	Water	1613B-Tetras	

Prep Batch: 2249100_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
G2H310438001	STOCKDALE WEST	Total	Water	EXTRACTION: Soxhlet and Sep Funnel	
G2H310438002	STOCKDALE EAST	Total	Water	EXTRACTION: Soxhlet and Sep Funnel	
G2I050000100B	Method Blank	Total	Water	EXTRACTION: Soxhlet and Sep Funnel	
G2I050000100C	Lab Control Sample	Total	Water	EXTRACTION: Soxhlet and Sep Funnel	

Lab Chronicle

Client: FGL Environmental
Project/Site: SP 1208765-(2-24140)

TestAmerica Job ID: G2H310438

Client Sample ID: STOCKDALE WEST

Lab Sample ID: G2H310438001

Date Collected: 08/29/12 09:30

Matrix: Water

Date Received: 08/31/12 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EXTRACTION: Soxhlet and Sep Funnel			2249100_P	09/06/12 09:00	TL	TAL WSC
Total	Analysis	1613B-Tetras		0.99	2249100	09/11/12 16:14	SO	TAL WSC

Client Sample ID: STOCKDALE EAST

Lab Sample ID: G2H310438002

Date Collected: 08/29/12 10:30

Matrix: Water

Date Received: 08/31/12 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EXTRACTION: Soxhlet and Sep Funnel			2249100_P	09/06/12 09:00	TL	TAL WSC
Total	Analysis	1613B-Tetras		1	2249100	09/11/12 16:51	SO	TAL WSC

Laboratory References:

TAL WSC = TestAmerica West Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: FGL Environmental
Project/Site: SP 1208765-(2-24140)

TestAmerica Job ID: G2H310438

Laboratory: TestAmerica West Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-14
Alaska (UST)	State Program	10	UST-055	12-18-12
Arizona	State Program	9	AZ0708	08-11-13
Arkansas DEQ	State Program	6	88-0691	06-17-13
California	NELAC	9	1119CA	01-31-13
Colorado	State Program	8	N/A	08-31-13
Connecticut	State Program	1	PH-0691	06-30-13
Florida	NELAC	4	E87570	06-30-13
Guam	State Program	9	N/A	08-31-13
Hawaii	State Program	9	N/A	01-31-13
Illinois	NELAC	5	200060	03-17-13
Kansas	NELAC	7	E-10375	10-31-12
Louisiana	NELAC	6	30612	06-30-13
Michigan	State Program	5	9947	01-31-13
Nevada	State Program	9	CA44	07-31-13
New Jersey	NELAC	2	CA005	06-30-13
New York	NELAC	2	11666	04-01-13
Northern Mariana Islands	State Program	9	MP0007	01-31-13
Oregon	NELAC	10	CA200005	03-28-13
Pennsylvania	NELAC	3	68-01272	03-31-13
South Carolina	State Program	4	87014	06-30-13
Texas	NELAC	6	T104704399-08-TX	05-31-13
US Fish & Wildlife	Federal		LE148388-0	02-28-13
USDA	Federal		P330-11-00436	12-30-14
Utah	NELAC	8	QUAN1	01-31-13
Washington	State Program	10	C581	05-05-13
West Virginia	State Program	3	9930C	12-31-12
West Virginia DEP	State Program	3	334	07-31-13
Wisconsin	State Program	5	998204680	08-31-13
Wyoming	State Program	8	8TMS-Q	01-31-13

Method Summary

Client: FGL Environmental
Project/Site: SP 1208765-(2-24140)

TestAmerica Job ID: G2H310438

Method	Method Description	Protocol	Laboratory
1613B-Tetras	Dioxins/Furans, HRGC/HRMS (1613B-Tetras Only)	EPA-5	TAL WSC

Protocol References:

EPA-5 = EPA-5

Laboratory References:

TAL WSC = TestAmerica West Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: FGL Environmental
Project/Site: SP 1208765-(2-24140)

TestAmerica Job ID: G2H310438

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
G2H310438001	STOCKDALE WEST	Water	08/29/12 09:30	08/31/12 09:10
G2H310438002	STOCKDALE EAST	Water	08/29/12 10:30	08/31/12 09:10

G2H310438

Subcontract to
Test America Sacramento

Map Ref.

Client: **Fruit Growers Laboratory, Inc.**

Address: FGL Environmental, Inc.
853 Corporation St.
Santa Paula, CA 93060-3005

Phone: (805)392-2039 Fax: (805)525-6264

Contact Person:

Project Name: **SP 1208765 - (2-24140)**

Purchase Order Number:

Sampler(s) Andrew Hausheer

Compositor Setup Date: ____/____/____ Time: ____/____

Lab Number:

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Dioxin-Dioxin EPA 1613B (2,3,7,8 TCDD Only) 1000ml(AGT)									
1	Stockdale West	08/29/12	09:30	G	GW				1									
2	Stockdale East	08/29/12	10:30	G	GW				1									

Remarks:

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
	8/30/12	17:30						
Received By:	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**	**Received By:**	**Date:**	**Time:**
Nicole Kearney	8/31/12	1015						

2.6°

9/17/2012

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

LOT RECEIPT CHECKLIST
TestAmerica West Sacramento

CLIENT FGL PM DA

LOT# (QUANTIMS ID) G2H310438 QUOTE# 30647 LOCATION W13B

Checked (✓)

DATE RECEIVED 8/31/12 TIME RECEIVED 900 ☑

DELIVERED BY ☑ FEDEX ☐ ON TRAC ☐ OTHER

☐ GOLDENSTATE ☐ UPS ☐ EZ PARCEL

☐ TAL COURIER ☐ TAL SF ☐ CLIENT ☑

SHIPPPING CONTAINER(S) ☑ TAL ☐ CLIENT ☐ N/A

MULIT-COOLER(S) (If checked see multi-cooler form) ☐

SINGLE COOLER INFORMATION N/A

CUSTODY SEAL STATUS ☑ INTACT ☐ BROKEN ☐ N/A ☐ ☑

CUSTODY SEAL #(S) NA

COC #(S) NA ☐ ☑

TEMPERATURE BLANK Observed: NA Corrected: NA

SAMPLE TEMPERATURE - (TEMPERATURES ARE IN °C)

Observed: 3.3 Average 3.3 Corrected Average 1.3

LABORATORY THERMOMETER ID:

IR UNIT: #4 ☑ #5 ☐ ☐ OTHER ☐ ☑

JS (Initials) 8/31/12 (Date)

==========

pH MEASURED ☐ YES ☐ ANOMALY ☑ N/A ☑

LABELED BY..... NB ☑

LOGGED IN BY..... JS ☑

SHORT HOLD TEST NOTIFICATION

SAMPLE RECEIVING ☑

WETCHEM ☑ N/A ☑

VOA-ENCORES ☑ N/A ☑

☐ METALS NOTIFIED OF FILTER/PRESERVE VIA VERBAL & EMAIL ☑ N/A ☑

☑ COMPLETE SHIPMENT RECEIVED IN GOOD CONDITION WITH APPROPRIATE TEMPERATURES, CONTAINERS, PRESERVATIVES ☐ N/A ☑

☐ CLOUSEAU ☐ TEMPERATURE EXCEEDED (0 °C – 6 °C)*1 ☑ N/A

☑ WET ICE ☐ BLUE ICE ☐ GEL PACK ☐ NO COOLING AGENTS USED

JS (Initials) 8/31/12 (Date)

Notes

*1 Acceptable temperature range for State of Wisconsin samples is ≤4°C.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Bottle Lot Inventory

Lot ID: G2H310438

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VOA*																				
VOAh*																				
VOAmeoh																				
AGB	1	1																		
AGBs																				
250AGB																				
250AGBs																				
250AGBn																				
500AGB																				
____AGJ																				
500AGJ																				
250AGJ																				
125AGJ																				
125AGJmeoh																				
____CGJ																				
500CGJ																				
250CGJ																				
125CGJ																				
PJ																				
PJn																				
500PJ																				
500PJn																				
500PJna																				
500PJzn/na																				
250PJ																				
250PJn																				
250PJna																				
250PJzn/na																				
Acetate Tube																				
_____"CT																				
Encore																				
Folder/filter																				
PUF																				
Petri/Filter																				
XAD Trap																				
Ziploc																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

h = hydrochloric acid **s** = sulfuric acid **na** = sodium hydroxide **n** = nitric acid **zn** = zinc acetate

Number of VOAs with air bubbles present / total number of VOA's

OnTrac
On Time Delivery For Less

800.334.5000
ontrac.com

D10010505996087

Date Printed 8/30/2012

Tracking#D10010505996087

Shipped From:
FGL ENVIRONMENTAL
853 CORPORATION STREET
SANTA PAULA, CA 93060

Sent By: VICKI ZIGLER
Phone#: (805)392-2037
wgt(lbs): 18
Reference: SP1208765-8/30/12-BQ
Reference 2:

Ship To Company:	*Service:* **S**
TEST AMERICA **880 RIVERSIDE PARKWAY** **WEST SACRAMENTO, CA 95605** **SAMPLE RECEIVING (916)374-4402**	*Sort Code:* **SAC** *Special Services:*

October 8, 2012

Thomas Harder & Co.
801 E. Yorba Linda Blvd.
Suite 3a
Placentia, CA 92870

Lab ID : SP 1208765
Customer : 2-24140

Laboratory Report

Introduction: This report package contains total of 49 pages divided into 4 sections:

Case Narrative	(5 pages)	: An overview of the work performed at FGL.
Sample Results	(15 pages)	: Results for each sample submitted.
Interpretation	(8 pages)	: Drinking Water Interpretation for each sample submitted.
Quality Control	(21 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
Travel Blank	08/29/2012	08/29/2012	SP 1208765-000	LBW
Stockdale West	08/29/2012	08/29/2012	SP 1208765-001	GW
Stockdale East	08/29/2012	08/29/2012	SP 1208765-002	GW

Sampling and Receipt Information: All samples were received, prepared and analyzed within the method specified holding except those as listed in the table below. The holding time for Fluoride, pH are listed as immediate. Logistically this is very difficult to obtain. FGL policy is to analyze all samples requiring Fluoride, pH on the same day of receipt at the laboratory. If this presents any problem please call.

Lab ID	Analyte/Method	Required Holding Time	Actual Holding Time
SP 1208765-001	pH	15	441 Minutes
SP 1208765-002	pH	15	381 Minutes

All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
TEL: (805)392-2000
Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
CA NELAP Certification No. 01110CA

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
TEL: (209)942-0182
FAX: (209)942-0423
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October 8, 2012 Lab ID : SP 1208765
Thomas Harder & Co. Customer : 2-24140

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

200.7	08/30/2012:212887 All analysis quality controls are within established criteria.
	08/30/2012:209644 All preparation quality controls are within established criteria.
200.8	09/01/2012:212888 All analysis quality controls are within established criteria.
	09/07/2012:213175 All analysis quality controls are within established criteria.
	09/01/2012:209690 All preparation quality controls are within established criteria, except: The following note applies to Silver, Arsenic, Barium, Beryllium, Cadmium, Chromium, Nickel, Lead, Antimony, Selenium, Thallium, Vanadium: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. The following note applies to Silver: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
245.1	09/06/2012:213172 All analysis quality controls are within established criteria.
	09/05/2012:209849 All preparation quality controls are within established criteria.

Organic QC

504	09/04/2012:209780 All preparation quality controls are within established criteria.
504.1	09/05/2012:213041 All analysis quality controls are within established criteria.
505	09/13/2012:213456 All analysis quality controls are within established criteria, except: The following note applies to Lindane: 360 CCV above Acceptance Range (AR). Samples which were non detect for this analyte were accepted.
	09/12/2012:210104 All preparation quality controls are within established criteria.
507	09/19/2012:213710 All analysis quality controls are within established criteria.
	09/10/2012:210043 All preparation quality controls are within established criteria, except: The following note applies to Metolachlor, EPN/Triphenylphosphate: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. The following note applies to Alachlor, Atrazine, Cyanazine, Metribuzin: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
515.3	09/12/2012:213356 All analysis quality controls are within established criteria.
	09/12/2012:213680 All analysis quality controls are within established criteria, except:

Organic QC

515.3	The following note applies to 2,4-D, 2,4,5-T, 2,4,5-TP (Silvex), Bentazon, Dalapon, Dicamba, Dinoseb, Pentachlorophenol: 360 CCV above Acceptance Range (AR). Samples which were non detect for this analyte were accepted.
	09/11/2012:210091 All preparation quality controls are within established criteria.
524.2	08/30/2012:212822 All analysis quality controls are within established criteria.
	08/31/2012:212822 All analysis quality controls are within established criteria.
	08/30/2012:209697 All preparation quality controls are within established criteria, except: The following note applies to cis-1,3-Dichloropropene: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. The following note applies to Chloroethane (Ethyl Chloride), Vinyl Chloride: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
531.1	09/12/2012:213421 All analysis quality controls are within established criteria.
	09/13/2012:213421 All analysis quality controls are within established criteria.
	09/12/2012:210149 All preparation quality controls are within established criteria.
547	09/06/2012:213097 All analysis quality controls are within established criteria.
	09/06/2012:209907 All preparation quality controls are within established criteria.
548.1	09/12/2012:213471 All analysis quality controls are within established criteria.
	09/05/2012:209840 All preparation quality controls are within established criteria.
549	09/04/2012:209775 All preparation quality controls are within established criteria, except: The following note applies to Diquat Dibromide: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
549.2	09/11/2012:213332 All analysis quality controls are within established criteria.

Radio QC

900.0	09/11/2012:213450 All analysis quality controls are within established criteria.
	09/11/2012:213451 All analysis quality controls are within established criteria.
	09/11/2012:209973 All preparation quality controls are within established criteria.

Radio QC

908.0	09/19/2012:213936 All analysis quality controls are within established criteria.
	09/17/2012:210277 All preparation quality controls are within established criteria.

Inorganic - Wet Chemistry QC

2120B	08/30/2012:212801 All analysis quality controls are within established criteria.
	08/30/2012:209681 All preparation quality controls are within established criteria.
2130B	08/30/2012:212918 All analysis quality controls are within established criteria.
	08/30/2012:209763 All preparation quality controls are within established criteria.
2150B	08/30/2012:209680 All preparation quality controls are within established criteria.
2320B	09/04/2012:212980 All analysis quality controls are within established criteria.
	09/04/2012:209753 All preparation quality controls are within established criteria, except: The following note applies to Alkalinity (as CaCO3): 440 Sample nonhomogeneity may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
2510B	08/30/2012:212774 All analysis quality controls are within established criteria.
	08/30/2012:209665 All preparation quality controls are within established criteria.
2540CE	08/31/2012:209720 All preparation quality controls are within established criteria.
300.0	08/30/2012:212905 All analysis quality controls are within established criteria.
	08/30/2012:209694 All preparation quality controls are within established criteria.
314.0	09/13/2012:213479 All analysis quality controls are within established criteria.
	09/13/2012:210197 All preparation quality controls are within established criteria.
4500CNCE	08/31/2012:212797 All analysis quality controls are within established criteria.
	08/29/2012:209622 All preparation quality controls are within established criteria.
4500-H B	08/29/2012:209630 All preparation quality controls are within established criteria.
4500HB	08/29/2012:212723 All analysis quality controls are within established criteria.

October 8, 2012 Lab ID : SP 1208765
Thomas Harder & Co. Customer : 2-24140

Inorganic - Wet Chemistry QC

5540C	08/30/2012:212788 All analysis quality controls are within established criteria.
	08/30/2012:209674 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with NELAC standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2012-10-08

October 8, 2012

Lab ID : SP 1208765-000
Customer ID : 2-24140

Thomas Harder & Co.
801 E. Yorba Linda Blvd.
Suite 3a
Placentia, CA 92870

Sampled On : August 29, 2012-00:00
Sampled By : Andrew Hausheer
Received On : August 29, 2012-13:04
Matrix : Lab. Blank Water

Description : Travel Blank
Project : Stockdale East/West H20 Sampling

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
EPA 504.1[VOA:1]								
1,3-Dibromopropane‡	96.6	70-130	%		504	09/04/12:209780	504.1	09/05/12:213041
DBCP	ND	0.01	ug/L		504	09/04/12:209780	504.1	09/05/12:213041
EDB	ND	0.02	ug/L		504	09/04/12:209780	504.1	09/05/12:213041

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE, (P) Plastic, (VOA) VOA
Preservatives: Monochloracetic Buffer, H2SO4 pH < 2, NaOH, HNO3 pH < 2, HNO3 pH < 2, HCl pH < 2 ‡Surrogate. * PQL adjusted for dilution.

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October 8, 2012

Lab ID : SP 1208765-001
Customer ID : 2-24140

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Placentia, CA 92870

Sampled On : August 29, 2012-09:30
Sampled By : Andrew Hausheer
Received On : August 29, 2012-13:04
Matrix : Ground Water

Description : Stockdale West
Project : Stockdale East/West H20 Sampling

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
General Mineral[P:1'4]								
Total Hardness as CaCO3	182	2.5	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Calcium	68	1	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Magnesium	3	1	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Potassium	1	1	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Sodium	42	1	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Total Cations	5.5	0.1	meq/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Boron	0.2	0.1	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Copper	ND	10	ug/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Iron	ND	50	ug/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Manganese	ND	10	ug/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Zinc	ND	20	ug/L		200.7	08/30/12:209644	200.7	08/30/12:212887
SAR	1.4	0.1	--		200.7	08/30/12:209644	200.7	08/30/12:212887
Total Alkalinity (as CaCO3)	110	10	mg/L		2320B	09/04/12:209753	2320B	09/04/12:212980
Hydroxide	ND	10	mg/L		2320B	09/04/12:209753	2320B	09/04/12:212980
Carbonate	ND	10	mg/L		2320B	09/04/12:209753	2320B	09/04/12:212980
Bicarbonate	130	10	mg/L		2320B	09/04/12:209753	2320B	09/04/12:212980
Sulfate	36	2	mg/L		300.0	08/30/12:209694	300.0	08/30/12:212905
Chloride	81	1	mg/L		300.0	08/30/12:209694	300.0	08/30/12:212905
Nitrate	13.4	0.4	mg/L		300.0	08/30/12:209694	300.0	08/30/12:212905
Nitrite as N	ND	0.1	mg/L		300.0	08/30/12:209694	300.0	08/30/12:212905
Nitrate + Nitrite as N	3.0	0.1	mg/L		300.0	08/30/12:209694	300.0	08/30/12:212905
Fluoride	ND	0.1	mg/L		300.0	08/30/12:209694	300.0	08/30/12:212905
Total Anions	5.4	0.1	meq/L		2320B	09/04/12:209753	2320B	09/04/12:212980
pH	7.6	--	units		4500-H B	08/29/12:209630	4500HB	08/29/12:212723
Specific Conductance	590	1	umhos/cm		2510B	08/30/12:209665	2510B	08/30/12:212774
Total Dissolved Solids	400	20	mg/L		2540CE	08/31/12:209720	2540C	09/04/12:212936
MBAS Screen	ND	0.1	mg/L		5540C	08/30/12:209674	5540C	08/30/12:212788
Aggressiveness Index	11.9	1	--		4500-H B	08/29/12:209630	4500HB	08/29/12:212723
Langlier Index (20°C)	0.02	1	--		4500-H B	08/29/12:209630	4500HB	08/29/12:212723
Metals, Total[P:1]								
Aluminum	20	10	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Antimony	ND	1	ug/L		200.8	09/01/12:209690	200.8	09/07/12:213175
Arsenic	ND	2	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Barium	43.1	0.2	ug/L		200.8	09/01/12:209690	200.8	09/07/12:213175
Beryllium	ND	1	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888

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October 8, 2012 Lab ID : SP 1208765-001
Description : Stockdale West Customer ID : 2-24140

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Metals, Total[P:1]								
Cadmium	ND	0.2	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Chromium	ND	1	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Lead	0.3	0.2	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Mercury	ND	0.02	ug/L		245.1	09/05/12:209849	245.1	09/06/12:213172
Nickel	ND	1	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Selenium	ND	2	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Silica	26	2	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Silver	ND	1	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Thallium	ND	0.2	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Vanadium	4	2	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Wet Chemistry[P:1'10]								
Color	ND	5	units		2120B	08/30/12:209681	2120B	08/30/12:212801
Cyanide, Total	ND	0.004	mg/L		4500CNCE	08/29/12:209622	4500CNCE	08/31/12:212797
Odor	ND	1	TON		2150B	08/30/12:209680	2150B	08/30/12:212800
Turbidity	1.6	0.2	NTU		2130B	08/30/12:209763	2130B	08/30/12:212918
Perchlorate	ND	2	ug/L		314.0	09/13/12:210197	314.0	09/13/12:213479

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE, (P) Plastic, (VOA) VOA
Preservatives: Monochloracetic Buffer, H2SO4 pH < 2, NaOH, HNO3 pH < 2, HNO3 pH < 2, HCl pH < 2 ‡Surrogate. * PQL adjusted for dilution.

October 8, 2012

Lab ID : SP 1208765-001
Customer ID : 2-24140

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Sampled On : August 29, 2012-09:30
Sampled By : Andrew Hausheer
Received On : August 29, 2012-13:04
Matrix : Ground Water

Description : Stockdale West
Project : Stockdale East/West H20 Sampling

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
EPA 504.1[VOA:1]								
1,3-Dibromopropane‡	98.8	70-130	%		504	09/04/12:209780	504.1	09/05/12:213041
DBCP	ND	0.01	ug/L		504	09/04/12:209780	504.1	09/05/12:213041
EDB	0.02	0.02	ug/L		504	09/04/12:209780	504.1	09/05/12:213041
EPA 505[VOA:1]								
Alachlor	ND	0.2	ug/L		505	09/12/12:210104	505	09/13/12:213456
Aldrin	ND	0.01	ug/L		505	09/12/12:210104	505	09/13/12:213456
Chlordane	ND	0.1	ug/L		505	09/12/12:210104	505	09/13/12:213456
Dieldrin	ND	0.01	ug/L		505	09/12/12:210104	505	09/13/12:213456
Endrin	ND	0.01	ug/L		505	09/12/12:210104	505	09/13/12:213456
Heptachlor	ND	0.01	ug/L		505	09/12/12:210104	505	09/13/12:213456
Heptachlor Epoxide	ND	0.01	ug/L		505	09/12/12:210104	505	09/13/12:213456
Hexachlorobenzene	ND	0.01	ug/L		505	09/12/12:210104	505	09/13/12:213456
Hexachlorocyclopentadiene	ND	0.1	ug/L		505	09/12/12:210104	505	09/13/12:213456
Lindane (Gamma NHC)	ND	0.05	ug/L		505	09/12/12:210104	505	09/13/12:213456
Methoxychlor	ND	0.1	ug/L		505	09/12/12:210104	505	09/13/12:213456
Toxaphene	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1016	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1221	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1232	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1242	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1248	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1254	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1260	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
EPA 507[AGT:1]								
Triphenylphosphate‡	70.8	70-130	%		507	09/10/12:210043	507	09/19/12:213710
Alachlor	ND	1	ug/L		507	09/10/12:210043	507	09/19/12:213710
Atrazine	ND	0.5	ug/L		507	09/10/12:210043	507	09/19/12:213710
Bromacil	ND	2	ug/L		507	09/10/12:210043	507	09/19/12:213710
Butachlor	ND	1	ug/L		507	09/10/12:210043	507	09/19/12:213710
Diazinon	ND	2	ug/L		507	09/10/12:210043	507	09/19/12:213710
Dimethoate	ND	2	ug/L		507	09/10/12:210043	507	09/19/12:213710
Metolachlor	ND	1	ug/L		507	09/10/12:210043	507	09/19/12:213710
Metribuzin	ND	0.5	ug/L		507	09/10/12:210043	507	09/19/12:213710
Molinate	ND	2	ug/L		507	09/10/12:210043	507	09/19/12:213710
Prometryne	ND	2	ug/L		507	09/10/12:210043	507	09/19/12:213710

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October 8, 2012 Lab ID : SP 1208765-001
Description : Stockdale West Customer ID : 2-24140

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 507[AGT:1]								
Propachlor	ND	1	ug/L		507	09/10/12:210043	507	09/19/12:213710
Simazine	ND	1	ug/L		507	09/10/12:210043	507	09/19/12:213710
Thiobencarb	ND	1	ug/L		507	09/10/12:210043	507	09/19/12:213710
Cyanazine	ND	0.5	ug/L		507	09/10/12:210043	507	09/19/12:213710
EPA 515[AGT:1]								
2,4-DCAA‡	103	70-130	%		515.3	09/11/12:210091	515.3	09/12/12:213356
Bentazon	ND	2	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
2,4-D	ND	2	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
Dalapon	ND	10	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
Dicamba	ND	1	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
Dinoseb	ND	1	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
Pentachlorophenol	ND	0.2	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
Picloram	ND	1	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
2,4,5-TP (Silvex)	ND	1	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
2,4,5-T	ND	1	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
EPA 524.2[VOA:1'3]								
4-Bromofluorobenzene‡	96.4	70-130	%		524.2	08/30/12:209697	524.2	08/30/12:212822
1,2-Dichlorobenzene-d4‡	85.9	70-130	%		524.2	08/30/12:209697	524.2	08/30/12:212822
Benzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Bromobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Bromochloromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Bromodichloromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Bromoform	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Bromomethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
n-Butylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
sec-Butylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
tert-Butylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Carbon Tetrachloride	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Chlorobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Chloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Chloroform	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Chloromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
2-Chlorotoluene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
4-Chlorotoluene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Dibromochloromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Dibromomethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,2-Dichlorobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,3-Dichlorobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822

October 8, 2012 Lab ID : SP 1208765-001
Description : Stockdale West Customer ID : 2-24140

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 524.2[VOA:1'3]								
1,4-Dichlorobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Dichlorodifluoromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,1-Dichloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,2-Dichloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,1-Dichloroethylene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
cis-1,2-Dichloroethylene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
trans-1,2-Dichloroethylene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,2-Dichloropropane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,3-Dichloropropane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Dichloromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
2,2-Dichloropropane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,1-Dichloropropene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,3-Dichloropropene (Total)	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
cis-1,3-Dichloropropene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
trans-1,3-Dichloropropene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Di-isopropyl ether (DIPE)	ND	3	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Ethyl Benzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Ethyl tert-Butyl Ether (ETBE)	ND	3	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Hexachlorobutadiene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Isopropylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
p-Isopropyltoluene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Methyl tert-Butyl Ether (MTBE)	ND	1	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Naphthalene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
n-Propylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Styrene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Tert-amyl-methyl Ether (TAME)	ND	3	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Tetrachloroethylene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Toluene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,2,3-Trichlorobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,2,4-Trichlorobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,1,1-Trichloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,1,2-Trichloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Trichloroethylene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Trichlorofluoromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,1,2-Trichlorotrifluoroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
1,2,4-Trimethylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822

October 8, 2012 Lab ID : SP 1208765-001
Description : Stockdale West Customer ID : 2-24140

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 524.2[VOA:1'3]								
1,3,5-Trimethylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Vinyl Chloride	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Xylenes (Total)	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Xylenes m,p	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Xylenes o	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
Total Trihalomethanes	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/30/12:212822
EPA 531.1[AGT:1'8]								
Aldicarb	ND	3	ug/L		531.1	09/12/12:210149	531.1	09/12/12:213421
Aldicarb Sulfone	ND	2	ug/L		531.1	09/12/12:210149	531.1	09/12/12:213421
Aldicarb Sulfoxide	ND	3	ug/L		531.1	09/12/12:210149	531.1	09/12/12:213421
Carbaryl	ND	5	ug/L		531.1	09/12/12:210149	531.1	09/12/12:213421
Carbofuran	ND	5	ug/L		531.1	09/12/12:210149	531.1	09/12/12:213421
3-Hydroxycarbofuran	ND	3	ug/L		531.1	09/12/12:210149	531.1	09/12/12:213421
Methomyl	ND	2	ug/L		531.1	09/12/12:210149	531.1	09/12/12:213421
Oxamyl	ND	5	ug/L		531.1	09/12/12:210149	531.1	09/12/12:213421
EPA 547[AGT:1]								
Glyphosate	ND	20	ug/L		547	09/06/12:209907	547	09/06/12:213097
EPA 548.1[AGT:1]								
Endothall	ND	40	ug/L		548.1	09/05/12:209840	548.1	09/12/12:213471
EPA 549[AST:1]								
Diquat	ND	2	ug/L		549	09/04/12:209775	549.2	09/11/12:213332

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE, (P) Plastic, (VOA) VOA
Preservatives: Monochloracetic Buffer, H2SO4 pH < 2, NaOH, HNO3 pH < 2, HNO3 pH < 2, HCl pH < 2 ‡Surrogate. * PQL adjusted for dilution.

October 8, 2012

Lab ID : SP 1208765-001
Customer ID : 2-24140

Thomas Harder & Co.
801 E. Yorba Linda Blvd.
Suite 3a
Placentia, CA 92870

Sampled On : August 29, 2012-09:30
Sampled By : Andrew Hausheer
Received On : August 29, 2012-13:04
Matrix : Ground Water

Description : Stockdale West
Project : Stockdale East/West H20 Sampling

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Radio Chemistry[P:1]								
Gross Alpha	18.9 ± 3.01	1.18	pCi/L	15/5	900.0	09/11/12-09:00 2P1209973	900.0	09/11/12-14:30 2A1213450
Uranium	10.2 ± 1.89	0.439	pCi/L	20	908.0	09/17/12-08:10 2P1210277	908.0	09/19/12-15:20 2A1213936

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE, (P) Plastic, (VOA) VOA
Preservatives: Monochloracetic Buffer, H2SO4 pH < 2, NaOH, HNO3 pH < 2, HNO3 pH < 2, HCl pH < 2 * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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October 8, 2012

Lab ID : SP 1208765-002
Customer ID : 2-24140

Thomas Harder & Co.
801 E. Yorba Linda Blvd.
Suite 3a
Placentia, CA 92870

Sampled On : August 29, 2012-10:30
Sampled By : Andrew Hausheer
Received On : August 29, 2012-13:04
Matrix : Ground Water

Description : Stockdale East
Project : Stockdale East/West H20 Sampling

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
General Mineral[P:1'4]								
Total Hardness as CaCO3	142	2.5	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Calcium	52	1	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Magnesium	3	1	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Potassium	ND	1	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Sodium	33	1	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Total Cations	4.3	0.1	meq/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Boron	0.2	0.1	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Copper	ND	10	ug/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Iron	ND	50	ug/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Manganese	ND	10	ug/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Zinc	30	20	ug/L		200.7	08/30/12:209644	200.7	08/30/12:212887
SAR	1.2	0.1	--		200.7	08/30/12:209644	200.7	08/30/12:212887
Total Alkalinity (as CaCO3)	100	10	mg/L		2320B	09/04/12:209753	2320B	09/04/12:212980
Hydroxide	ND	10	mg/L		2320B	09/04/12:209753	2320B	09/04/12:212980
Carbonate	ND	10	mg/L		2320B	09/04/12:209753	2320B	09/04/12:212980
Bicarbonate	120	10	mg/L		2320B	09/04/12:209753	2320B	09/04/12:212980
Sulfate	34	2	mg/L		300.0	08/30/12:209694	300.0	08/30/12:212905
Chloride	51	1	mg/L		300.0	08/30/12:209694	300.0	08/30/12:212905
Nitrate	14.4	0.4	mg/L		300.0	08/30/12:209694	300.0	08/30/12:212905
Nitrite as N	ND	0.1	mg/L		300.0	08/30/12:209694	300.0	08/30/12:212905
Nitrate + Nitrite as N	3.2	0.1	mg/L		300.0	08/30/12:209694	300.0	08/30/12:212905
Fluoride	ND	0.1	mg/L		300.0	08/30/12:209694	300.0	08/30/12:212905
Total Anions	4.3	0.1	meq/L		2320B	09/04/12:209753	2320B	09/04/12:212980
pH	7.8	--	units		4500-H B	08/29/12:209630	4500HB	08/29/12:212723
Specific Conductance	469	1	umhos/cm		2510B	08/30/12:209665	2510B	08/30/12:212774
Total Dissolved Solids	280	20	mg/L		2540CE	08/31/12:209720	2540C	09/04/12:212936
MBAS Screen	ND	0.1	mg/L		5540C	08/30/12:209674	5540C	08/30/12:212788
Aggressiveness Index	11.9	1	--		4500-H B	08/29/12:209630	4500HB	08/29/12:212723
Langlier Index (20°C)	0.08	1	--		4500-H B	08/29/12:209630	4500HB	08/29/12:212723
Metals, Total[P:1]								
Aluminum	ND	10	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Antimony	ND	1	ug/L		200.8	09/01/12:209690	200.8	09/07/12:213175
Arsenic	ND	2	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Barium	70.2	0.2	ug/L		200.8	09/01/12:209690	200.8	09/07/12:213175
Beryllium	ND	1	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888

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FAX: (559)734-8435

October 8, 2012
Description : Stockdale East

Lab ID : SP 1208765-002
Customer ID : 2-24140

Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Metals, Total[P:1]								
Cadmium	ND	0.2	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Chromium	ND	1	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Lead	ND	0.2	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Mercury	ND	0.02	ug/L		245.1	09/05/12:209849	245.1	09/06/12:213172
Nickel	ND	1	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Selenium	ND	2	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Silica	25	2	mg/L		200.7	08/30/12:209644	200.7	08/30/12:212887
Silver	ND	1	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Thallium	ND	0.2	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Vanadium	5	2	ug/L		200.8	09/01/12:209690	200.8	09/01/12:212888
Wet Chemistry[P:1'10]								
Color	ND	5	units		2120B	08/30/12:209681	2120B	08/30/12:212801
Cyanide, Total	ND	0.004	mg/L		4500CNCE	08/29/12:209622	4500CNCE	08/31/12:212797
Odor	ND	1	TON		2150B	08/30/12:209680	2150B	08/30/12:212800
Turbidity	ND	0.2	NTU		2130B	08/30/12:209763	2130B	08/30/12:212918
Perchlorate	ND	2	ug/L		314.0	09/13/12:210197	314.0	09/13/12:213479

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE, (P) Plastic, (VOA) VOA
Preservatives: Monochloracetic Buffer, H2SO4 pH < 2, NaOH, HNO3 pH < 2, HNO3 pH < 2, HCl pH < 2 ‡Surrogate. * PQL adjusted for dilution.

October 8, 2012

Lab ID : SP 1208765-002
Customer ID : 2-24140

Thomas Harder & Co.
801 E. Yorba Linda Blvd.
Suite 3a
Placentia, CA 92870

Sampled On : August 29, 2012-10:30
Sampled By : Andrew Hausheer
Received On : August 29, 2012-13:04
Matrix : Ground Water

Description : Stockdale East
Project : Stockdale East/West H20 Sampling

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
EPA 504.1[VOA:1]								
1,3-Dibromopropane‡	115	70-130	%		504	09/04/12:209780	504.1	09/05/12:213041
DBCP	ND	0.01	ug/L		504	09/04/12:209780	504.1	09/05/12:213041
EDB	ND	0.02	ug/L		504	09/04/12:209780	504.1	09/05/12:213041
EPA 505[VOA:1]								
Alachlor	ND	0.2	ug/L		505	09/12/12:210104	505	09/13/12:213456
Aldrin	ND	0.01	ug/L		505	09/12/12:210104	505	09/13/12:213456
Chlordane	ND	0.1	ug/L		505	09/12/12:210104	505	09/13/12:213456
Dieldrin	ND	0.01	ug/L		505	09/12/12:210104	505	09/13/12:213456
Endrin	ND	0.01	ug/L		505	09/12/12:210104	505	09/13/12:213456
Heptachlor	ND	0.01	ug/L		505	09/12/12:210104	505	09/13/12:213456
Heptachlor Epoxide	ND	0.01	ug/L		505	09/12/12:210104	505	09/13/12:213456
Hexachlorobenzene	ND	0.01	ug/L		505	09/12/12:210104	505	09/13/12:213456
Hexachlorocyclopentadiene	ND	0.1	ug/L		505	09/12/12:210104	505	09/13/12:213456
Lindane (Gamma NHC)	ND	0.05	ug/L		505	09/12/12:210104	505	09/13/12:213456
Methoxychlor	ND	0.1	ug/L		505	09/12/12:210104	505	09/13/12:213456
Toxaphene	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1016	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1221	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1232	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1242	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1248	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1254	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
PCB 1260	ND	0.5	ug/L		505	09/12/12:210104	505	09/13/12:213456
EPA 507[AGT:1]								
Triphenylphosphate‡	88.2	70-130	%		507	09/10/12:210043	507	09/19/12:213710
Alachlor	ND	1	ug/L		507	09/10/12:210043	507	09/19/12:213710
Atrazine	ND	0.5	ug/L		507	09/10/12:210043	507	09/19/12:213710
Bromacil	ND	2	ug/L		507	09/10/12:210043	507	09/19/12:213710
Butachlor	ND	1	ug/L		507	09/10/12:210043	507	09/19/12:213710
Diazinon	ND	2	ug/L		507	09/10/12:210043	507	09/19/12:213710
Dimethoate	ND	2	ug/L		507	09/10/12:210043	507	09/19/12:213710
Metolachlor	ND	1	ug/L		507	09/10/12:210043	507	09/19/12:213710
Metribuzin	ND	0.5	ug/L		507	09/10/12:210043	507	09/19/12:213710
Molinate	ND	2	ug/L		507	09/10/12:210043	507	09/19/12:213710
Prometryne	ND	2	ug/L		507	09/10/12:210043	507	09/19/12:213710

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October 8, 2012 Lab ID : SP 1208765-002
Description : Stockdale East Customer ID : 2-24140

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 507[AGT:1]								
Propachlor	ND	1	ug/L		507	09/10/12:210043	507	09/19/12:213710
Simazine	ND	1	ug/L		507	09/10/12:210043	507	09/19/12:213710
Thiobencarb	ND	1	ug/L		507	09/10/12:210043	507	09/19/12:213710
Cyanazine	ND	0.5	ug/L		507	09/10/12:210043	507	09/19/12:213710
EPA 515[AGT:1]								
2,4-DCAA‡	102	70-130	%		515.3	09/11/12:210091	515.3	09/12/12:213356
Bentazon	ND	2	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
2,4-D	ND	2	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
Dalapon	ND	10	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
Dicamba	ND	1	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
Dinoseb	ND	1	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
Pentachlorophenol	ND	0.2	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
Picloram	ND	1	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
2,4,5-TP (Silvex)	ND	1	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
2,4,5-T	ND	1	ug/L		515.3	09/11/12:210091	515.3	09/12/12:213680
EPA 524.2[VOA:1'3]								
4-Bromofluorobenzene‡	88.9	70-130	%		524.2	08/30/12:209697	524.2	08/31/12:212822
1,2-Dichlorobenzene-d4‡	80.5	70-130	%		524.2	08/30/12:209697	524.2	08/31/12:212822
Benzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Bromobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Bromochloromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Bromodichloromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Bromoform	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Bromomethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
n-Butylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
sec-Butylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
tert-Butylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Carbon Tetrachloride	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Chlorobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Chloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Chloroform	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Chloromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
2-Chlorotoluene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
4-Chlorotoluene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Dibromochloromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Dibromomethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,2-Dichlorobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,3-Dichlorobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822

October 8, 2012 Lab ID : SP 1208765-002
Description : Stockdale East Customer ID : 2-24140

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 524.2[VOA:1'3]								
1,4-Dichlorobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Dichlorodifluoromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,1-Dichloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,2-Dichloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,1-Dichloroethylene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
cis-1,2-Dichloroethylene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
trans-1,2-Dichloroethylene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,2-Dichloropropane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,3-Dichloropropane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Dichloromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
2,2-Dichloropropane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,1-Dichloropropene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,3-Dichloropropene (Total)	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
cis-1,3-Dichloropropene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
trans-1,3-Dichloropropene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Di-isopropyl ether (DIPE)	ND	3	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Ethyl Benzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Ethyl tert-Butyl Ether (ETBE)	ND	3	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Hexachlorobutadiene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Isopropylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
p-Isopropyltoluene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Methyl tert-Butyl Ether (MTBE)	ND	1	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Naphthalene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
n-Propylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Styrene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Tert-amyl-methyl Ether (TAME)	ND	3	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Tetrachloroethylene	1.4	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Toluene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,2,3-Trichlorobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,2,4-Trichlorobenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,1,1-Trichloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,1,2-Trichloroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Trichloroethylene	1.2	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Trichlorofluoromethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,1,2-Trichlorotrifluoroethane	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
1,2,4-Trimethylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822

October 8, 2012 Lab ID : SP 1208765-002
Description : Stockdale East Customer ID : 2-24140

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 524.2[VOA:1'3]								
1,3,5-Trimethylbenzene	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Vinyl Chloride	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Xylenes (Total)	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Xylenes m,p	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Xylenes o	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
Total Trihalomethanes	ND	0.5	ug/L		524.2	08/30/12:209697	524.2	08/31/12:212822
EPA 531.1[AGT:1'8]								
Aldicarb	ND	3	ug/L		531.1	09/12/12:210149	531.1	09/13/12:213421
Aldicarb Sulfone	ND	2	ug/L		531.1	09/12/12:210149	531.1	09/13/12:213421
Aldicarb Sulfoxide	ND	3	ug/L		531.1	09/12/12:210149	531.1	09/13/12:213421
Carbaryl	ND	5	ug/L		531.1	09/12/12:210149	531.1	09/13/12:213421
Carbofuran	ND	5	ug/L		531.1	09/12/12:210149	531.1	09/13/12:213421
3-Hydroxycarbofuran	ND	3	ug/L		531.1	09/12/12:210149	531.1	09/13/12:213421
Methomyl	ND	2	ug/L		531.1	09/12/12:210149	531.1	09/13/12:213421
Oxamyl	ND	5	ug/L		531.1	09/12/12:210149	531.1	09/13/12:213421
EPA 547[AGT:1]								
Glyphosate	ND	20	ug/L		547	09/06/12:209907	547	09/06/12:213097
EPA 548.1[AGT:1]								
Endothall	ND	40	ug/L		548.1	09/05/12:209840	548.1	09/12/12:213471
EPA 549[AST:1]								
Diquat	ND	2	ug/L		549	09/04/12:209775	549.2	09/11/12:213332

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE, (P) Plastic, (VOA) VOA
Preservatives: Monochloracetic Buffer, H2SO4 pH < 2, NaOH, HNO3 pH < 2, HNO3 pH < 2, HCl pH < 2 ‡Surrogate. * PQL adjusted for dilution.

October 8, 2012

Lab ID : SP 1208765-002
Customer ID : 2-24140

Thomas Harder & Co.
801 E. Yorba Linda Blvd.
Suite 3a
Placentia, CA 92870

Sampled On : August 29, 2012-10:30
Sampled By : Andrew Hausheer
Received On : August 29, 2012-13:04
Matrix : Ground Water

Description : Stockdale East
Project : Stockdale East/West H20 Sampling

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation Method	Sample Preparation Date/ID	Sample Analysis Method	Sample Analysis Date/ID
Radio Chemistry[P:1]								
Gross Alpha	15.0 ± 2.54	1.18	pCi/L	15/5	900.0	09/11/12-09:00 2P1209973	900.0	09/11/12-14:30 2A1213451
Uranium	10.9 ± 1.95	0.439	pCi/L	20	908.0	09/17/12-08:10 2P1210277	908.0	09/19/12-15:40 2A1213936

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (AST) Amber Silanized-TFE, (P) Plastic, (VOA) VOA
Preservatives: Monochloracetic Buffer, H2SO4 pH < 2, NaOH, HNO3 pH < 2, HNO3 pH < 2, HCl pH < 2 * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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October 8, 2012 Lab ID :SP 1208765-001
Thomas Harder & Co. Description : Stockdale West

Drinking Water Interpretation

Summary: Your water has a failure for one or more items on this sample report. Please see the table below to determine which items failed. Following the table is a brief explanation describing the significance of the failure and whether treatment may be required.

CONSTITUENT	RESULT	UNITS	MCL	MCL	
				LESS OR EQUAL	EXCEED
Inorganic - Primary					
Aluminum	20	ug/L	1000	Pass	
Antimony	ND	ug/L	6	Pass	
Arsenic	ND	ug/L	10	Pass	
Barium	43.1	ug/L	1000	Pass	
Beryllium	ND	ug/L	4	Pass	
Cadmium	ND	ug/L	5	Pass	
Chromium	ND	ug/L	50	Pass	
Color	ND	units	15	Pass	
Cyanide, Total	ND	mg/L	0.15	Pass	
Fluoride	ND	mg/L	2	Pass	
Mercury	ND	ug/L	2	Pass	
Nickel	ND	ug/L	100	Pass	
Nitrate	13.4	mg/L	45	Pass	
Nitrate + Nitrite as N	3.0	mg/L	10	Pass	
Nitrite as N	ND	mg/L	1	Pass	
Odor	ND	TON	3	Pass	
Perchlorate	ND	ug/L	6	Pass	
Selenium	ND	ug/L	50	Pass	
Thallium	ND	ug/L	2	Pass	
Turbidity	1.6	NTU	5	Pass	
Inorganic - Secondary					
Aluminum	20	ug/L	200	Pass	
Chloride	81	mg/L	500	Pass	
Copper	ND	ug/L	1000	Pass	
Iron	ND	ug/L	300	Pass	
Manganese	ND	ug/L	50	Pass	
MBAS (foaming agents)	ND	mg/L	0.5	Pass	
Silver	ND	ug/L	100	Pass	
Specific Conductance	590	umhos/cm	1600	Pass	
Sulfate	36	mg/L	500	Pass	

October 8, 2012 Lab ID :SP 1208765-001
Thomas Harder & Co. Description : Stockdale West

Drinking Water Interpretation

CONSTITUENT	RESULT	UNITS	MCL	MCL LESS OR EQUAL	MCL EXCEED
Inorganic - Secondary					
Total Dissolved Solids	400	mg/L	1000	Pass	
Organic - Primary					
1,1,1-Trichloroethane	ND	ug/L	200	Pass	
1,1,2,2-Tetrachloroethane	ND	ug/L	1	Pass	
1,1,2-Trichloroethane	ND	ug/L	5	Pass	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1200	Pass	
1,1-Dichloroethane	ND	ug/L	5	Pass	
1,1-Dichloroethylene	ND	ug/L	6	Pass	
1,2,4-Trichlorobenzene	ND	ug/L	5	Pass	
1,2-Dichlorobenzene	ND	ug/L	600	Pass	
1,2-Dichloroethane	ND	ug/L	0.5	Pass	
1,2-Dichloropropane	ND	ug/L	5	Pass	
1,3-Dichloropropene (Total)	ND	ug/L	0.5	Pass	
1,4-Dichlorobenzene	ND	ug/L	5	Pass	
2,4,5-TP (Silvex)	ND	ug/L	50	Pass	
2,4-D	ND	ug/L	70	Pass	
Alachlor	ND	ug/L	2	Pass	
Aldicarb	ND	ug/L	# 3	Pass	
Aldicarb Sulfone	ND	ug/L	# 2	Pass	
Aldicarb Sulfoxide	ND	ug/L	# 4	Pass	
Atrazine	ND	ug/L	1	Pass	
Bentazon	ND	ug/L	18	Pass	
Benzene	ND	ug/L	1	Pass	
Carbofuran	ND	ug/L	18	Pass	
Carbon Tetrachloride	ND	ug/L	0.5	Pass	
Chlordane	ND	ug/L	0.1	Pass	
Chlorobenzene	ND	ug/L	70	Pass	
cis-1,2-Dichloroethylene	ND	ug/L	6	Pass	
cis-1,3-Dichloropropene	ND	ug/L	0.5	Pass	
Dalapon	ND	ug/L	200	Pass	
DBCP	ND	ug/L	0.2	Pass	
Dichloromethane	ND	ug/L	5	Pass	
Dinoseb	ND	ug/L	7	Pass	
Diquat	ND	ug/L	20	Pass	
EDB	0.02	ug/L	0.05	Pass	
Endothall	ND	ug/L	100	Pass	

October 8, 2012 Lab ID :SP 1208765-001
Thomas Harder & Co. Description : Stockdale West

Drinking Water Interpretation

CONSTITUENT	RESULT	UNITS	MCL	MCL LESS OR EQUAL	MCL EXCEED
Organic - Primary					
Endrin	ND	ug/L	2	Pass	
Ethyl Benzene	ND	ug/L	300	Pass	
Glyphosate	ND	ug/L	700	Pass	
Heptachlor	ND	ug/L	0.01	Pass	
Heptachlor Epoxide	ND	ug/L	0.01	Pass	
Hexachlorobenzene	ND	ug/L	1	Pass	
Hexachlorocyclopentadiene	ND	ug/L	50	Pass	
Lindane (Gamma NHC)	ND	ug/L	0.2	Pass	
Methoxychlor	ND	ug/L	30	Pass	
Methyl tert-Butyl Ether (MTBE)	ND	ug/L	13	Pass	
Molinate	ND	ug/L	20	Pass	
Oxamyl	ND	ug/L	50	Pass	
PCB 1016	ND	ug/L	0.5	Pass	
PCB 1221	ND	ug/L	0.5	Pass	
PCB 1232	ND	ug/L	0.5	Pass	
PCB 1242	ND	ug/L	0.5	Pass	
PCB 1248	ND	ug/L	0.5	Pass	
PCB 1254	ND	ug/L	0.5	Pass	
PCB 1260	ND	ug/L	0.5	Pass	
Pentachlorophenol	ND	ug/L	1	Pass	
Picloram	ND	ug/L	500	Pass	
Simazine	ND	ug/L	4	Pass	
Styrene	ND	ug/L	100	Pass	
Tetrachloroethylene	ND	ug/L	5	Pass	
Toluene	ND	ug/L	150	Pass	
Total Trihalomethanes	ND	ug/L	80	Pass	
Toxaphene	ND	ug/L	3	Pass	
trans-1,2-Dichloroethylene	ND	ug/L	10	Pass	
trans-1,3-Dichloropropene	ND	ug/L	0.5	Pass	
Trichloroethylene	ND	ug/L	5	Pass	
Trichlorofluoromethane	ND	ug/L	150	Pass	
Vinyl Chloride	ND	ug/L	0.5	Pass	
Xylenes (Total)	ND	ug/L	1750	Pass	
Xylenes m,p	ND	ug/L	1750	Pass	
Xylenes o	ND	ug/L	1750	Pass	

October 8, 2012 Lab ID :SP 1208765-001
Thomas Harder & Co. Description : Stockdale West

Drinking Water Interpretation

CONSTITUENT	RESULT	UNITS	MCL	MCL LESS OR EQUAL	MCL EXCEED
Organic - Secondary					
Thiobencarb	ND	ug/L	70	Pass	
Other					
Copper	ND	ug/L	1300***	Pass	
Radio - Primary					
Gross Alpha	18.9	pCi/L	15 □		Fail
Uranium	10.2	pCi/L	20	Pass	

ND=Non-Detected. * Including Radium but excluding Uranium. (Ref. Title 22 sec. 64441.) *** Federal Action Level Title 22, Section 64672.3

MCL: **The maximum level at which a constituent may be present and be considered acceptable for potability or aesthetics.**

Primary: **Items listed as primary are regulated because of health concerns. If there is a failure for a primary constituent treatment is normally required.**

Secondary: **Items listed as secondary are regulated because they may adversely affect the taste, odor or appearance of drinking water. They are not directly health related. If there is a failure for a secondary constituent on a small public water system it is best to consult your regulator to determine if treatment is required. A secondary constituent failure for a private water system does not require treatment. However, the owner may wish to treat the water in order to improve the quality.**

Treatment: **If your water requires treatment we suggest that you contact a qualified water treatment company. They are normally listed in the yellow pages under the following topics:**

Water Purification & Filtration Equipment
Water Softening & Conditioning Equipment
Water Treatment Equipment

October 8, 2012 Lab ID :SP 1208765-002
Thomas Harder & Co. Description : Stockdale East

Drinking Water Interpretation

Summary: Your Water was acceptable for all items tested on this sample report. Details are presented below:

CONSTITUENT	RESULT	UNITS	MCL	MCL LESS OR EQUAL	MCL EXCEED
Inorganic - Primary					
Aluminum	ND	ug/L	1000	Pass	
Antimony	ND	ug/L	6	Pass	
Arsenic	ND	ug/L	10	Pass	
Barium	70.2	ug/L	1000	Pass	
Beryllium	ND	ug/L	4	Pass	
Cadmium	ND	ug/L	5	Pass	
Chromium	ND	ug/L	50	Pass	
Color	ND	units	15	Pass	
Cyanide, Total	ND	mg/L	0.15	Pass	
Fluoride	ND	mg/L	2	Pass	
Mercury	ND	ug/L	2	Pass	
Nickel	ND	ug/L	100	Pass	
Nitrate	14.4	mg/L	45	Pass	
Nitrate + Nitrite as N	3.2	mg/L	10	Pass	
Nitrite as N	ND	mg/L	1	Pass	
Odor	ND	TON	3	Pass	
Perchlorate	ND	ug/L	6	Pass	
Selenium	ND	ug/L	50	Pass	
Thallium	ND	ug/L	2	Pass	
Turbidity	ND	NTU	5	Pass	
Inorganic - Secondary					
Aluminum	ND	ug/L	200	Pass	
Chloride	51	mg/L	500	Pass	
Copper	ND	ug/L	1000	Pass	
Iron	ND	ug/L	300	Pass	
Manganese	ND	ug/L	50	Pass	
MBAS (foaming agents)	ND	mg/L	0.5	Pass	
Silver	ND	ug/L	100	Pass	
Specific Conductance	469	umhos/cm	1600	Pass	
Sulfate	34	mg/L	500	Pass	

October 8, 2012 Lab ID :SP 1208765-002
Thomas Harder & Co. Description : Stockdale East

Drinking Water Interpretation

CONSTITUENT	RESULT	UNITS	MCL	MCL LESS OR EQUAL	MCL EXCEED
Inorganic - Secondary					
Total Dissolved Solids	280	mg/L	1000	Pass	
Organic - Primary					
1,1,1-Trichloroethane	ND	ug/L	200	Pass	
1,1,2,2-Tetrachloroethane	ND	ug/L	1	Pass	
1,1,2-Trichloroethane	ND	ug/L	5	Pass	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1200	Pass	
1,1-Dichloroethane	ND	ug/L	5	Pass	
1,1-Dichloroethylene	ND	ug/L	6	Pass	
1,2,4-Trichlorobenzene	ND	ug/L	5	Pass	
1,2-Dichlorobenzene	ND	ug/L	600	Pass	
1,2-Dichloroethane	ND	ug/L	0.5	Pass	
1,2-Dichloropropane	ND	ug/L	5	Pass	
1,3-Dichloropropene (Total)	ND	ug/L	0.5	Pass	
1,4-Dichlorobenzene	ND	ug/L	5	Pass	
2,4,5-TP (Silvex)	ND	ug/L	50	Pass	
2,4-D	ND	ug/L	70	Pass	
Alachlor	ND	ug/L	2	Pass	
Aldicarb	ND	ug/L	# 3	Pass	
Aldicarb Sulfone	ND	ug/L	# 2	Pass	
Aldicarb Sulfoxide	ND	ug/L	# 4	Pass	
Atrazine	ND	ug/L	1	Pass	
Bentazon	ND	ug/L	18	Pass	
Benzene	ND	ug/L	1	Pass	
Carbofuran	ND	ug/L	18	Pass	
Carbon Tetrachloride	ND	ug/L	0.5	Pass	
Chlordane	ND	ug/L	0.1	Pass	
Chlorobenzene	ND	ug/L	70	Pass	
cis-1,2-Dichloroethylene	ND	ug/L	6	Pass	
cis-1,3-Dichloropropene	ND	ug/L	0.5	Pass	
Dalapon	ND	ug/L	200	Pass	
DBCP	ND	ug/L	0.2	Pass	
Dichloromethane	ND	ug/L	5	Pass	
Dinoseb	ND	ug/L	7	Pass	
Diquat	ND	ug/L	20	Pass	
EDB	ND	ug/L	0.05	Pass	
Endothall	ND	ug/L	100	Pass	

October 8, 2012 Lab ID :SP 1208765-002
Thomas Harder & Co. Description : Stockdale East

Drinking Water Interpretation

CONSTITUENT	RESULT	UNITS	MCL	MCL LESS OR EQUAL	MCL EXCEED
Organic - Primary					
Endrin	ND	ug/L	2	Pass	
Ethyl Benzene	ND	ug/L	300	Pass	
Glyphosate	ND	ug/L	700	Pass	
Heptachlor	ND	ug/L	0.01	Pass	
Heptachlor Epoxide	ND	ug/L	0.01	Pass	
Hexachlorobenzene	ND	ug/L	1	Pass	
Hexachlorocyclopentadiene	ND	ug/L	50	Pass	
Lindane (Gamma NHC)	ND	ug/L	0.2	Pass	
Methoxychlor	ND	ug/L	30	Pass	
Methyl tert-Butyl Ether (MTBE)	ND	ug/L	13	Pass	
Molinate	ND	ug/L	20	Pass	
Oxamyl	ND	ug/L	50	Pass	
PCB 1016	ND	ug/L	0.5	Pass	
PCB 1221	ND	ug/L	0.5	Pass	
PCB 1232	ND	ug/L	0.5	Pass	
PCB 1242	ND	ug/L	0.5	Pass	
PCB 1248	ND	ug/L	0.5	Pass	
PCB 1254	ND	ug/L	0.5	Pass	
PCB 1260	ND	ug/L	0.5	Pass	
Pentachlorophenol	ND	ug/L	1	Pass	
Picloram	ND	ug/L	500	Pass	
Simazine	ND	ug/L	4	Pass	
Styrene	ND	ug/L	100	Pass	
Tetrachloroethylene	1.4	ug/L	5	Pass	
Toluene	ND	ug/L	150	Pass	
Total Trihalomethanes	ND	ug/L	80	Pass	
Toxaphene	ND	ug/L	3	Pass	
trans-1,2-Dichloroethylene	ND	ug/L	10	Pass	
trans-1,3-Dichloropropene	ND	ug/L	0.5	Pass	
Trichloroethylene	1.2	ug/L	5	Pass	
Trichlorofluoromethane	ND	ug/L	150	Pass	
Vinyl Chloride	ND	ug/L	0.5	Pass	
Xylenes (Total)	ND	ug/L	1750	Pass	
Xylenes m,p	ND	ug/L	1750	Pass	
Xylenes o	ND	ug/L	1750	Pass	

October 8, 2012 Lab ID :SP 1208765-002
Thomas Harder & Co. Description : Stockdale East

Drinking Water Interpretation

CONSTITUENT	RESULT	UNITS	MCL	MCL LESS OR EQUAL	MCL EXCEED
Organic - Secondary					
Thiobencarb	ND	ug/L	70	Pass	
Other					
Copper	ND	ug/L	1300***	Pass	
Radio - Primary					
Gross Alpha	15.0	pCi/L	15 □	Pass	
Uranium	10.9	pCi/L	20	Pass	

ND=Non-Detected. * Including Radium but excluding Uranium. (Ref. Title 22 sec. 64441.) *** Federal Action Level Title 22, Section 64672.3

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Water Purification & Filtration Equipment
Water Softening & Conditioning Equipment
Water Treatment Equipment

October 8, 2012 Lab ID : SP 1208765
Thomas Harder & Co. Customer : 2-24140

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
1,2-Dibromoethane(EDB)	504	09/04/12:209780SBL	Blank	ug/L		ND	<0.02	
			LCS	ug/L	0.2950	108 %	70-130	
			MS	ug/L	0.2950	103 %	70-130	
		(SP 1208753-001)	MSD	ug/L	0.2950	107 %	70-130	
			MSRPD	ug/L	0.5868	4.6%	≤30	
1,3-Dibromopropane	504	09/04/12:209780SBL	Blank	ug/L	0.5868	97.4 %	70-130	
			LCS	ug/L	0.5868	94.7 %	70-130	
			MS	ug/L	0.5868	91.6 %	70-130	
		(SP 1208753-001)	MSD	ug/L	0.5868	95.1 %	70-130	
			MSRPD	ug/L	0.5868	3.8%	≤30	
DBCP	504	09/04/12:209780SBL	Blank	ug/L		ND	<0.01	
			LCS	ug/L	0.2950	96.3 %	70-130	
			MS	ug/L	0.2950	94.3 %	70-130	
		(SP 1208753-001)	MSD	ug/L	0.2950	97.7 %	70-130	
			MSRPD	ug/L	0.5868	3.5%	≤30	
13DBP	504.1	09/05/12:213041SBL	CCV	ug/L	7.481	102 %	70-130	
			CCV	ug/L	9.975	99.1 %	70-130	
DBCP	504.1	09/05/12:213041SBL	CCV	ug/L	2.006	91.7 %	70-130	
			CCV	ug/L	5.015	99.1 %	70-130	
EDB	504.1	09/05/12:213041SBL	CCV	ug/L	2.006	98.7 %	70-130	
			CCV	ug/L	5.015	113 %	70-130	
Alachlor	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.2	
			LCS	ug/L	5.882	105 %	22-186	
			MS	ug/L	5.882	103 %	31-168	
		(SP 1208765-001)	MSD	ug/L	5.882	103 %	31-168	
			MSRPD	ug/L	5.882	0.3%	≤28.7	
	505	09/13/12:213456VRG	CCV	ug/L	150.0	101 %	70-130	
			CCV	ug/L	100.0	102 %	70-130	
Aldrin	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.01	
			LCS	ug/L	0.5882	97.8 %	2-254	
			MS	ug/L	0.5882	105 %	2-246	
		(SP 1208765-001)	MSD	ug/L	0.5882	106 %	2-246	
			MSRPD	ug/L	5.882	0.9%	≤50.6	
	505	09/13/12:213456VRG	CCV	ug/L	15.00	102 %	70-130	
			CCV	ug/L	10.00	100 %	70-130	
Chlordane	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.1	
Dieldrin	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.01	
			LCS	ug/L	0.5882	103 %	24-193	
			MS	ug/L	0.5882	100 %	36-175	
		(SP 1208765-001)	MSD	ug/L	0.5882	99.9 %	36-175	
			MSRPD	ug/L	5.882	0.5%	≤5.55	
	505	09/13/12:213456VRG	CCV	ug/L	15.00	96.7 %	70-130	
			CCV	ug/L	10.00	96.7 %	70-130	
Endrin	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.01	
			LCS	ug/L	0.5882	90.2 %	22-200	
			MS	ug/L	0.5882	79.2 %	36-180	
		(SP 1208765-001)	MSD	ug/L	0.5882	73.9 %	36-180	
			MSRPD	ug/L	5.882	6.9%	≤8.81	
	505	09/13/12:213456VRG	CCV	ug/L	15.00	91.1 %	70-130	
			CCV	ug/L	10.00	71.2 %	70-130	
Heptachlor	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.01	
			LCS	ug/L	0.5882	101 %	16-216	
			MS	ug/L	0.5882	105 %	33-194	
		(SP 1208765-001)	MSD	ug/L	0.5882	106 %	33-194	
			MSRPD	ug/L	5.882	0.4%	≤11.9	

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Santa Paula, CA 93060
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2500 Stagecoach Road
Stockton, CA 95215
TEL: (209)942-0182
FAX: (209)942-0423
CA ELAP Certification No. 1563

Office & Laboratory
563 E. Lindo Avenue
Chico, CA 95926
TEL: (530)343-5818
FAX: (530)343-3807
CA ELAP Certification No. 2670

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3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
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October 8, 2012 Lab ID : SP 1208765
Thomas Harder & Co. Customer : 2-24140

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Heptachlor	505	09/13/12:213456VRG	CCV	ug/L	15.00	98.7 %	70-130	
			CCV	ug/L	10.00	95.7 %	70-130	
Heptachlor Epoxide	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.01	
			LCS	ug/L	0.5882	103 %	23-199	
			MS	ug/L	0.5882	102 %	35-180	
		(SP 1208765-001)	MSD	ug/L	0.5882	100 %	35-180	
			MSRPD	ug/L	5.882	1.3%	≤8.09	
	505	09/13/12:213456VRG	CCV	ug/L	15.00	99.7 %	70-130	
			CCV	ug/L	10.00	98.4 %	70-130	
Hexachlorobenzene	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.01	
			LCS	ug/L	0.5882	103 %	19-218	
			MS	ug/L	0.5882	103 %	37-193	
		(SP 1208765-001)	MSD	ug/L	0.5882	106 %	37-193	
			MSRPD	ug/L	5.882	2.7%	≤10.8	
	505	09/13/12:213456VRG	CCV	ug/L	15.00	96.4 %	70-130	
			CCV	ug/L	10.00	94.9 %	70-130	
Hexachlorocyclopentadiene	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.1	
			LCS	ug/L	0.5882	97.0 %	17-284	
			MS	ug/L	0.5882	107 %	17-266	
		(SP 1208765-001)	MSD	ug/L	0.5882	106 %	17-266	
			MSRPD	ug/L	5.882	0.8%	≤16.7	
	505	09/13/12:213456VRG	CCV	ug/L	15.00	113 %	70-130	
			CCV	ug/L	10.00	110 %	70-130	
Lindane	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.05	
			LCS	ug/L	0.5882	103 %	55-167	
			MS	ug/L	0.5882	99.8 %	65-154	
		(SP 1208765-001)	MSD	ug/L	0.5882	99.3 %	65-154	
			MSRPD	ug/L	5.882	0.5%	≤4.98	
	505	09/13/12:213456VRG	CCV	ug/L	15.00	164 %	70-130	360
			CCV	ug/L	10.00	157 %	70-130	360
Methoxychlor	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.1	
			LCS	ug/L	2.941	104 %	2-249	
			MS	ug/L	2.941	97.6 %	2-237	
		(SP 1208765-001)	MSD	ug/L	2.941	96.2 %	2-237	
			MSRPD	ug/L	5.882	1.5%	≤7.94	
	505	09/13/12:213456VRG	CCV	ug/L	75.00	102 %	70-130	
			CCV	ug/L	50.00	97.4 %	70-130	
PCB 1016/1242 - 1	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.5	
PCB 1221 - 1	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.5	
PCB 1232 - 1	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.5	
PCB 1242	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.5	
PCB 1248 - 1	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.5	
PCB 1254 - 1	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.5	
PCB 1260 - 1	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.5	
Toxaphene	505	09/12/12:210104VRG	Blank	ug/L		ND	<0.5	
Alachlor	507	09/10/12:210043CCG	Blank	ug/L		ND	<1	
			LCS	ug/L	2.500	108 %	70-130	
			MS	ug/L	2.500	63.5 %	55-233	
		(VI 1242091-001)	MSD	ug/L	2.500	116 %	55-233	
			MSRPD	ug/L	12.50	1.3	≤1	435
	507	09/19/12:213710SG	CCV	ug/L	500.0	109 %	80-120	
			CCV	ug/L	1000	102 %	80-120	
Atrazine	507	09/10/12:210043CCG	Blank	ug/L		ND	<0.5	
			LCS	ug/L	2.500	90.3 %	70-130	

October 8, 2012 Lab ID : SP 1208765
Thomas Harder & Co. Customer : 2-24140

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Atrazine	507		MS	ug/L	2.500	63.1 %	50-245	
		(VI 1242091-001)	MSD	ug/L	2.500	97.3 %	50-245	
			MSRPD	ug/L	12.50	0.86	≤0.5	435
	507	09/19/12:213710SG	CCV	ug/L	500.0	101 %	80-120	
			CCV	ug/L	1000	102 %	80-120	
Bromacil	507	09/10/12:210043CCG	Blank	ug/L		ND	<2	
			LCS	ug/L	2.500	114 %	70-130	
			MS	ug/L	2.500	86.6 %	47-250	
		(VI 1242091-001)	MSD	ug/L	2.500	102 %	47-250	
			MSRPD	ug/L	12.50	0.39	≤2	
	507	09/19/12:213710SG	CCV	ug/L	500.0	113 %	80-120	
			CCV	ug/L	1000	107 %	80-120	
Butachlor	507	09/10/12:210043CCG	Blank	ug/L		ND	<1	
			LCS	ug/L	2.500	106 %	70-130	
			MS	ug/L	2.500	81.9 %	42-244	
		(VI 1242091-001)	MSD	ug/L	2.500	97.0 %	42-244	
			MSRPD	ug/L	12.50	0.38	≤1	
	507	09/19/12:213710SG	CCV	ug/L	500.0	106 %	80-120	
			CCV	ug/L	1000	111 %	80-120	
Cyanazine	507	09/10/12:210043CCG	Blank	ug/L		ND	<0.5	
			LCS	ug/L	2.500	75.4 %	70-130	
			MS	ug/L	2.500	50.0 %	41-246	
		(VI 1242091-001)	MSD	ug/L	2.500	116 %	41-246	
			MSRPD	ug/L	12.50	1.6	≤0.5	435
	507	09/19/12:213710SG	CCV	ug/L	500.0	104 %	80-120	
			CCV	ug/L	1000	113 %	80-120	
Diazinon	507	09/10/12:210043CCG	Blank	ug/L		ND	<2	
			LCS	ug/L	2.500	100 %	70-130	
			MS	ug/L	2.500	59.2 %	57-212	
		(VI 1242091-001)	MSD	ug/L	2.500	91.3 %	57-212	
			MSRPD	ug/L	12.50	0.80	≤2	
	507	09/19/12:213710SG	CCV	ug/L	500.0	98.5 %	80-120	
			CCV	ug/L	1000	97.9 %	80-120	
Dimethoate	507	09/10/12:210043CCG	Blank	ug/L		ND	<2	
			LCS	ug/L	2.500	80.9 %	70-130	
			MS	ug/L	2.500	63.1 %	55-246	
		(VI 1242091-001)	MSD	ug/L	2.500	105 %	55-246	
			MSRPD	ug/L	12.50	1.1	≤2	
	507	09/19/12:213710SG	CCV	ug/L	500.0	105 %	80-120	
			CCV	ug/L	1000	107 %	80-120	
EPN/Triphenylphosphate	507	09/10/12:210043CCG	Blank	ug/L	12.50	82.0 %	70-130	
			LCS	ug/L	12.50	75.9 %	70-130	
			MS	ug/L	12.50	48.9 %	70-130	435
		(VI 1242091-001)	MSD	ug/L	12.50	69.5 %	70-130	
			MSRPD	ug/L	12.50	34.8%	≤N/A	
Metolachlor	507	09/10/12:210043CCG	Blank	ug/L		ND	<1	
			LCS	ug/L	2.500	94.9 %	70-130	
			MS	ug/L	2.500	46.9 %	53-235	435
		(VI 1242091-001)	MSD	ug/L	2.500	79.6 %	53-235	
			MSRPD	ug/L	12.50	0.82	≤1	
	507	09/19/12:213710SG	CCV	ug/L	500.0	119 %	80-120	
			CCV	ug/L	1000	98.0 %	80-120	
Metribuzin	507	09/10/12:210043CCG	Blank	ug/L		ND	<0.5	
			LCS	ug/L	2.500	101 %	70-130	

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Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Metribuzin	507		MS	ug/L	2.500	50.1 %	49-260	
		(VI 1242091-001)	MSD	ug/L	2.500	95.6 %	49-260	
			MSRPD	ug/L	12.50	1.1	≤0.5	435
	507	09/19/12:213710SG	CCV	ug/L	500.0	98.7 %	80-120	
			CCV	ug/L	1000	107 %	80-120	
Molinate	507	09/10/12:210043CCG	Blank	ug/L		ND	<2	
			LCS	ug/L	2.500	89.9 %	70-130	
			MS	ug/L	2.500	61.4 %	20-299	
		(VI 1242091-001)	MSD	ug/L	2.500	104 %	20-299	
			MSRPD	ug/L	12.50	1.1	≤2	
	507	09/19/12:213710SG	CCV	ug/L	500.0	98.1 %	80-120	
			CCV	ug/L	1000	97.3 %	80-120	
Prometryne	507	09/10/12:210043CCG	Blank	ug/L		ND	<2	
			LCS	ug/L	2.500	104 %	70-130	
			MS	ug/L	2.500	57.8 %	52-241	
		(VI 1242091-001)	MSD	ug/L	2.500	91.4 %	52-241	
			MSRPD	ug/L	12.50	0.84	≤2	
	507	09/19/12:213710SG	CCV	ug/L	500.0	107 %	80-120	
			CCV	ug/L	1000	104 %	80-120	
Propachlor	507	09/10/12:210043CCG	Blank	ug/L		ND	<1	
			LCS	ug/L	2.500	95.4 %	70-130	
			MS	ug/L	2.500	81.4 %	34-270	
		(VI 1242091-001)	MSD	ug/L	2.500	123 %	34-270	
			MSRPD	ug/L	12.50	1.0	≤1	
	507	09/19/12:213710SG	CCV	ug/L	500.0	105 %	80-120	
			CCV	ug/L	1000	116 %	80-120	
Simazine	507	09/10/12:210043CCG	Blank	ug/L		ND	<1	
			LCS	ug/L	2.500	87.2 %	70-130	
			MS	ug/L	2.500	62.3 %	51-255	
		(VI 1242091-001)	MSD	ug/L	2.500	102 %	51-255	
			MSRPD	ug/L	12.50	0.98	≤1	
	507	09/19/12:213710SG	CCV	ug/L	500.0	110 %	80-120	
			CCV	ug/L	1000	104 %	80-120	
Thiobencarb	507	09/10/12:210043CCG	Blank	ug/L		ND	<1	
			LCS	ug/L	2.500	85.0 %	70-130	
			MS	ug/L	2.500	63.3 %	55-227	
		(VI 1242091-001)	MSD	ug/L	2.500	88.9 %	55-227	
			MSRPD	ug/L	12.50	0.64	≤1	
	507	09/19/12:213710SG	CCV	ug/L	500.0	92.4 %	80-120	
			CCV	ug/L	1000	94.4 %	80-120	
Triphenylphosphate	507	09/19/12:213710SG	CCV	ug/L	2500	112 %	80-120	
			CCV	ug/L	7500	112 %	80-120	
2,4,5-T	515.3	09/12/12:213680VRG	CCV	ug/L	10.00	361 %	70-130	360
			CCV	ug/L	10.00	362 %	70-130	360
2,4,5-TP (Silvex)	515.3	09/11/12:210091VRG	Blank	ug/L		ND	<1	
			LCS	ug/L	4.000	114 %	70-130	
			MS	ug/L	4.000	99.1 %	70-130	
		(VI 1242142-001)	MSD	ug/L	4.000	98.0 %	70-130	
			MSRPD	ug/L	20.00	0.046	≤1	
	515.3	09/12/12:213680VRG	CCV	ug/L	10.00	367 %	70-130	360
			CCV	ug/L	10.00	398 %	70-130	360
2,4,5-Trichlorophenoxyacetic A	515.3	09/11/12:210091VRG	Blank	ug/L		ND	<1	
			LCS	ug/L	4.000	107 %	70-130	
			MS	ug/L	4.000	96.4 %	70-130	

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Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
2,4,5-Trichlorophenoxyacetic A	515.3	(VI 1242142-001)	MSD	ug/L	4.000	103 %	70-130	
			MSRPD	ug/L	20.00	0.26	≤1	
2,4-D	515.3	09/11/12:210091VRG	Blank	ug/L		ND	<2	
			LCS	ug/L	8.000	107 %	70-130	
			MS	ug/L	8.000	91.6 %	70-130	
		(VI 1242142-001)	MSD	ug/L	8.000	92.6 %	70-130	
			MSRPD	ug/L	20.00	0.079	≤2	
	515.3	09/12/12:213680VRG	CCV	ug/L	20.00	362 %	70-130	360
			CCV	ug/L	20.00	383 %	70-130	360
2,4-DCAA	515.3	09/11/12:210091VRG	Blank	ug/L	20.00	119 %	70-130	
			LCS	ug/L	20.00	92.9 %	70-130	
			MS	ug/L	20.00	89.6 %	N/A	
		(VI 1242142-001)	MSD	ug/L	20.00	93.9 %	N/A	
			MSRPD	ug/L	20.00	4.6%	≤30.	
	515.3	09/12/12:213356VRG	CCV	ug/L	200.0	95.8 %	70-130	
			CCV	ug/L	200.0	94.3 %	70-130	
Bentazon	515.3	09/11/12:210091VRG	Blank	ug/L		ND	<2	
			LCS	ug/L	8.000	107 %	70-130	
			MS	ug/L	8.000	103 %	70-130	
		(VI 1242142-001)	MSD	ug/L	8.000	110 %	70-130	
			MSRPD	ug/L	20.00	0.51	≤2	
	515.3	09/12/12:213680VRG	CCV	ug/L	20.00	417 %	70-130	360
			CCV	ug/L	20.00	379 %	70-130	360
Dalapon	515.3	09/11/12:210091VRG	Blank	ug/L		ND	<10	
	515.3	09/12/12:213680VRG	CCV	ug/L	130.0	220 %	70-130	360
			CCV	ug/L	130.0	352 %	70-130	360
Dicamba	515.3	09/11/12:210091VRG	Blank	ug/L		ND	<1	
			LCS	ug/L	4.000	108 %	70-130	
			MS	ug/L	4.000	98.5 %	70-130	
		(VI 1242142-001)	MSD	ug/L	4.000	96.3 %	70-130	
			MSRPD	ug/L	20.00	0.086	≤1	
	515.3	09/12/12:213680VRG	CCV	ug/L	10.00	359 %	70-130	360
			CCV	ug/L	10.00	389 %	70-130	360
Dinoseb	515.3	09/11/12:210091VRG	Blank	ug/L		ND	<1	
			LCS	ug/L	8.000	109 %	70-130	
			MS	ug/L	8.000	77.0 %	70-130	
		(VI 1242142-001)	MSD	ug/L	8.000	82.1 %	70-130	
			MSRPD	ug/L	20.00	6.4%	≤30.0	
	515.3	09/12/12:213680VRG	CCV	ug/L	20.00	357 %	70-130	360
			CCV	ug/L	20.00	371 %	70-130	360
Pentachlorophenol	515.3	09/11/12:210091VRG	Blank	ug/L		ND	<0.2	
			LCS	ug/L	4.000	108 %	70-130	
			MS	ug/L	4.000	96.1 %	70-130	
		(VI 1242142-001)	MSD	ug/L	4.000	94.6 %	70-130	
			MSRPD	ug/L	20.00	1.7%	≤30.0	
	515.3	09/12/12:213680VRG	CCV	ug/L	10.00	359 %	70-130	360
			CCV	ug/L	10.00	380 %	70-130	360
Picloram	515.3	09/11/12:210091VRG	Blank	ug/L		ND	<1	
	515.3	09/12/12:213680VRG	CCV	ug/L	10.00	117 %	70-130	
			CCV	ug/L	10.00	116 %	70-130	
1,1,1,2-Tetrachloroethane	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	111 %	71-125	
		(SP 1208765-001)	MSD	ug/L	10.00	117 %	71-125	
			MSRPD	ug/L	10.00	5.1%	≤15.6	

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Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
1,1,1,2-Tetrachloroethane	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	93.8 %	70-130	
1,1,1-Trichloroethane(TCA)	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	122 %	44-165	
		(SP 1208765-001)	MSD	ug/L	10.00	126 %	44-165	
			MSRPD	ug/L	10.00	3.7%	≤16.4	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	80.9 %	70-130	
1,1,2,2-Tetrachloroethane	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	105 %	65-145	
		(SP 1208765-001)	MSD	ug/L	10.00	111 %	65-145	
			MSRPD	ug/L	10.00	5.1%	≤27.4	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	96.2 %	70-130	
1,1,2-Trichloroethane	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	98.7 %	61-136	
		(SP 1208765-001)	MSD	ug/L	10.00	106 %	61-136	
			MSRPD	ug/L	10.00	7.5%	≤24.5	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	89.9 %	70-130	
1,1-Dichloroethane	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	110 %	52-162	
		(SP 1208765-001)	MSD	ug/L	10.00	113 %	52-162	
			MSRPD	ug/L	10.00	2.2%	≤15.4	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	85.2 %	70-130	
1,1-Dichloroethylene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	117 %	52-175	
		(SP 1208765-001)	MSD	ug/L	10.00	120 %	52-175	
			MSRPD	ug/L	10.00	2.2%	≤18.1	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	76.2 %	70-130	
1,1-Dichloropropene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	119 %	62-137	
		(SP 1208765-001)	MSD	ug/L	10.00	123 %	62-137	
			MSRPD	ug/L	10.00	3.5%	≤14.5	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	77.9 %	70-130	
1,2,3-Trichlorobenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	124 %	58-187	
		(SP 1208765-001)	MSD	ug/L	10.00	130 %	58-187	
			MSRPD	ug/L	10.00	4.1%	≤22.6	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	110 %	70-130	
1,2,4-Trichlorobenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	124 %	59-164	
		(SP 1208765-001)	MSD	ug/L	10.00	130 %	59-164	
			MSRPD	ug/L	10.00	4.1%	≤21.3	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	110 %	70-130	
1,2,4-Trimethylbenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	116 %	73-129	
		(SP 1208765-001)	MSD	ug/L	10.00	120 %	73-129	
			MSRPD	ug/L	10.00	3.0%	≤17.6	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	86.6 %	70-130	
1,2-Dichlorobenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	111 %	71-137	
		(SP 1208765-001)	MSD	ug/L	10.00	116 %	71-137	
			MSRPD	ug/L	10.00	4.8%	≤17.3	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	93.0 %	70-130	
1,2-Dichlorobenzene-d4	524.2	08/30/12:209697VRG	Blank	ug/L	10.00	85.8 %	70-130	
			MS	ug/L	10.00	106 %	70-130	
		(SP 1208765-001)	MSD	ug/L	10.00	107 %	70-130	

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Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
1,2-Dichlorobenzene-d4	524.2	08/30/12:209697VRG	MSRPD	ug/L	10.00	0.6%	≤30	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	106 %	70-130	
1,2-Dichloroethane (EDC)	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	118 %	59-147	
		(SP 1208765-001)	MSD	ug/L	10.00	125 %	59-147	
			MSRPD	ug/L	10.00	5.5%	≤14.3	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	107 %	70-130	
1,2-Dichloropropane	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	105 %	57-143	
		(SP 1208765-001)	MSD	ug/L	10.00	111 %	57-143	
			MSRPD	ug/L	10.00	5.6%	≤13.5	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	88.8 %	70-130	
1,3,5-Trimethylbenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	102 %	75-129	
		(SP 1208765-001)	MSD	ug/L	10.00	108 %	75-129	
			MSRPD	ug/L	10.00	5.8%	≤16.6	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	71.3 %	70-130	
1,3-Dichlorobenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	110 %	72-132	
		(SP 1208765-001)	MSD	ug/L	10.00	116 %	72-132	
			MSRPD	ug/L	10.00	5.0%	≤16.0	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	91.8 %	70-130	
1,3-Dichloropropane	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	99.2 %	64-128	
		(SP 1208765-001)	MSD	ug/L	10.00	108 %	64-128	
			MSRPD	ug/L	10.00	9.0%	≤26.9	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	89.9 %	70-130	
1,4-Dichlorobenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	111 %	72-134	
		(SP 1208765-001)	MSD	ug/L	10.00	116 %	72-134	
			MSRPD	ug/L	10.00	4.8%	≤17.9	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	93.0 %	70-130	
2,2-Dichloropropane	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	130 %	54-187	
		(SP 1208765-001)	MSD	ug/L	10.00	133 %	54-187	
			MSRPD	ug/L	10.00	2.8%	≤16.4	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	87.2 %	70-130	
2-Chlorotoluene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	112 %	75-126	
		(SP 1208765-001)	MSD	ug/L	10.00	117 %	75-126	
			MSRPD	ug/L	10.00	4.3%	≤16.3	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	86.6 %	70-130	
4-Bromofluorobenzene	524.2	08/30/12:209697VRG	Blank	ug/L	10.00	96.5 %	70-130	
			MS	ug/L	10.00	99.9 %	70-130	
		(SP 1208765-001)	MSD	ug/L	10.00	102 %	70-130	
			MSRPD	ug/L	10.00	2.5%	≤30	
4-Bromofluorobenzene (BFB)	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	99.2 %	70-130	
4-Chlorotoluene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	106 %	74-127	
		(SP 1208765-001)	MSD	ug/L	10.00	114 %	74-127	
			MSRPD	ug/L	10.00	7.0%	≤17.8	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	84.5 %	70-130	
Benzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	110 %	67-128	

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Quality Control - Organic

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Organic								
Benzene	524.2	(SP 1208765-001)	MSD	ug/L	10.00	114 %	67-128	
			MSRPD	ug/L	10.00	3.8%	≤14.3	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	84.0 %	70-130	
Bromobenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	108 %	67-131	
		(SP 1208765-001)	MSD	ug/L	10.00	116 %	67-131	
			MSRPD	ug/L	10.00	7.1%	≤17.1	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	92.3 %	70-130	
Bromochloromethane	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	110 %	57-152	
		(SP 1208765-001)	MSD	ug/L	10.00	115 %	57-152	
			MSRPD	ug/L	10.00	4.0%	≤19.6	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	98.2 %	70-130	
Bromodichloromethane	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	103 %	63-134	
		(SP 1208765-001)	MSD	ug/L	10.00	108 %	63-134	
			MSRPD	ug/L	10.00	4.9%	≤15.6	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	89.4 %	70-130	
Bromoform	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	89.8 %	55-147	
		(SP 1208765-001)	MSD	ug/L	10.00	96.2 %	55-147	
			MSRPD	ug/L	10.00	6.9%	≤18.7	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	88.2 %	70-130	
Bromomethane (Methyl Bromide)	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	83.9 %	46-199	
		(SP 1208765-001)	MSD	ug/L	10.00	94.2 %	46-199	
			MSRPD	ug/L	10.00	11.5%	≤17.9	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	79.8 %	70-130	
Carbon Tetrachloride	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	122 %	51-160	
		(SP 1208765-001)	MSD	ug/L	10.00	127 %	51-160	
			MSRPD	ug/L	10.00	4.1%	≤15.0	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	77.8 %	70-130	
Chlorobenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	106 %	68-121	
		(SP 1208765-001)	MSD	ug/L	10.00	114 %	68-121	
			MSRPD	ug/L	10.00	7.3%	≤16.1	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	85.7 %	70-130	
Chloroethane (Ethyl Chloride)	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	95.7 %	41-175	
		(SP 1208765-001)	MSD	ug/L	10.00	116 %	41-175	
			MSRPD	ug/L	10.00	19.0%	≤18.0	435
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	76.7 %	70-130	
Chloroform	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	110 %	57-155	
		(SP 1208765-001)	MSD	ug/L	10.00	113 %	57-155	
			MSRPD	ug/L	10.00	2.9%	≤18.2	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	89.7 %	70-130	
Chloromethane(Methyl Chloride)	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	115 %	5-241	
		(SP 1208765-001)	MSD	ug/L	10.00	128 %	5-241	
			MSRPD	ug/L	10.00	10.0%	≤23.3	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	95.4 %	70-130	
cis-1,2-Dichloroethylene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	

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Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
cis-1,2-Dichloroethylene	524.2		MS	ug/L	10.00	115 %	59-159	
		(SP 1208765-001)	MSD	ug/L	10.00	118 %	59-159	
			MSRPD	ug/L	10.00	3.2%	≤16.1	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	93.4 %	70-130	
cis-1,3-Dichloropropene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	123 %	63-129	
		(SP 1208765-001)	MSD	ug/L	10.00	131 %	63-129	435
			MSRPD	ug/L	10.00	6.6%	≤20.7	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	99.8 %	70-130	
Dibromochloromethane	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	94.5 %	66-128	
		(SP 1208765-001)	MSD	ug/L	10.00	101 %	66-128	
			MSRPD	ug/L	10.00	7.1%	≤22.0	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	88.2 %	70-130	
Dibromomethane	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	103 %	63-141	
		(SP 1208765-001)	MSD	ug/L	10.00	109 %	63-141	
			MSRPD	ug/L	10.00	5.0%	≤17.2	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	94.5 %	70-130	
Dichlorodifluoromethane	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	144 %	42-168	
		(SP 1208765-001)	MSD	ug/L	10.00	155 %	42-168	
			MSRPD	ug/L	10.00	7.0%	≤43.4	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	92.4 %	70-130	
Dichloromethane	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	120 %	40-158	
		(SP 1208765-001)	MSD	ug/L	10.00	123 %	40-158	
			MSRPD	ug/L	10.00	2.5%	≤13.8	
Ethyl tert-Butyl Ether	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<3	
			MS	ug/L	10.00	118 %	50-157	
		(SP 1208765-001)	MSD	ug/L	10.00	122 %	50-157	
			MSRPD	ug/L	10.00	0.39	≤3	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	106 %	70-130	
Ethylbenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	112 %	74-119	
		(SP 1208765-001)	MSD	ug/L	10.00	119 %	74-119	
			MSRPD	ug/L	10.00	6.3%	≤15.7	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	81.3 %	70-130	
Freon-11	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	109 %	34-129	
		(SP 1208765-001)	MSD	ug/L	10.00	115 %	34-129	
			MSRPD	ug/L	10.00	4.9%	≤19.5	
Hexachlorobutadiene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	139 %	42-194	
		(SP 1208765-001)	MSD	ug/L	10.00	141 %	42-194	
			MSRPD	ug/L	10.00	1.5%	≤20.2	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	94.3 %	70-130	
Isopropyl Ether	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<3	
			MS	ug/L	10.00	117 %	21-191	
		(SP 1208765-001)	MSD	ug/L	10.00	121 %	21-191	
			MSRPD	ug/L	10.00	0.37	≤3	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	102 %	70-130	
Isopropylbenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	102 %	72-125	

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Quality Control - Organic

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Organic								
Isopropylbenzene	524.2	(SP 1208765-001)	MSD	ug/L	10.00	108 %	72-125	
			MSRPD	ug/L	10.00	5.8%	≤16.2	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	71.4 %	70-130	
Methyl tert-Butyl Ether	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	109 %	70-130	
Methyl tert-Butyl Ether (MTBE)	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<1.0	
			MS	ug/L	10.00	117 %	55-167	
		(SP 1208765-001)	MSD	ug/L	10.00	121 %	55-167	
			MSRPD	ug/L	10.00	3.6%	≤20.3	
Methylene Chloride	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	104 %	70-130	
Naphthalene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	119 %	70-171	
		(SP 1208765-001)	MSD	ug/L	10.00	122 %	70-171	
			MSRPD	ug/L	10.00	2.4%	≤39.5	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	115 %	70-130	
n-Butylbenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	118 %	77-141	
		(SP 1208765-001)	MSD	ug/L	10.00	124 %	77-141	
			MSRPD	ug/L	10.00	4.6%	≤17.8	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	81.6 %	70-130	
n-Propylbenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	121 %	74-131	
		(SP 1208765-001)	MSD	ug/L	10.00	128 %	74-131	
			MSRPD	ug/L	10.00	5.7%	≤16.9	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	83.7 %	70-130	
p-Isopropyltoluene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	117 %	73-133	
		(SP 1208765-001)	MSD	ug/L	10.00	121 %	73-133	
			MSRPD	ug/L	10.00	3.6%	≤19.4	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	82.6 %	70-130	
sec-Butylbenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	121 %	73-133	
		(SP 1208765-001)	MSD	ug/L	10.00	127 %	73-133	
			MSRPD	ug/L	10.00	4.9%	≤18.2	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	81.0 %	70-130	
Styrene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	96.5 %	73-125	
		(SP 1208765-001)	MSD	ug/L	10.00	95.0 %	73-125	
			MSRPD	ug/L	10.00	1.7%	≤15.5	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	85.4 %	70-130	
TAME	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<3	
			MS	ug/L	10.00	114 %	64-124	
		(SP 1208765-001)	MSD	ug/L	10.00	118 %	64-124	
			MSRPD	ug/L	10.00	0.40	≤3	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	105 %	70-130	
tert-Butylbenzene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	117 %	70-128	
		(SP 1208765-001)	MSD	ug/L	10.00	121 %	70-128	
			MSRPD	ug/L	10.00	3.7%	≤18.7	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	82.8 %	30-130	
Tetrachloroethylene (PCE)	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	119 %	56-128	
		(SP 1208765-001)	MSD	ug/L	10.00	126 %	56-128	
			MSRPD	ug/L	10.00	6.1%	≤29.0	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	79.9 %	70-130	

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Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Toluene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	108 %	67-124	
		(SP 1208765-001)	MSD	ug/L	10.00	115 %	67-124	
			MSRPD	ug/L	10.00	5.8%	≤16.1	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	81.8 %	30-130	
trans-1,2-Dichloroethylene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	115 %	46-158	
		(SP 1208765-001)	MSD	ug/L	10.00	117 %	46-158	
			MSRPD	ug/L	10.00	1.7%	≤16.9	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	83.7 %	70-130	
trans-1,3-Dichloropropene	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	103 %	63-129	
		(SP 1208765-001)	MSD	ug/L	10.00	110 %	63-129	
			MSRPD	ug/L	10.00	7.2%	≤25.8	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	88.4 %	70-130	
Trichloroethylene (TCE)	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	113 %	70-123	
		(SP 1208765-001)	MSD	ug/L	10.00	119 %	70-123	
			MSRPD	ug/L	10.00	4.7%	≤16.8	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	85.0 %	70-130	
Trichlorofluoromethane F-11	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	71.4 %	70-130	
Trichlorotrifluoroethane F-113	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	125 %	5-273	
		(SP 1208765-001)	MSD	ug/L	10.00	130 %	5-273	
			MSRPD	ug/L	10.00	3.6%	≤16.9	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	73.6 %	70-130	
Vinyl Chloride	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	102 %	33-199	
		(SP 1208765-001)	MSD	ug/L	10.00	123 %	33-199	
			MSRPD	ug/L	10.00	19.2%	≤18.6	435
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	70.5 %	30-130	
Xylenes m,p	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	20.00	109 %	73-119	
		(SP 1208765-001)	MSD	ug/L	20.00	115 %	73-119	
			MSRPD	ug/L	10.00	5.6%	≤16.1	
	524.2	08/31/12:212822VRG	CCV	ug/L	20.00	80.8 %	70-130	
Xylenes o	524.2	08/30/12:209697VRG	Blank	ug/L		ND	<0.5	
			MS	ug/L	10.00	109 %	72-124	
		(SP 1208765-001)	MSD	ug/L	10.00	115 %	72-124	
			MSRPD	ug/L	10.00	4.7%	≤17.5	
	524.2	08/31/12:212822VRG	CCV	ug/L	10.00	85.8 %	70-130	
3-Hydroxycarbofuran	531.1	09/12/12:210149SG	Blank	ug/L		ND	<3	
			LCS	ug/L	20.00	97.0 %	80-120	
			MS	ug/L	20.00	98.6 %	65-135	
		(SP 1209056-001)	MSD	ug/L	20.00	94.6 %	65-135	
			MSRPD	ug/L	20.00	4.2%	≤16.8	
	531.1	09/12/12:213421SG	CCV	ug/L	10.00	92.3 %	80-120	
			CCV	ug/L	20.00	95.1 %	80-120	
Aldicarb	531.1	09/12/12:210149SG	Blank	ug/L		ND	<3	
			LCS	ug/L	20.00	100 %	80-120	
			MS	ug/L	20.00	91.8 %	65-135	
		(SP 1209056-001)	MSD	ug/L	20.00	89.9 %	65-135	
			MSRPD	ug/L	20.00	2.0%	≤11.2	
	531.1	09/12/12:213421SG	CCV	ug/L	10.00	95.1 %	80-120	

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Quality Control - Organic

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Organic								
Aldicarb	531.1	09/13/12:213421SG	CCV	ug/L	20.00	98.2 %	80-120	
Aldicarb Sulfone	531.1	09/12/12:213421SG	CCV	ug/L	10.00	97.5 %	80-120	
			CCV	ug/L	20.00	89.8 %	80-120	
Aldicarb Sulfone/Sulfoxide	531.1	09/12/12:210149SG	Blank	ug/L		ND	<2	
			Blank	ug/L		ND	<3	
			LCS	ug/L	20.00	95.6 %	80-120	
			LCS	ug/L	20.00	93.7 %	80-120	
			MS	ug/L	20.00	86.9 %	65-135	
			MS	ug/L	20.00	92.1 %	65-135	
		(SP 1209056-001)	MSD	ug/L	20.00	89.0 %	65-135	
		(SP 1209056-001)	MSD	ug/L	20.00	93.0 %	65-135	
			MSRPD	ug/L	20.00	1.0%	≤7.28	
			MSRPD	ug/L	20.00	2.3%	≤13.8	
Aldicarb Sulfoxide	531.1	09/12/12:213421SG	CCV	ug/L	10.00	90.3 %	80-120	
			CCV	ug/L	20.00	90.5 %	80-120	
Carbaryl	531.1	09/12/12:213421SG	CCV	ug/L	10.00	90.3 %	80-120	
			CCV	ug/L	20.00	94.0 %	80-120	
Carbaryl/Naphthol	531.1	09/12/12:210149SG	Blank	ug/L		ND	<5	
			LCS	ug/L	20.00	97.7 %	80-120	
			MS	ug/L	20.00	89.1 %	65-135	
		(SP 1209056-001)	MSD	ug/L	20.00	87.9 %	65-135	
			MSRPD	ug/L	20.00	0.24	≤5	
Carbofuran	531.1	09/12/12:210149SG	Blank	ug/L		ND	<5	
			LCS	ug/L	20.00	100 %	80-120	
			MS	ug/L	20.00	95.4 %	65-135	
		(SP 1209056-001)	MSD	ug/L	20.00	91.0 %	65-135	
			MSRPD	ug/L	20.00	0.88	≤5	
	531.1	09/12/12:213421SG	CCV	ug/L	10.00	98.6 %	80-120	
			CCV	ug/L	20.00	97.0 %	80-120	
Methomyl	531.1	09/12/12:210149SG	Blank	ug/L		ND	<2	
			LCS	ug/L	20.00	97.2 %	80-120	
			MS	ug/L	20.00	92.2 %	65-135	
		(SP 1209056-001)	MSD	ug/L	20.00	91.2 %	65-135	
			MSRPD	ug/L	20.00	1.1%	≤53.1	
	531.1	09/12/12:213421SG	CCV	ug/L	10.00	88.1 %	80-120	
			CCV	ug/L	20.00	91.0 %	80-120	
Oxamyl	531.1	09/12/12:210149SG	Blank	ug/L		ND	<5	
			LCS	ug/L	20.00	97.9 %	80-120	
			MS	ug/L	20.00	93.4 %	65-135	
		(SP 1209056-001)	MSD	ug/L	20.00	93.6 %	65-135	
			MSRPD	ug/L	20.00	0.040	≤5	
	531.1	09/12/12:213421SG	CCV	ug/L	10.00	86.9 %	80-120	
			CCV	ug/L	20.00	91.3 %	80-120	
Glyphosate	547	09/06/12:209907SG	Blank	ug/L		ND	<20	
			LCS	ug/L	198.5	98.2 %	76-119	
			MS	ug/L	198.5	99.3 %	56-139	
		(VI 1242091-001)	MSD	ug/L	198.5	94.8 %	56-139	
			MSRPD	ug/L	198.5	4.6%	≤14.5	
	547	09/06/12:213097SG	CCV	ug/L	100.0	95.4 %	80-120	
			CCV	ug/L	200.0	89.6 %	80-120	
Endothall	548.1	09/05/12:209840SG	Blank	ug/L		ND	<40	
			LCS	ug/L	166.7	65.6 %	7-141	
			MS	ug/L	83.33	52.1 %	7-137	
		(SP 1208765-001)	MSD	ug/L	83.33	60.1 %	7-137	

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Thomas Harder & Co. Customer : 2-24140

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Endothall	548.1	09/05/12:209840SG	MSRPD	ug/L	83.33	6.7	≤40	
	548.1	09/12/12:213471SG	CCV	ug/L	1000	114 %	70-130	
			CCV	ug/L	2500	97.6 %	70-130	
Diquat Dibromide	549	09/04/12:209775SG	Blank	ug/L		ND	<2	
			LCS	ug/L	20.00	44.5 %	19-113	
			MS	ug/L	20.00	11.7 %	10-125	
		(VI 1242091-001)	MSD	ug/L	20.00	3.5 %	10-125	435
			MSRPD	ug/L	20.00	1.6	≤2	
	549.2	09/11/12:213332SG	CCV	ug/L	1000	94.4 %	80-120	
			CCV	ug/L	500.0	99.4 %	80-120	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Explanation

360	: CCV above Acceptance Range (AR). Samples which were non detect for this analyte were accepted.
435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

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Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Boron	200.7		MS	mg/L	4.000	92.9 %	75-125	
		(SP 1208768-008)	MSD	mg/L	4.000	93.3 %	75-125	
			MSRPD	mg/L	798.8	0.4%	≤20.0	
	200.7	08/30/12:212887AC	CCV	ppm	5.000	101 %	90-110	
			CCB	ppm		0.066	0.10	
			CCV	ppm	5.000	101 %	90-110	
			CCB	ppm		0.086	0.10	
Calcium	200.7		MS	mg/L	12.00	79.9 %	75-125	
		(SP 1208768-008)	MSD	mg/L	12.00	78.7 %	75-125	
			MSRPD	mg/L	798.8	0.1%	≤20.0	
	200.7	08/30/12:212887AC	CCV	ppm	25.00	98.5 %	90-110	
			CCB	ppm		0.009	1.0	
			CCV	ppm	25.00	97.8 %	90-110	
			CCB	ppm		0.02	1.0	
Copper	200.7		MS	ug/L	800.0	100 %	75-125	
		(SP 1208768-008)	MSD	ug/L	800.0	99.0 %	75-125	
			MSRPD	ug/L	798.8	1.1%	≤20.0	
	200.7	08/30/12:212887AC	CCV	ppm	1.000	102 %	90-110	
			CCB	ppm		-0.0007	0.01	
			CCV	ppm	1.000	101 %	90-110	
			CCB	ppm		-0.0013	0.01	
Iron	200.7		MS	ug/L	3992	98.1 %	75-125	
		(SP 1208768-008)	MSD	ug/L	3992	96.5 %	75-125	
			MSRPD	ug/L	798.8	1.6%	≤20.0	
	200.7	08/30/12:212887AC	CCV	ppm	5.000	101 %	90-110	
			CCB	ppm		0.0006	0.05	
			CCV	ppm	5.000	100 %	90-110	
			CCB	ppm		0.0005	0.05	
Magnesium	200.7		MS	mg/L	12.00	86.0 %	75-125	
		(SP 1208768-008)	MSD	mg/L	12.00	83.8 %	75-125	
			MSRPD	mg/L	798.8	0.3%	≤20.0	
	200.7	08/30/12:212887AC	CCV	ppm	25.00	102 %	90-110	
			CCB	ppm		0.006	1.0	
			CCV	ppm	25.00	102 %	90-110	
			CCB	ppm		0.002	1.0	
Manganese	200.7		MS	ug/L	800.0	99.2 %	75-125	
		(SP 1208768-008)	MSD	ug/L	800.0	97.0 %	75-125	
			MSRPD	ug/L	798.8	2.2%	≤20.0	
	200.7	08/30/12:212887AC	CCV	ppm	1.000	99.8 %	90-110	
			CCB	ppm		0.00009	0.01	
			CCV	ppm	1.000	99.4 %	90-110	
			CCB	ppm		0.00002	0.01	
Potassium	200.7		MS	mg/L	12.00	108 %	75-125	
		(SP 1208768-008)	MSD	mg/L	12.00	106 %	75-125	
			MSRPD	mg/L	798.8	1.9%	≤20.0	
	200.7	08/30/12:212887AC	CCV	ppm	25.00	101 %	90-110	
			CCB	ppm		0.002	1.0	
			CCV	ppm	25.00	100 %	90-110	
			CCB	ppm		-0.03	1.0	
Silicon	200.7	08/30/12:212887AC	CCV	ppm	5.000	102 %	90-110	
			CCB	ppm		0.003	1.0	
			CCV	ppm	5.000	101 %	90-110	
			CCB	ppm		-0.001	1.0	
Sodium	200.7		MS	mg/L	12.00	95.1 %	75-125	
		(SP 1208768-008)	MSD	mg/L	12.00	91.1 %	75-125	

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Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Sodium	200.7	08/30/12:209644AC	MSRPD	mg/L	798.8	0.4%	≤20.0	
	200.7	08/30/12:212887AC	CCV	ppm	25.00	99.5 %	90-110	
			CCB	ppm		-0.009	1.0	
			CCV	ppm	25.00	99.2 %	90-110	
			CCB	ppm		0.04	1.0	
Zinc	200.7		MS	ug/L	800.0	94.2 %	75-125	
		(SP 1208768-008)	MSD	ug/L	800.0	92.0 %	75-125	
			MSRPD	ug/L	798.8	2.4%	≤20.0	
	200.7	08/30/12:212887AC	CCV	ppm	1.000	97.0 %	90-110	
			CCB	ppm		0.0004	0.02	
			CCV	ppm	1.000	95.7 %	90-110	
			CCB	ppm		0.0019	0.02	
Aluminum	200.8		MS	ug/L	29.98	94.6 %	75-125	
		(SP 1208634-001)	MSD	ug/L	29.98	92.6 %	75-125	
			MSRPD	ug/L	9.992	0.59	≤10	
			MS	ug/L	29.98	92.3 %	75-125	
		(SP 1208640-003)	MSD	ug/L	29.98	91.6 %	75-125	
			MSRPD	ug/L	9.992	0.19	≤10	
	200.8	09/01/12:212888AC	CCV	ppb	120.0	98.2 %	90-110	
			CCB	ppb		0.4	10	
			CCV	ppb	120.0	97.6 %	90-110	
			CCB	ppb		0.5	10	
			CCV	ppb	120.0	95.1 %	90-110	
			CCB	ppb		-0.3	10	
			CCV	ppb	120.0	95.4 %	90-110	
			CCB	ppb		0.7	10	
Antimony	200.8		MS	ug/L	8.000	42.0 %	75-125	435
		(SP 1208634-001)	MSD	ug/L	8.000	37.1 %	75-125	435
			MSRPD	ug/L	9.992	0.39	≤1	
			MS	ug/L	8.000	46.1 %	75-125	435
		(SP 1208640-003)	MSD	ug/L	8.000	40.9 %	75-125	435
			MSRPD	ug/L	9.992	0.42	≤1	
	200.8	09/07/12:213175AC	CCV	ppb	120.0	94.0 %	90-110	
			CCB	ppb		0.48	1	
			CCV	ppb	120.0	94.9 %	90-110	
			CCB	ppb		1.58	1	
Arsenic	200.8		MS	ug/L	10.00	58.2 %	75-125	435
		(SP 1208634-001)	MSD	ug/L	10.00	58.9 %	75-125	435
			MSRPD	ug/L	9.992	0.068	≤2	
			MS	ug/L	10.00	56.2 %	75-125	435
		(SP 1208640-003)	MSD	ug/L	10.00	63.2 %	75-125	435
			MSRPD	ug/L	9.992	0.70	≤2	
	200.8	09/01/12:212888AC	CCV	ppb	120.0	92.3 %	90-110	
			CCB	ppb		0.11	2	
			CCV	ppb	120.0	94.1 %	90-110	
			CCB	ppb		0.07	2	
			CCV	ppb	120.0	94.6 %	90-110	
			CCB	ppb		0.03	2	
			CCV	ppb	120.0	92.4 %	90-110	
			CCB	ppb		0.11	2	
Barium	200.8		MS	ug/L	9.990	58.2 %	75-125	435
		(SP 1208634-001)	MSD	ug/L	9.990	55.6 %	75-125	435
			MSRPD	ug/L	9.992	1.0%	≤20	
			MS	ug/L	9.990	66.0 %	75-125	435

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Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Barium	200.8	(SP 1208640-003)	MSD	ug/L	9.990	68.1 %	75-125	435
			MSRPD	ug/L	9.992	0.5%	≤20	
	200.8	09/07/12:213175AC	CCV	ppb	120.0	97.0 %	90-110	
			CCB	ppb		0.04	1	
			CCV	ppb	120.0	98.8 %	90-110	
			CCB	ppb		0.01	1	
Beryllium	200.8		MS	ug/L	10.02	59.1 %	75-125	435
		(SP 1208634-001)	MSD	ug/L	10.02	58.1 %	75-125	435
			MSRPD	ug/L	9.992	1.7%	≤20	
			MS	ug/L	10.02	55.9 %	75-125	435
		(SP 1208640-003)	MSD	ug/L	10.02	59.5 %	75-125	435
			MSRPD	ug/L	9.992	6.2%	≤20	
	200.8	09/01/12:212888AC	CCV	ppb	120.0	93.1 %	90-110	
			CCB	ppb		0.066	0.2	
			CCV	ppb	120.0	96.9 %	90-110	
			CCB	ppb		0.042	0.2	
			CCV	ppb	120.0	95.8 %	90-110	
			CCB	ppb		0.036	0.2	
			CCV	ppb	120.0	97.2 %	90-110	
			CCB	ppb		0.107	0.2	
Cadmium	200.8		MS	ug/L	10.00	60.4 %	75-125	435
		(SP 1208634-001)	MSD	ug/L	10.00	62.3 %	75-125	435
			MSRPD	ug/L	9.992	3.1%	≤20	
			MS	ug/L	10.00	68.3 %	75-125	435
		(SP 1208640-003)	MSD	ug/L	10.00	59.8 %	75-125	435
			MSRPD	ug/L	9.992	13.1%	≤20	
	200.8	09/01/12:212888AC	CCV	ppb	120.0	92.2 %	90-110	
			CCB	ppb		0.054	0.2	
			CCV	ppb	120.0	93.6 %	90-110	
			CCB	ppb		0.022	0.2	
			CCV	ppb	120.0	95.0 %	90-110	
			CCB	ppb		0.028	0.2	
			CCV	ppb	120.0	93.8 %	90-110	
			CCB	ppb		0.087	0.2	
Chromium	200.8		MS	ug/L	10.00	55.2 %	75-125	435
		(SP 1208634-001)	MSD	ug/L	10.00	56.5 %	75-125	435
			MSRPD	ug/L	9.992	2.3%	≤20	
			MS	ug/L	10.00	53.8 %	75-125	435
		(SP 1208640-003)	MSD	ug/L	10.00	54.9 %	75-125	435
			MSRPD	ug/L	9.992	1.9%	≤20	
	200.8	09/01/12:212888AC	CCV	ppb	120.0	95.8 %	90-110	
			CCB	ppb		0.04	1	
			CCV	ppb	120.0	96.4 %	90-110	
			CCB	ppb		0.04	1	
			CCV	ppb	120.0	97.2 %	90-110	
			CCB	ppb		0.04	1	
			CCV	ppb	120.0	96.7 %	90-110	
			CCB	ppb		0.08	1	
Lead	200.8		MS	ug/L	10.00	58.9 %	75-125	435
		(SP 1208634-001)	MSD	ug/L	10.00	59.2 %	75-125	435
			MSRPD	ug/L	9.992	0.4%	≤20	
			MS	ug/L	10.00	67.2 %	75-125	435
		(SP 1208640-003)	MSD	ug/L	10.00	61.0 %	75-125	435
			MSRPD	ug/L	9.992	9.4%	≤20	

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Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Lead	200.8	09/01/12:212888AC	CCV	ppb	120.0	95.8 %	90-110	
			CCB	ppb		0.106	0.2	
			CCV	ppb	120.0	96.1 %	90-110	
			CCB	ppb		0.039	0.2	
			CCV	ppb	120.0	96.3 %	90-110	
			CCB	ppb		0.016	0.2	
			CCV	ppb	120.0	96.3 %	90-110	
			CCB	ppb		0.111	0.2	
Nickel	200.8		MS	ug/L	10.00	57.4 %	75-125	435
		(SP 1208634-001)	MSD	ug/L	10.00	57.2 %	75-125	435
			MSRPD	ug/L	9.992	0.2%	≤20	
			MS	ug/L	10.00	55.2 %	75-125	435
		(SP 1208640-003)	MSD	ug/L	10.00	53.9 %	75-125	435
			MSRPD	ug/L	9.992	0.12	≤1	
	200.8	09/01/12:212888AC	CCV	ppb	120.0	96.5 %	90-110	
			CCB	ppb		0.05	1	
			CCV	ppb	120.0	98.6 %	90-110	
			CCB	ppb		0.03	1	
			CCV	ppb	120.0	99.3 %	90-110	
			CCB	ppb		0.02	1	
			CCV	ppb	120.0	98.2 %	90-110	
			CCB	ppb		0.09	1	
Selenium	200.8		MS	ug/L	9.998	57.6 %	75-125	435
		(SP 1208634-001)	MSD	ug/L	9.998	57.4 %	75-125	435
			MSRPD	ug/L	9.992	0.014	≤2	
			MS	ug/L	9.998	61.4 %	75-125	435
		(SP 1208640-003)	MSD	ug/L	9.998	74.7 %	75-125	
			MSRPD	ug/L	9.992	6.7%	≤20	
	200.8	09/01/12:212888AC	CCV	ppb	120.0	90.8 %	90-110	
			CCB	ppb		0.09	2	
			CCV	ppb	120.0	91.2 %	90-110	
			CCB	ppb		-0.08	2	
			CCV	ppb	120.0	91.6 %	90-110	
			CCB	ppb		-0.13	2	
			CCV	ppb	120.0	90.3 %	90-110	
			CCB	ppb		-0.04	2	
Silver	200.8		MS	ug/L	9.992	47.2 %	75-125	435
		(SP 1208634-001)	MSD	ug/L	9.992	47.9 %	75-125	435
			MSRPD	ug/L	9.992	0.070	≤1	
			MS	ug/L	9.992	31.7 %	75-125	435
		(SP 1208640-003)	MSD	ug/L	9.992	45.7 %	75-125	435
			MSRPD	ug/L	9.992	1.4	≤1	435
	200.8	09/01/12:212888AC	CCV	ppb	120.0	97.0 %	90-110	
			CCB	ppb		0.02	1	
			CCV	ppb	120.0	97.8 %	90-110	
			CCB	ppb		0.03	1	
			CCV	ppb	120.0	98.2 %	90-110	
			CCB	ppb		0.03	1	
			CCV	ppb	120.0	97.8 %	90-110	
			CCB	ppb		0.08	1	
Thallium	200.8		MS	ug/L	9.998	58.6 %	75-125	435
		(SP 1208634-001)	MSD	ug/L	9.998	59.7 %	75-125	435
			MSRPD	ug/L	9.992	1.9%	≤20	
			MS	ug/L	9.998	67.8 %	75-125	435

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Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Metals								
Thallium	200.8	(SP 1208640-003)	MSD	ug/L	9.998	62.3 %	75-125	435
			MSRPD	ug/L	9.992	8.4%	≤20	
	200.8	09/01/12:212888AC	CCV	ppb	120.0	95.0 %	90-110	
			CCB	ppb		0.058	0.2	
			CCV	ppb	120.0	95.0 %	90-110	
			CCB	ppb		0.036	0.2	
			CCV	ppb	120.0	96.1 %	90-110	
			CCB	ppb		0.032	0.2	
			CCV	ppb	120.0	95.4 %	90-110	
			CCB	ppb		0.112	0.2	
Vanadium	200.8		MS	ug/L	10.00	57.0 %	75-125	435
		(SP 1208634-001)	MSD	ug/L	10.00	58.8 %	75-125	435
			MSRPD	ug/L	9.992	0.18	≤2	
			MS	ug/L	10.00	55.4 %	75-125	435
		(SP 1208640-003)	MSD	ug/L	10.00	59.7 %	75-125	435
			MSRPD	ug/L	9.992	4.1%	≤20	
	200.8	09/01/12:212888AC	CCV	ppb	120.0	95.2 %	90-110	
			CCB	ppb		0.1	2	
			CCV	ppb	120.0	95.9 %	90-110	
			CCB	ppb		0.05	2	
			CCV	ppb	120.0	96.7 %	90-110	
			CCB	ppb		0.07	2	
			CCV	ppb	120.0	96.0 %	90-110	
			CCB	ppb		0.12	2	
Mercury	245.1	09/05/12:209849ac	Blank	ug/L		ND	<0.02	
			LCS	ug/L	0.2000	100 %	85-115	
			MS	ug/L	0.2000	94.8 %	75-125	
		(SP 1208634-001)	MSD	ug/L	0.2000	90.9 %	75-125	
			MSRPD	ug/L	0.2000	4.1%	≤20	
	245.1	09/06/12:213172AC	CCV	ppt	200.0	97.8 %	90-110	
			CCB	ppt		4.3	20	
			CCV	ppt	200.0	98.4 %	90-110	
			CCB	ppt		3.8	20	
Wet Chem								
Color	2120B	(SP 1208765-001)	Dup	units		0.0	5	
	2120B	08/30/12:212801jmg	CCB	units		0.00	5.0	
			CCV	units	10.00	100 %	90-110	
Turbidity	2130B	(SP 1208749-001)	Dup	NTU		0.0020	0.2	
	2130B	08/30/12:212918jam	CCB	NTU		0.087	0.2	
			CCV	NTU	2.000	102 %	90-110	
			CCB	NTU		0.099	0.2	
			CCV	NTU	2.000	100 %	90-110	
Odor	2150B	(SP 1208765-001)	Dup	TON		0.0	1	
Alkalinity (as CaCO3)	2320B	(CC 1282494-001)	Dup	mg/L		3.6%	3.42	440
	2320B	09/04/12:212980AMB	CCV	mg/L	234.9	98.4 %	90-110	
			CCV	mg/L	234.9	102 %	90-110	
Bicarbonate	2320B	(CC 1282494-001)	Dup	mg/L		3.5%	4.78	
Carbonate	2320B	(CC 1282494-001)	Dup	mg/L		0.0	10	
Hydroxide	2320B	(CC 1282494-001)	Dup	mg/L		0.0	10	
Conductivity	2510B	08/30/12:212774JMG	ICB	umhos/cm		0.09	1	
			CCV	umhos/cm	996.0	101 %	95-105	
			CCV	umhos/cm	996.0	101 %	95-105	
E. C.	2510B	08/30/12:209665jmg	Blank	umhos/cm		ND	<1	
		(CH 1275672-001)	Dup	umhos/cm		0.2%	10	

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Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Solids, Total Dissolved	2540CE	08/31/12:209720CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	995.0	101 %	90-110	
		(CH 1275853-001)	Dup	mg/L		0.8%	10.0	
Chloride	300.0	08/30/12:209694CHL	LCS	mg/L	25.00	98.5 %	90-110	
			MS	mg/L	500.0	101 %	86-128	
		(SP 1208765-001)	MSD	mg/L	500.0	99.8 %	86-128	
			MSRPD	mg/L	100.0	0.8%	≤23.0	
	300.0	08/30/12:212905CHL	ICV	ppm	50.00	98.1 %	90-110	
			ICB	ppm		-0.47	1	
			CCB	ppm		-0.49	1	
			CCV	ppm	25.00	98.4 %	90-110	
Fluoride	300.0	08/30/12:209694CHL	LCS	mg/L	2.500	92.8 %	90-110	
			MS	mg/L	50.00	94.1 %	81-126	
		(SP 1208765-001)	MSD	mg/L	50.00	94.2 %	81-126	
			MSRPD	mg/L	100.0	0.2%	≤12.1	
	300.0	08/30/12:212905CHL	ICV	ppm	5.000	90.4 %	90-110	
			ICB	ppm		-0.048	0.1	
			CCB	ppm		-0.048	0.1	
			CCV	ppm	2.500	93.1 %	90-110	
Nitrate	300.0	08/30/12:209694CHL	LCS	mg/L	20.00	97.5 %	90-110	
			MS	mg/L	400.0	99.8 %	88-124	
		(SP 1208765-001)	MSD	mg/L	400.0	100 %	88-124	
			MSRPD	mg/L	100.0	0.4%	≤29.1	
	300.0	08/30/12:212905CHL	ICV	ppm	40.00	97.5 %	90-110	
			ICB	ppm		-0.338	0.4	
			CCB	ppm		-0.351	0.4	
			CCV	ppm	20.00	96.6 %	90-110	
Nitrite	300.0	08/30/12:209694CHL	LCS	mg/L	15.00	106 %	90-110	
			MS	mg/L	300.0	102 %	91-121	
		(SP 1208765-001)	MSD	mg/L	300.0	101 %	91-121	
			MSRPD	mg/L	100.0	0.7%	≤23.8	
	300.0	08/30/12:212905CHL	ICV	ppm	30.00	101 %	90-110	
			ICB	ppm		-0.144	0.3	
			CCB	ppm		-0.135	0.3	
			CCV	ppm	15.00	105 %	90-110	
Sulfate	300.0	08/30/12:209694CHL	LCS	mg/L	50.00	99.0 %	90-110	
			MS	mg/L	1000	101 %	78-137	
		(SP 1208765-001)	MSD	mg/L	1000	101 %	78-137	
			MSRPD	mg/L	100.0	0.3%	≤12.3	
	300.0	08/30/12:212905CHL	ICV	ppm	100.0	99.0 %	90-110	
			ICB	ppm		-1.14	2	
			CCB	ppm		-0.53	2	
			CCV	ppm	50.00	99.2 %	90-110	
Perchlorate	314.0	09/13/12:210197CHL	Blank	ug/L		ND	<2	
			LCS	ug/L	25.02	108 %	80-120	
			MS	ug/L	25.02	114 %	80-120	
		(CC 1282770-001)	MSD	ug/L	25.02	108 %	80-120	
			MSRPD	ug/L	25.02	6.1%	≤20	
	314.0	09/13/12:213479CHL	ICB	ppb		0.00	1.0	
			ICV	ppb	2.002	106 %	85-115	
			CCV	ppb	10.01	98.6 %	85-115	
			CCV	ppb	10.01	105 %	85-115	
			CCV	ppb	10.01	109 %	85-115	
Cyanide	4500CNCE	08/31/12:212797AMM	CCV	mg/L	0.1000	98.7 %	90-110	

October 8, 2012 Lab ID : SP 1208765
Thomas Harder & Co. Customer : 2-24140

Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
Cyanide	4500CNCE	08/31/12:212797AMM	CCB	mg/L		0.00063	0.004	
			CCV	mg/L	0.1000	94.5 %	90-110	
			CCB	mg/L		0.00016	0.004	
Cyanide, Total	4500CNCE	08/29/12:209622AMM	Blank	mg/L		ND	<0.004	
			LCS	mg/L	0.1000	93.6 %	90-110	
			LCS	mg/L	0.4000	97.9 %	90-110	
			MS	mg/L	0.05000	107 %	5-223	
		(SP 1208368-006)	MSD	mg/L	0.05000	110 %	5-223	
			MSRPD	mg/L	0.05000	2.6%	≤10.0	
pH	4500-H B	(SP 1208491-001)	Dup	units		0.0%	4.80	
	4500HB	08/29/12:212723CJJ	CCV	units	8.000	100 %	95-105	
			CCV	units	8.000	101 %	95-105	
MBAS	5540C	08/30/12:212788JAM	CCB	mg/L		0.000	0.1	
			CCV	mg/L	10.00	100 %	99-101	
MBAS Screen	5540C	(STK1237943-001)	MS	mg/L	10.00	100 %	90-110	
			MSD	mg/L	10.00	100 %	90-110	
			MSRPD	mg/L	10.00	0.0	≤0.1	

Definition

ICV	: Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
ICB	: Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
Dup	: Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Explanation

435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
440	: Sample nonhomogeneity may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

October 8, 2012 Lab ID : SP 1208765
Thomas Harder & Co. Customer : 2-24140

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	09/11/12:213450caa	CCV	cpm	9721	40.0 %	40 - 49	
			CCB	cpm		0.100	0.12	
	900.0	09/11/12:213451caa	CCV	cpm	9721	42.5 %	40 - 49	
			CCB	cpm		0.1400	0.19	
Gross Alpha	900.0	09/11/12:209973CAA	Blank	pCi/L		0.45	3	
			LCS	pCi/L	155.2	114 %	75-125	
			MS	pCi/L	155.2	115 %	60-140	
		(CH 1275588-001)	MSD	pCi/L	155.2	108 %	60-140	
			MSRPD	pCi/L	155.2	6.8%	≤30	
Alpha	908.0	09/19/12:213936CAA	CCV	cpm	9715	40.5 %	40 - 49	
			CCB	cpm		0.1400	0.15	
Uranium	908.0	09/17/12:210277caa	RgBlk	pCi/L		0.10	1	
			LRS	pCi/L	21.48	86.2 %	54-105	
			BS	pCi/L	21.48	86.7 %	75-125	
			BSD	pCi/L	21.48	84.8 %	75-125	
			BSRPD	pCi/L	21.48	2.3%	≤20	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS	: Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

FGL ENVIRONMENTAL

www.fglinc.com

CHAIN OF CUSTODY
AND ANALYSIS REQUEST DOCUMENT

ORIGINAL

CLIENT DETAILS — SECTION I

Client: Thomas Harder & Co.

❑ New Customer Customer Number: _____

Address: 801 E. Yorba Linda Blvd
Suite 3a Placentia, CA 92870

Phone: (714) 792-3875 FAX: _____

E-Mail: ~~#~~ THarder@ThomasHarderCompany.com

Project name: Stockdale East/West H_2O Sampling

Contact person: Tom Harder

Billing Information (if different from above)

Name: _____

Address: Same

Phone: _____ FAX: _____

E-Mail: _____

Contact person: _____

Purchase order/contract/FGL quote number: _____

Pre Log Required: yes _____ Frequency: Monthly ❑ Weekly ❑ Quarterly ❑ Other ❑ _____

SAMPLING — SECTION II

Sampler (s): Andrew Hausheer

Comp Sampler Set up Date: _____ Time: _____

Time: _____ Mileage: _____

Shipping Charge: _____ Pickup Charge: _____

REPORT INFORMATION — SECTION III

Rush Analysis (surcharge will apply):

❑ 5 Day ❑ 4 Day ❑ 3 Day

❑ 2 Day ❑ 24 hour

Rush pre-approval by lab: _____ (Initial)

Electronic Data Transfer: yes _____ no _____

If yes, To: State _____ Client ✓ Other _____

Lab number: 1108765

SAMPLE INFORMATION — SECTION IV

Sample Number	Location/Description	Date Sampled	Time Sampled	Type of Sampling: Composite(C) Grab(G)	Number of Containers	Type of Containers: (G) Glass (P) Plastic (V) VOA (MT) Metal Tube	(P) Potable (NP) Non-Potable	(SW) Surface Water (GW) Ground Water (WW) Wastewater (MW) Monitoring Well (TB) Travel Blank (DW) Drinking Water (AgW) Ag Water	(S) Soil (SLG) Sludge (SLD) Solid (O) Oil	BacT: (Sys) System (SRC) Source (W) Waste	BacT: Routine (ROUT) Repeat (RPT) Other (OTH) Replace (RPL)	(LT) Leaf Tissue (PET) Petiole Tissue (PRD) Produce	Preservative: (1) NaOH + ZnAc, (2) NaOH, (3) HCl, (4) H_2SO_4, (5) HNO_3, (6) $Na_2S_2O_3$, (7) Other	ANALYSES REQUESTED
1	Stockdale West	8-29-12	9:30am	G			NP	GW					see bottles	See attached analyte list - 2 pages
2	Stockdale East	"	10:30am	G			NP	GW						

REMARKS — SECTION V

CUSTODY — SECTION VI

Relinquished by and subject to the terms and conditions on the reverse of this document:

Relinquished by: _____ Date _____ Time _____

Received by: _____ Date _____ Time _____

Relinquished by: _____ Date _____ Time _____

Received by: _____ Date _____ Time _____

Relinquished by: _____ Date _____ Time _____

Received by: _____ Date _____ Time 1304

Relinquished by: _____ Date _____ Time _____

Received by: _____ Date _____ Time _____

CORPORATE OFFICE & LABORATORY
853 Corporation Street
Santa Paula, CA 93060
Tel: (805) 392-2000
FAX: (805) 525-4172

OFFICE & LABORATORY
2500 Stagecoach Road
Stockton, CA 95215
Tel: (209) 942-0182
FAX: (209) 942-0423

OFFICE & LABORATORY
563 E. Lindo Avenue
Chico, CA 95926
Tel: (530) 343-5818
FAX: (530) 343-3807

FIELD OFFICE
Visalia, California
Tel: (559) 734-9473
Mobile: (559) 737-2399
FAX (559) 734-8435

Email

Date: June 1, 2012

To: **ThomasHarder**
Attn: Ben Lewis
Email: **blewis@thomashardercompany.com**

From: **Denis Barry - Marketing Director**
denisb@fglinc.com Phone: (805) 392-2032 Fax: (805) 525-4172

Subject: **Price Quote No: SP 20120601-02 Title 22 Analyses**

Dear Ben,

Hereunder is the price quote that you requested. Please use the price quote number SP 20120601-02 for further reference to this quote.

Quote For Time Period: June 01, 2012 through June 01, 2013
Sampled By: FGL Sampling

Constituent	Analytical Method	Price per Sample
General Mineral (Alkalinity, Boron, Calcium, Carbonate, Chloride, Copper, Aggressive Index, Bicarbonate, Fluoride, Foaming Agents, Hydroxide, Iron, Langlier Index, Magnesium, Manganese, Nitrate, Nitrite, pH, Potassium, Sodium, Sodium Absorption Ratio, Electrical Conductivity, Sulfate, Total Dissolved Solids, Total Hardness, Zinc)	Various	162.00
General Physical (Color, Odor, Turbidity)	Various	39.00
IOC Metals (Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium)	Various	155.00
Silica	EPA200.7/EPA200.8	24.00
Perchlorate	EPA 314.0	50.00
Total Cyanide (CN)	SM4500-CN C,E	69.00
Gross Alpha	EPA 900.0	43.00
EDB & DBCP	EPA 504.1	87.00
Chlorinated Pesticides	EPA 505	148.00
Nitrogen Phosphorus Pesticides	EPA 507	148.00
Herbicides	EPA 515.3	175.00
VOC's Full List	EPA 524.2	235.00
Semi-volatile	EPA 525.2	315.00
Carbamates	EPA 531.1	175.00
Glyphosate	EPA 547	175.00
Endothall	EPA 548.1	200.00
Diquat	EPA 549.2	175.00

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
TEL: 805/392-2000
FAX: 805/525-4172
CA NELAP Certification No. 01110CA

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
TEL: 209/942-0182
FAX: 209/942-0423
CA ELAP Certification No. 1563

Office & Laboratory
563 E. Lindo Avenue
Chico, CA 95926
TEL: 530/343-5818
FAX: 530/343-3807
CA ELAP Certification No. 2670

Office & Laboratory
3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
TEL: 805/783-2940
FAX: 805/525-4172
CA ELAP Certification No. 2775

Field Office
Visalia, California
TEL: 559/734-9473
Mobile: 559/737-2399
FAX: 559/734-8435

Constituent	Analytical Method	Price per Sample
Subcontracted: Asbestos (Drinking Water)	EPA 600/4-83	120.00
Subcontracted: Dioxin (AQ/Solid) - 2,3,7,8, TCDD Only	EPA 1613B/8290	465.00
Subcontracted: 1,4 Dioxane		175.00
	Total Price Quote:	**3135.00**

- *A Quality Assurance/Quality Control report is supplied with all of our analyses. This assures our valued clients of accurate and defensible data.*
- All work undertaken is subject to our terms and conditions, which are outlined in our fee schedule and/or available upon request.

If you have any questions relating to this quote, please do not hesitate to call us.

Reviewed and Approved By **Denis Barry** Marketing Director

Digitally signed by Denis Barry
Prepared By: Sara Brockus
Date: 2012-06-01 11:32

+ Uranium (radiological) $85

Hold Radium samples

Subcontract to
Test America Sacramento

Map Ref.

Client: **Fruit Growers Laboratory, Inc.**

Address: FGL Environmental, Inc.
853 Corporation St.
Santa Paula, CA 93060-3005

Phone: (805)392-2039 Fax: (805)525-6264

Contact Person:

Project Name: **SP 1208765 - (2-24140)**

Purchase Order Number:

Sampler(s) Andrew Hausheer

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number:

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Dioxin-Dioxin EPA 1613B (2,3,7,8 TCDD Only) 1000ml(AGT)									
1	Stockdale West	08/29/12	09:30	G	GW				21									
2	Stockdale East	08/29/12	10:30	G	GW				21									

Remarks:

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:

Subcontract to
EMS Laboratories, Inc.

Map Ref.

Client: **Fruit Growers Laboratory, Inc.**

Address: FGL Environmental, Inc.
853 Corporation St.
Santa Paula, CA 93060-3005

Phone: (805)392-2039 Fax: (805)525-6264

Contact Person:

Project Name: **SP 1208765 - (2-24140)**

Purchase Order Number:

Sampler(s) Andrew Hausheer

Compositor Setup Date: ___/___/___ Time: ___/___

Lab Number:

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Asbestos-Drinking Water 32oz(P)									
1	Stockdale West	08/29/12	09:30	G	GW				1									
2	Stockdale East	08/29/12	10:30	G	GW				1									

Remarks:

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:

Subcontract to
Weck Laboratories, Inc.

Map Ref.

Client: **Fruit Growers Laboratory, Inc.**

Address: FGL Environmental, Inc.
853 Corporation St.
Santa Paula, CA 93060-3005

Phone: (805)392-2039 Fax: (805)525-6264

Contact Person:

Project Name: **SP 1208765 - (2-24140)**

Purchase Order Number:

Sampler(s) Andrew Hausheer

Compositor Setup Date: ____/____/____ Time: ____/____

Lab Number:

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite(C) Grab(G)	Type of Sample **SEE REVERSE SIDE**	Potable(P) Non-Potable(NP) Ag Water(AgW)	Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)	Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)	Sub Contracted-EPA 525.2 1000ml(AGT)	Sub Contracted-1,4 Dioxane 1000ml(AGJ)								
0	Travel Blank	08/29/12	00:00	G	LBW				1									
1	Stockdale West	08/29/12	09:30	G	GW				1	1								
2	Stockdale East	08/29/12	10:30	G	GW				1	1								

Remarks:

Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:

Santa Paula - Condition Upon Receipt (Attach to COC)

Sample Receipt:

1. Number of ice chests/packages received: **OTC**
   Note as OTC if received over the counter unpackaged
2. Were samples received in a chilled condition? Temps: **ROI** / _____ / _____ / _____

   Acceptable is above 2 to 6 C. Also acceptable is received on ice (ROI) for the same day of sampling or received at room temperature (RRT) if sampled within one hour of receipt. Client contact for temperature failures must be documented below. If many packages are received at one time check for tests/H.T.'s/rushes/Bacti's to prioritize further review. Please notify Microbiology personnel immediately of bacti samples received.
3. Do the number of bottles received agree with the COC? **Yes** / No / N/A
4. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) **Yes** / No
5. Were sample custody seals intact? Yes / No / **N/A**

Sign and date the COC, obtain LIMS sample numbers, select methods/test and print labels.

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? **Yes** / No
2. Did bottle labels correspond with the client's ID's? **Yes** / No
3. Were all bottles requiring sample preservation properly preserved? **Yes** / No / N/A **FGL**
4. VOAs checked for Headspace? **Yes** / No / N/A
5. Were all analyses within holding times at time of reciept? Yes / **No**
6. Have rush or project due dates been checked and accepted? Yes / No / **N/A**

Attach lables to the containers and include a copy of the COC for lab delivery
Sample Receipt, Login and Verification completed by (initials):

Reviewed and Approved By **Shawn Peck** Digitally signed by Shawn Peck
Title: Sample Receiving
Date: 08/29/2012-16:46:08

Discrepency Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: Tom Harder Phone Number: (714)792-3875
   Initiated By: srp Date: 2012-08-29
   Problem: **pH received past h/t**

   Resolution: **Okay to run in lab past h/t per Tom Harder 8/29/12**

2. Person Contacted: _____ Phone Number: _____
   Initiated By: srp Date: 2012-08-29
   Problem: **-1 524.2 voas = 3 voas had large h/s 1 voa had small h/s**

   Resolution: **Analysis will be run out of voa with small h/s**

(2024140)
Thomas Harder & Co.
SP 1208765
SRP-08/29/2012-16:46:08

1260 N. Hancock St., Suite 109
Anaheim, CA 92807
(714) 779-3875
tharder@thomashardercompany.com
www.ThomasHarderCompany.com

Thomas Harder & Co.
Groundwater Consulting

IRVINE RANCH WATER DISTRICT

Rosedale-Rio Bravo WATER STORAGE DISTRICT

APPENDIX F

Cross Valley Canal Operating Guidelines during Shallow Groundwater Conditions

August 12, 2011

CROSS VALLEY CANAL / STOCKDALE WEST RANCH PILOT PROJECT

OPERATING GUIDELINES DURING SHALLOW GROUNDWATER CONDITIONS

1. INTRODUCTION

The Irvine Ranch Water District (IRWD) and Rosedale Rio Bravo Water Storage District (RRBWSD) have developed the Stockdale West Ranch Pilot Project (SWRPP) for use by both districts. All groundwater banking facilities on the Stockdale West Ranch are owned by IRWD and operated and maintained by RRBWSD. The SWRPP operates within township 30 south, range 25 east, section 3, within the Kern Fan element of the San Joaquin groundwater basin. The Kern County Water Agency (KCWA) owns and operates the Cross Valley Canal (CVC). SWRPP recharge basins exist on the north side of the CVC, as shown on Figure 1. The KCWA and SWRPP contribute to water supply management and conservation in Kern County. RRBWSD and KCWA staffs have developed these operating guidelines for periods of shallow groundwater conditions in order to allow the SWRPP to operate to the fullest extent possible while at the same time being protective of CVC facilities.

Shallow groundwater conditions, as used throughout these operating guidelines, are defined to occur when the unconfined aquifer's water levels measured at well SROW-3/1 are less than 20 feet below the invert of the CVC at cross section "B-B" (figure 1), which corresponds to a water level of 46.18 feet below the top of the SROW-3/1 casing. Well SROW-3 is one of three triple-nested piezometers constructed at the Strand Ranch that measures water levels in the unconfined, leaky confining and semi-confining aquifer system. The identifier SROW-3/1 refers to the piezometer located nearest the CVC that is perforated between 220 to 270 feet below ground surface and measures water levels in the unconfined aquifer.

There are several other water banks that operate in the vicinity of the CVC that have established their own operating guidelines to protect the CVC facilities from adverse impacts from water banking operations. Specifically, the KCWA and the Kern Water Bank Authority (KWBA) have implemented a number of proactive facility protection measures, including but not limited to, installing a shallow groundwater monitoring network, conducting regular groundwater monitoring, evaluation of shallow groundwater conditions, and enhancing or installing new operational controls on the CVC. In addition, the KCWA and KWBA have developed operating guidelines during shallow groundwater conditions that specify piezometer installation, groundwater monitoring frequency and evaluation of groundwater conditions (October 16, 2000).

Implementation of the following SWRPP operating guidelines should further these existing efforts to protect CVC facilities and, at the same time, allow for project flexibility. It is expected that, as time goes on and additional information is developed, modifications to these operating guidelines may be made.

2. SWRPP GROUNDWATER MONITORING PROGRAM

The SWRPP operating guidelines were developed using the KCWA and KWBA agreement as a model. In addition, it includes the environmental commitment to monitor for groundwater mounding listed in Exhibit B of the SWRPP Notice of Exemption (May 16, 2011) that was developed to avoid potential impacts to underground structures and adjacent groundwater banking operations. Similar to the KCWA and KWBA guidelines, the SWRPP operating guidelines consist of three major components; piezometer installation, groundwater monitoring and evaluation of groundwater conditions. Each of these aspects of the program is described below.

Piezometer Installation

IRWD will install piezometers and RRBWSD will monitor water levels at the SWRPP property. IRWD will pay all direct costs of installation and RRBWSD will maintain the piezometers. Three triple-nested piezometers have already been installed to monitor groundwater conditions at each of the major aquifer formations beneath the Strand Ranch. Four additional shallow piezometers (SW-1 thru SW-4) will be installed at the locations and depths shown in Figure 1 to monitor shallow groundwater conditions on the SWRPP near the CVC. As shown in Figure 2, the four shallow piezometers will be constructed with 2-inch diameter PVC to industry standard specifications. A licensed surveyor will determine the location and elevation of each. As-built coordinates will be provided to KCWA upon completion of the installations.

Groundwater Monitoring Frequency

RRBWSD will monitor and record the groundwater levels at each of the 3 triple-nested piezometers on the Strand Ranch and 4 shallow piezometers located on the SWRPP. Groundwater level information will be provided to KCWA by electronic mail in a format specified by KCWA. The frequency of groundwater monitoring will vary as groundwater levels change. SROW-3/1 will serve as a sentry well for shallow groundwater, and groundwater levels will be measured in SROW-3/1 on a quarterly basis or more frequently if water levels are known to be rising to levels of concern. If during groundwater monitoring the water level in SROW-3/1 is equal to or less than 46.18 feet below the top of the casing (20 feet below the invert of the CVC at the SWRPP), the monitoring schedule will include the monitoring of water levels at the 4 SWRPP shallow piezometers as follows:

During periods of recharge:

- Groundwater > 20 feet below the invert of the CVC at SWRPP – monitor monthly
- Groundwater < 20 feet below the invert of the CVC at SWRPP – monitor weekly

During periods with no recharge – monitor weekly until depth to groundwater is > 20 feet below the invert of the CVC at SWRPP, then monitor semi-annually.

Evaluation of Groundwater Conditions

KCWA and RRBWSD staff will jointly evaluate groundwater conditions based on SWRPP monitoring results and other regional data provided by the KCWA. Based on this evaluation, KCWA and RRBWSD will, as necessary, determine appropriate modifications to operations as described in these guidelines. These evaluations will be conducted according to the following schedule where SWRPP groundwater levels are measured at well SROW 3/1 and adjusted to represent the depth to groundwater from the invert of the CVC canal closest to well SROW 3/1:

During periods of recharge:

- Groundwater < 50 feet below the invert of the CVC at SWRPP – evaluate monthly
- Groundwater < 20 feet below the invert of the CVC at SWRPP – evaluate weekly , prepare gradient maps weekly, prepare written recommendations regarding modifications to operations and submit to KCWA and RRBWSD
- Groundwater < 12 feet below the invert of the CVC at SWRPP - RRBWSD will obtain the opinion of a geotechnical engineer to determine if conditions might pose a risk to subsurface structures if further recharge operations were to continue at SWRPP. Under such conditions, all information used by the geotechnical engineer to form his opinion will be shared with KCWA. If the

geotechnical engineer's opinion determines subsurface structures may be at risk from high groundwater, RRBWSD will temporarily cease recharge activities until groundwater elevations no longer pose a risk to subsurface structures. (SWRPP Notice of Exemption, Exhibit B).

- Groundwater within 5 feet of design operational levels of the CVC – implement written recommendations from KCWA and RRBWSD regarding modifications to SWRPP operations.

During periods with no recharge:

- Groundwater < 20 feet below the invert of the CVC at SWRPP – evaluate weekly, prepare gradient maps monthly
- Groundwater > 20 feet below the invert of the CVC at SWRPP – evaluate semiannually
- Groundwater > 50 feet below the invert of the CVC at SWRPP – no evaluations

The evaluations are expected to consist of brief teleconferences between KCWA and RRBWSD staff unless depth to groundwater is within 20 feet below the invert of the CVC at SWRPP or less. Under these conditions and when recharge is occurring, written evaluations and recommendations will be prepared weekly as a joint effort by KCWA and RRBWSD staff.

3. GROUNDWATER RECHARGE MANAGEMENT

RRBWSD will manage SWRPP recharge operations to help ensure the groundwater elevation measured at well SROW 3/1 is below the invert of the CVC at SWRPP during shallow groundwater conditions. Should groundwater conditions develop that might induce piping behind the CVC's liner, RRBWSD will minimize recharge adjacent to the CVC either by reducing inflow to adjacent ponds or increasing the setbacks of adjacent ponds. The goal of these actions will be to prevent flow into the CVC.

It is important to note that controlling groundwater levels in the vicinity of the CVC cannot be entirely achieved by managing recharge. At times, the canal has been operated at levels above the liner, thereby recharging groundwater. As a result, groundwater elevations near the CVC are maintained at or above the level of the lining. Irrespective of the foregoing, the protective measures described above will be undertaken.

4. CVC OPERATIONS MANAGEMENT

KCWA's management of CVC operations will also play an important role in preventing future lining damage. During periods where shallow groundwater conditions exist, the CVC will be operated in such a manner as to maintain higher than normal pool levels**,** unless prohibited by delivery demands. Also, additional low-level cut-off float switches, adjustment of low-level alarms and improved monitoring of CVC forebay levels will be incorporated into CVC operations during periods where shallow groundwater conditions exist.

In addition to the above, regular inspections of the CVC's concrete liner will continue to be conducted, and any observed voids will be repaired promptly.

5. CONCLUSION

KCWA and RRBWSD staffs have developed these operating guidelines to maximize the flexibility of their respective projects while preventing structural damage to facilities. Both projects will work together to ensure that the goals of the guidelines are met. It is expected that these guidelines may be modified in

response to structural changes to the CVC (e.g. liner modifications) and as more knowledge is gained regarding the behavior of the shallow aquifer.

APPENDIX G

LESA Model and Manual

Appendix A. California Agricultural LESA Worksheets

NOTES

4,965 ft [length]
x 60 ft [width, permanent right-of-way]
6.83 acres = Impact Area

Calculation of the Land Evaluation (LE) Score

Part 1. Land Capability Classification (LCC) Score:

(1) Determine the total acreage of the project.
(2) Determine the soil types within the project area and enter them in **Column A** of the **Land Evaluation Worksheet** provided on page 2-A.
(3) Calculate the total acres of each soil type and enter the amounts in **Column B**.
(4) Divide the acres of each soil type (**Column B**) by the total acreage to determine the proportion of each soil type present. Enter the proportion of each soil type in **Column C**.
(5) Determine the LCC for each soil type from the applicable Soil Survey and enter it in **Column D**.
(6) From the LCC Scoring Table below, determine the point rating corresponding to the LCC for each soil type and enter it in **Column E**.

LCC Scoring Table

LCC Class	I	IIe	IIs,w	IIIe	IIIs,w	IVe	IVs,w	V	VI	VII	VIII
Points	100	90	80	70	60	50	40	30	20	10	0

(7) Multiply the proportion of each soil type (**Column C**) by the point score (**Column E**) and enter the resulting scores in **Column F**.
(8) Sum the LCC scores in **Column F**.
(9) Enter the LCC score in box <1> of the **Final LESA Score Sheet** on page 10-A.

Part 2. Storie Index Score:

(1) Determine the Storie Index rating for each soil type and enter it in **Column G**.
(2) Multiply the proportion of each soil type (**Column C**) by the Storie Index rating (**Column G**) and enter the scores in **Column H**.
(3) Sum the Storie Index scores in **Column H** to gain the Storie Index Score.
(4) Enter the Storie Index Score in box <2> of the **Final LESA Score Sheet** on page 10-A.

Land Evaluation Worksheet

Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
hkh3	3.415	50%	IIIe	70	35	67	33.5
hk1x	1.707	25%	IIs	80	20	80	20
hk1y	1.707	25%	I	100	25	80	20
Totals	6.83	(Must Sum to 1.0)		***LCC Total Score***	75	***Storie Index Total Score***	73.5

Site Assessment Worksheet 1.

Project Size Score

	I	J	K
	LCC Class I - II	LCC Class III	LCC Class IV - VIII
		3.415	
	1.707		
	1.707		
Total Acres	3.415	3.415	
Project Size Scores	0	0	

Highest Project Size Score 0

NOTES

Calculation of the Site Assessment (SA) Score

Part 1. Project Size Score:.

(1) Using **Site Assessment Worksheet 1** provided on page 2-A, enter the acreage of each soil type from **Column B** in the **Column - I, J or K -** that corresponds to the LCC for that soil. (Note: While the Project Size Score is a component of the Site Assessment calculations, the score sheet is an extension of data collected in the Land Evaluation Worksheet, and is therefore displayed beside it).
(2) Sum **Column I** to determine the total amount of class I and II soils on the project site.
(3) Sum **Column J** to determine the total amount of class III soils on the project site.
(4) Sum **Column K** to determine the total amount of class IV and lower soils on the project site.
(5) Compare the total score for each LCC group in the Project Size Scoring Table below and determine which group receives the highest score.

Project Size Scoring Table

Class I or II		**Class III**		**Class IV or Lower**	
Acreage	Points	Acreage	Points	Acreage	Points
>80	100	>160	100	>320	100
60-79	90	120-159	90	240-319	80
40-59	80	80-119	80	160-239	60
20-39	50	60-79	70	100-159	40
10-19	30	40-59	60	40-99	20
10<	0	20-39	30	40<	0
		10-19	10		
		10<	0		

(6) Enter the **Project Size Score** (the highest score from the three LCC categories) in box <3> of the **Final LESA Score Sheet** on page 10-A.

NOTES

Part 2. Water Resource Availability Score:

(1) Determine the type(s) of irrigation present on the project site, including a determination of whether there is dryland agricultural activity as well.

(2) Divide the site into portions according to the type or types of irrigation or dryland cropping that is available in each portion. Enter this information in **Column B** of **Site Assessment Worksheet 2. - Water Resources Availability**.

(3) Determine the proportion of the total site represented for each portion identified, and enter this information in **Column C**.

(4) Using the Water Resources Availability Scoring Table, identify the option that is most applicable for each portion, based upon the feasibility of irrigation in drought and non-drought years, and whether physical or economic restrictions are likely to exist. Enter the applicable Water Resource Availability Score into **Column D**.

(5) Multiply the Water Resource Availability Score for each portion by the proportion of the project area it represents to determine the weighted score for each portion in **Column E**.

(6) Sum the scores for all portions to determine the project's total Water Resources Availability Score

(7) Enter the Water Resource Availability Score in box <4> of the **Final LESA Score Sheet** on page 10-A.

Site Assessment Worksheet 2. - Water Resources Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score (C x D)
1	Groundwater	100%	80	80
2				
3				
4				
5				
6				
		(Must Sum to 1.0)	***Total Water Resource Score***	80

Water Resource Availability Scoring Table

Option	Non-Drought Years			Drought Years			WATER RESOURCE SCORE
	RESTRICTIONS			RESTRICTIONS			
	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	
1	YES	NO	NO	YES	NO	NO	100
2	YES	NO	NO	YES	NO	YES	95
3	YES	NO	YES	YES	NO	YES	90
4	YES	NO	NO	YES	YES	NO	85
5	YES	NO	NO	YES	YES	YES	80
6	YES	YES	NO	YES	YES	NO	75
7	YES	YES	YES	YES	YES	YES	65
8	YES	NO	NO	NO	-- --	-- --	50
9	YES	NO	YES	NO	-- --	-- --	45
10	YES	YES	NO	NO	-- --	-- --	35
11	YES	YES	YES	NO	-- --	-- --	30
12	Irrigated production not feasible, but rainfall adequate for dryland production in both drought and non-drought years						25
13	Irrigated production not feasible, but rainfall adequate for dryland production in non-drought years (but not in drought years)						20
14	Neither irrigated nor dryland production feasible						0

NOTES

Part 3. Surrounding Agricultural Land Use Score:

(1) Calculate the project's Zone of Influence (ZOI) as follows:

(a) a rectangle is drawn around the project such that the rectangle is the smallest that can completely encompass the project area.

(b) a second rectangle is then drawn which extends one quarter mile on all sides beyond the first rectangle.

(c) The ZOI includes all parcels that are contained within or are intersected by the second rectangle, less the area of the project itself.

(2) Sum the area of all parcels to determine the total acreage of the ZOI.

(3) Determine which parcels are in agricultural use and sum the areas of these parcels

(4) Divide the area in agriculture found in step (3) by the total area of the ZOI found in step (2) to determine the percent of the ZOI that is in agricultural use.

(5) Determine the Surrounding Agricultural Land Score utilizing the Surrounding Agricultural Land Scoring Table below.

Surrounding Agricultural Land Scoring Table

Percent of ZOI in Agriculture	Surrounding Agricultural Land Score
90-100	100
80-89	90
75-79	80
70-74	70
65-69	60
60-64	50
55-59	40
50-54	30
45-49	20
40-44	10
<40	0

(5) Enter the Surrounding Agricultural Land Score in box <5> of the **Final LESA Score Sheet** on page 10-A.

Site Assessment Worksheet 3.
Surrounding Agricultural Land and Surrounding Protected Resource Land

A	B	C	D	E	F	G
Zone of Influence						
Total Acres	Acres in Agriculture	Acres of Protected Resource Land	Percent in Agriculture (A/B)	Percent Protected Resource Land (A/C)	Surrounding Agricultural Land Score (From Table)	Surrounding Protected Resource Land Score (From Table)
1,183	689	127	58.2%	10.7%	40	0

NOTES

Part 4. Protected Resource Lands Score:

The Protected Resource Lands scoring relies upon the same Zone of Influence information gathered in Part 3, and figures are entered in Site Assessment Worksheet 3, which combines the surrounding agricultural and protected lands calculations.

(1) Use the total area of the ZOI calculated in Part 3. for the Surrounding Agricultural Land Use score.
(2) Sum the area of those parcels within the ZOI that are protected resource lands, as defined in the California Agricultural LESA Guidelines.
(3) Divide the area that is determined to be protected in Step (2) by the total acreage of the ZOI to determine the percentage of the surrounding area that is under resource protection.
(4) Determine the Surrounding Protected Resource Land Score utilizing the Surrounding Protected Resource Land Scoring Table below.

Surrounding Protected Resource Land Scoring Table

Percent of ZOI Protected	Protected Resource Land Score
90-100	100
80-89	90
75-79	80
70-74	70
65-69	60
60-64	50
55-59	40
50-54	30
45-49	20
40-44	10
<40	0

(5) Enter the Protected Resource Land score in box <6> of the **Final LESA Score Sheet** on page 10-A.

NOTES

Final LESA Score Sheet

Calculation of the Final LESA Score:

(1) Multiply each factor score by the factor weight to determine the weighted score and enter in Weighted Factor Scores column.
(2) Sum the weighted factor scores for the LE factors to determine the total LE score for the project.
(3) Sum the weighted factor scores for the SA factors to determine the total SA score for the project.
(4) Sum the total LE and SA scores to determine the Final LESA Score for the project.

	Factor Scores	Factor Weight	Weighted Factor Scores
LE Factors			
Land Capability Classification	<1> 75	0.25	18.75
Storie Index	<2> 73.5	0.25	18.375
LE Subtotal		***0.50***	37.125
SA Factors			
Project Size	<3> 0	0.15	0
Water Resource Availability	<4> 80	0.15	12
Surrounding Agricultural Land	<5> 40	0.15	6
Protected Resource Land	<6> 0	0.05	0
SA Subtotal		***0.50***	18
		Final LESA Score	55.125

For further information on the scoring thresholds under the California Agricultural LESA Model, consult Section 4 of the Instruction Manual.

CALIFORNIA AGRICULTURAL

LAND EVALUATION AND SITE ASSESSMENT MODEL

Instruction Manual

For further information, please contact:

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CALIFORNIA AGRICULTURAL

LAND EVALUATION AND SITE ASSESSMENT MODEL

Instruction Manual
1997

Department of Conservation
Office of Land Conservation

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EXECUTIVE SUMMARY

Land Evaluation and Site Assessment (LESA) is a term used to define an approach for rating the relative quality of land resources based upon specific measurable features. The formulation of a California Agricultural LESA Model is the result of Senate Bill 850 (Chapter 812 /1993), which charges the Resources Agency, in consultation with the Governor's Office of Planning and Research, with developing an amendment to Appendix G of the California Environmental Quality Act (CEQA) Guidelines concerning agricultural lands. Such an amendment is intended "to provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process" (Public Resources Code Section 21095).

The California Agricultural LESA Model is composed of six different factors. Two Land Evaluation factors are based upon measures of soil resource quality. Four Site Assessment factors provide measures of a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is separately rated on a 100 point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. It is this project score that becomes the basis for making a determination of a project's potential significance, based upon a range of established scoring thresholds. This Manual provides detailed instructions on how to utilize the California LESA Model, and includes worksheets for applying the Model to specific projects.

INTRODUCTION

Defining the LESA System

The Land Evaluation and Site Assessment (LESA) system is a point-based approach that is generally used for rating the relative value of agricultural land resources. In basic terms, a given LESA model is created by defining and measuring two separate sets of factors. The first set, Land Evaluation, includes factors that measure the inherent soil-based qualities of land as they relate to agricultural suitability. The second set, Site Assessment, includes factors that are intended to measure social, economic, and geographic attributes that also contribute to the overall value of agricultural land. While this dual rating approach is common to all LESA models, the individual land evaluation and site assessment factors that are ultimately utilized and measured can vary considerably, and can be selected to meet the local or regional needs and conditions for which a LESA model is being designed to address. In short, the LESA methodology lends itself well to adaptation and customization in individual states and localities. Considerable additional information on LESA may be found in *A Decade with LESA - the Evolution of Land Evaluation and Site Assessment* (8).

Background on LESA Nationwide

In 1981, the federal Natural Resources Conservation Service (NRCS), known then as the Soil Conservation Service, released a new system that was designed to provide objective ratings of the agricultural suitability of land compared to demands for nonagricultural uses of lands. The system became known as Land Evaluation and Site Assessment, or LESA. Soon after it was designed, LESA was adopted as a procedural tool at the federal level for identifying and addressing the potential adverse effects of federal programs (e.g., funding of highway construction) on farmland protection. The Farmland Protection Policy Act of 1981 (5) spells out requirements to ensure that federal programs, to the extent practical, are compatible with state, local, and private programs and policies to protect farmland, and calls for the use of LESA to aid in this analysis. Typically, staff of the NRCS is involved in performing LESA scoring analyses of individual projects that involve other agencies of the federal government.

Since its inception, the LESA approach has received substantial attention from state and local governments as well. Nationwide, over two hundred jurisdictions have developed local LESA methodologies (7). One of the attractive features of the LESA approach is that it is well suited to being modified to reflect regional and local conditions. Typical local applications of LESA include assisting in decision making concerning the sitting of projects, changes in zoning, and spheres of influence determinations. LESA is

also increasingly being utilized for farmland protection programs, such as the identification of priority areas to concentrate conservation easement acquisition efforts.

Because of the inherent flexibility in LESA model design, there is a broad array of factors that a given LESA model can utilize. Some LESA models require the measurement of as many as twenty different factors. Over the past 15 years, the body of knowledge concerning LESA model development and application has begun to indicate that LESA models utilizing only several basic factors can capture much of the variability associated with the determination of the relative value of agricultural lands. In fact, LESA models with many factors are increasingly viewed as having redundancies, with different factors essentially measuring the same features, or being highly correlated with one another. Additional information on the evolution and development of the LESA approach is provided in, A *Decade with LESA -The Evolution of Land Evaluation and Site Assessment* (8).

Development of the California Agricultural LESA Model

In 1990 the Department of Conservation commissioned a study to investigate land use decisions that affect the conversion of agricultural lands in California. The study, conducted by Jones and Stokes Associates, Inc., was prepared in response to concerns about agricultural land conversion identified in the *California Soil Conservation Plan* (1) (developed by the ad hoc Soil Conservation Advisory Committee serving the Department of Conservation in 1987). Among these concerns was the belief that there was inadequate information available concerning the socioeconomic and environmental implications of farmland conversions, and that the adequacy of current farmland conversion impact analysis under the California Environmental Quality Act (CEQA) was not fully known. The findings of this study are included in the publication, *The Impacts of Farmland Conversion in California* (2).

Currently, neither CEQA nor the State CEQA Guidelines contains procedures or specific guidance concerning how agencies should address farmland conversion impacts of projects. The only specific mention of agricultural issues is contained in Appendix G of the State CEQA Guidelines, which states that a project will normally have a significant effect on the environment if it will “convert prime agricultural land to non-agricultural use or impair the agricultural productivity of prime agricultural land”.

Among the conclusions contained in *The Impacts of Farmland Conversion in California* study was that the lack of guidance in how lead agencies should address the significance of farmland conversion impacts resulted in many instances of no impact analysis at all. A survey of environmental documents sent to the Governor's Office of Planning and Research (OPR) between 1986 and 1988 was performed. The survey

showed that among projects that affected at least 100 acres of land and for which agriculture was a project issue, nearly 30 percent received Negative Declarations, and therefore did not did not receive the environmental impact analysis that would be provided by an Environmental Impact Report (EIR).

Of those projects involving the conversion of agricultural lands and being the subject of an EIR, the study found a broad range of approaches and levels of detail in describing the environmental setting, performing an impact analysis, and providing alternative mitigation measures. The only agricultural impacts found to be significant in the EIRs were those involving the direct removal of prime agricultural lands from production by the project itself. The focus on prime farmland conversion in the projects surveyed was deemed to be related to the narrow direction provided in Appendix G of the State CEQA Guidelines.

The formulation of a California LESA Model is the result of Senate Bill 850 (Chapter 812 /1993), which charges the Resources Agency, in consultation with the Governor's Office of Planning and Research, to develop an amendment to Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Such an amendment is intended "to provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process" (Public Resources Code Section 21095). This legislation authorizes the Department of Conservation to develop a California LESA Model, which can in turn be adopted as the required amendment to Appendix G of the CEQA Guidelines.

Presentation of the California LESA Model

The California LESA Model is presented in this Manual in the following sections:

Section I. provides a listing of the information and tools that will typically be needed to develop LESA scores for individual projects.

Section II. provides step-by-step instructions for scoring each of the six Land Evaluation and Site Assessment factors that are utilized in the Model, with an explanation of the rationale for the use of each factor.

Section III. defines the assignment of weights to each of the factors relative to one another, and the creation of a final LESA score for a given project.

Section IV. assigns scoring thresholds to final LESA scores for the purpose of determining the significance of a given project under CEQA where the conversion of agricultural lands is a project issue.

Additionally:

Appendix A. provides an abridged set of step-by-step LESA scoring instructions that can be used and reproduced for scoring individual projects.

Appendix B. demonstrates the application of the California LESA Model to the scoring of a hypothetical project.

The California Agricultural LESA Model

Section I. Required Resources and Information

The California Land Evaluation and Site Assessment (LESA) Model requires the use and interpretation of basic land resource information concerning a given project. A series of measurements and calculations is also necessary to obtain a LESA score. Listed below are the materials and tools that will generally be needed to make these determinations.

Land Evaluation and Site Assessment calculations will require:

1. A calculator or other means of tabulating numbers

2. An accurately scaled map of the project area, such as a parcel map

3. A means for making acreage determinations of irregularly shaped map units. Options include, from least to most technical:

    - A transparent grid-square or dot-planimeter method of aerial measurement

    - A hand operated electronic planimeter

    - The automatic planimetry capabilities of a Geographic Information System (GIS)

4. A modern soil survey, generally produced by the USDA Natural Resources Conservation Service, which delineates the soil-mapping units for a given project. [Note: If modern soil survey information is not available for a given area of study, it may be necessary to draw upon the services of a professional soil scientist to perform a specific project survey].

5. Maps that depict land uses for parcels including and surrounding the project site, such as the Department of Conservation's Important Farmland Map series, the Department of Water Resources Land Use map series, or other appropriate information.

6. Maps or information that indicate the location of parcels including and surrounding the project site that are within agricultural preserves, are under public ownership, have conservation easements, or have other forms of long term commitments that are considered compatible with the agricultural use of a given project site.

Section II. Defining and Scoring the California Land Evaluation and Site Assessment Model Factors

This section provides detailed step-by-step instructions for the measurement and scoring of each of the Land Evaluation and Site Assessment factors that are utilized in the California Agricultural LESA Model, and is intended to serve as an introduction to the process of utilizing the Model. Once users are familiar with the Model, a more streamlined set of instructions and scoring sheets is available in Appendix A. In addition, the scoring of a hypothetical project is presented using these scoring sheets in Appendix B.

Scoring of Land Evaluation Factors

The California LESA Model includes two Land Evaluation factors that are separately rated:

1. The Land Capability Classification Rating
2. The Storie Index Rating

The information needed to make these ratings is typically available from soil surveys that have been conducted by the federal Natural Resources Conservation Service (formerly known as the Soil Conservation Service). Consultation should be made with NRCS staff (field offices exist in most counties) to assure that valid and current soil resource information is available for the project site. Copies of soil surveys are available at local field offices of the NRCS, and may also be available through libraries, city and county planning departments, the Cooperative Extension, and other sources. In addition, a Certified Professional Soil Scientist (CPSS) may also be consulted to obtain appropriate soil resource information for the project site. A directory of CPSS registered soil consultants is available through the Professional Soil Scientists Association of California, P.O. Box 3213, Yuba City, CA 95992-3213; phone: (916) 671-4276.

1) The USDA Land Capability Classification (LCC) - The LCC indicates the suitability of soils for most kinds of crops. Groupings are made according to the limitations of the soils when used to grow crops, and the risk of damage to soils when they are used in agriculture. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receive the highest rating (Class I). Specific subclasses are also utilized to further characterize soils. An expanded explanation of the LCC is included in most soil surveys.

2) The Storie Index - The Storie Index provides a numeric rating (based upon a 100 point scale) of the relative degree of suitability or value of a given soil for intensive agriculture. The rating is based upon soil characteristics only. Four factors that represent the inherent characteristics and qualities of the soil are

considered in the index rating. The factors are: profile characteristics, texture of the surface layer, slope, and other factors (e.g., drainage, salinity).

In some situations, only the USDA Land Capability Classification information may be currently available from a given published soil survey. However, Storie Index ratings can readily be calculated from information contained in soil surveys by qualified soil scientists. Users are encouraged to seek assistance from NRCS staff or Certified Professional Soil Scientists to derive Storie Index information for the soils as well. If, however, limitations of time or resources restrict the derivation of Storie Index ratings for the soils within a region, it may be possible to adapt the Land Evaluation by relying solely upon the LCC rating. Under this scenario the LCC rating would account for 50 percent of the overall LESA factor weighting.

Identifying a Project's Soils

In order to rate the Land Capability Classification and Storie Index factors, the evaluator must identify the soils that exist on a given project site and determine their relative proportions. A **Land Evaluation Worksheet** (Table 1A.) is used to tabulate these figures, based upon the following:

Step 1.
Locate the project on the appropriate map sheet in the Soil Survey.

Step 2.
Photocopy the map sheet and clearly delineate the project boundaries on the map, paying close attention to the map scale.

Step 3.
Identify all of the soil mapping units existing in the project site (each mapping unit will have a different map unit symbol) and enter the each mapping unit symbol in **Column A** of the **Land Evaluation Worksheet** (Table 1A).

Step 4.
Calculate the acreage of each soil mapping unit present within the project site using any of the means identified in **Section 1**, **Required Resources and Information**, and enter this information in **Column B**.

Step 5.

Divide the acres of each soil mapping unit by the total project acreage to determine the proportion of each unit that comprises the project, and enter this information in Column C.

1. Land Evaluation - The Land Capability Classification Rating

Step 1.
In the Guide to Mapping Units typically found within soil surveys, identify the Land Capability Classification (LCC) designation (e.g., IV-e) for each mapping unit that has been identified in the project and enter these designations in **Column D** of the **Land Evaluation Worksheet** (Table 1A.).

Step 2.
From Table 2., **The Numeric Conversion of Land Capability Classification Units**, obtain a numeric score for each mapping unit, and enter these scores in **Column E**.

Step 3.
Multiply the proportion of each soil mapping unit (**Column C**) by the LCC points for each mapping unit (**Column E**) and enter the resulting scores in **Column F**.

Step 4.
Sum the LCC scores in **Column F** to obtain a single LCC Score for the project. Enter this LCC Score in **Line 1** of the **Final LESA Worksheet** (Table 8)

Table 2. Numeric Conversion of Land Capability Classification Units

Land Capability Classification	LCC Point Rating
I	100
IIe	90
IIs,w	80
IIIe	70
IIIs,w	60
IVe	50
IVs,w	40
V	30
VI	20
VII	10
VIII	0

Table 1A.
Land Evaluation Worksheet

Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
Totals		(Must Sum to 1.0)		***LCC Total***		***Storie Index Total***	

Table 1B.
Site Assessment Worksheet 1.

Project Size Score

	I	J	K
	LCC Class I - II	LCC Class III	LCC Class IV - VIII
Total Acres			
Project Size Scores			

Highest Project Size Score |

2. Land Evaluation - The Storie Index Rating Score

Step 1.
From the appropriate soil survey or other sources of information identified in Appendix C, determine the Storie Index Rating (the Storie Index Rating is already based upon a 100 point scale) for each mapping unit and enter these values in **Column G** of the **Land Evaluation Worksheet** (Table 1A.).

Step 2.
Multiply the proportion of each soil mapping unit found within the project (**Column C**) by the Storie Index Rating (**Column G**), and enter these scores in **Column H**.

Step 3.
Sum the Storie Index Rating scores in **Column H** to obtain a single Storie Index Rating score for the project. Enter this Storie Index Rating Score in **Line 2** of the **Final LESA Worksheet** (Table 8)

Scoring of Site Assessment Factors

The California LESA Model includes four Site Assessment factors that are separately rated:

1. **The Project Size Rating**
2. **The Water Resources Availability Rating**
3. **The Surrounding Agricultural Land Rating**
4. **The Surrounding Protected Resource Land Rating**

1. Site Assessment - The Project Size Rating

The Project Size Rating relies upon acreage figures that were tabulated under the Land Capability Classification Rating in Table 1A. The Project Size rating is based upon identifying acreage figures for three separate groupings of soil classes within the project site, and then determining which grouping generates the highest Project Size Score.

Step 1.
Using information tabulated in **Columns B** and **D** of the **Land Evaluation Worksheet** (Table 1A), enter acreage figures in **Site Assessment Worksheet 1. - Project Size** (Table 1B) using either **Column I, J,** or **K** for each of the soil mapping units in a given project.

Step 2.
Sum the entries in **Column I** to determine the total acreage of Class I and II soils on the project site.

Sum the entries in **Column J** to determine the total acreage of Class III soils on the project site.

Sum the entries in **Column K** to determine the total acreage of Class IV and lower rated soils on the project site.

Step 3.
For each of the three columns, apply the appropriate scoring plan provided in Table 3, **Project Size Scoring**, and enter the **Project Size Score** for each grouping in the **Site Assessment Worksheet 1. - Project Size** (Table 1B). Determine which column generates the highest score. The highest score becomes the overall **Project Size Score**. Enter this number in **Line 3** of the **Final LESA Scoresheet** (Table 8).

Table 3. Project Size Scoring

LCC Class I or II soils		LCC Class III soils		LCC Class IV or lower	
Acres	***Score***	***Acres***	***Score***	***Acres***	***Score***
80 or above	100	160 or above	100	320 or above	100
60-79	90	120-159	90	240-319	80
40-59	80	80-119	80	160-239	60
20-39	50	60-79	70	100-159	40
10-19	30	40-59	60	40-99	20
fewer than 10	0	20-39	30	fewer than 40	0
		10-19	10		
		fewer than 10	0		

Explanation of the Project Size Factor

The Project Size factor in the California Agricultural LESA Model was developed in cooperation with Nichols-Berman, a consulting firm under contract with the Department of Conservation. A thorough discussion of the development of this rating is presented by Nichols-Berman in a report to the Department entitled, *Statewide LESA Methodologies Report - Project Size and Water Resource Availability Factors* (3).

The inclusion of the measure of a project's size in the California Agricultural LESA Models is a recognition of the role that farm size plays in the viability of commercial agricultural operations. In general, larger farming operations can provide greater flexibility in farm management and marketing decisions. Certain economies of scale for equipment and infrastructure can also be more favorable for larger operations. In addition, larger operations tend to have greater impacts upon the local economy through direct employment, as well as impacts upon support industries (e.g., fertilizers, farm equipment, and shipping) and food processing industries.

While the size of a given farming operation may in many cases serve as a direct indicator of the overall economic viability of the operation, The California Agricultural LESA Model does not specifically consider the issue of economic viability. The variables of economic viability for a specific farm include such factors as the financial management and farming skills of the operator, as well as the debt load and interest rates being paid by an individual operator, which are issues that cannot readily be included in a statewide LESA model.

In terms of agricultural productivity, the size of a farming operation can be considered not just from its total acreage, but the acreage of different quality lands that comprise the operation. Lands with higher quality soils lend themselves to greater management and cropping flexibility and have the potential to provide a greater economic return per unit acre. For a given project, instead of relying upon a single acreage figure in the Project Size rating, the project is divided into three acreage groupings based upon the Land Capability Classification ratings that were previously determined in the Land Evaluation analysis. Under the Project Size rating, relatively fewer acres of high quality soils are required to achieve a maximum Project Size score. Alternatively, a maximum score on lesser quality soils could also be derived, provided there is a sufficiently large acreage present. Acreage figures utilized in scoring are the synthesis of interviews that were conducted statewide for growers of a broad range of crops. In the interviews growers were queried as to what acreage they felt would be necessary in order for a given parcel to be considered attractive for them to farm.

The USDA LCC continues to be the most widely available source of information on land quality. Project Size under this definition is readily measurable, and utilizes much of the same information needed to score a given project under the Land Evaluation component of the methodology. This approach also complements the LE determination, which, while addressing soil quality, does not account for the total acreage of soils of given qualities within a project.

This approach allows for an accounting of the significance of high quality agricultural land as well as lesser quality agricultural lands, which by virtue of their large area can be considered significant agricultural resources. In this way, no single acreage figure for a specific class of soils (e.g., soils defined as “prime”) is necessary.

2. Site Assessment - The Water Resources Availability Rating

The Water Resources Availability Rating is based upon identifying the various water sources that may supply a given property, and then determining whether different restrictions in supply are likely to take place in years that are characterized as being periods of drought and non-drought. **Site Assessment Worksheet 2. - Water Resources Availability Worksheet** (Table 4) is used to tabulate the score.

Step 1.
Identify the different water resource types that are used to supply the proposed project site (for example, irrigation district water, ground water, and riparian water are considered to be three different types of water resources). Where there is only one water source identified for the proposed project, skip to Step 4.

Step 2.
Divide the proposed project site into portions, with the boundaries of each portion being defined by the irrigation water source(s) supplying it. A site that is fully served by a single source of water will have a single portion, encompassing the entire site. A site that is fully served by two or more sources that are consistently merged together to serve a crop's needs would also have a single portion. (e.g., a portion of the proposed project may receive both irrigation district and groundwater). If the project site includes land that has no irrigation supply, consider this acreage as a separate portion as well. Enter the water resource portions of the project in **Column B** of Table 4, **Site Assessment Worksheet 2. - Water Resources Availability**.

[As an example, a hypothetical project site is determined to have four separate water supply portions:

Portion 1 is served by irrigation district water only;
Portion 2 is served by ground water only;
Portion 3 is served by *both* irrigation district water and ground water;
Portion 4 is not irrigated at all.**]**

Step 3.
Calculate the proportion of the total project area that is represented by each water resource portion, and enter these figures in **Column C** of **Site Assessment Worksheet 2. - Water Resources Availability**, verifying that the sum of the proportions equals 1.0.

Table 4. Site Assessment Worksheet 2. - Water Resources Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score (C x D)
1				
2				
3				
4				
5				
6				
		(Must Sum to 1.0)	***Total Water Resource Score***	

Step 4.

For each water resource supply portion of the project site, determine whether irrigated and dryland agriculture is *feasible*, and if any *physical* or *economic restrictions* exist, during both *drought* and *non-drought* years. These italicized terms are defined below:

- A *physical restriction* is an occasional or regular interruption or reduction in a water supply, or a shortened irrigation season, that forces a change in agricultural practices -- such as planting a crop that uses less water, or leaving land fallow. (This could be from cutbacks in supply by irrigation and water districts, or by ground or surface water becoming depleted or unusable. Poor water quality can also result in a physical restriction -- for example by requiring the planting of salt-tolerant plants, or by effectively reducing the amount of available water.)

- An *economic restriction* is a rise in the cost of water to a level that forces a reduction in consumption. (This could be from surcharge increases from water suppliers as they pass along the cost of finding new water supplies, the extra cost of pumping more ground water to make up for losses in surface water supplies, or the extra energy costs of pumping the same amount of ground water from deeper within an aquifer.)

- Irrigated agricultural production is *feasible* when:

  1) There is an existing irrigation system on the project site that can serve the portion of the project identified in Step 2;

  2) *Physical* and/or *economic restrictions* are not severe enough to halt production; and

  3) It is possible to achieve a viable economic return on crops though irrigated production.

(A major question that should be considered is, if there is an irrigated crop that can be grown within the region, can it actually be grown on the project site? Depending upon the jurisdiction, some typical crops that have a large water demand may not be feasible to grow on the project site, while others that require less water are feasible. Information to aid in making this determination can be obtained from county agricultural commissioners, the UC Cooperative Extension, irrigation districts, and other sources.)

- *Dryland production* is *feasible* when rainfall is adequate to allow an economically viable return on a nonirrigated crop.

- A *drought year* is a year that lies within a defined drought period, as defined by the Department of Water Resources or by a local water agency. Many regions of the state are by their arid nature dependent upon imports of water to support irrigated agriculture. These regions shall not be considered under periods of drought unless a condition of drought is declared for the regions that typically would be providing water exports.

Step 5.
Each of the project's water resource supply portions identified in **Step 2** is scored separately. Water Resources Availability scoring is performed by identifying the appropriate condition that applies to each portion of the project, as identified in Table 5., **Water Resource Availability Scoring**. Using Table 5, identify the option that best describes the water resource availability for that portion and its corresponding water resource score. Option 1 defines the condition of no restrictions on water resource availability and is followed progressively with increasing restrictions to Option 14, the most severe condition, where neither irrigated nor dryland production is considered feasible. Enter each score into **Column D** of Table 4.

Step 6.
For each portion of the project site, determine the section's weighted score by multiplying the portion's score (**Column D**), by its proportion of the project area (**Column C**), and enter these scores in **Column E**, the weighted Water Availability Score. Sum the **Column E** scores to obtain the total Water Resource Availability Score, and enter this figure in **Line 4** of the **Final LESA Score Sheet** (Table 8).

Table 5. Water Resource Availability Scoring

Option	Non-Drought Years			Drought Years			WATER RESOURCE SCORE
	RESTRICTIONS			RESTRICTIONS			
	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	
1	YES	NO	NO	YES	NO	NO	100
2	YES	NO	NO	YES	NO	YES	95
3	YES	NO	YES	YES	NO	YES	90
4	YES	NO	NO	YES	YES	NO	85
5	YES	NO	NO	YES	YES	YES	80
6	YES	YES	NO	YES	YES	NO	75
7	YES	YES	YES	YES	YES	YES	65
8	YES	NO	NO	NO	-- --	-- --	50
9	YES	NO	YES	NO	-- --	-- --	45
10	YES	YES	NO	NO	-- --	-- --	35
11	YES	YES	YES	NO	-- --	-- --	30
12	Irrigated production not feasible, but rainfall adequate for dryland production in both drought and non-drought years						25
13	Irrigated production not feasible, but rainfall adequate for dryland production in non-drought years (but not in drought years)						20
14	Neither irrigated nor dryland production feasible						0

Explanation of the Water Resource Availability Rating

The Water Resource Availability factor in the California Agricultural LESA Model was developed in cooperation with Nichols-Berman, a consulting firm under contract with the Department of Conservation. A thorough discussion of the development of this rating is presented by Nichols-Berman in a report to the Department entitled, *Statewide LESA Methodologies Report - Project Size and Water Resource Availability Factors* (3). During the development of this factor it became apparent that certain conditions unique to California would need to be represented in this system.

First, it was decided to classify water reliability based upon the *effects* on agricultural production (such as being forced to change to lower-value crops, putting in groundwater pumps, or cutting back on the acreage farmed) rather than the actual *type* of limitation (such as a limitation on the quantity, frequency, or duration of water delivery). LESA systems have traditionally focused on the latter. However, it was found that the many types of limitations are too varied in California to adequately represent in the LESA system. In the Statewide LESA system, these effects are referred to as *restrictions*.

Second, the factor had to include an interrelation with cost. The historical shortages and unreliability of California water use has led to the establishment of various interconnected and dual systems. Probably more than any other state, reliability is related with cost -- a more reliable water supply can sometimes be obtained, but at a greater cost. Therefore, *restrictions* were classified into two major categories -- *physical* and *economic*. These are separated because, generally, a physical restriction is more severe than an economic restriction and this should be reflected in the LESA system.

Third, the factor had to include the effects of the drought cycle in California. During the drought of 1987 to 1992, many agricultural areas of the state experienced water shortages. The impact of these shortages resulted in a number of different actions. Some areas were able to avoid the worst effects of the drought simply by implementing water conservation measures. Other areas were able to obtain additional water supplies, such as by securing water transfers or simply pumping more groundwater, but at an increase in the overall price of water. Other options included shifting crops, replanting to higher value crops to offset the increase in water prices, or leaving land fallow. A project site that experiences restrictions during a drought year should not be scored as high as a similar project site that does not.

The easiest way to make determinations of irrigation feasibility and the potential restrictions of water sources is to investigate the cropping history of the project site. For instance, was the water supply to the project site reduced by the local irrigation district during the last drought? If the site has a ground water supply, do area ground water levels sometimes drop to levels that force markedly higher energy costs to pump the water?

If the history of the project site is unavailable (including when the site has recently installed an irrigation system), look at the history of the general area. However, remember that the project site may have different conditions than the rest of the region. For instance, the project site could have an older water right than others in the region. Although certain areas of the state had severe restrictions on water deliveries during the last drought, some parcels within these areas had very secure deliveries due to more senior water rights. If this was the case in the region of the project site, check the date of water right and compare it with parcels that received their total allotment during the last drought. The local irrigation district should have information on water deliveries.

The scoring of water resource availability for a project site should not just reflect the adequacies of water supply in the past -- it should be a *prediction* of how the water system will perform in the future. For instance, a local jurisdiction might find that the allocation of flows to stream and river systems has been recently increased for environmental reasons, which will decrease the future available surface water supply. In this case, the past history of the site is not an adequate representation of future water supply and water system performance.

3. Site Assessment - The Surrounding Agricultural Land Rating

Determination of the surrounding agricultural land use rating is based upon the identification of a project's "Zone of Influence" (ZOI), which is defined as that land near a given project, both directly adjoining and within a defined distance away, that is likely to influence, and be influenced by, the agricultural land use of the subject project site. The determination of the ZOI is described below, and is illustrated with an example in Figure 1.

Defining a Project's "Zone of Influence"

Step 1.
Locate the proposed project on an appropriate map and outline the area and dimensions of the proposed project site.

Step 2.
Determine the smallest rectangle that will completely contain the project site (Rectangle A).

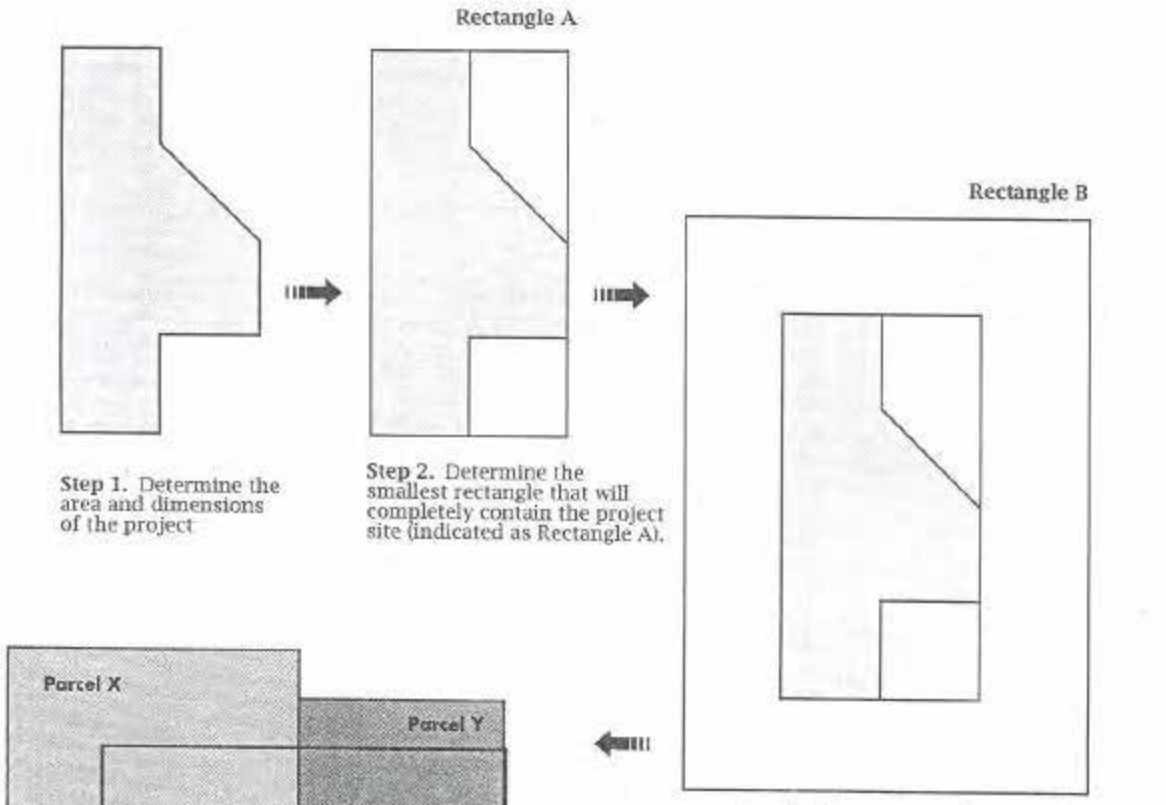
Step 3.
Create a second rectangle (Rectangle B) that extends 0.25 mile (1320 feet) beyond Rectangle A on all sides.

Step 4.
Identify all parcels that are within or are intersected by Rectangle B.

Step 5.
Define the project site's "zone of influence" as the entire area of all parcels identified in Step 4, less the area of the proposed project from Step 1.

[In the illustration provided in Figure 1, Parcels W, X, and Y extend beyond Rectangle B and are therefore included in their entirety in defining the project site's Zone of Influence.**]**

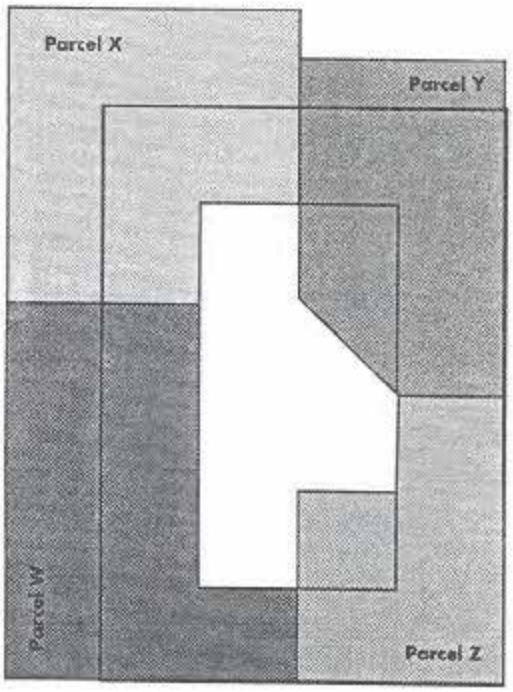
Figure 1: Defining a Project's Zone of Influence



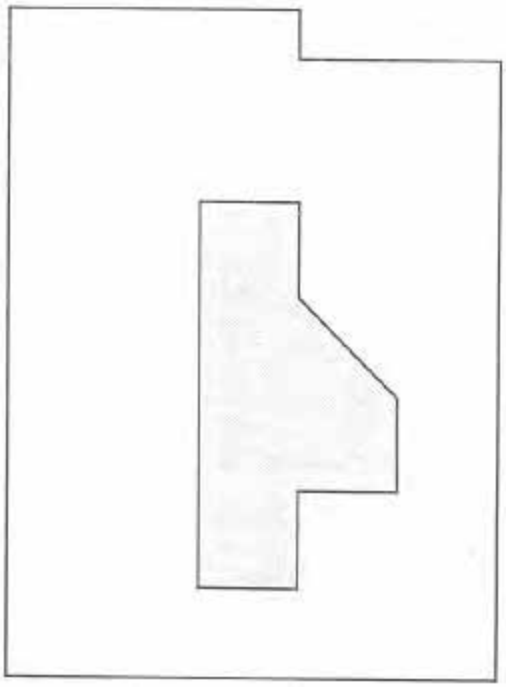
Step 1. Determine the area and dimensions of the project

Step 2. Determine the smallest rectangle that will completely contain the project site (indicated as Rectangle A).

Step 3. Create a second rectangle (Rectangle B) that extends 0.25 mile (1320 feet) beyond Rectangle A on all sides.



Step 4. Identify all parcels that are within or are intersected by Rectangle B.



Step 5. Define the project's "zone of influence" as the entire area of all parcels identified in Step 4, less the area of the proposed project from Step 1.

In this example, parcels W, X, and Y extend beyond Rectangle B and are therefore included in the their entirety in defining the project's zone of influence.

Measuring Surrounding Agricultural Land

Step 1.
Calculate the percentage of the project's Zone of Influence that is currently producing agricultural crops. **[**This figure can be determined using information from the Department of Conservation's Important Farmland Map Series, the Department of Water Resources' Land Use Map Series, locally derived maps, or direct site inspection. For agricultural land that is currently fallowed, a determination must be made concerning whether the land has been fallowed as part of a rotational sequence during normal agricultural operations, or because the land has become formally "committed" to a nonagricultural use. Land that has become formally committed, whether fallow or not, should not generally be included in determining the proportion of the Zone of Influence that is agricultural land. For further information on the definition of Committed Land, refer to the following Explanation of the Surrounding Agricultural Land Rating.**]**

Step 2.
Based on the percentage of agricultural land in the ZOI determined in Step 1, assign a Surrounding Agricultural Land score to the project according to Table 6, and enter this score in **Line 5** of the **Final LESA Scoresheet** (Table 8) .

Table 6. Surrounding Agricultural Land Rating

Percent of Project's Zone of Influence in Agricultural Use	Surrounding Agricultural Land Score
90 - 100%	100 Points
80 - 89	90
75 - 79	80
70 - 74	70
65 - 69	60
60 - 64	50
55 - 59	40
50 - 54	30
45 - 49	20
40 - 44	10
40 <	0

Explanation of the Surrounding Agricultural Land Rating

The Surrounding Agricultural Land Rating is designed to provide a measurement of the level of agricultural land use for lands in close proximity to a subject project. The California Agricultural LESA Model rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production more highly than one that has a relatively small percentage of surrounding land in agricultural production. The definition of a "Zone of Influence" that accounts for surrounding lands up to a minimum of one quarter mile from the project boundary is the result of several iterations during model development for assessing an area that will generally be a representative sample of surrounding land use. In a simple example, a single one quarter mile square project (160 acres) would have a Zone of Influence that is a minimum of eight times greater (1280 acres) that the parcel itself.

Land within a Zone of Influence that is observed to be fallow will require a case by case determination of whether this land should be considered agricultural land. The Department of Conservation's Important Farmland Maps may be of assistance in making this determination. In addition, land currently in agricultural production may be designated as being "committed" to future nonagricultural development. The Department of Conservation's Farmland Mapping and Monitoring Program has a land use designation of Land Committed to Nonagricultural Use, and is defined as "land that is permanently committed by local elected officials to nonagricultural development by virtue of decisions which cannot be reversed simply by a majority vote of a city council or county board of supervisors. The "committed" land must be so designated in an adopted local general plan, and must also meet the requirements of either (a) or (b) below:

(a). It must have received one of the following final discretionary approvals:

1. Tentative subdivision map (approved per the Subdivision Map Act);
2. Tentative or final parcel map (approved per the Subdivision Map Act);
3. Recorded development agreement (per Government Code §65864);
4. Other decisions by a local government which are analogous to items #1-3 above and which exhibit an element of permanence. Zoning by itself does <u>not</u> qualify as a permanent commitment.

<u>Or</u>

(b) It must be the subject of one of the final fiscal commitments to finance the capital improvements specifically required for future development of the land in question as shown below:

1. Recorded Resolution of Intent to form a district and levy an assessment;
2. Payment of assessment;
3. Sale of bonds;
4. Binding contract, secured by bonds, guaranteeing installation of infrastructure;
5. Other fiscal commitments which are analogous to items #1-4 above and exhibit an element of permanence."

Lead agencies are encouraged to identify Land Committed to Nonagricultural Use within a project's ZOI and make the determination whether this land, while still in agricultural production, be considered nonagricultural land for the purposes of the calculation performed here.

4. Site Assessment - The Surrounding Protected Resource Land Rating

The Surrounding Protected Resource Land Rating is essentially an extension of the Surrounding Agricultural Land Rating, and is scored in a similar manner. Protected resource lands are those lands with long term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following:

- Williamson Act contracted lands
- Publicly owned lands maintained as park, forest, or watershed resources
- Lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses.

Instructions for the Surrounding Protected Resource Land Rating

Step 1.
Utilizing the same "Zone of Influence" (ZOI) area calculated for a project under the Surrounding Agricultural Land Rating, calculate the percentage of the ZOI that is Protected Resource Land, as defined above.

Step 2.
Assign a Surrounding Protected Resource Land score to the project according to Table 7, and enter this score on **Line 6** of the **Final LESA Scoresheet** (Table 8).

Table 7. Surrounding Protected Resource Land Rating

Percent of Project's Zone of Influence Defined as Protected	Surrounding Protected Resource Land Score
90 - 100%	100 Points
80 - 89	90
75 - 79	80
70 - 74	70
65 - 69	60
60 - 64	50
55 - 59	40
50 - 54	30
45 - 49	20
40 - 44	10
40 <	0

Section III. Weighting of Factors and Final LESA Scoring

The California LESA Model is weighted so that 50 percent of the total LESA score of a given project is derived from the Land Evaluation factors, and 50 percent from the Site Assessment factors. Individual factor weights are listed below, with the sum of the factor weights required to equal 100 percent.

Land Evaluation Factors

Land Capability Classification	25%
Storie Index Rating	25%
Land Evaluation Subtotal	**50%**

Site Assessment Factors

Project Size	15%
Water Resource Availability	15%
Surrounding Agricultural Lands	15%
Surrounding Protected Resource Lands	5%
Site Assessment Subtotal	**50%**
Total LESA Factor Weighting	**100%**

Each factor is measured separately (each on 100 point scale) and entered in the appropriate line in **Column B** of the **Final LESA Scoresheet** (Table 8). Each factor's score is then multiplied by its respective factor weight, resulting in a weighted factor score in **Column D** as indicated in Table 8. The weighted factor scores are summed, yielding a Total LESA Score (100 points maximum) for a given project, which is entered in **Line 7** of **Column D**.

Table 8. Final LESA Scoresheet

A	B		C		D
Factor Name	Factor Rating (0-100 points)	X	Factor Weighting (Total = 1.00)	=	Weighted Factor Rating
Land Evaluation					
1. Land Capability Classification	<Line 1>_____	X	0.25	=	_____
2. Storie Index Rating	<Line 2>_____	X	0.25	=	_____
Site Assessment					
1. Project Size	<Line 3>_____	X	0.15	=	_____
2. Water Resource Availability	<Line 4>_____	X	0.15	=	_____
3. Surrounding Agricultural Lands	<Line 5>_____	X	0.15	=	_____
4. Protected Resource Lands	<Line 6>_____	X	0.05	=	_____
			Total LESA Score (sum of weighted factor ratings)		<Line 7>_____

Section IV. California Agricultural LESA Scoring Thresholds - Making Determinations of Significance Under CEQA

A single LESA score is generated for a given project after all of the individual Land Evaluation and Site Assessment factors have been scored and weighted as detailed in Sections 2 and 3. Just as with the scoring of individual factors that comprise the California Agricultural LESA Model, final project scoring is based on a scale of 100 points, with a given project being capable of deriving a maximum of 50 points from the Land Evaluation factors and 50 points from the Site Assessment factors.

The California Agricultural LESA Model is designed to make determinations of the potential significance of a project's conversion of agricultural lands during the Initial Study phase of the CEQA review process. Scoring thresholds are based upon both the total LESA score as well as the component LE and SA subscores. In this manner the scoring thresholds are dependent upon the attainment of a minimum score for the LE and SA subscores so that a single threshold is not the result of heavily skewed subscores (i.e., a site with a very high LE score, but a very low SA score, or vice versa). Table 9 presents the California Agricultural LESA scoring thresholds.

Table 9. California LESA Model Scoring Thresholds

Total LESA Score	Scoring Decision
0 to 39 Points	Not Considered Significant
40 to 59 Points	Considered Significant only if LE and SA subscores are each greater than or equal to 20 points
60 to 79 Points	Considered Significant unless either LE or SA subscore is less than 20 points
80 to 100 Points	Considered Significant

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APPENDIX H

Stockdale Integrated Banking Project –
Potential Impacts of Groundwater Level Changes on Abandoned Oil Wells

Draft Technical Memorandum

To: Mr. Dan Bartel
Rosedale-Rio Bravo Water Storage District

From: Thomas Harder, P.G., CH.G.
Thomas Harder & Co.

Date: 11-Apr-14

Re: Stockdale Integrated Banking Project – Potential Impacts of Groundwater Level Changes on Abandoned Oil Wells

This Technical Memorandum (TM) summarizes a review of potential impacts of proposed artificial recharge and recovery operations at the Stockdale Integrated Banking Project (the Project) on existing or abandoned oil wells on the Stockdale East portion of the Project (see Figure 1). Oil well data was obtained from the California Department of Oil, Gas, and Geothermal Resources.[1] No known oil wells are present on the Stockdale West portion of the Project. There are a total of nine known oil wells within the Stockdale East portion of the Project (see Figure 1). Of the nine wells, five are active, two are plugged, one is idle, and one is an active injection well (see Table 1). Of the two plugged oil wells, one has a cement plug between 959 and 1,005 feet below ground surface (ft bgs) and the other has two plugs between 1,694 and 1,926 ft bgs and 6 and 40 ft bgs. The typical construction of the oil wells in the area includes an upper casing and outer cement seal from the ground surface to approximately 500 ft bgs.

Maximum predicted groundwater level drawdown and mounding associated with the Project will not significantly impact active or abandoned oil wells. Well construction records for the nine known wells in the Project area indicate that all are constructed with an upper casing and outer cement seal that extend to a minimum of 495 ft bgs (see Table 1). Historical groundwater fluctuations have occurred in the upper approximate 290 ft bgs, which is well above the bottom of the shallowest oil well upper seal depth[2]. Project pumping is predicted to add a maximum of

[1] California Department of Oil, Gas, and Geothermal Resources. http://maps.conservation.ca.gov/doggr/index.html

[2] Thomas Harder & Co., 2013. Draft Proposed Stockdale Integrated Banking Project – Analysis of Potential Groundwater Level Changes from Recharge and Recovery at the Stockdale West and Stockdale East Facilities. Prepared for Rosedale-Rio Bravo Water Storage District and Irvine Ranch Water District. Dated 31-Oct-13.

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approximately 20 ft of drawdown during low groundwater periods; however the cumulative drawdown would not reach 495 ft bgs. Accordingly, the additional drawdown is not predicted to significantly change the existing hydraulic connection of the oil wells with the aquifer system.

Summary of Oil Well Construction
Stockdale East Banking Project

API Number	Upper Casing Diameter (inches)	Upper Casing and Outer Cement Seal (ft bgs[1])	Depth of Hole (ft bgs)	Type and Status	Upper Abandonment Plug(s) (ft bgs)	Year of Upper Seal
2918593	10 3/4	0 - 550	9,935	Active Oil Well	NA[2]	NA
2918597	10 3/4	0 - 495	8,735	Active Oil Well	NA	NA
2918594	10 3/4	0 - 536	9,950	Active Oil Well	NA	NA
2900941	9 5/8	0 - 560	10,000	Active Oil Well	NA	NA
2918592	10 3/4	0 - 532	12,673	Active Oil Well	NA	NA
2918595	10 3/4	0 - 549	10,000	Idle Oil Well	NA	NA
2900120	10 3/4	0 - 515	10,240	Active Injection Well	NA	NA
2918555	11 3/4	0 - 1,003	9,000	Plugged Oil Well	959 - 1,005	1936
2918596	10 3/4	0 - 500	10,120	Plugged Oil Well	6 - 40 1,694 - 1,926	1973

Notes:

[1] ft bgs = feet below ground surface

[2] NA = not applicable

Rosedale-Rio Bravo Water Storage District
Irvine Ranch Water District

11-Apr-14

Stockdale Integrated Banking Project - Potential Impacts of Groundwater Level Changes on Abandoned Oil Wells

NAD 83 State Plane CA Zone 5

Map Features

- Active Oil Well
- Idle Oil Well
- Active Injection Well
- Plugged Oil Well
- Groundwater Well
- Stockdale East Property
- Strand Ranch Project

Note: Oil well data from the California Department of Oil, Gas, and Geothermal Resources at http://maps.conservation.ca.gov/doggr/index.html

Only wells within the Stockdale East property shown.

DRAFT

Oil Wells within Stockdale East

Figure 1

Thomas Harder & Co.
Groundwater Consulting

STOCKDALE INTEGRATED BANKING PROJECT

Final Environmental Impact Report
SCH #: 2013091076

Prepared for
Rosedale-Rio Bravo
Water Storage District and
Irvine Ranch Water District

November 2015

ESA

STOCKDALE INTEGRATED BANKING PROJECT

Final Environmental Impact Report
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Rosedale-Rio Bravo
Water Storage District and
Irvine Ranch Water District

November 2015

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Stockdale Integrated Banking Project
Final Environmental Impact Report

Chapters 1 through 7 and Appendices A through H are part of the Draft Environmental Impact Report (Under separate cover)

CHAPTER 8
Introduction to Response to Comments

This Final Environmental Impact Report (Final EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) as amended (Public Resources Code Section 21000 et seq.) and *CEQA Guidelines* (California Administrative Code Section 15000 et seq.). The Final EIR incorporates, by reference, the Draft EIR (State Clearinghouse No. 2013091076) prepared by Rosedale Rio-Bravo Water Storage District (Rosedale) in consultation with the Irvine Ranch Water District (IRWD) for the Stockdale Integrated Banking Project (proposed project), as it was originally published and the following chapters, which include revisions made to the Draft EIR.

8.1 CEQA Requirements

Before Rosedale may approve the project, it must certify that the Final EIR: a) has been completed in compliance with CEQA; b) was presented to the Rosedale Board of Directors who reviewed and considered it prior to approving the project; and c) reflects Rosedale's independent judgment and analysis.

CEQA Guidelines Section 15132 specifies that the Final EIR shall consist of the following:

- the Draft EIR or a revision of that draft;
- comments and recommendations received on the Draft EIR;
- a list of persons, organizations, and public agencies commenting on the Draft EIR;
- the response of the Lead Agency to significant environmental points raised in the review and consultation process; and
- any other information added by the Lead Agency.

This Final EIR for the Stockdale Integrated Banking Project presents the following chapters as a continuation of those included in the Draft EIR:

- Chapter 8: Introduction and CEQA process
- Chapter 9: A list of persons, organizations, and public agencies commenting on the Draft EIR, and the written comments received on the Draft EIR
- Chapter 10: Written responses to each comment identified in Chapter 9

- Chapter 11: Revisions made to the Draft EIR in response to comments received or initiated by the Lead Agency

8.2 CEQA Process

Public Participation Process

Notice of Preparation and Public Scoping

In accordance with Section 15082 of the *CEQA Guidelines*, a Notice of Preparation (NOP) of an EIR was prepared and circulated for review by applicable local, state and federal agencies and the public. The 30-day project scoping period, which began with the distribution of the NOP, remained open through October 24, 2013. Two public scoping meetings were held on October 15, 2013 at the IRWD office and October 16, 2013 at the Rosedale office. The NOP provided the public and interested public agencies with the opportunity to review the proposed project and to provide comments or concerns on the scope and content of the environmental review document including: the range of actions; alternatives; mitigation measures, and significant effects to be analyzed in depth in the EIR.

Notice of Availability of the Draft EIR

The Notice of Availability (NOA) of the Draft EIR was posted on April 28, 2015 with the County Clerks in Kern County and Orange County. The Draft EIR was circulated to federal, state, and local agencies and interested parties requesting a copy of the Draft EIR. Copies of the Draft EIR were made available to the public at the following locations:

- Rosedale-Rio Bravo Water Storage District Web Site (http://www.rrbwsd.com)
- Irvine Ranch Water District Web Site (http://www.irwd.com)
- Beale Memorial Library, 701 Truxtun Ave, Bakersfield CA 93301
- Heritage Park Regional Library, 14361 Yale Ave, Irvine CA 92604

The Draft EIR was circulated for public review from April 28, 2015 through June 12, 2015. During this period, Rosedale and IRWD held two public meetings to provide interested persons with an opportunity to comment orally or in writing on the Draft EIR and the project. The public meetings were held at the Rosedale office in Bakersfield on May 12, 2015, and the IRWD office in Irvine on May 13, 2015. No comments were offered from the audience at either public meeting.

Evaluation and Response to Comments

CEQA Guidelines Section 15088 requires Rosedale, as the Lead Agency, to evaluate comments on environmental issues received from parties that have reviewed the Draft EIR and to prepare a written response. The written responses to commenting public agencies shall be provided at least ten (10) days prior to the certification of the Draft EIR *(CEQA Guidelines* §15088(b)).

Final EIR Certification and Approval

As the Lead Agency, Rosedale has the option to make the Final EIR available for public review prior to considering the project for approval (*CEQA Guidelines* §15089(b)). Prior to considering the project for approval, Rosedale, as the Lead Agency, will review and consider the information presented in the Final EIR and will certify that the Final EIR:

(a) has been completed in compliance with CEQA;

(b) has been presented to the Board of Directors as the decision-making body for the Lead Agency, which reviewed and considered it prior to approving the project; and

(c) reflects Rosedale's independent judgment and analysis.

Once the Final EIR is certified, Rosedale's Board of Directors may proceed to consider project approval (*CEQA Guidelines* §15090). Prior to approving the proposed project, Rosedale must make written findings and adopt statements of overriding considerations for each unmitigated significant environmental effect identified in the Final EIR in accordance with Sections 15091 and 15093 of the *CEQA Guidelines*.

Notice of Determination

Pursuant to Section 15094 of the *CEQA Guidelines*, Rosedale will file a Notice of Determination (NOD) with the Office of Planning and Research and Kern County Clerk within five working days of project approval.

CHAPTER 9
Comment Letters

The Draft EIR for the Stockdale Integrated Banking Project (proposed project) was circulated for public review for 45 days (April 28, 2015 through June 12, 2015) in accordance with the requirements of *CEQA Guidelines* Section 15105(a). Rosedale received five comment letters during the public review period, which are listed in **Table 9-1** and included within this chapter. The letters have been marked with brackets that delineate comments pertaining to environmental issues and the information and analysis contained in the Draft EIR. Responses to such comments are provided in Chapter 10.

TABLE 9-1 – COMMENT LETTERS RECEIVED

Comment No.	Commenting Agency	Date of Comment
1	Department of Conservation's Division of Land Resource Protection	June 2, 2015
2	San Joaquin Valley Air Pollution Control District	June 9, 2015
3	Kern Water Bank Authority	June 12, 2015
4	Kern County Water Agency	June 12, 2015
5	City of Bakersfield	June 12, 2015

Letter Number 1

NATURAL RESOURCES AGENCY — EDMUND G. BROWN JR., GOVERNOR

DEPARTMENT OF CONSERVATION

DIVISION OF LAND RESOURCE PROTECTION

801 K STREET • MS 18-01 • SACRAMENTO, CALIFORNIA 95814

PHONE 916 / 324-0850 • **FAX** 916 / 327-3430 • **TDD** 916 / 324-2555 • **WEB SITE** conservation.ca.gov

June 2, 2015

VIA EMAIL: EAVERETT@RRBWSD.COM
Mr. Eric Averett, General Manager
Rosedale-Rio Bravo Water Storage District
849 Allen Road
P.O. Box 20820
Bakersfield, CA 93390-0820

Dear Mr. Averett:

STOCKDALE INTEGRATED BANKING PROJECT DRAFT
ENVIRONMENTAL IMPACT REPORT - SCH# 2013091076

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Draft Environmental Impact Report (DEIR) submitted by Rosedale-Rio Bravo Water Storage District. The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. We offer the following comments and recommendations with respect to the proposed project's potential impacts on agricultural land and resources.

Project Description

The proposed project includes the development of groundwater banking facilities, including recharge basins, groundwater production wells, a new Central Intake Pipeline Conveyance System, and new turnouts along the Cross Valley Canal (CVC), on two sites. These sites would allow both the Rosedale and Irvine Ranch Water Districts to more effectively utilize available storage in the San Joaquin Valley Groundwater Basin. The two sites--Stockdale East and Stockdale West--collectively total approximately 553 acres. They are located in western Kern County, approximately six miles west of the City of Bakersfield. DOC-1

The Stockdale East property is specifically located north of the CVC, on the east side of Highway 43, and is separated from Stockdale West parcel by the Strand Ranch Integrated Banking Project (another water banking project). Stockdale East consists of approximately 230 acres of agricultural land and an active oilfield and is currently in

agricultural production (alfalfa). There is also a pilot groundwater banking facility located on the property.

The Stockdale West parcel is specifically located north of the Pioneer Canal and the CVC, on the west side of Highway 43. It consists of approximately 323 acres of agricultural land that has been converted to groundwater recharge basins for Irvine Ranch Water District's Pilot Recharge Project.

Kern County uses an Agricultural Preserve Program to designate all land in the agricultural spectrum within the county. Therefore, the project sites are both located in agricultural preserves, but the project sites are not under Williamson Act contracts. In the Important Farmland Map of 2012, the Farmland Mapping and Monitoring Program classified the projects sites as Prime Farmland.

A third project site is planned to be acquired in the vicinity and the location has yet to be identified, but if and when it is identified, subsequent project-level environmental review will be conducted prior to implementation of the project facilities.

DOC-1

Restrictive Covenant and Equitable Servitude Agreement

Approximately 165 acres of the Stockdale East site is subject to a Restrictive Covenant and Equitable Servitude Agreement for Agricultural Land Preservation (Agreement). This Agreement is between SunEdison and Rosedale as part of SunEdison's effort to mitigate the loss of Important Farmland due to implementation of its Adobe Solar project. To fulfill its mitigation requirement, SunEdison entered into the Agreement with Rosedale to protect the agricultural value of those 165 acres. The Agreement serves conservation purposes in order to retain the productive agricultural use and character of the property, and to prevent the development of land uses that would interfere with the property's agricultural productive capacity and value. The Agreement ensures that Rosedale will retain the right to use the property for agricultural purposes (or permit others to use the property for such purposes), in a manner consistent with the mitigation requirement that the agricultural qualities of the land are not impaired.

DOC-2

In addition, Kern County states that water recharge facilities may be compatible with agricultural use under specified circumstances in its Agricultural Preserve Standard Uniform Rules, under the compatible uses section:

> *(15) Water recharge facilities, as defined in Section 51201(b)[1], Government Code, when either:*
>
> > *(a) The affected land will continue to be used for commercial agricultural purposes for a minimum of seven (7) months out of each twelve (12) month period; or,*

[1] Government Code Section 51201 defines agricultural use under the Williamson Act.

(b) The Land Use Contract is amended by the Board of Supervisors to allow water recharge as the primary purpose of an "open space" contract, as provided for in Section 51201, Government Code. (Included by Board of Supervisors Resolution 2007-017)

DOC-2

Department Comments

The Department suggest that the DEIR specifically state, in addition to utilizing the project site for water recharge or water management purposes, that the parcels shall meet the requirements of Kern County's Agricultural Preserve Standard Uniform Rules 15(a)[2]. The DEIR should also address how the Rosedale-Rio Bravo Water Storage District will document that the mitigation-restricted land is being used in a manner that is consistent with both its mitigation function and its water recharge function. This step is necessary to be certain that the mitigation for the Adobe Solar Project is not put at risk.

DOC-3

Thank you for giving us the opportunity to comment on the DEIR for the Stockdale Integrated Banking Project. Please provide this Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Environmental Planner at (916) 324-7347 or via email at Farl.Grundy@conservation.ca.gov.

DOC-4

Sincerely,

Molly A. Penberth, Manager
Division of Land Resource Protection
Conservation Support Unit

cc: State Clearinghouse

[2] The affected land will continue to be used for commercial agricultural purposes for a minimum of seven (7) months out of each twelve (12) month period.

Letter Number 2

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

JUN 09 2015

Eric Averett
Rosedale-Rio Bravo Water Storage District
P.O. Box 20820
Bakersfield, CA, 93390-0820

Project: Draft Environmental Impact Report for Stockdale Integrated Banking Project (SCH # 2013091076)

District CEQA Reference No: 20150368

Dear Mr. Averett:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the project referenced above consisting of development of groundwater banking facilities on up to three properties located approximately six miles west of the city of Bakersfield. The District has previously commented on this project and has no additional comments at this time. APCD-1

District staff is available to meet with you and/or the applicant to further discuss the regulatory requirements that are associated with this project. If you have any questions or require further information, please call Eric McLaughlin at (559) 230-5808.

Sincerely,

Arnaud Marjollet
Director of Permit Services

for Chay Thao
Program Manager

AM: em

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585

www.valleyair.org www.healthyairliving.com

Letter Number 3

KERN WATER BANK AUTHORITY

Via Email and U.S. Mail

June 12, 2015

Rosedale-Rio Bravo Water Storage District
Attn: Eric Averett, General Manager
P.O. Box 20820
Bakersfield, CA 93390-0820

Re: Stockdale Integrated Banking Project Draft EIR (April 2015)

Dear Mr. Averett:

The Kern Water Bank Authority ("KWBA" or "Authority") has reviewed the Draft Environmental Impact Report, dated April 2015 ("Draft EIR" or "DEIR"), prepared for the Stockdale Integrated Banking Project (the "Project") proposed by the Rosedale-Rio Bravo Water Storage District ("Rosedale") as the Lead Agency, in consultation with the Irvine Ranch Water District ("IRWD") as a Responsible Agency, pursuant to the California Environmental Quality Act ("CEQA") (Pub. Res. Code, § 21000 et seq.). As you know, KWBA owns and operates the Kern Water Bank groundwater banking and recovery project ("KWB") adjacent to and immediately south of the proposed banking Project facilities, and Rosedale and the KWB overlie a common, inter-connected groundwater basin. As such, KWB facilities and operations may be affected adversely by Project recharge and recovery operations. These comments[1] are provided for your consideration in conjunction with the Draft EIR and any Project approvals. KWBA-1

Project Description

- CEQA defines a "project" as the "whole of the action" (State CEQA Guidelines ("Guidelines")[2], § 15378(a)), and requires that an EIR's project description be accurate, stable, consistent and finite. (*E.g., County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185.) "Project" is given a broad interpretation in order to maximize environmental protection, and an improperly curtailed or distorted project description violates CEQA. (*Id.*; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* KWBA-2

[1] These comments are submitted on behalf of KWBA and its member entities, Dudley Ridge Water District, Kern County Water Agency, Improvement District No. 4, Semitropic Water Storage District, Wheeler Ridge-Maricopa Water Storage District, Tejon-Castac Water District, and Westside Mutual Water Company, although the member entities may also submit their own respective comments. In addition, KWBA and its member entities reserve the right to submit further comments as appropriate under CEQA.
[2] California Code of Regulations, Title 14, Chapter 3, § 15000, et seq.

1620 Mill Rock Way | Suite 500 | Bakersfield, California 93311 | Phone 661-398-4900 | Fax 661-398-4959

(1994) 27 Cal.App.4th 713, 729-30.) An EIR must contain sufficient information about the project to allow for an evaluation and review of its environmental impacts by the public and relevant agencies. (*Id.*; *Citizens for a Sustainable Treasure Island v. City & County of San Francisco* (2014) 227 Cal.App.4th 1036, 1055; *Dry Creek Citizens Coalition v. County of Tulare* (1999) 70 Cal.App.4th 20.) When the project description is inadequate, as here, the EIR's analyses cannot be relied upon to provide a full disclosure of potential impacts, or adequate analysis of alternatives or mitigation measures.

KWBA-2

- <u>The Project Scope Should Be Broadened to Include, and the DEIR Must Also Analyze the Impacts of, Integrated Operations With Other Existing Extraction and Recharge Facilities</u>. The Project is titled the "Stockdale <u>Integrated</u> Banking Project," and, as this title suggests, the EIR states that Project facilities will be "integrated" into and operated in "coordination" with banking and recovery facilities, including: (a) "other recharge basins located offsite within Rosedale's service area," and (b) other extraction facilities including "Strand Ranch Project onsite and offsite facilities" (which offsite facilities include approximately 9 "joint-use wells" currently being constructed in Rosedale, according to the DEIR). (E.g., DEIR, S-4, 1-17, 2-5, 2-12, 2-21.) If the Project will be integrated into and operated in conjunction with other existing non-Project facilities, then the Project Description must be consistently defined broadly to including the "whole of the action" and provide the details of all integrated operations. Moreover, the impacts of the "whole of the action," including the integrated operation, must be studied and mitigated (as appropriate).[3] However, the EIR does not appear to do that. For example:

KWBA-3

  - The DEIR's groundwater impacts analysis only looks at the impacts of operating five extraction wells on baseline groundwater levels for about 10 months. (DEIR, 3.9-23 through 29; Appendix E, pp. 12-13.)

  - Also, the DEIR's groundwater impacts analysis assumes that Project extraction wells only operate one-year (actually 10-months) at a time, and assumes groundwater levels will rebound before extraction wells are operated again. (Appendix E, p. 15.) However, the Project Description contains no such express limitation, and particularly during droughts (like now) water extractions do and can occur for multiple year periods. The EIR is deficient for failing to evaluate the groundwater (and other) impacts resulting from multiple and consecutive years of extraction operations.

KWBA-4

An EIR is clearly deficient if the project description differs from or is broader than the activities, including operations, it evaluates for impacts and potential mitigation. (*E.g., County of Inyo, supra*; *San Joaquin Raptor Rescue Ctr. v. County of Merced* (2007) 149 Cal.App.4th 645.)

KWBA-5

[3] To our knowledge, integrated operation of so-called Project and non-Project recharge and recovery facilities has never been evaluated in any CEQA document.

- The Project Description is deficient, incomplete, vague and lacking on critical details about the Project. An EIR must contain a project description that is sufficient to allow an adequate evaluation of the project's environmental impacts. (*Dry Creek Citizens Coalition v. County of Tulare* (1999) 70 Cal.App.4th 20, 27.) The DEIR's Project Description, however, lacks critical details necessary to evaluate all environmental impacts. For example, the DEIR states that "proposed facilities would be integrated with Rosedale's existing Conjunctive Use Program," but the details about the Project's integrated operations are missing. (DEIR, 2-1, 2-3.) This leaves many important but unanswered questions. For example: Will integrated project operations allow Rosedale, Irvine Ranch or some other entity (such as Castaic Lake Water Agency) to implement unbalanced recharge and recovery operations, e.g., extract water from Project wells (near the KWB) which water was previously banked in recharge facilities elsewhere in Rosedale (for example, the distant West and/or Allen Road and/or Superior recharge basins)? Obviously, the groundwater impacts may or will be greater under those type of circumstances, where recharge and recovery are unbalanced, but the details are not set forth in the DEIR and the potential impacts have not been studied. This is an especially important issue for the KWBA due to the KWB's close proximately to a large number of existing and proposed Project extraction facilities.

KWBA-6

- Potential Third Recharge Site Segmentation/Deferral of Project-Level Review. The Draft EIR states the Project includes a "third Stockdale project site," which has yet to be identified, and includes following commitments with respect to future project-level CEQA review of such site:

  > "If and when the third Stockdale project site is identified, subsequent project-level environmental review will be conducted pursuant to *CEQA Guidelines* Section 15168(c)."

  Since the groundwater impacts of this third site – including extraction impacts – have *not* been evaluated in the DEIR (including the THC Appendix E groundwater impact analysis), the KWBA assumes, based on the above cited-commitments, that the future project-level CEQA review of the third site will include an evaluation and study of the impacts of the operation of all facilities, including additional extraction and recharge associated with the third site, on groundwater hydrology and water quality, *and* that evaluation and study will be circulated for public review and comment by KWBA. If these assumptions are incorrect, please advise KWBA and provide clarification.

KWBA-7

- Memorandum of Understanding ("MOU"). The Draft EIR provides, on page 1-12 and elsewhere, that the Project is subject to two MOUs executed by Rosedale and adjoining entities in the Kern Fan; specifically, that this EIR "satisf[ies] the CEQA requirements as indicated in the MOUs." Are the terms and conditions of the MOUs elements of the Project or are these conditions intended to be mitigation measures? Rosedale should clarify this.

KWBA-8

- Long Term Operations Plan. The DEIR states Rosedale has developed a *Long Term Project Recovery Operations Plan Regarding Rosedale-Rio Bravo Water Storage District Projects* ("Long Term Operations Plan"), which the DEIR states implements MOU provisions. (DEIR, 1-13.) The DEIR states further that the "proposed project" will be operated in accordance with the Long Term Operations Plan. (*Id.*; see also, DEIR, 2-23.) Because the Project Description is unclear, it is also unclear whether this plan will apply to just operation of the three project sites and five extraction wells, or will the plan also apply to operation of other Rosedale and/or IRWD recharge and recovery facilities. The final EIR should clearly state all projects (sales and banking) and all extraction wells and other facilities that will be operated in accordance with the Long Term Operations Plan, and all areas that will be benefitted by its provisions and mitigation measures. KWBA-9

Environmental Setting, Impacts, and Mitigation Measures

3.9 – Hydrology and Water Quality

- The modeling and DEIR analysis of groundwater impacts is also deficient because they assume – artificially and unrealistically – that *extraction* will only occur for 10 months at a time and, in effect, extraction operations will not resume until the groundwater depression has rebounded. (DEIR, Appendix E, pp. 12-13.) This is contrary to how we understand Rosedale's and Irvine Ranch's extraction facilities have been operated in the past, i.e., for multiple years at time during dry periods (for example), and is contrary to the project description in that it may be read to imply that multiple years of extraction may occur and there is no project environmental protection feature (or mitigation measure) limiting the duration of extraction that is consistent with the modeling or other analysis of groundwater impacts. The analysis and modeling appear to understate potential groundwater impacts and do not comply with CEQA. In addition to failing to evaluate all the potential impacts of the Project, this limited analysis neglects to consider short-term, mid-term and long-term project impacts as required by CEQA. (*Smart Rail*, 57 Cal.4th at 455, citing Guidelines § 15126.2(a).) On the other hand, if the Project will not include or permit extraction operations extending beyond 10 months at a time, then this detail and related details (including when extraction operations may resume after the first 10-month interval) should be clarified in the Project description and/or included in a Project mitigation measure. KWBA-10

- The DEIR is similarly deficient because the modeling only considers one-year or 10 months of *recharge* operations - not multiple years as would be expected in consecutive wet years (for example). This is important to KWBA because, for example, Project recharge has the potential to adversely impact nearby KWB recharge as discussed below. KWBA-11

- With respect to HYDRO-2, the DEIR concludes that no mitigation is required because the groundwater modeling indicates that 5 wells will drop groundwater levels to 261 feet KWBA-12

bgs which is still above the lowest typical well of 300 feet bgs. (DEIR, 3.9-25, 26.) Yet, the cumulative impact analysis reached a similar conclusion but imposed the Long Term Operations Plan as Mitigation CUM-2. (DEIR, 4-16.) The DEIR should explain why such mitigation should not also be imposed as a result of the HYDRO-2 analysis. KWBA-12

- Also with respect to HYDRO-2, the DEIR concludes that Project recharge near the CVC could significantly affect shallow groundwater levels in the vicinity including neighboring recharge basins. (DEIR, 3.9-29.) However, there is no analysis of what the impacts would be to KWB's nearby recharge facilities or operations. Just stating that Project recharge mounding "would not preclude operation of neighboring basins" does not mean there will be no significant impact. (*Id.*) Based on experience operating the KWB, KWBA believes that Project recharge and resulting shallower groundwater conditions could significantly affect groundwater levels in proximity to the CVC and, for example, require KWB to curtail recharge, when historically this has never been the case in this area. Project recharge impacts on KWB recharge facilities and operations have not been evaluated as required by CEQA. KWBA-13

4.0 – Cumulative Impacts

- An EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable as defined in Guidelines section 15065(a)(3). (Guidelines § 15130(a).) As defined in Guidelines section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. (*Id.*, subd. (a)(1).) "Other projects" include past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the lead agency. (*Id.*, subd. (b)(1)(A).) The DEIR's cumulative impacts analyses do not comply with CEQA, as least with respect to the groundwater impact analysis. KWBA-14

- With respect to cumulative groundwater impacts, the DEIR includes and refers to two separate "drawdown" analyses prepared by THC. (DEIR, 4-15, 4-16). However, neither these analyses nor the DEIR appears to include a cumulative impacts analysis as required by CEQA. Because the DEIR lacks an analysis of cumulative impacts, the assessment of whether the Project's contribution to the cumulative impacts is "cumulatively considerable" is also deficient. KWBA-15

  It is also deficient because, as mentioned above, the Project scope has been too narrowly drawn in the EIR and, as a consequence, the assessment of the Project's contribution to cumulative impacts is necessarily understated and deficient. Also, use of all wells needs to be considered in the cumulative impact analysis, which by our count consists of at least 31 extraction wells including the 5 Project wells.[4] In addition, use of KWBA-16

[4] In addition to the 5 Project wells, we understand there are the following 26 existing wells: 7 Strand Ranch onsite wells; 3 Enns Basin wells; 9 Drought Relief Project wells; and 7 JURP/Allen Road wells.

the wells to be constructed on the third-site need to be considered, as a probable future project feature. KWBA-16

In addition, the DEIR states that it "incorporates groundwater pumping and recharge for all other existing banking projects and pumpers in the modeled area, including the Strand Ranch Project." (DEIR, 4-16.) However, the DEIR does identify those projects and pumpers, and does not explain *how* and *where* they have been incorporated into the analysis. The DEIR should provide such explanation and identification, including a list of *all* "past, present and probable future projects" considered (Guidelines § 15130(b)(1)(A)), including Rosedale's and others' applicable groundwater-related sales programs. KWBA-17

Without an adequate cumulative impact analysis, there is no way of knowing whether implementation of Mitigation Measure CUM-2 (Long Term Operations Plan) is adequate. Also, as mentioned above, it is unclear just what facilities and operations will be subject to the mitigation measure. The scope of the mitigation measure needs to be clarified. KWBA-18

Conclusion

KWBA appreciates the opportunity to review the DEIR and Rosedale's consideration of these comments. Rosedale should address the issues raised by these comments and provide further analysis, information and clarifications in the EIR, before any consideration of approval of the proposed Project. Please feel free to contact me with any questions.

Sincerely,

Jonathan Parker, General Manager
Kern Water Bank Authority

Letter Number 4

50 Environmental

June 12, 2016

Mr. Eric Averett
Rosedale-Rio Bravo Water Storage District
P.O. Box 20820
Bakersfield, CA 93390-0820

Re: Stockdale Integrated Banking Project Draft EIR (April 2015)

Mr. Averett:

The Kern County Water Agency (Agency) has reviewed the Draft Environmental Impact Report, dated April 2015, (Draft EIR) prepared for the Stockdale Integrated Banking Project (Project) proposed by the Rosedale-Rio Bravo Water Storage District (Rosedale) as the Lead Agency, in consultation with the Irvine Ranch Water District (IRWD) as a Responsible Agency, pursuant to the California Environmental Quality Act (CEQA) (Pub. Res. Code, § 21000 et seq.). These comments are provided for your consideration in conjunction with the Draft EIR and any Project approvals.

Executive Summary

- Project Description. Within the Project Description contained in the Executive Summary, it is unclear how many separate sites comprise the Project. The first sentence reads, "The proposed project consists of three sites: Stockdale East, Stockdale West, the Central Intake Pipeline alignment, and a third project site that may be made up of non-contiguous parcels and that has yet to be specifically located." (Emphasis added.) It is, thus, unclear if the Project consists of three – or four – separate sites. Additionally, it is unclear how the Project is comprised of three sites, given that the "third project site" may be made up of multiple non-contiguous parcels. The Agency requests that the Project description be revised for clarity, to accurately reflect the actual Project, including, but not limited to, the accurate number of Project components (three, or four, or more), and the accurate number of Project sites (three, four, or more). Without an accurate and stable Project description, the Draft EIR's analyses cannot be relied upon to provide a full disclosure of potential impacts. KCWA-1

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Type of EIR

- The Draft EIR purports to be both a "project level" EIR and a "program level" EIR. However, it is unclear exactly which aspects of the Project Rosedale is analyzing at a programmatic level. However, program level EIRs are appropriate for analysis of programs, plans, policies, or ordinances only where site-specific analysis is not feasible. Here, Rosedale wishes to invoke program level analysis for one piece of the Project, but gives no reason why detailed analysis cannot be provided at this time. As the Draft EIR admits, Rosedale is required to analyze "the whole of the action." (See p. 1-2.) If Rosedale wishes for its EIR to act as a Project EIR, the entire Project should be analyzed now. In the alternative, if Rosedale envisioned the EIR as being a program-level EIR with additional analysis being done prior to the implementation of the Project, then the Project elements that are only analyzed at a program-level should be made clear, and Rosedale should impose a requirement that further substantive CEQA review will be done prior to any commitments associated with future project clarifications.

  Additionally, should the EIR be identified as programmatic, Rosedale still has the obligation to analyze – to the fullest extent feasible – the potential impacts of the Project as a whole (including the to-be-identified future 640 acre recharge/recovery facilities). The EIR does not appear to meet this requirement, instead postponing any analysis of the 640-acres until some unknown future date.

KCWA-2

Project Objectives

- The project objectives identified in the Draft EIR are vague and hard to understand. They refer to "various programs and facilities" and "existing and future programs," but it is unclear what programs and facilities are being referred to. The first and second objectives refer to "operational flexibility" and "operating flexibility" but these terms are not explained, and it is unclear what type of flexibility is needed, or what the purposes of such flexibility would be. The third objective refers to "IRWD's and Rosedale's respective properties" but it is unclear what properties these is referring to, or whether these are the specific properties upon which this Project will take place, or whether this is in reference to all property owned by these two entities in general.

  Project objectives guide the selection of mitigation measures and alternatives, and provide the rubric against which mitigation measures and otherwise feasible alternatives are rejected. Therefore, project objectives must be clearly written to fulfill CEQA's requirements. Thus, the Agency requests that the Project objectives be revised for clarity.

KCWA-3

Project Description

- Project Location and Description. The Draft EIR states that the Project includes a third recharge site that has yet to be purchased or located. As shown in Figure 2-1 of the Draft EIR, the radius in which the site may be located is fairly large. Please provide a description of the size of the

KCWA-4

radius in which the third recharge site may be located and the potential environmental impacts that may result from the third recharge site.

KCWA-4

Specifically, the Draft EIR states that the third recharge site "would likely be comprised of parcels that may or may not be contiguous up to 640 acres and be characterized by agricultural land use." Therefore, as drafted, the Draft EIR is insufficient to analyze the potential impacts to environmental resources including hydrologic and agricultural resources. The Draft EIR does not provide adequate analysis of the environmental impacts that may be associated with the third recharge site because that site is yet to be located. Further, once the Project is implemented, the third recharge site may be split into several noncontagious sites that total 640 acres. The hydrologic impacts associated with the Project may vary greatly depending on the final characteristic of the third recharge site. The location(s) and condition(s) of the third recharge site must be disclosed to allow for informed public comment and informed decision-making on the Project. The failure to fully analyze all reasonably foreseeable impacts wherever they occur and whenever they may occur results in the impermissible deferral of environmental analysis, and the failure to analyze "the whole of the action" as required by CEQA. (State CEQA Guidelines, § 15378.) Here the location of the third Project site is vital to the analysis of the Project's impact on water quality (will the site be located near an oil field?), noise (will the site be located near a school?), sensitive receptors (will construction emissions occur adjacent to residences or schools?), and other issues. The Draft EIR cannot shirk this requirement simply by stating that additional CEQA review of this portion of the Project will take place at a later date.

KCWA-5

If the Draft EIR cannot identify the third recharge site(s) prior to approval of this Project, then the EIR should be revised to provide a worst-case scenario analysis of the impacts of that third recharge site. Also note that if the third recharge site is identified prior to any Project approval, Rosedale and IRWD will be required to recirculate this Draft EIR for further review and comment pursuant to Public Resources Code section 21092.1 in order to ensure full disclosure of the Project's impacts.

KCWA-6

The Draft EIR's description of the Project is also unclear in scope. For example, on page 2-5, the text states that the Project "may" include construction of embankments and/or additional transfer structures, yet it is unclear if these embankments and/or additional structures are considered in this Draft EIR's impact analyses. The text goes on to state that these embankments and additional structures that "may" be constructed would divide existing basins into smaller impoundments, yet it is unclear if this was taken into account as part of this Draft EIR's analyses, specifically, analyses of hydrology and agricultural impacts.

KCWA-7

The Draft EIR also states that "[t]he basins at all three Stockdale property sites would be managed to allow agricultural land uses to continue, such as annual farming or grazing." (Draft EIR, p. 2-6.) First, it is unclear how agricultural uses are compatible with recharge basins which will be full of water much of the year and will require routine scarification to ensure infiltration of spread of water. Second, it is unclear if water used for farming purposes will be deducted from Rosedale's share of the banked water or if water will be from the "basin." Third, farming on banking lands could increase the risk of groundwater contamination because the Project sites have high permeability with a low surface runoff potential that would allow nitrates and other

KCWA-8

fertilizer commonly used in farming operations to permeate the soil and enter the groundwater. Those potential impacts must be identified in the EIR. Fourth, to the extent that Rosedale decides to remove the option for continued farming, then the Draft EIR should revise the analysis to identify what impacts may result to agricultural practices and agricultural lands. KCWA-8

- Recharge Water Supplies. While the Draft EIR mentions the 2014 drought and ongoing drought conditions, it does not provide enough detail to adequately inform the Draft EIR's impact analyses. For example, on pages 2-8 through 2-10 the discussion of Recharge Water Supplies, and the discussion of Central Valley Project and State Water Project water deliveries in particular, includes no information about the effects of the ongoing drought on the availability of these water sources. The Project may exacerbate the drought, particularly as the Project proposes to use severely restricted SWP water. Moreover, given the ongoing drought and decreased SWP reliability, the Project's potential use of Kern River water (including pre-1914, post-1914 and high flow) is questionable as it would result in the net export of native surface water. The Draft EIR should lay out these issues and Rosedale's conclusions in more detail. Otherwise, a reader is not fully apprised of the nature of the Project, the nature and reliability of the Project's recharge water sources, and, as a necessary result, the true nature of the Project's impacts. KCWA-9

- Recovery Facilities. The Draft EIR indicates that the Project proposes constructing three wells on Stockdale West and two wells on Stockdale East, and that existing agricultural wells on both sites may be used as production wells to "contribute to operational flexibility by providing additional recovery capacity." (See, p. 2-10.) However, the information and analyses presented in Section 3.9 (Hydrology and Water Quality) and Appendix E do not include impacts associated with additional recovery from existing agricultural wells. Further, Section 3.9 indicates that the Project's proposed annual recovery needs for the Stockdale West and East sites can be met by the proposed new wells. (See, p. 3.9-23.) Therefore, it is unclear why additional recovery capacity from existing wells is needed. If the existing wells are intended to provide supplemental or redundant capacity should the new wells not perform adequately or fail, the EIR should state that. However, if the use of existing wells is for additional capacity, as stated, the use of existing wells should be analyzed. KCWA-10

- Recovery Scenarios. The Draft EIR indicates that "Rosedale would recover water from the proposed project as needed to meet existing or future commitments." (See, p. 2-22.) This description does not contain sufficient information to determine the Project's maximum recovery operations from the Stockdale West and East sites, and the yet to be identified third site. Further, the information and analyses in Section 3.9 and Appendix E include impacts from construction of new Project wells, but not the use of existing agricultural wells. Without a defined maximum annual recovery for the Project sites, and the Project as a whole, it is impossible to determine the extent of potential impacts from recovery operations. KCWA-11

- Reciprocal Use. The Draft EIR indicates that the Project will operate as a "two for one" program similar to the Strand Ranch Project. Like the Strand Ranch Project, whatever stored water is not used by Rosedale would be made available for additional exchange partners, in this case IRWD. KCWA-12

Given this, the EIR should explain why there would still be a "net benefit" to the aquifer as the EIR asserts. Further, the Draft EIR admits that the "terms and conditions" for reciprocal use at the unidentified third Stockdale Property site "have yet to be determined and would be subject to Rosedale and IRWD developing mutually agreeable terms and conditions." (DEIR, p. 2-22.) Without these terms, or at least worst case scenario hypothetical terms, it is impossible to even determine whether the Project will benefit water levels in the aquifer, as claimed by the EIR. (See, e.g., p. 3.6-16.)

KCWA-12

- Memorandum of Understanding ("MOU"). The Draft EIR provides, on page 1-12 and elsewhere, that the Project is subject to two MOUs executed by Rosedale and adjoining entities in the Kern Fan; specifically, that this EIR "satisf[ies] the CEQA requirements as indicated in the MOUs." Are the terms and conditions of the MOUs elements of the Project or are these conditions intended to be mitigation measures? Rosedale should clarify this. Please also see the comments below regarding reliance on the MOU.

KCWA-13

3.2 – Agriculture and Forestry Resources

- Groundwater Contamination. Both threshold discussion sections contemplate the use of the banking sites for farming, which may significantly increase the risk of groundwater contamination. These impacts should be analyzed not only in the Draft EIR's hydrology and water quality analyses (see our comments to section 3.9 Hydrology and Water Quality below), but also in the agricultural impacts analysis because the danger of groundwater contamination will determine whether farming operations are even feasible on the Stockdale sites, as this analysis assumes. The conclusions that the Project would not convert prime farmland should be reevaluated to the extent that Rosedale determines that farming is restricted on the Project Sites, if impacts to agricultural lands are found to be significant, the EIR should discuss the feasibility of agricultural easements as mitigation for those impacts.

KCWA-14

3.6 – Geology, Soils, and Seismicity

- Regarding soil erosion, the Draft EIR states that during periods of non-recharge, the recharge basins would be subject to wind erosion, yet there is no estimate provided of how often and for what duration these periods of non-recharge would take place. Further, the Draft EIR concludes that "plant cover at the project site would minimize wind erosion" yet there is no information provided regarding to what plant cover this refers. Is the Draft EIR relying on the Project to install planting? If so, what types, and where? In the alternative, is the Draft EIR relying on existing plant cover to provide wind erosion cover? If so, this should also be disclosed, and an explanation of how existing plant cover will remain in place sufficient to protect against wind erosion should be provided.

KCWA-15

- There is also no discussion of how the conversion of the project site(s) from agricultural use to basin use will impact soil cover, loss of topsoil, and soil erosion.

KCWA-16

3.8 – Hazards

- The discussion under Impact HAZ-2 states that the oilfield near the Stockdale East site has "resulted in spillage, releases, and disposal of oil, oil and water, and inert debris associated with oilfield production and storage." Further, "[t]he oilfields would remain active during Project implementation and operation, and proposed recharge basins, production wells, and conveyance structures would avoid the oilfield areas." The Project also intends to accommodate future drill islands. Please explain how the Project and the production wells and spreading basins will avoid the contaminated areas? What steps will be taken to ensure that the contamination will not spread to the groundwater as a result of the Project? Mitigation Measure HAZ-1 requires that samples of soils at the Stockdale East property are analyzed and removed appropriately if soils contain hazardous quantities of contaminants. Due to the Stockdale East's close proximity to existing oil wells, the Project should also incorporate soil samples and removal when the Project is operational to prevent future migration of contaminants onto the Project site and to safeguard against groundwater contamination. KCWA-17

- Further this section states that "Mitigation Measure HAZ-3 would require the completion of a Phase I ESA to ensure hazards and appropriate mitigation measures are identified for the third Stockdale site and Central Intake prior to construction. Implementation of these mitigation measures would reduce impacts to a less than significant level." Again, this is the impermissible deferral of the analysis and identification of impacts at a later time. The location of the third Project site is unknown and the environmental conditions that exist on that site are unknown. A Phase I ESA has yet to be prepared and the specific mitigation measures that the Phase I would suggest are not been identified. Therefore, there is no substantial evidence that Mitigation Measure HAZ-3 would be effective at reducing potential impacts from the future basin. KCWA-18

3.9 – Hydrology and Water Quality

- The Draft EIR states that "[r]echarge and recovery activities will generally increase the gradient during the early period of a recharge event due to the effective mounding of the groundwater table and decrease, flatten, or even reverse during a recovery period." (Draft EIR, p. 3.9-4.) There is no support or citation given for the contentions made in this section. Given that the Project has impacts due to water mounding, please provide citation and further explanation for this conclusion. KCWA-19

- The Draft EIR states that "[a]quitards at depth can impede recharge efforts; however on the Kern Fan and in the Project area, these layers impede but do not prevent recharge and recovery operations." (Draft EIR, p. 3.9-7.) There is no explanation or citation to explain how aquitards specifically impact the Project area, or how Rosedale knows that the layers impede, but do not prevent recovery. Further explanation is needed, especially in light of the fact that the third recharge site has not been identified in the Draft EIR. How does the Draft EIR account for the recharge characteristics of the Project site that has yet to be identified? KCWA-20

- Considering that the third recharge site is unidentified and the proposed radius of the third Project site is large per Figure 2-1, please further explain why Corcoran clay is not located anywhere in the radius of the yet unidentified third recharge site. Corcoran clay restricts vertical groundwater flow between the overlying unconfined aquifer and the underlying confined aquifer. If the third Project site is located within an area with a high percentage of Corcoran clay, the Project site may create a source of storm water runoff if the site is unable to properly absorb water. Additionally, such a condition would result in the over-estimation of the amount of recharge that is actually occurring. Subsequent recovery would then worsen drawdown impacts in the basin beyond the impacts predicted by the EIR. KCWA-21

- The Draft EIR states that groundwater samples were only taken from two wells on the Stockdale East and Stockdale West sites for analysis of drinking water standards. The Draft EIR improperly assumes that these two wells reflect the water quality of the yet to be identified third recharge site. It is important for the Draft EIR to examine the water quality of the third Project site, because if the site is contaminated as a result of an existing oil well or some other source (such as the Hondo Chemical plant), placing a recharge project in such a location could lead to further contamination of groundwater. Moreover, the Draft EIR admits that the depth of the two sample wells is unknown. The Draft EIR should be based on a broader range of well samples from various wells at various depths across the recharge and recovery area before it attempts to draw conclusions about water quality within the entire radius shown on Figure 2-1. Further, the Draft EIR allows for farming on banking lands which may significantly increase the risk of groundwater contamination. This potential impact should be analyzed or the Project should not allow farming on its banking lands. KCWA-22

  When discussing Impact HYDRO-1, the Draft EIR states that water quality for wells tested for the Project exceed or are at the maximum contaminant level for gross Alpha. However, the Project would introduce water into the CVC, which also delivers water to ID4. Rosedale should notify ID4 of water introduced into the CVC that exceeds the maximum contaminant level for gross Alpha, even if such water is diluted in the CVC. The EIR should also analyze whether the introduction of such water will result in the need for treatment or other mitigation as a result of this increased gross alpha level. KCWA-23

- A project's baseline is the standard by which the project's impacts, mitigation, and project alternatives are measured. (*Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 320-23.) State CEQA Guidelines section 15125(a) notes that the physical environmental conditions in the vicinity of the project at the time the Notice of Preparation is published will normally constitute the baseline conditions which the lead agency uses to determine whether an impact is significant. However, in *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, the California Supreme Court recently set forth the standard public agencies must follow if they elect to instead utilize future conditions as the baseline. The Court held that, to be legally adequate, two conditions must be met: (1) the agency must lay out the substantial evidence showing that the use of conditions at the time of publication of the Notice of Preparation "would detract from an EIR's KCWA-24

effectiveness as an informational document" and be uninformative or affirmatively misleading, and (2) the agency's selection of the future baseline conditions must be supported by substantial evidence. (*Id.* at 451-52.)

Here, the Draft EIR's baseline discussion is unclear. The EIR seems to confirm that NOP conditions were not used as the baseline, and (instead) that historical conditions dating back as much as 10 years were used as the baseline. (See Draft EIR p. 3.9-22 [confirming that historical conditions from 2004 were used in the baseline].) The EIR, however, then goes on to compare Project impacts to projected future baseline conditions that may occur 10 years from now. Ultimately, it appears that Rosedale has relied upon conditions that existed 10 years ago, or may exist 10 years from now, but never actually discloses what the current, NOP conditions are as required under CEQA. Accordingly, Rosedale should clarify the EIR to specifically lay out what baseline(s) it is using for the analysis, and to explain (consistent with the *Neighbors for Smart Rail* decision) whether those conditions differ from the NOP conditions and why the use of such conditions is supported by substantial evidence.

KCWA-24

- The portion of the Draft EIR discussing Impact HYDRO-5 indicates that the groundwater beneath the Project site meets or exceeds the maximum contaminant level for gross Alpha. As was the case with Impact HYDRO-1, this analysis was based on just two wells and may not reflect the actual water quality beneath the yet to be located third Project site. Without conducting further water quality studies, the conclusion that "[t]he introduction of surface water into the shallow zone will improve water quality" is not based on substantial evidence. (Draft EIR, p. 3.9-22.) Further, the Stockdale East site is located less than a ½ mile from Hondo Chemical. The Agency has previously commented to Rosedale that recharge and recovery operations in proximity to Hondo Chemical have the potential to influence the migration of known contaminants. Therefore, the analysis of water quality should also consider the extent to which water quality will be impacted by the migration of known contaminants as a result of the Project.

KCWA-25

The proposed use of a geotechnical engineer to determine at a later date whether conditions might pose a risk to subsurface structures is the deferral of analysis. First, the EIR should identify why it is infeasible to do this analysis now. Second, this mitigation measure should specifically state how and under what circumstances subsurface structures will be determined to be at risk through the use of performance standards. Third, this mitigation measure does not state how or who will determine that a threat no longer exists before the Project may continue operation. Presumably, a geotechnical engineer will make this determination, however the mitigation measure should include specific performance standards that must be met in order for the Project to safely resume operations. Without the inclusion of specific performance standards for the geotechnical engineer to follow, this mitigation measure is likely not enforceable.

KCWA-26

Further, there is no discussion as to the impact of continuing agricultural operations on the location of the basins. The groundwater contamination potential of continuing agricultural operations must be analyzed and the impacts disclosed.

KCWA-27

- Impacts related to HYDRO-1 and HYDRO-2 are subject to the terms and conditions of an MOU entered into by Rosedale and adjacent entities within the Kern Fan which Rosedale proposes to amend as part of this Project. (Draft EIR pp. 3.9-21 through 3.9-26.) However, Rosedale has previously challenged the Agency's use of similar MOUs for the Agency's banking projects claiming the MOU was insufficiently specific and lacked enforceable performance standards. Specifically, Rosedale has argued that the use of such an MOU in an EIR constituted the improper deferral of mitigation measures. As Rosedale knows, the Court – at least at this point – has agreed with some of Rosedale's claims. (*Rosedale v. DWR* (2014) Case No 34-2010-80000703.) Therefore, Rosedale should clarify why it now believes that the MOU for this proposed Project meets CEQA's requirements and does not constitute a deferral of mitigation, given that Rosedale has previously asserted that a similar MOU did not meet CEQA's requirements. KCWA-28

  Further, if the MOU is not a mitigation measure, but only a Project feature, Rosedale should clarify how Rosedale intends to comply with the MOU's requirements. Rosedale has previously asserted that a similar MOU provided only non-binding "goals," and not requirements. Under Rosedale's argument, then, the EIR should be clarified to identify the worst-case scenario impacts assuming that the "goals" may not necessarily be met. KCWA-29

- Appendix E includes the analysis of potential groundwater level changes as a result of the Project. However, the Project area for the purposes of Appendix E is specifically identified as (and limited to) the "Stockdale West and Stockdale East Facilities." (See also, Appendix E, Figure 2.) Therefore, the modeling results do not appear to address any impacts from the operation of the third Project recharge/recovery location. Because the location of this third site has not been identified or analyzed, it is unclear how the analysis can be supported by substantial evidence. The EIR should clarify how the impacts of the third Project site are accounted for. KCWA-30

3.10 – Land Use and Planning

- This section indicates that the Kern River and floodplain is located approximately 2.5 miles south and east of the Project sites. (Draft EIR, p. 3.10-1.) Please clarify if this includes the radius of the unidentified third Project site? Does the third Project site have the potential to be within the floodplain of the Kern River such that there could be a possibility of drawing river water into the basin via the third site's recharge basin? If the floodplain extends into the site radius for the third Stockdale site, a figure should be included that indicates where within the radius the floodplain is located. KCWA-31

- Little information is provided on the zoning of the land within the unidentified third Project site. The text states that the majority of land within the third Project site is zoned for agricultural uses in the County general plan but that does not address whether the third site is actually being used for agricultural purposes (regardless of its zoning) or whether the applicable general plan indicates a land use designation different from the zoning. Further, the EIR does not address how the Project's basins conform or conflict with any applicable habitat conservation plans, such as KCWA-32

the Metropolitan Bakersfield Habitat Conservation Plan. The EIR should address these issues and explain whether the Project's uses are consistent with the zoning, the general plan land use designations, and the uses that are actually occurring on the Project sites. Even if the location of the third Stockdale site is unknown at this time, information on the agricultural use within the site radius is not unknown, and should be provided in the Draft EIR. KCWA-32

- Figure 3.10-1 and 3.10-2 show the land use designations for the entire radius of the unidentified third Project site. However, the unidentified third Project site could eventually be located on the border of the radius shown on Figure 3.10-1 and 3.10-2. Accordingly, these figures should also include the land use designations for the property directly adjacent to the outside boarder of the radius for the unidentified third Project site. The discussion of surrounding land use should also consider the uses on properties adjacent to the outside boarder of the radius for the unidentified third Project site. The discussion under Impact 2 for the third Project site does not take these variables into account. The conclusion that the Project does not conflict with applicable land use plans does not appear to be supported without discussion of the applicable land use plans and zoning requirements adjacent to the radius of the unidentified third Project site. KCWA-33

- The discussion of surrounding land uses states that light industrial, commercial use and mineral extraction use exist within the Project area. Please identify these uses and whether the Project features will interfere with them. (Draft EIR, p. 3.10-6.) KCWA-34

- The discussion under Impact 1 does not take into account the unidentified third Project site. The radius of the unidentified third Project site includes residential uses. Could the third Project site eventually be located in or nearby the residential area as shown on figure 3.10-1? The analysis should be updated to explain whether the Project would divide an established community. KCWA-35

3.14 – Utilities and Energy

- As discussed above, the Draft EIR indicates that a discretionary approval may be required from the Agency for the use and modifications required to the CVC. This requirement should be analyzed under Impact UTIL-1 as to whether the Project could require new or expanded water supply resources or entitlements. Would modifications to the Canal impair service/use of the Canal? If so, for how long? What mitigation will Rosedale provide to address those impacts? Does the Canal have sufficient capacity to accommodate the Project? The EIR does not appear to address these issues in any detail, but the Agency can discuss these issues with Rosedale upon request. KCWA-36

6.0 – Alternatives Analysis

- The alternatives analysis should be revised to review each alternative and explain why it meets or doesn't meet each of the Project objectives. CEQA provides that a lead agency must approve any feasible alternative that reduces impacts and which meets most of the Project's basic objectives. To the extent the Project Proponents wishes to reject the alternatives in favor of the Project, a KCWA-37

more detailed discussion is needed. Additionally, the alternatives analysis should be revisited after revisions of the EIR are made per the comments above. New, significant impacts seem likely once the EIR is updated, and the alternatives analysis should explain how/whether each alternate reduces those significant impacts.

KCWA-37

- For the alternatives that are rejected, the Draft EIR focuses almost entirely on the reasons why the costs associated with the alterative makes the alternative infeasible. Though cost considerations can be relevant, Rosedale must provide details regarding available funding sources and budget constraints before rejecting an alternative on economic grounds.

KCWA-38

Conclusion

Thank you for the opportunity to review the Draft EIR and for considering the Agency's comments. Until such time as these issues are addressed in the manner required by CEQA, the Agency must object to Rosedale's approval of the proposed Project and urge that Rosedale provide further analysis or clarifications in the EIR.

KCWA-39

If you have any questions, please contact Holly Melton of my staff at (661) 634-1400.

Sincerely,

James M. Beck
General Manager

Letter Number 5

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June 12, 2015

VIA FEDEX AND E-MAIL

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Re: City of Bakersfield's Comments on Draft Environmental Impact Report for Stockdale Integrated Banking Project

Dear Mr. Averett:

On behalf of the City of Bakersfield ("City"), we submit the following comments to the April 2015 Draft Environmental Impact Report ("DEIR") for the "Stockdale Integrated Banking Project" ("Project") prepared for the Rosedale-Rio Bravo Water Storage District ("Rosedale") and Irvine Ranch Water District ("Irvine").

As stated in the City's October 23, 2013 comments to the Notice of Preparation ("NOP") for the Project, the City generally supports the goals and purposes of the Project, as the City supports Rosedale's efforts to increase its "operational flexibility" and to otherwise efficiently and effectively manage its use of local water resources.

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The City still has significant practical, substantive and legal concerns with regard to the Project. The City is particularly concerned that the Project will involve the transfer of local water supplies, including the waters of the Kern River, out of Kern County, to Irvine.

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The City believes it is highly questionable and suspect that Rosedale would propose to implement a project which involves the transfer of local water supplies, including Kern River supplies, to a large Southern California urban water district, at a time when the local region is suffering through a critical drought, local water supplies, including the Kern River, are drastically depleted, and groundwater levels are rapidly declining. The City is concerned that the "out-of-county" water sales or transfers proposed through the Project could cause substantial harm to the local environment, the local groundwater basin, the City's water resources and supplies, the Kern River, and the water resources of the entire southern San Joaquin Valley. City-2

The City also has significant concerns with regard to the DEIR. As explained herein, the City maintains that the DEIR does not comply with the policy, purpose or specific requirements of CEQA. The DEIR omits or obscures critical, necessary details of the Project, and consequently fails to properly disclose and asses all potential impacts of the Project on the local environment and water resources. The DEIR also fails to properly consider reasonable, feasible alternatives for the Project, including the "no project" alternative. City-3

The fundamental purpose of an EIR is "to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment." (Public Resources Code § 21061.) Full and candid disclosure, and an honest assessment of the environmental consequences of governmental action, is the foundation of the CEQA process. The foremost principle under CEQA is that the Legislature intended the act "to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." (*Friends of Mammoth v. Board of Supervisors* (1972) 8 Cal.3d 247, 259.)

In contrast to the underlying purpose and principles of CEQA, Rosedale has attempted, through the DEIR, to obscure and hide the details of the Project, to avoid addressing the actual goals and purpose of the Project, and to avoid or minimize any real analysis of the Project's impact on the environment. The lack of candor and accurate information is particularly troubling because the Project will involve the transfer of local water supplies, including valuable Kern River water, out of the area, to Irvine, a large Southern California urban water supplier. Kern County is again faced with a potential repeat of the events that occurred in the Owens Valley in the early part of the last century, as powerful Los Angeles interests are apparently again attempting to remove a valuable natural resource before the public becomes aware of the threatened loss. City-4

The City has the following comments, questions, concerns and objections with regard to the Project, and the DEIR.

1. COMMENTS REGARDING THE PROJECT

The City's October 23, 2013, comments to Rosedale's NOP set forth the City's initial concerns with the Project. The City attaches a copy of the October 23, 2013 comments to the NOP as Exhibit A, and incorporates and refers to such comments as part of the City's comments City-5

to the DEIR. (See *Woodward Park Homeowners Assn., Inc. v. City of Fresno* (2007) 150 Cal.App.4th 683, 712, noting that comments to an NOP were preserved for a later challenge to an EIR.) The City attaches and incorporates its comments to the NOP because Rosedale has not adequately addressed or responded to the concerns and questions raised by the City in those comments. City-5

The City's concerns with and objections with regard to the Project, include, but are not limited to, the following:

A. Violation of City Policy

Sales and transfers of local water supplies out of the county are directly contrary to the policies and interests of the City. The City has a long standing policy, most recently confirmed in 2001, that Kern River water shall not be utilized outside the boundaries of the San Joaquin Valley Portion of Kern County. City-6

The DEIR indicates that Irvine is a California water district that provides a water supply to municipal and industrial customers within an 115,531-acre service area in Orange County, California. (DEIR, p. S-3.) The DEIR indicates that one of the objectives of the Project is to increase Irvine's water supply. In particular, one of the stated "Project Objectives" is to develop Irvine's "groundwater recharge, storage and recovery capacity" so as to provide "increased water supply reliability" for Irvine's "customers." (DEIR, p. 2-3.) The Project would allow Irvine to maintain and utilize up to 88,000 acre feet from Kern County water storage facilities "for its own use." (Id.) City-7

Development of a water supply for Irvine within Kern County would necessarily and logically involve the exportation or transfer of local water supplies out of the County to Orange County. The Project will therefore directly violate the City's policy, and is contrary to the best interests of residents of the City, and will negatively impact the entire region.

B. Lack of Legal Authority for Project

The DEIR indicates that the Kern River water used by Rosedale and Irvine in the Project will consist of (1) Kern River water sold to Rosedale by the City, and the Buena Vista Water Storage District ("Buena Vista"), "through water service agreements," and (2) Kern River water released from Isabella Reservoir during wet years "for flood control purposes." (DEIR, p. 2-9.) City-8

Rosedale does not have the legal authority, however, to utilize those sources of Kern River water. As explained in more detail herein, Rosedale can only use water obtained through the City's agreement within its boundaries. Any attempt by Rosedale to transfer Kern River water to Irvine, including Kern River water recharged and banked prior to recapture and transfer to Irvine, would violate that agreement.

In addition, the California State Water Resources Control Board ("SWRCB") has determined that certain Kern River flood flows are "by definition" unappropriated water, and Rosedale therefore does not have a right or permit to divert and use such waters. Any attempt by City-9

Rosedale, or Irvine, to divert and us such "flood flows" would violate applicable provisions of California law, including Water Code Section 1052. City-9

C. Adverse Impacts on the City

The boundaries of Rosedale overlap with the boundaries of the City. Rosedale and the City spread and extract water from a shared groundwater basin. Rosedale, and the Project site, are located adjacent to the City's primary recharge facility, the 2800 Acre Recharge Facility ("2800 Acres"), and the Kern River, the City's primary water source. The City directly and indirectly provides water for individuals living within the overlapping City and Rosedale boundaries, and the City's Kern River water supply indirectly benefits landowners within the remaining portion of Rosedale. Given this close relationship between the two entities, the Project will necessarily have significant impacts on the City and its water supply.

The City's water supplies and ability to provide drinking water to over 367,000 residents are currently threatened and jeopardized by the ongoing drought conditions, rapid and increasing depletion of groundwater supplies by local agricultural districts, and increasing regional demands on local water supplies. The implementation of a large groundwater recharge and extraction project by Rosedale, in conjunction with a large Southern California urban water supplier, and the proposed transfer of Kern River water supplies to Southern California, will likely exacerbate the current adverse water conditions faced by the City, to the detriment of the City and its residents. City-10

D. Significant Adverse Groundwater Impacts

The City is also concerned that Rosedale is proposing to implement a new project which will involve the further extraction of already depleted and threatened local groundwater resources. As the Governor recognized in his April 1, 2015 Executive Order, attached hereto as Exhibit B:

> California's water supplies continue to be severely depleted despite a limited amount of rain and snowfall this winter, with record low snowpack in the Sierra Nevada mountains, decreased water levels in most of California's reservoirs, reduced flows in the state's rivers and shrinking supplies in underground water basins.

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The State of California recently adopted the Sustainable Groundwater Management Act to attempt to address and alleviate adverse and threatened groundwater conditions in the State. That Act calls for the sustainable management of groundwater resources, which it defines as "the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results." (Water Code § 10721(u).)

The California Department of Water Resources ("DWR") has identified the Kern County sub-basin as being in a critical condition of overdraft. (DWR Bulletin 118-80, pp. 3, 47-48.) City-12

The City relies on the local groundwater basin as one of its primary sources of drinking water. The City has undertaken extensive and ongoing efforts to recharge and replenish the basin, to increase and restore groundwater levels, and to actively and effectively manage the basin, all for the benefit of local residents. The unreasonable and unsustainable pumping of groundwater in the region threatens and undermines those efforts, and threatens the quantity and quality of the City's drinking water supply.

The City is concerned that a number of local water districts have reacted to recent drought conditions by pumping excessive and increasingly voluminous quantities of water from the local groundwater basin at a rapid and unsustainable rate. Such excessive pumping has dramatically lowered groundwater levels in the basin, negatively impacted City wells, and significantly accelerated overdraft conditions in the basin.

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The City has experienced rapidly declining water levels in the 2800 Acres, very close to the Project. The City has had to lower well screens in a number of areas to keep wells operational, and the City has seen other water supply wells in the vicinity of Rosedale go dry, and out of operation.

Although the DEIR claims that the Project will only pump water that has been spread, experience and practical conditions indicate otherwise. Increased pumping associated with water banking has created demands and stresses on basins which practically have not been offset or alleviated by prior spreading. Increased pumping within water banks typically does not take into account pumping by other individuals and entities in the project area, as well as migration of the spread water out of the project area. Other entities and individuals typically do not spread water, but take advantage of short term increases in groundwater levels created by spreading to increase their pumping and consumption of local groundwater supplies, prior to extraction of the water by the banking project operator. As a result, water banks often are merely pumping native groundwater and putting stresses on already overdrafted basins instead of extracting water actually banked, stored and still available for extraction.

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Rosedale has made many of these same claims in a prior lawsuit alleging that a nearby water bank had lowered groundwater levels and negatively impacted surrounding wells and banking projects, notwithstanding claims by the water bank that it was only pumping water it had spread and banked.

In 2010, Rosedale filed a lawsuit against the Kern Water Bank Authority ("KWBA"), the Kern County Water Agency, the California Department of Water Resources ("DWR") and other Kern County water districts challenging the extent and level of CEQA review for the Kern Water Bank ("KWB"), and the use and operation of the KWB.

Among other things, Rosedale alleged that the use and operation of the KWB "has actually and will potentially (i) adversely impact the quality and quantity of groundwater within the region; (ii) lower the groundwater table to dangerous and unacceptable levels; (iii) continue

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and exacerbate an unprecedented and improper reversal of hydraulic gradients within the Kern River alluvial fan area; (iv) cause existing wells to go dry; (v) result in substantial health and safety issues associated with the loss of wells serving municipal and domestic purposes; and (vi) cause subsidence." (Petition, p. 4, ¶ 12; a copy of the petition is attached hereto as Exhibit C.)

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Rosedale further alleged that "KWB's past, current and future extraction of groundwater has and will potentially substantially and significantly affect groundwater levels underlying lands within the boundaries of Petitioners and underlying other public projects in which Petitioners participate; the amount of groundwater available to and recoverable by Petitioners; the cost of such recovery; the quality of groundwater available to Petitioners; the historical hydraulic gradients within the Kern River alluvial fan area; and the environment of the region." (Petition, p. 5-6, ¶ 15.)

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Rosedale filed a second lawsuit in 2010 against KWBA, alleging that KWBA breached an agreement regarding the operation of the Kern Water Bank. Among other things, Rosedale alleged that it and other petitioners had lost the right to use KWB for the recharge and/or recovery of water in the KWB as a result of the breach of the agreement, which breach had resulted in "significant groundwater impacts within the boundaries of Plaintiffs." (Complaint, paragraph 8(b); a copy of the complaint is attached hereto as Exhibit D.)

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The City does not understand how Rosedale can make those allegations against an adjacent, similar banking project, and then claim that its own nearly identical banking project will not have negative or adverse environmental impacts. At the very least, those prior allegations demonstrate that Rosedale has failed to comply with CEQA by failing to disclose and explain baseline conditions, based on its prior allegations involving basin conditions, and by failing to accurately or properly assess the impacts of its own banking and extraction program.

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It also seems apparent that the current drought conditions, and dramatically increased groundwater pumping in and around Rosedale, would only have intensified and exacerbated the conditions described in Rosedale's prior complaint. Rosedale's failure to disclose and account for its prior description of local groundwater conditions calls into question the accuracy and veracity of the description of baseline conditions and impacts, as well as the entire DEIR.

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E. Insufficient Justification for Project

The DEIR fails to provide any clear or convincing justification for the Project. The Project Objectives contained in the DEIR do not justify the development of a large scale, intensive water banking and extraction program involving the transfer of local water supplies to Southern California.

Absent compelling or convincing information regarding an actual need for the Project, it seems apparent that the Project is primarily a money making venture for Rosedale, as Rosedale seems poised to market and sell valuable local water resources for profit to Southern California urban interests.

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2. COMMENTS TO THE DEIR

The City has the following general and specific comments, questions, and concerns regarding the DEIR, and Rosedale's compliance with CEQA in connection with the DEIR and the Project.

A. Project Description

The Project Description section of the DEIR is incomplete, vague, and misleading. Rosedale fails to describe or disclose necessary, essential and required details of the Project. Most importantly, the DEIR omits and fails to sufficiently describe necessary and required details regarding the sources of water that will be utilized in the Project. City-21

An accurate, finite project description "is indispensable to an informative, legally adequate EIR." (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192.) Without an accurate description on which to base the EIR's analysis, CEQA's objective of furthering public disclosure and informed environmental decision making are stymied. "An accurate project description is necessary for an intelligent evaluation of the potential environmental effects of a proposed project." (*San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 730.) City-22

An EIR's project description must provide "enough information to ascertain the project's environmentally significant effects, assess ways of mitigating them, and consider project alternatives." (*Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 533.) California courts have frequently stated that "only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal … and weigh other alternatives in the balance" and that "[a]n accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR." (*County of Inyo*, 71 Cal.App.3d at 192-193; *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d. 818, 830.) City-23

If a project description is incomplete or inadequate, the environmental analysis will necessarily be incomplete and inadequate. (*Laurel Heights Improvement Association of San Francisco, Inc. v. The Regents of the University of California* (1988) 47 Cal.3d 376, 399-400; *San Joaquin Raptor/Wildlife Rescue Center*, 27 Cal.App.4th at 729.) In *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, for example, the court found that an EIR for a water supply project was deficient for not providing information on historic water release schedules from storage lakes, so that parties could determine if the project would alter the historic "baseline" pattern of water releases. An accurate and complete description of a project is required under CEQA to allow for "an intelligent evaluation of the potential environmental effects of a proposed activity." (*McQueen v. Board of Directors* (1988) 202 Cal.App.3d 1136, City-24

1143, in which the court stated that the term "project" under CEQA "is given a broad interpretation in order to maximize protection of the environment.")

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(i) Water supplies used in Project

In the section of the Project Description chapter of the DEIR (Section 2.4.2), Rosedale states: "Recharge water for the proposed project would be secured and acquired by Rosedale and IRWD from various sources, potentially including federal, state, and local supplies through transfers, balanced and unbalanced exchange agreements, purchase or temporary transfers, or other means as available. Sources could include the Central Valley Project (CVP), the State Water Project (SWP), high-flow Kern River water depending on annual availability and appropriative (pre-1914 and post-1914) water rights." (DEIR, p. 2-8.)

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The DEIR provides very little additional information regarding the potential sources of water for the Project. The DEIR fails to provide any details regarding the quantity of water available from the identified sources, present and past uses of the water sources, the circumstances under which Rosedale or Irvine would acquire water from the sources, and projected future use of water utilized in the Project. It is also not clear whether Rosedale or Irvine would acquire water from the referenced sources, or whether the water will ultimately be used within Rosedale or Irvine.

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The DEIR only contains a brief, general paragraph describing CVP water supplies. (DEIR, p. 2-8.) The DEIR states that "excess non-storable CVP Section 215 flood water" could be delivered to the Project, and that "Rosedale is a fourth priority non-CVP South of Delta Contractor that can take CVP water under certain conditions." (Id.) The DEIR does not provide any further information regarding potential CVP water supplies for the Project. The DEIR does not define or explain the meaning of the various terms used in that section. The general public, for example, would likely have no idea what "CVP Section 215 flood water" is, or what it means to be a "fourth priority" CVP contractor. This section of the DEIR further does not identify the quantity of CVP water that might be available to the Project, current or alternate uses of such water, quantities of CVP water delivered to Rosedale in the past, any restrictions or limitations on the use of such water, and the likelihood that CVP water will be available for use in the Project, and actually used in the Project, in future years.

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The discussion of SWP water potentially available to the Project is similarly vague, general and incomplete. The DEIR uses terms in connection with the SWP such as "Table A allocation," "Article 21 water," and "exchange State Water Contractor" without providing any, or any detailed, explanation or definition. (DEIR pp. 2-8 – 2-9.) As with the potential CVP water supplies, the DEIR does not identify or discuss the quantity of SWP water that might be available to the Project, current or alternate uses of such water, quantities of SWP water delivered to Rosedale in the past, any restrictions or limitation s on the use of such water, and whether SWP water would ultimately be used within Rosedale or Irvine.

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The DEIR cannot assume that the public has any understanding of, or familiarity with, the terms and concepts used in the document. Rather, "[a]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Laurel Heights Improvement Assn.*, 47 Cal.3d at 405.) Absent further explanation and definition of the primary terms and concepts used in the DEIR, the document fails as an informational document. City-29

Courts have previously invalidated EIRs that did not contain sufficient information and details about SWP supplies proposed for use in a project, and which did not adequately discuss uncertainties associated with SWP supplies. (*See e.g., Planning & Conservation League v. Department of Water Resources* (2000) 83 Cal.App.4th 892, 908, fn. 5, noting that State Water Project entitlements represent nothing more than "hopes, expectations, water futures or, as the parties refer to them, 'paper water'"; *Santa Clarita Organization for Planning the Environment v. County of Los Angeles* (2003) 106 Cal.App.4th 715, 722, holding that an EIR's water supply discussion was inadequate because of its assumption that 100 percent of a party's SWP entitlement would be available; *California Oak Foundation v. City of Santa Clarita* (2005) 133 Cal.App.4th 1219, 1238–1239, 1244, in which the court rejected an EIR for an industrial park because the water supply analysis relied, without adequate consideration of the uncertainties of SWP supplies, on the party's purchase of 41,000 af in imported SWP water.) City-30

The DEIR further indicates that Irvine could acquire some quantity of water from the Metropolitan Water District of Southern California ("MWD") for use in the Project. The DEIR provides no details, however, regarding the quantity, availability, and current use of water potentially available from MWD.

The DEIR only describes the method of delivery of the water, and then states that delivery to Rosedale for the Project "would be subject to supply and conveyance capacity availability and approval by MWD and KCWA." (DEIR, p. 2-9.) The DEIR further states that Irvine "could also purchase surplus water supplies when approved and available from MWD through the Municipal Water District of Orange County for delivery to the proposed project." (Id.) The DEIR accordingly fails to provide necessary details about the source, past uses, current uses, quantities, or availability of this potential water supply. The statement that water purchased from MWD "would be subject to supply and conveyance capacity availability" provides no helpful, relevant or useful information regarding this water supply. (Id.)

The City notes that even a cursory review of MWD's web site (http://www.mwdh2o.com/) provides significant, detailed information regarding the sources of MWD's water supply, quantities of water transferred, and other information regarding the availability and transfer of water from MWD. The failure to include such readily available information in the DEIR directly violates, and is contrary to, CEQA's requirements and policies. City31

The DEIR's description of "Appropriative Water Rights" potentially available for and intended for use in the Project, at pages 2-9 – 2-10, is even more incomplete, vague, and City-32

deficient. The discussion of appropriative water rights also contains significant omissions and errors. Since "appropriative water rights," specifically, Kern River water rights, will apparently be the primary water source for the Project, the lack of details and information regarding this water source is particularly problematic.

The DEIR states: "Rosedale currently receives Kern River water when it is available for groundwater recharge through water service agreements with the City of Bakersfield and from Buena Vista Water Storage District and other Kern River interests through banking and temporary water service agreements." (DEIR, p. 2-10.) The DEIR provides few other details regarding the Kern River water supplies for the Project. The DEIR, for example, does not provide any details regarding the "water service agreements" referenced in that section. There is no information regarding the duration, or term, of the agreements, current or alternate uses of the water, place and method of delivery, and priority and pricing information. There is also no information regarding the circumstances under which Kern River water would be "available" pursuant to the referenced agreements, the quantity of water available, when water would be available, how it would be available, and why it would be available. City-32

The failure to disclose anything more than vague, general information is surprising, since Rosedale could have presumably provided **some** additional information regarding Kern River water supplies proposed for use in the Project. Rosedale, for example, could have provided some information on the quantities of Kern River water historically transferred to it by the City and by Buena Vista Water Storage District. Rosedale could have also discussed how it presently uses and has used Kern River water transferred by the City and Buena Vista, how that use will change, whether Rosedale will obtain replacement water supplies, and related issues. All of that information presumably could have provided some additional information regarding the use of Kern River water in the Project, beyond the general statement that Kern River water may be used in the Project "when it is available." City-33

The City, of course, is familiar with the terms and conditions of its own agreement for the delivery of a portion of the City's Kern River water supply to Rosedale ("Kern River Water Service Agreement," dated August 31, 1961, as amended by Agreement 76-80, dated June 30, 1976, a copy of which is attached hereto as Exhibit E) That agreement states that Kern River water sold by the City pursuant to the agreement can only be used within the boundaries of Rosedale. It appears the Project would violate that provision by allowing or calling for the transfer of Kern River water outside the boundaries of Rosedale, and outside Kern County, to Irvine. Kern River water stored and banked in the ground pursuant to the Project would retain its character as Kern River water, and would still be subject to the restrictions in the City's agreement with Rosedale. The failure of the DEIR to identify and discuss the "Kern River Water Service Agreement," and the restrictions and limitation on the use of water transferred by the City to Rosedale, violates CEQA disclosure requirements, and fails to provide an accurate, complete and proper description of the Project. City-34

The DEIR further states that "Kern River water is also available during wet years when the U.S. Army Corps of Engineers (USACE) mandates release of water from Isabella Reservoir for flood control purposes," and "[d]uring periods of mandatory release, releases from the Isabella Reservoir may be available for diversion." (DEIR, pp. 2-10 – 2-11.) The DEIR fails to provide any further details or information regarding the quantity, extent, and timing of water "released" from Isabella Reservoir, or the circumstances, timing and conditions under which the water could be available to Rosedale, and the Project. Once again, the omission of any actual details, facts and other information regarding a potential water source for the Project constitutes a clear violation of CEQA. City-35

The DEIR also fails to disclose that the SWRCB has determined that the Kern River is no longer "fully appropriated," and that the water released from Lake Isabella for "flood control purposes" or under "mandatory release" conditions is unappropriated water. In Order WR-2010-0010, the SWRCB, in "*In the Matter of the Petitions to Revise the Declaration of Fully Appropriated Streams to Allow Processing of Applications to Appropriate Water from the Kern River*," found that the Kern River system was no longer "fully appropriated" based, in part, on evidence presented by various petitions that "in some years there are periods of flows exceeding recognized rights in the Kern River." (Order WR-2010-10, p. 4; a copy of Order WR-2010-10 is attached hereto as Exhibit F.) The SWRCB explained that petitioners had presented evidence that in certain years high flow, "flood waters," had been diverted into the Kern River/California Aqueduct Intertie ("Intertie") when "all Kern River water right claims had already been satisfied." (Id., p. 5.) The SWRCB accordingly held: "This water is, by definition, unappropriated water." (Id.)

The SWRCB later issued Order WR-2010-0016 in the same proceeding in response to petitions for reconsideration filed by several Kern County water districts. In that Order, the SWRCB confirmed that Kern River "flood flows" historically diverted into the Intertie constitutes unappropriated water. The SWRCB further explained that "[r]evising the FAS declaration allows for the filing of applications to obtain rights to put to beneficial use high flows initially diverted for flood control purposes pursuant to the statutory appropriative rights procedures." (Order WR-2010-16, p. 11; a copy of Order WR-2010-16 is attached hereto as Exhibit G.) City-36

The DEIR also fails to disclose that Rosedale has filed an application with the SWRCB to appropriate these Kern River "flood flows." (A copy of the application is attached hereto as Exhibit H, along with a February 20, 2010, letter to the City describing Rosedale's intentions with regard to the application, a copy of which is attached hereto as Exhibit I.) The City can only assume that the water released from Isabella Reservoir, as described in the DEIR, is the same unappropriated water that is the subject of Rosedale's application to appropriate. Rosedale's failure to disclose the fact that it does not hold rights, but has applied to acquire rights, to a significant portion of the water it seeks to utilize in connection with the Project violates the intent and specific requirements of CEQA.

Rosedale's failure to disclose its application to appropriate Kern River flood flows, by itself, establishes that the Project Description is incomplete and inaccurate. The Project Description section of the DEIR should have indicated that SWRCB approval of Rosedale's application to appropriate is a necessary component of, or prerequisite for, the Project.

The DEIR also fails to disclose that several other parties, including the City, have filed applications with the SWRCB to appropriate any unappropriated Kern River water, including water released from Isabella Reservoir. If one of the other parties obtains rights to unappropriated Kern River water, including "mandatory release" water from Isabella reservoir, the water will not be available for use in the Project.

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Rosedale's failure to address potential impacts and uncertainties with regard to the water supply for the Project is in direct violation of CEQA statutes and related authority. In *Friends of the Eel River v. Sonoma County Water Agency* (2003) 108 Cal.App.4th 859, 864, 881, for example, the court held that a water agency violated CEQA by certifying an EIR which did not properly analyze the environmental impacts of a project increasing the agency's withdrawal of water from the Russian River. The agency abused its discretion by, among other things, failing to discuss a separate federal proceeding which would have reduced the flow of water in the Russian River, and hence affected the supply of water for the project. (*Id.*, at 881.)

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In *California Oak Foundation*, 133 Cal.App.4th at 1226, the court held that although an EIR for a development project acknowledged that water entitlements could fluctuate from year-to-year, it did not present a reasoned analysis or discussion of the issue and thus did not comply with CEQA. Although the EIR acknowledged that water supply "could potentially be limited" by ongoing legal challenges, without a detailed discussion of the nature of the challenges, "it is impossible to know the contours of the potential limitation on the water supplies." (*Id.*, at 1239.)

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The DEIR provides no other information regarding Kern River water supplies potentially available or intended for use in the Project. Rosedale's failure to disclose any additional information regarding Kern River water, the apparent primary water source for the Project, renders the DEIR essentially useless as a public informational document, in direct contravention of the requirements, intent and purpose of CEQA. It is inconceivable that in a lengthy, voluminous DEIR for a significant water supply project in Kern County, in an overdrafted basin, in the middle of the worst drought in recorded history, and where water is recognized as a critical and valuable commodity, that there would be no further description or details regarding the primary water supply for the Project.

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The brief, general and vague description of the water supplies to be used in the Project clearly and blatantly violates requirements for the description of water supplies in an EIR. In *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 432, the court explained that "future water supplies" identified and analyzed in an EIR "must bear a likelihood of actually proving available; speculative sources and unrealistic allocations ("paper water") are insufficient bases for decisionmaking under CEQA." The court

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further explained that an EIR for a land use project "must address the impacts of likely future water sources, and the EIR's discussion must include a reasoned analysis of the circumstances affecting the likelihood of the water's availability". (*Id.*, citing *California Oak Foundation*, 133 Cal.App.4th at 1244.)

City-41

Pursuant to *Vineyard* and related cases, the DEIR does not provide necessary and required details regarding the water supply for the Project. As the court in *Habitat & Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal.App.4th 1277, explained, in *Vineyard*:

> The California Supreme Court identified four "principles for analytical adequacy under CEQA." (*Vineyard*, at p. 430.) First, an EIR is inadequate if it "simply ignores or assumes a solution to the problem of supplying water to a proposed land use project. Decision makers must, under the law, be presented with sufficient facts to 'evaluate the pros and cons of supplying the amount of water that the [project] will need.' " (*Vineyard*, at pp. 430–431, quoting *Santiago*, supra, 118 Cal.App.3d at p. 829.) Second, "future water sources for a large land use project and the impacts of exploiting those sources are not the type of information that can be deferred for future analysis. An EIR evaluating a planned land use project must assume that all phases of the project will eventually be built and will need water, and must analyze, to the extent reasonably possible, the impacts of providing water to the entire proposed project." (*Vineyard*, at p. 431.) "Third, the future water supplies identified and analyzed must bear a likelihood of actually proving available; speculative sources and unrealistic allocations ('paper water') are insufficient bases for decisionmaking under CEQA. [Citation.] An EIR for a land use project must address the impacts of likely future water sources, and the EIR's discussion must include a reasoned analysis of the circumstances affecting the likelihood of the water's availability. [Citation.]" (*Vineyard*, at p. 432.) "Finally, where, despite a full discussion, it is impossible to confidently determine that anticipated future water sources will be available, CEQA requires some discussion of possible replacement sources or alternatives to use of the anticipated water, and of the environmental consequences of those contingencies. [Citation] …

City-42

The DEIR fails to comply with those four requirements, based on the lack of any detailed or concrete information regarding potential water sources for the Project. The public, and decisonmakers, are not provided sufficient information to determine (1) the pros and cons of supplying the amounts of water needed for the Project from various sources, (2) long term water demands, and potential supplies, (3) the likelihood that the identified water sources will actually be available, and (4) possible replacement or alternative sources if the identified water sources are not available.

Rosedale cannot avoid providing details regarding future water supplies and sources even if there is some uncertainty regarding the future availability of the potential water sources.

Pursuant to the holding in *Vineyard*, and related, cases, the DEIR must have included "a reasoned analysis of the circumstances affecting the likelihood of the water's availability," and "possible replacement sources or alternatives to use of the anticipated water, and of the environmental consequences of those contingencies." (*Vineyard*, 40 Cal.4th at 432.)

City-42

(ii) Water supplies extracted and developed from Project

The DEIR also fails to describe the intended or expected use of water developed and extracted through the Project, including where the water will be used, how it will be used, and how much of the water will be used by different entities for various purposes.

City-43

The DEIR indicates that Figure 2-2 "identifies potential and approximate well locations" on the Project property. (DEIR, p. 2-12.) The DEIR then states "Location of wells on all three Stockdale Properties may change during final design." (Id.)

City-44

The DEIR does not provide specific, detailed information regarding the recovery and pumping of water in connection with the Project. The DEIR does not indicate, for example, whether Project water will go to Irvine, Rosedale, or some third party. The DEIR instead states, under the heading "Recovery Scenarios":

> Rosedale would recover water from the proposed project as needed to meet existing or future commitments under its Conjunctive Use Program. It is expected that banked supplies would be conveyed to IRWD when needed to return water to its program partners and potentially during times when IRWD's imported and/or local supplies are interrupted or curtailed. IRWD's participation in the proposed project recognizes IRWD's need, in the event of an interruptible or short-term water shortage, for additional storage and recovery capacity to provide for improved reliability and redundancy in its supplies.

City-45

That description is vague and incomplete. Rosedale does not explain what "commitments" it might have that would call for the transfer of water recovered from the Project. The DEIR further does not identify Irvine's "program partners," or explain how or why they might receive water from the Program. The omission of such important details regarding the Project does not comply with CEQA requirements, and prevents the DEIR from properly reviewing the impacts of the Project on the environment.

The DEIR also does not indicate how much water will be produced from the Project. The Project Description states that "[r]ecovery facilities would be designed to extract approximately 11,250 AFY at Stockdale West and approximately 7,500 AFY at Stockdale East," and that "a third proximate site of up to 640 acres may have recharge capacities of approximately 52,200 AFY and recovery of approximately 22,500 AFY." (*See also* DEIR, p. 2-10.)

City-46

There is no indication or explanation as to how much water would actually be extracted from the basin on an annual basis, when water would be extracted, and under what

City-47

circumstances. The DEIR does not explain, for example, how much water would have to be first placed in storage before extraction began. The DEIR does not explain how Rosedale will determine how much water to extract each year, or what factors and information will impact or affect that decision. City-47

The DEIR fails to provide information regarding the use of such water by Rosedale or Irvine, the types of uses, the location of the use, and, consequently, the impact of that use on the environment. The DEIR shows that Irvine's service area (at Figure 1-3) is relatively large and encompasses several cities in Orange County. The DEIR does not disclose where within the boundaries of Irvine water made available through the Project will be used, how it will be used, and what impacts such use will have on the environment. City-48

Failure to include these components of the Project in the DEIR, and in particular in the Project Description, constitutes improper "piecemealing," in violation of CEQA. The entire project being proposed for approval must be described in the EIR. A complete project description is necessary to ensure that all of the project's environmental impacts are considered. (*City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, 1450.) In *County of Inyo*, for example, the court found that an EIR failed to described or analyze groundwater exports because the EIR improperly sought to characterize expanding groundwater exports as a separate, ongoing project. (71 Cal.App.3d at 193.)

A lead agency may not split a single large project into small pieces so as to avoid environmental review of the entire project. (*Orinda Association v. Board of Supervisors* (1986) 182 Cal.App.3d 1145, 1171.) Instead, an EIR must examine all components necessary to a project, including those that will have to be approved by another agency. (*Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428.) City-49

(iii) Project objectives

The statement of objectives in an EIR should include the underlying purpose of the project and should be clearly written to guide the selection of alternatives for evaluation in the EIR. (14 Cal. Code Regs. § 15124(b).) Generally, an EIR discloses the requisite analytic route when it provides "sufficient information and analysis to allow the public to discern the basis for the agency's [action]." (*Californians for Alternatives to Toxics v. Department of Food & Agriculture* (2005) 136 Cal.App.4th 1, 13.)

The DEIR's discussion of Project Objectives does not comply with those requirements. (DEIR, p. 2-3.) The Project Objectives are vague, general, and redundant, and contain undefined terms. The four Project Objectives consist initially of two very vague statements regarding "operational flexibility" with regard to Rosedale's existing banking projects. (DEIR, p. 2-3.) The remaining two Project Objectives contain vague, general terms such as "capacities," "redundancy" and "diversification." Rosedale does not define or explain those terms anywhere in the DEIR. City-50

The DEIR, moreover, does not indicate that there are unmet demands for water in Rosedale, or in Irvine. (DEIR, p. 2-3.) The Project Objectives are also confusing because it is not clear whether the Project Objectives apply to both Rosedale and Irvine, or whether certain objectives only relate to one of the districts. City-51

(iv) Other deficiencies in Project Description

The Project Description fails to provide important details about the components, operation and purpose of the Project. The Project Description, for example, does not provide sufficient information about Irvine's intended use of water stored or banked in connection with the Project. There is also very little information in general regarding Irvine's role and responsibilities in connection with the Project. City-52

Further, the DEIR does not sufficiently describe the Project area, including all areas that will be impacted by the Project. The DEIR does not describe or contain sufficient details regarding Irvine, Irvine's use of water from the Project, specific cities and areas within Irvine that will be impacted by the Project, and other areas in the region, and Southern California, that will be impacted by the Project. The DEIR, for example, indicates that MWD will likely be impacted by or involved in the Project, yet the DEIR provides no useful information regarding MWD, its service area, and its water supply.

A project description must include all relevant parts of a project, including reasonably foreseeable future expansion or other activities that are part of the project. (*Laurel Heights Improvement Association*, 47 Cal.3d at 396.) The DEIR violates that requirement by focusing on Rosedale's involvement in the Project, and by not sufficiently describing Irvine's role in and portion of the Project. City-53

The Project Description of the DEIR focuses more on construction and implementation of Project facilities, and the practical operation of Project facilities, at the expense of actual details of the Project banking operations from a water supply standpoint. City-54

The "Project Approvals" section of the Project Description is incomplete and misleading in that it does not disclose that the SWRCB's approval of Rosedale's application to appropriate Kern River water is necessary to develop and utilize one of the primary identified water sources for the Project. (DEIR, pp. 2-24 – 2-25.) The general listing of the SWRCB under the heading "Other approvals required may include the following" is not sufficient or proper under CEQA. (Id.) The DEIR should have instead disclosed and discussed the specific approval required from the SWRCB for full implementation of the Project. City-55

A project description that omits integral components of the project is deficient since it prevents a disclosure and review of the actual impacts of a project. (*Cadiz Land Co. v. Rail Cycle, L.P.* (2000) 83 Cal.App.4th 74, 92, finding an EIR failed to provide a sufficient description of the environmental setting of a project because it failed to "discuss the volume of City-56

water contained in an aquifer or the size of the aquifer," as knowledge of the volume of groundwater that might be affected by the project is "crucial" to determining whether and when the project might deplete groundwater resources; *Santiago County Water District*, 118 Cal.App.3d at 829, finding a project description for a sand and gravel mine inadequate under CEQA for omitting mention and discussion of water pipelines that would serve the project.)

City-56

Similarly, in *San Joaquin Raptor/Wildlife Rescue Center*, the court found that an EIR for a large residential development project was inadequate because it did not disclose the specific location and extent of a riparian habitat adjacent to the project site, inadequately investigated the possibility of wetlands on the site, understated the significance of the project's location adjacent to the San Joaquin River, and failed to discuss a nearby wildlife preserve. (27 Cal.App.4th at 729.) The court found that because the description was deficient, consequently the impact analysis and mitigation findings were legally inadequate. (*Id.*)

City-57

The Project Description in the DEIR is also deficient because Rosedale does not provide required information regarding the "potential third project site" for the Project. Rosedale should have provided more details and explanation regarding the reasons or "triggers" for future development of a third project site. Rosedale should also confirm that it will not develop the third project site without first undertaking additional detailed, proper CEQA review.

City-58

B. Baseline Conditions

The DEIR also fails to comply with CEQA in its description of "baseline" conditions in the Project area, and in areas impacted by the Project.

An EIR must describe the environmental setting for a proposed project, to establish the baseline that a lead agency uses to determine whether project impacts are significant. (14 Cal. Code Regs. § 15125(a).) Specifically, the EIR must describe "the physical environmental conditions in the vicinity of the project." (*Id.*) The description of the physical environmental conditions must include both a local and regional perspective. (*Id.*)

Establishment of the baseline is critical to a meaningful assessment of the environmental impacts of a project, because the significance of environmental impacts cannot be determined without setting the baseline. (*Save Our Peninsula Committee v. Monterey County Board of Supervisors* (2001) 87 Cal.App.4th 99, 119.) The description should place special emphasis on environmental resources that are rare or unique to the region and that would be affected by the project. (14 Cal. Code Regs. § 15125(c); *San Joaquin Raptor/Wildlife Rescue Center*, 27 Cal.App.4th at 722.)

City-59

The DEIR fails to meet these standards. The DEIR either fails to provide any information on certain baseline conditions in the Project area, or only provides a brief, general and incomplete description of baseline conditions.

The DEIR, for example, fails to provide any description of baseline conditions in and around the Kern River. The failure to describe such conditions is glaring, and clearly not in compliance with CEQA, since the DEIR identifies the Kern River as the primary water source for the Project. The Kern River is also the primary source of recharge for groundwater in the Project area. The DEIR nevertheless fails to describe current flow conditions in the Kern River, the environment in and around the river, and the timing and frequency of diversions from the river. Absent such information, the DEIR cannot possibly, properly or completely assess the impact of the Project on the environment, and on local water supplies and sources. City-60

The DEIR also fails to provide any information regarding the nature, extent and yield of the Kern River water potentially "available" for use in the Project. There is absolutely no discussion of the Kern River water rights held by the City and Buena Vista. The DEIR does not disclose how much water is diverted from the Kern River by the City and Buena Vista, and how much of that water and under what circumstances and conditions some of that water might be transferred to Rosedale. City-61

The DEIR also fails to provide a detailed or complete description of baseline conditions, including baseline water conditions, within Rosedale and Irvine. The DEIR, for example, provides very little information regarding water rights held and utilized by Rosedale and Irvine, as well as quantities of water historically and currently used, overall water demands, including municipal demands, and available sources of water for both districts. City-62

The DEIR also fails to disclose the number of wells within Rosedale, including private wells, the location of various wells within Rosedale, and the quantity of water produced by those wells. Absent that information, it is not possible to determine project impacts within Rosedale, and in general. It is also not possible to reasonably determine the impact of the Project on the local environment in connection with existing, baseline, groundwater pumping and use, absent detailed information about current groundwater pumping within Rosedale. City-63

The DEIR also fails to provide specific information regarding quantities of water used within Irvine, the types of uses, the nature and extent of any rights associated with water utilized by Irvine, and the overall demand for water within Irvine. The failure to provide basic, specific information regarding the use of and demand for water within Irvine by itself establishes a CEQA violation. Since the Project is intended to provide a supplemental water supply for Irvine, the DEIR cannot accurately and properly determine the impacts of the Project without information on existing, baseline water supply conditions within Irvine. City-64

The DEIR also fails to sufficiently identify current and historic groundwater conditions in the Project area. The DEIR specifically fails to sufficiently identify and describe current groundwater conditions within Rosedale and in and around Rosedale, in the Project area. The DEIR fails to disclose necessary, required information regarding groundwater levels in the Project area, quantities of water spread, pumped and extracted from the basin by Rosedale, and other entities and individuals within Rosedale. The DEIR only provides general information City-65

without identifying the locations of various water level readings, and variances and differences involving groundwater levels within Project area. City-65

The Project area, moreover, is surrounded by other water banks and water banking projects. The groundwater basin in the Project area has experienced heavy pumping and extraction of water in recent years. The DEIR, however, fails to identify quantities of water pumped by other banking programs and projects in the Project area, or groundwater levels, quantities of water spread, and water quality conditions within other banking programs and projects. The DEIR provides little if any information regarding baseline conditions in areas that will likely be directly impacted by the Project. City-66

The DEIR additionally does not contain specific, detailed information regarding the groundwater aquifer, including the nature and extent of basin overdraft conditions. That lack of information is directly contrary to the holding in *Cadiz Land Co.*, in which the court found that the description of the environmental setting for a large landfill was deficient because the EIR did not quantify the size of the aquifer that underlay the proposed landfill site. (83 Cal.App.4th at 92.) City-67

The DEIR indicates that within the boundaries of Rosedale "about 7,500 acres [are] developed for urban uses." (DEIR, p. S-3.) The DEIR fails to provide any additional information regarding those urban uses. There is no information on the population within that area, or within Rosedale. There is no information regarding the quantity and source of water used to meet demands associated with those "urban uses." City-68

At page S-7, the DEIR states that the No Project Alternative "would forego any environmental benefits to the San Joaquin Valley Groundwater Basin such as correction of overdraft conditions, including those due to groundwater pumping to support irrigated agriculture at the Stockdale East property." That statement is not supported or explained anywhere in the DEIR. There is no further explanation or indication that the Project will alleviate or correct "overdraft conditions." There is also no explanation or discussion of the referenced "overdraft conditions." City-69

The DEIR also fails to accurately describe baseline conditions involving the legal status of the Kern River. As described above, the DEIR fails to disclose that the Kern River is no longer fully appropriated; that Rosedale has filed an application to appropriate the "Kern River floodwaters" and "high-flow Kern River water" generally referred to and described in the DEIR; that until the SWRCB acts on and approves Rosedale's application to appropriate it has no right to such water; and that other entities, including the City, have submitted competing applications to appropriate to the SWRCB, which seek all or some of the same Kern River water Rosedale proposes to utilize in the Project. City-70

Finally, the DEIR's description and characterization of the City is erroneous and misleading. At several places in the DEIR, Rosedale states that Rosedale is located six miles to City-71

the west of the City. (*See* DEIR, pp. 1-1, 2-1, 3.9-8 and 3.10-1.) That statement is not accurate, as the boundaries of the City overlap with Rosedale's boundaries. City-71

Several of the maps used in the DEIR are similarly misleading, as they fail to show the actual geographic boundaries of the City. One of the maps (Figure 1-1) purports to show the location of the City through a small dot on the map to the east of Rosedale. That is highly misleading and deceptive, and further demonstrates that the DEIR fails as an informational document. City-72

C. Project Impacts

An EIR must describe and analyze the significant environmental effects of a project, and discuss ways of mitigating or avoiding those effects. (14 Cal. Code Regs. § 15362.) Among other things, an EIR must identify direct, indirect and long-term environmental effects, and cumulative impacts. (14 Cal. Code Regs. §§ 15126.2(a), 15130.) An EIR must provide public agencies, and the public in general, with detailed information about the effects a proposed project is likely to have on the environment. (Pub. Res. Code §§ 21060.5, 21061; *Environmental Planning and Information Council v. County of El Dorado* (1982) 131 Cal.App.3d 350, 354.)

An EIR must be prepared with a sufficient degree of analysis to provide decision-makers with the information needed to make an intelligent judgment concerning a project's environmental impacts. (14 Cal. Code Regs. §15151; *Napa Citizens for Honest Government. v. Napa County Board of Supervisors* (2001) 91 Cal.App.4th 342, 356.) An EIR should, when looked at as a whole, provide a reasonable, good faith disclosure and analysis of the project's environmental impacts. (*Laurel Heights Improvement Assn.*, 47 Cal.3d at 392.)

In contravention of this authority, Rosedale has not made a good faith effort at full disclosure and discussion of the impacts of the Project. Instead, Rosedale has apparently attempted to obscure and hide the details of various elements and components of the Project, so as to avoid or minimize the discussion and disclosure of various impacts from the Project. City-73

As previously indicated, the omission of basic, required information regarding the Project, and baseline conditions in the Project area, prevents the DEIR from making any meaningful, complete analysis of the impacts of the Project on the local environment, as well as on the Kern River, the City, and the local groundwater basin. City-74

The DEIR consequently fails to review and analyze the impact of the uses of the potential water sources on the environment, other water users, and local water supplies. The DEIR fails to even come close to satisfying CEQA requirements concerning the identification and discussion of the impacts of a large water supply and storage project, as articulated in *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, and related cases. City-75

The DEIR is also deficient because, to the extent it does attempt to review the impacts of the Project on the environment, it dismisses or minimizes a number of potential impacts to the environment without explanation and based on unsupported or unexplained conclusions. That is not appropriate, as a bare conclusion without an explanation of the factual and legal basis is not a sufficient analysis of an environmental impact. (*Laurel Heights Improvement Assn.*, 47 Cal.3d at 404.) The discussion of environmental impacts must instead contain an explanation of the reasoning supporting the EIR's impact findings, and the supporting evidence. (*Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383.) City-76

In addition to the above described CEQA violations in connection with the DEIR, and the Project, the DEIR also fails to properly or sufficiently analyze the impacts of the Project in the following respects.

(i) Kern River impacts

Although the DEIR provides very little detail or meaningful information about the Project, and the components of the Project, the DEIR still reveals that the Project will utilize apparently substantial quantities of Kern River water.

To assess the impacts of a proposed project on the environment, an EIR must examine the changes to the existing environmental conditions that would occur if the project is implemented. (14 Cal. Code Regs. § 15126.2(a); *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 676.)

The DEIR inexplicably fails to provide any analysis, explanation or discussion of the impacts of the Project on the Kern River, including impacts on flows of water in the Kern River, the environment in and around the Kern River, the aquifer underlying the Kern River, and the patterns of diversion and use of water from the River. The section of the DEIR that reviews impacts on water resources (Chapter 3.9) focuses only on impacts on groundwater conditions and supplies within Rosedale. The DEIR does not even acknowledge that the Kern River will be impacted by the Project, let alone review and determine the significance of the Project's impact on the Kern River. City-77

The DEIR therefore does not discuss or analyze the impact of the Project on the quantity and timing of flows in the Kern River. The DEIR does not review Project impacts on the Kern River environment, including plant and animal life in and around the River. The DEIR further does not describe the impacts of the Project on recharge from operation of the river and groundwater supplies in and around the river channel.

Rosedale does not hold any appropriative Kern River rights (nor does Irvine). Rosedale's plan to utilize substantial quantities of Kern River water for a new water banking project will necessarily result in changes, and impacts, in the diversion and use of water from the Kern River. Even if Rosedale is only proposing to use Kern River water purchased from the City and Buena Vista, the Project would still likely result in changes in the timing, place of use, manner of use, City-78

and extent of use of such water. Those changes will necessarily have an impact on the Kern River. City-78

California courts have frequently rejected or invalidated environmental review documents for failing to properly and adequately review the impact of a project on a local water supply or source. (*See Napa Citizens for Honest Government*, 91 Cal.App.4th at 386, rejecting an EIR for failing to provide sufficient information on the effect a project would have on a region's water supply and the need for treatment of wastewater; *County of Amador*, 76 Cal.App.4th at 948, setting aside an EIR for a new water diversion for failing to "adequately assess the project's impacts on fishery resources and lake levels;" *Friends of the Santa Clara River v. Castaic Lake Water Agency* (2002) 95 Cal.App.4th 1373, finding an EIR for the acquisition of supplemental state water pursuant to the Monterey Agreement deficient for failing to completely assess the impacts of the water transfer.) City-79

In *Santiago County Water District*, the court similarly concluded that an EIR did not adequately assess the environmental impact of the delivery of water to a proposed sand and gravel operation. (118 Cal.App.3d at 831.) The court noted that "even if the Water District does have the ability to meet the requirements of the project, the EIR is silent about the effect of that delivery on water service elsewhere in the Water District's jurisdiction." (*Id.*) The court further stated "the conclusion that one of the unavoidable adverse impacts of the project will be the 'increased demand upon water availability from the Santiago County Water District' is only stating the obvious. What is needed is some information about how adverse the adverse impact will be." (*Id.*)

In *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, the court similarly found that an EIR was defective because it did not discuss in sufficient detail the environmental impacts of a pipeline project on the reduction of surface flow in local streams. For the same reasons, the DEIR's failure to discuss the impact of the Project on the Kern River is clearly incomplete and inadequate. City-80

(ii) Transfers of water to Orange County

The DEIR is also fatally flawed and defective because it fails to assess or discuss the impacts of transfers of water, including valuable, necessary high quality Kern River surface water, out of Rosedale, and out of the County, to Irvine.

The impacts of such out of district transfers of valuable and important local water supplies will necessarily have significant impacts on the local environment, including on the Kern River, other local supplies, including groundwater supplies, and other water users. Transfers of Kern River water outside the County would deprive the region of a limited, high quality source of drinking and irrigation water, and negatively impact flows of water in the Kern River, and the environment in and around the River. Transfers of Kern River water out of the County would also deprive the groundwater basin of necessary recharge, which would negatively City-81

impact groundwater levels, the quality of water in the basin, and the supply of water available for consumptive use in the County. City-81

Despite such significant impacts, the EIR is completely devoid of any discussion of the impacts of out of area transfers of Kern River water, or other local water supplies. Again, the section of the DEIR that reviews impacts on water resources, Chapter 3.9, almost exclusively focuses on localized impacts on groundwater resources in the Project area.

The DEIR's failure to disclose and discuss such impacts is particularly glaring and problematic in light of current drought conditions, the depleted water supplies in the region, and the overdrafted local groundwater basin. There is also no review or discussion of replacement water supplies that might be utilized to replace or make up for water lost to Southern California, and no discussion of the impacts associated with the use of such alternate water sources. City-82

The DEIR, as indicated, fails to provide necessary details and information regarding the transfers of local water supplies out of the area, to Irvine. Absent such information, there is no way that the DEIR could have provided a complete or meaningful discussion of the impacts of such out of area transfers, even if Rosedale had intended to explore, rather than obscure, such impacts.

In any case, the lack of any discussion of impacts from out of area water transfers, by itself, establishes that the DEIR is invalid and not in compliance with CEQA requirements.

(iii) Impact of the Project on the City

The DEIR does not provide any meaningful, accurate or comprehensive discussion of the impacts of the Project on the City. The DEIR similarly provides almost no information about "baseline" conditions within the City, as well as the City's baseline water rights. City-83

The City will apparently provide one of the primary water sources to the Project through its transfer of Kern River water to Rosedale pursuant to the 1961 agreement. (Exhibit E) The boundaries of the City overlap the boundaries of Rosedale, and the Project would be located immediately adjacent to the City. The operation of the Project, including the transfer of City supplies for use in the Project, and the apparent significant anticipated pumping and extraction of groundwater as a result of the Project, would necessarily impact the City's water supply, and the City's operation of the nearby 2800 Acre recharge and water banking facility. City-84

The failure to review the impacts of the Project on the City is in direction violation of CEQA requirements. An EIR must consider all impacts of a project on the environment, even if the impacts would be felt by another agency. (*San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713.) City-85

The DEIR was also required to review the impacts of the Project on the City because the City will provide water to Rosedale for the Project. California courts have rejected or City-86

invalidated environmental review documents for failing to properly and adequately review the impact of a water transfer on a local water supply or source. (*See Friends of the Santa Clara River v. Castaic Lake Water Agency* (2002) 95 Cal.App.4th 1373, finding an EIR for the acquisition of supplemental state water pursuant to the Monterey Agreement deficient for failing to completely assess the impacts of the water transfer.)

City-86

The complete failure to review the impacts of the Project on the City renders the entire DEIR void and invalid.

(iv) Impact of the Project on the groundwater basin

The DEIR does attempt to review and discuss the impact of the Project on the local groundwater basin, and groundwater supplies, but the review is incomplete misleading, and not in compliance with CEQA. The DEIR fails to sufficiently discuss the impact of the Project on groundwater supplies, and the groundwater basin underlying Rosedale, and the City.

City-87

In particular, the DEIR does not sufficiently identify and discuss in any detail the impact of the Project on other banking projects and programs in the area, groundwater levels in the vicinity of the Project, and related impacts on the basin and local water supplies as a result of the extraction of water in connection with the Project, and the transfer of water from the Project out of the region.

At Page 3.2-13, the DEIR claims that the Project would reduce "future overdraft conditions in the underlying groundwater basin." The DEIR does not provide any details regarding the "overdraft conditions" in the basin, and consequently it is not possible to determine how, and to what extent, the Project would actually impact or affect "overdraft conditions."

City-88

The claim that the Project "does not require a new water supply" (DEIR, p. 3.14-6.) does not make sense, and is contradicted by the repeated reference to and discussion of water supplies that will be used in the Project.

City-89

The DEIR only reviews very localized impacts on groundwater resources, within Rosedale and the Project area, and in wells immediately adjacent to the Project site. The DEIR does not review longer term impacts of the Project on the groundwater basin, or review the impact of the Project on groundwater levels and quantities farther removed from the Project site.

City-90

The DEIR's review of Project impacts on groundwater is flawed and incomplete in part because the DEIR does not sufficiently describe the local groundwater basin or consider other uses of and burdens on the basin. The DEIR, for example, does not identify or discuss the entities, besides Rosedale, that pump water from the basin, describe the quantities and timing of groundwater extractions from the basin, or discuss the impacts of the pumping of other parties on the basin in connection with the Project.

City-91

The DEIR also does not assess the actual impact of increased groundwater banking and pumping in the area by other entities. The DEIR only provides very general, vague statements and information about the groundwater basin, other spreading projects, and the extraction of water from the basin. City-92

The DEIR's reliance on historical groundwater and pumping data additionally is not reasonable in the present situation. In light of the long term drought, rapidly increasing pumping, and the proliferation of new banking projects and facilities, reliance on past, historical data is not helpful and does not accurately assess or disclose the impacts of the Project. City-93

In light of the limited information regarding groundwater conditions and other baseline conditions, and the other deficiencies and flaws in the DEIR, the conclusion that the Project will have a "less than significant" impact on the environment is not convincing or credible, and is not in compliance with CEQA. City-94

(v) Other impacts

Biological Resources. Many of the areas around Rosedale, including the City's 2800 Acre Recharge Area, have been designated or proposed for designation as "critical habitat" for the Buena Vista Lake Shrew. (A copy of the Final Rule designating critical habitat for the Buena Vista Lake Shrew is attached hereto as Exhibit J.) Rosedale should have disclosed that information in the Biological Resources section of the DEIR, starting at page 3.4-1, and the DEIR should have considered and reviewed the impact of the Project on that species and its critical habitat areas. The DEIR should have also determined and discussed whether the Buena Vista Lake Shrew could be found on the Project site, and what efforts, if any, were undertaken by Rosedale to determine if the Shrew can be found on Project property currently. City-95

GHG Emissions. The discussion of project impacts on air quality and greenhouse gas ("GHG") emissions in Chapters 3.3 and 3.7, and at page 4-10, is incomplete and does not comply with CEQA.

The DEIR indicates that Project recovery wells could generate up to approximately 6,187,500 kwh/year at Stockdale West and 4,125,000kwh/year at Stockdale East. (DEIR, p. 2-23.) The DEIR does not consider or review the impact that such new pumping would have on the generation of GHG at electric-power generating plants as a result of those increased energy demands. The DEIR additionally fails to quantity or assess the impacts of increased GHG emissions from municipal use of water from the Project within Irvine. City-96

The DEIR further does not take into account or attempt to assess increased energy consumption and generation, and related increases in GHG emissions, caused by increased pumping and pumping from lower groundwater levels by nearby wells, including wells within neighboring water banking projects, resulting from the Project and the increased demand on an already overdrafted basin as a result of the Project. City-97

D. Cumulative Impacts

An EIR must evaluate significant cumulative impacts, based on an assessment of the project's incremental effects "viewed in connection with the effects of past projects, the effect of other current projects, and the effects of probable future projects." (14 Cal. Code Regs. §§ 15130(a), 15065(a)(3).)

The EIR's discussion of the cumulative impacts of the Project, in connection with other, similar projects in the region, is inadequate and incomplete. City-98

Although the DEIR identifies other local water banking projects, the DEIR provides no other information regarding other banking projects in and around the Project area. The DEIR does not identify the sources of water for the other banking Projects, quantities of water recharged and later pumped, the extent and rate of pumping, quantities of water pumped, and anticipated and planned changes in the operations of the banking projects.

Absent such information, it is not possible or feasible for the DEIR to properly identify and discuss the cumulative impact of the Project. The DEIR does not disclose for example, whether other banking projects are using, plan on using, or plan on changing their use of, the same water supplies proposed for use in the Project. The DEIR therefore does not and cannot properly determine the cumulative impacts of the Project on local water supplies. City-99

In addition, without more detailed, specific information regarding the operation of other banking projects, including, in particular, adjacent and nearby banking projects, the DEIR does not and cannot accurately or thoroughly assess the cumulative impact of substantial increased pumping in the region as a result of the Project. If other nearby banking projects, for example, were planning on drilling more wells or increasing their pumping and use of water, the cumulative impact of the Project and existing projects would be much different than as described in the DEIR. City-100

The DEIR also fails to provide any discussion or analysis of the cumulative impact of the Project on the Kern River, and other local water supplies and sources. Once again, Rosedale cannot provide a proper or sufficient analysis of the cumulative impacts of the Project on the Kern River, and other local water supplies, because the DEIR fails to provide basic, essential information on baseline conditions in the Kern River, and the impact of the Project on the Kern River. City-101

In *Citizens to Preserve the Ojai v. County of Ventura* (1985) 176 Cal.App.3d 421, 431, the court stated that "it is vitally important that an EIR avoid minimizing the cumulative impacts. Rather, it must reflect a conscientious effort to provide public agencies and the general public with adequate and relevant detailed information about them." The court therein further stated: "A cumulative impact analysis which understates information concerning the severity and significance of cumulative impacts impedes meaningful public discussion and skews the decisionmaker's perspective concerning the environmental consequences of the project, the City-102

necessity for mitigation measures, and the appropriateness of project approval." (*Id.*; *see also Whitman v. Board of Supervisors*, (1979) 88 Cal.App.3d 397, 408, in which the court found that the cumulative impact section of the EIR did not comply with the statutory authority because it "lacks even a minimal degree of specificity or detail.") City-102

E. Potential Areas of Controversy

An EIR must identify and summarize "[a]reas of controversy known to the Lead Agency including issues raised by agencies and the public." (14 Cal. Code Regs. § 15123(b)(2).)

The Introduction section of the DEIR indicates that various "concerns" were raised during the public comment period and scoping session for the Project. (DEIR, p. S-7.) The DEIR further claims that those concerns "have been addressed in Chapters 3 and 4 of this Draft EIR." (Id.) City-103

The DEIR, however, does not sufficiently identify and summarize all of the "areas of controversy" regarding the Project, including the issues, concerns and objections raised by the City in its comments to the NOP for the Project. Chapters 4 and 5 of the DEIR, in fact, do not address the areas of controversy raised by the City in its comments to the NOP. Chapter 4 of the DEIR addresses purported Project impacts, and Chapter 5 addresses cumulative impacts and mitigation measures. Those chapters do not identify, articulate or "summarize" the City's concerns, nor do the chapters directly discuss, analyze or respond to the City's concerns. City-104

Even if Rosedale disagrees with the City's objections and complaints about the Project, the environmental documentation must still summarize the main points of disagreement between the City and Rosedale. (14 Cal. Code Regs. § 15151; *Browning-Ferris Indus. v. City Council* (1986) 181 Cal.App.3d 852.) An agency may choose among differing opinions or conclusions as long as the EIR identifies the competing arguments correctly and in a responsive manner. (*Id.*) Rosedale has violated CEQA by failing to sufficiently describing and summarizing the City's concerns in the DEIR. City-105

The DEIR additionally fails to identify and discuss a significant area of controversy involving competing claims to, and disputes over, rights to the "floodwaters" historically released from Isabella Reservoir, based on competing applications to appropriate such water filed with the SWRCB. City-106

F. Mitigation Measures

Pursuant to Public Resources Code Section 21002.1, "Each public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so." An EIR must include a detailed analysis of mitigation measures that will minimize the significant effects of a proposed project on the environment. (Pub. Res. Code § 21100(b)(3).) An EIR specifically must identify and describe "[m]itigation City-107

measures proposed to minimize significant effects on the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy." (*Id.*)

The DEIR is deficient because it does not identify, propose or discuss potential measures or programs to mitigate a number of significant environmental impacts that would result from the Project. The DEIR, most significantly, does not identify or propose measures to mitigate or replace the reduced flows of water in the Kern River, and the transfer of local water supplies to Irvine.

City-107

Rosedale does propose mitigation measures to address and alleviate the Project's negative impacts on "groundwater resources," but the proposed measure lacks sufficient details and explanation, as well as measures, which will actually and practically mitigate negative impacts on groundwater resources.

In the cumulative impact section of the DEIR, Rosedale states that it will implement the "Long Term Operations Plan" ("Plan") to provide "a framework under which Rosedale would monitor for and identify project-related adverse impacts to neighboring entities." (DEIR, p. 4-15.) Rosedale further states that the Plan "designates specific measures to be employed to 'prevent, eliminate or mitigate significant adverse impacts' resulting from project operation, including effects to neighboring wells." (Id.)

A review of the "primary components" of the Plan, as well as the actual Plan, reveals that the Plan either lacks necessary details, or will not actually address or alleviate adverse groundwater impacts and conditions resulting from the Project.

City-108

Most importantly, the primary mitigation measure in the Plan involves Rosedale providing compensation to lower the "well pump" in wells negatively impacted by the Project. The payment of compensation to allow a neighboring well owner to further deplete an already overdrafted, impacted basin will only exacerbate and increase, and not mitigate, adverse Project impacts.

Rosedale has failed to propose a mitigation measure which would actually address and alleviate negative Project impacts, such as a reduction in pumping in connection with the Project when neighboring wells and water levels are negatively impacted. Rosedale also fails to propose even less involved mitigation measures, such as a temporary interruption in pumping, a reduction in the number of Project wells used to extract water, reduced pumping rates, and increased recharge, or conjunctive use measures.

The Plan, moreover, would only provide compensation as a mitigation measure for "Agricultural Wells." The Plan provides for even more problematic mitigation measures for "Domestic Wells." Rosedale only proposes to mitigate adverse Project impacts on "Domestic Wells" if production from such a well "ceases or is likely to cease." Rosedale fails to provide any credible explanation for its failure to provide mitigation measures for negative impacts on

City-109

domestic wells that fall short of a complete inability to utilize the pump. The mitigation measure for domestic wells is clearly insufficient and does not comply with CEQA requirements. City-109

Following a complete cessation of production from a Domestic Well, Rosedale also proposes proving a connection to "the nearest water service provider," or the drilling of a new well. It is not reasonable, or understandable, that Rosedale would propose, following a dramatic decline in groundwater levels, to further exacerbate negative impacts on water supplies by increasing domestic water service to a new customer, or further burdening the groundwater basin by drilling a new well. City-110

Rosedale additionally does not explain how a nearby "water service provider" would have sufficient supplies to serve a new customer, or how the provider could legally or practically provide service to the new customer. The City, for example, would be a potential nearby water service provider, but City ordinances prevent the City from serving customers outside of City limits.

G. Alternatives

An EIR must "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." (14 Cal. Code Regs. § 15126.6(a).) It must contain "sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project." (14 Cal. Code Regs. § 15126.6(d).)

An EIR must "describe a range of reasonable alternatives to the project or to the location of the project, which could feasibly attain the basic objectives of the project and evaluate the comparative merits of the alternatives." (*San Joaquin Valley Raptor/Wildlife Rescue Center*, 27 Cal.App.4th at 735.) Even if a project proponent has rejected various alternatives, an EIR must explain why each suggested alternative either does not satisfy the goals of the proposed project, does not offer substantial environmental advantages, or cannot be accomplished." (Id., at 737.) City-111

The discussion of alternatives in the DEIR is highly flawed and inadequate, primarily because the stated Project Objectives are vague, incomplete and self-serving. As previously indicated, when stripped of its vague, generic conclusions, the Project Objectives indicate that Rosedale is undertaking the Project to provide "operational flexibility" for its existing "programs and facilities," and Irvine is undertaking the Project to take advantage of "recharge and recovery capacity" in Kern County and to obtain a supplemental water supply. (DEIR, p. 2-3.)

The discussion of alternatives available to Rosedale only considers slightly alternative variations on different versions of a water banking project, consisting of (1) the same project at a different location within Rosedale, and (2) the use of injection wells. The DEIR does not consider any other alternatives for Rosedale that might improve its operational flexibility. City-112

The DEIR is deficient, and flawed, for not considering other viable, practical alternatives available to Rosedale. Rosedale fails to consider other water supplies and sources, including conservation, use of recycled water, or purchases and transfers of water from sources other than the Kern River. Rosedale also fails to consider other alternatives which could achieve "flexibility," including use of other existing banking facilities, such as the Pioneer Project or Kern Water Bank, expansion of existing Rosedale banking projects, changes in the management and operation of its existing banking projects, water transfers and exchanges with local water districts and purveyors, restrictions on groundwater pumping within Rosedale, and fallowing of fields. City-112

The alternatives analysis is also deficient because Rosedale fails to consider any alternative to out of County sales of local water to Irvine. Rosedale should have at least considered alternatives to the Project involving local districts, instead of an Orange County urban water district. City-113

The DEIR separately considers alternatives for Irvine, consisting of (1) water storage facilities in Orange County, (2) conservation, and (3) recycled water. The discussion of these alternatives is similarly incomplete and not in compliance with CEQA. The DEIR does not provide sufficient explanation for the rejection of these alternatives, and fails to consider other reasonable, feasible alternatives. City-114

The DEIR improperly rejects alternate storage and supply options, for example, simply because it states that it is "not partnering with individual retail water agencies to develop groundwater banking programs at this time." (DEIR, p. 6-5.) The DEIR fails to explain why Irvine is not partnering with other agencies at this time, or why that would not be a viable alternative. The DEIR does not identify any impediment to Irvine changing its position or policy in that regard. The DEIR also fails to explain why Irvine elected to develop a groundwater banking program with Rosedale, as opposed to any other agency. The DEIR also fails to provide a valid excuse or justification for rejection of any alternatives involving storage or supply projects with MWD. City-115

The DEIR also fails to provide a valid explanation for the rejection of the alternatives involving conservation and recycled water. The discussion of these alternatives fails to explain how much water these alternatives could produce. This discussion also reveals and highlights one of the major flaws in the DEIR – the DEIR does not explain how much of a supplemental water supply Irvine needs. Since Irvine has not identified an amount of water it needs, it is of course very easy for Irvine to reject alternate supplies. City-116

The City further points out that Irvine's claim that conservation cannot produce enough water to meet the objectives of the Program lacks credibility in light of the recent declaration by the Governor of the State of California calling for all water users in the state to reduce water consumption by 25%. City-117

The DEIR also fails to mention or consider a number of other potential, viable alternatives for Irvine, including exchanges and transfers, acquisition of additional supplies from MWD or other member agencies, transfers and exchanges with other entities outside of MWD, desalination, increased groundwater pumping, and other operational changes. City-118

It certainly appears possible, and reasonable, that a combination of additional recycled water supplies, water conservation, more efficient irrigation methods, operational changes, and additional alternate water supplies would serve as a complete, viable and environmentally superior alternative to the Project for both Rosedale and Irvine. The DEIR's failure to even consider such alternatives constitutes a direct and clear violation of CEQA. (*See e.g. Laurel Heights Improvement Assn.*, 47 Cal.3d at 403, in which the court stated that an EIR was inadequate because the consideration of alternatives was "cursory at best.") City-119

In *Vineyard Area Citizens for Responsible Growth*, the court stated that when "it is impossible to confidently determine that anticipated future water sources will be available, CEQA requires some discussion of possible replacement sources or alternatives to use of the anticipated water, and of the environmental consequences of those contingencies." (40 Cal.4th at 432; *see also Napa Citizens for Honest Government*, 91 Cal.App.4th 342, holding that an EIR's discussion of possible alternative water sources did not comply with CEQA requirements because the EIR cannot simply label the possibility that other water sources will not materialize as "speculative" and decline to address such water sources.) City-120

Finally, an EIR must contain a discussion and evaluation of the "no project" alternative. (14 Cal. Code Regs. § 15126.6(e).) The CEQA Guidelines explain that "[t]he purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." (14 Cal. Code Regs. § 15126.6(e)(1).) Among other things, the EIR must discuss "what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services." (14 Cal. Code Regs. § 15126.6(e)(2).) The no project alternative is a fact based forecast of the environmental effects of maintaining the status quo. (*Planning and Conservation League*, 180 Cal.App.4th at 247.) City-121

Rosedale failed to comply with this authority, and fails to properly consider the no project alternative. It is not surprising that Rosedale rejects the no project alternative because the goals of the project are all self-serving, and tied to the Project. An actual, reasonable consideration of the no project alternative would have demonstrated that, without the Project, Irvine would not have a supplemental, back up water supply, and Rosedale would not have "operational flexibility." Neither of those results appears too problematic, particularly in comparison to the actual adverse impacts that would result from the Project, including the significant adverse impacts on the Kern River, the groundwater basin, the City and local water supplies.

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3. CONCLUSION

Based on the City's significant and serious concerns with the Project, and with the EIR, the City urges Rosedale, and Irvine, to comply with applicable California law and not implement or carry out the Project. In the alternative, if Rosedale or Irvine attempt to continue with the Project, they must prepare a new, more comprehensive and complete EIR which complies with CEQA requirements.

City-122

We thank you for your consideration of these comments. Please let us know if you have any questions with regard to the City's comments and the matters stated herein.

Sincerely,

Colin L. Pearce
for DUANE MORRIS LLP

cc: Art Chianello, Water Resources Manager, City of Bakersfield
Virginia Gennaro, City Attorney, City of Bakersfield

Enclosures

EXHIBIT A

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October 23, 2013

VIA EMAIL

Eric Averett
General Manager
Rosedale-Rio Bravo Water Storage District
P.O. Box 20820
Bakersfield, CA 93390-0820

Re: City of Bakersfield's Comments to Notice of Preparation of an Environmental Impact Report for Stockdale Integrated Banking Project.

Dear Mr. Averett:

On behalf of the City of Bakersfield ("City"), we submit the following comments to the Notice of Preparation ("NOP") of an Environmental Impact Report ("EIR") for Stockdale Integrated Banking Project" ("Project") issued by the Rosedale-Rio Bravo Water Storage District ("Rosedale") on September 24, 2013.

City NOP-1

The City generally supports the goals and purposes of the Project, as the City supports Rosedale's efforts to increase its "operational flexibility" and to otherwise efficiently and effectively manage its use of local water resources. The City still has a number of concerns with regard to the Project, the NOP, and the potential scope and contents of the EIR.

The City is particularly concerned that the Project will involve the transfer or sale of local water supplies, including the waters of the Kern River, out of Kern County to the Irvine Ranch Water District ("Irvine").

City NOP-2

As indicated in the NOP, Irvine is a California Water District that provides a water supply to municipal and industrial customers within an 115,531 acre service area in Orange County, California. The NOP indicates that one of the primary purposes and goals of the Project is to increase Irvine's water supply. In particular, one of the "Project Objectives" is to "develop"

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Irvine's "groundwater recharge, storage and recovery capacity" to provide "increased water supply reliability" for Irvine's "customers." (NOP, p. A-2.) The Project specifically would allow Irvine to maintain and utilize up to 88,000 acre feet of water in storage in Kern County "for its own use." (Id.)

The NOP further states that the Project "would enhance water supply reliability for [Irvine] by providing contingency storage to augment supplies during dry-year periods when other supply sources may be limited or unavailable." (NOP, p. A-2.) The NOP then states that the Project would "augment" Irvine's "contingency storage," allowing it to achieve its storage goals to provide the desired amount of reliability for its water supply portfolio." (Id.)

Sales and transfers of local water supplies out of the county are directly contrary to the policies and interests of the City. The City has a long standing policy, most recently confirmed in 2001, that Kern River water shall not be utilized outside the boundaries of the San Joaquin Valley Portion of Kern County.

The City is concerned that the Project would violate that policy. Development of a water supply for Irvine within Kern County would seem to necessarily and logically involve the importation or transfer of local water supplies out of the County to Orange County. The NOP, moreover, confirms that the Project could involve the storage and eventual transfer of Kern River water out of the County to Irvine.

City NOP-2

The NOP states that water supplies used for recharge under the Project "would be secured and acquired by Rosedale and [Irvine] from various sources, including federal, state and local suppliers." (NOP, p. A-4.) The NOP further states: "Specifically water supply sources could include, but are not limited to, the State Water Project (SWP), **the Kern River**, and Central Valley Project (CVP)." (Id., emphasis added.)

The City believes it is highly questionable and suspect that Rosedale would propose to implement a project which involves the transfer of local water supplies, including Kern River supplies, to "out of county" entities, specifically to a large Southern California urban water district, at a time when the local region is suffering through a critical drought, local water supplies, including the Kern River, are drastically depleted, and groundwater levels are rapidly declining. The City is concerned that the "out-of-county" water sales or transfers proposed through the Project could cause substantial harm to the local environment, the local groundwater basin, the City's water resources and supplies, the Kern River, and the water resources of the entire southern San Joaquin Valley.

City NOP-3

The City is additionally concerned about the Project, and the potential impacts of the Project, because the boundaries of Rosedale overlap with the boundaries of the City. Rosedale and the City spread and extract water from a shared groundwater basin. The City directly and indirectly provides water for individuals living within the overlapping City and Rosedale boundaries, and the City's Kern River water supply indirectly benefits landowners within the

City NOP-4

remaining portion of Rosedale. Accordingly, the EIR for the Project should accurately, honestly and completely review the wide ranging potential impacts of the Project on the City, the environment in and around the City, and the City's water supply. The EIR should also completely and comprehensively review the impact of the proposed transfer of local water supplies, including Kern River water, out of the area, to Southern California.

City NOP-4

The City has the following additional comments, questions, and concerns regarding the NOP and the Project. These comments do not constitute or represent all of the City's objections to and concerns with the Project, or to the adequacy of Rosedale's, or Irvine's, compliance with CEQA. The City reserves the right to supplement these comments, in the future, and the City reserves the right to submit substantive objections to the Project.

The "Project Description" in the NOP is deficient, as it is incomplete, vague and lacking in critical details about the Project. The Project Description fails to provide important details about the physical features of the Project and the infrastructure necessary for and related to the Project. The Project Description also lacks required information about Irvine's intended use of water stored or banked in connection with the Project.

City NOP-5

The NOP also uses vague, general phrases to represent the objectives and goals of the Project. The NOP states, for example, that the Project will "integrate" Project facilities with existing Rosedale facilities, and will "coordinate" Project operations "to provide for maximum operational flexibility between the various programs and facilities." (NOP, p. A-2.) The NOP further states that the Project will "provide operating flexibility for Rosedale's existing and future programs." (Id.) The NOP, however, does not provide further description or definition regarding the phrases "integrate," "coordinate," and "operational flexibility." The NOP does not actually describe how the Project will achieve these goals, or how the Project will actually function in connection, or "coordination," with Rosedale's existing projects and operations. The NOP therefore does not sufficiently summarize or state the actual goals and objectives of the Project.

City NOP-6

An NOP must contain "sufficient information describing the project and the potential environmental effects to enable the responsible agencies to make a meaningful response." (14 Cal. Code Regs. § 15082(a)(1).) Without a more specific and detailed description of the Project's objectives and goals, the City cannot make a meaningful response to the NOP.

City NOP-7

The City questions why Rosedale, and not Irvine, is designated as the Lead Agency for the Project. The primary goal of the Project, according to the NOP, is to create or provide a water supply for Irvine and its customers. Although the Project would be located within the boundaries of Rosedale, the Project appears to only provide secondary, ancillary benefits to Rosedale. As indicated, Rosedale only refers to vague, general benefits for the Project in connection with the goals and purposes of the Project, such as increasing operational "flexibility." It does not appear, however, that Rosedale, will actually obtain or utilize a new or increased water supply in connection with the Project.

City NOP-8

Since the Project is a water supply project for Irvine, Irvine should be lead agency for CEQA purposes. The fact that the Project is located within Rosedale does not preclude Irvine from acting as lead agency. (14 Cal. Code Regs. § 15051(a).) Irvine would appear to have "principal responsibility" for implementing the Project, since it will acquire and store water for its later use in connection with the Project. In contrast, Rosedale would appear only to have a secondary role as the operator of the Project facilities.

City NOP-8

The description of "Water Supplies" in the NOP is deficient. The NOP indicates that water used for recharge in the Project would be secured and acquired from "various sources, including federal, state and local suppliers." (NOP, p. A-4.) The NOP later states that water sources for the Project "could" include the State Water Project, the Kern River and the Central Valley Project.

Instead of providing important and necessary information about the source of water to be used in the Project, as required under CEQA, the NOP simply claims that water could come from any potential source, under any potential scenario or circumstances. That section clearly does not present "sufficient information describing the project and the potential environmental effects to enable the responsible agencies to make a meaningful response."(14 Cal. Code Regs. § 15082(a)(1).)

It is irresponsible, and not in compliance with CEQA, for the NOP to indicate that the Project will use each and every potential available source of water, without limitation or consideration of the practical or legal consequences and impacts. The NOP should provide more specific information regarding water sources so that the EIR can properly and sufficiently analyze the impacts of the project on water supplies proposed for use in the Project.

City NOP-9

The NOP does not indicate that the EIR will examine the impacts of the Project on other entities, such as the City, that may currently use some of the water proposed for use in the Project. The NOP further does not identify or describe the current use of the water which would be utilized in the Project, and does not describe or predict how, when and to what extent the water will be available for use in the Project.

City NOP-10

An EIR must consider all impacts of a project on the environment, even if the impacts would be felt by another agency. (*San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713.) The NOP should therefore indicate that the EIR will assess the impact of the Project on the City, other water users in the region, and the Kern River.

The EIR should review the impacts of the Project on other water supply and banking projects in the area, including banking and recharge projects operated by the City, such as the Kern River channel and the 2800 Acre recharge facility. The California Supreme Court has recognized that "the future water sources for a large land use project and the impacts of exploiting those sources are not the type of information that can be deferred for future analysis."

City NOP-11

(*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 431.)

City NOP-11

The NOP also does not provide sufficient or detailed information regarding potential "conveyance facilities" for the Project. Such facilities should be considered part of the Project, and the EIR must review and analyze impacts on the environment associated with the construction and use of such conveyance facilities.

City NOP-12

Finally, the NOP does not reflect or mention any consideration of alternatives to the project, including the "no project" alternative. The NOP does not indicate that Rosedale and Irvine will consider conservation, additional sources of water, alternate storage locations, or other alternatives to the Project.

City NOP-13

The statements and comments in this letter constitute only the City's comments to the NOP. The City reserves the right to comment on and raise appropriate objections and challenges to the Project, the EIR which will be prepared in connection with the Project, and any other efforts or approvals related to the Project.

City NOP-14

We thank you for consideration of these comments. Please let us know if you have any questions in regards to these comments.

Sincerely,

Colin L. Pearce (JLM)

Colin L. Pearce
for DUANE MORRIS LLP

CLP:jlm

cc: Art Chianello, City of Bakersfield

EXHIBIT B

Executive Department
State of California

EXECUTIVE ORDER B-29-15

WHEREAS on January 17, 2014, I proclaimed a State of Emergency to exist throughout the State of California due to severe drought conditions; and

WHEREAS on April 25, 2014, I proclaimed a Continued State of Emergency to exist throughout the State of California due to the ongoing drought; and

WHEREAS California's water supplies continue to be severely depleted despite a limited amount of rain and snowfall this winter, with record low snowpack in the Sierra Nevada mountains, decreased water levels in most of California's reservoirs, reduced flows in the state's rivers and shrinking supplies in underground water basins; and

WHEREAS the severe drought conditions continue to present urgent challenges including: drinking water shortages in communities across the state, diminished water for agricultural production, degraded habitat for many fish and wildlife species, increased wildfire risk, and the threat of saltwater contamination to fresh water supplies in the Sacramento-San Joaquin Bay Delta; and

WHEREAS a distinct possibility exists that the current drought will stretch into a fifth straight year in 2016 and beyond; and

WHEREAS new expedited actions are needed to reduce the harmful impacts from water shortages and other impacts of the drought; and

WHEREAS the magnitude of the severe drought conditions continues to present threats beyond the control of the services, personnel, equipment, and facilities of any single local government and require the combined forces of a mutual aid region or regions to combat; and

WHEREAS under the provisions of section 8558(b) of the Government Code, I find that conditions of extreme peril to the safety of persons and property continue to exist in California due to water shortage and drought conditions with which local authority is unable to cope; and

WHEREAS under the provisions of section 8571 of the California Government Code, I find that strict compliance with various statutes and regulations specified in this order would prevent, hinder, or delay the mitigation of the effects of the drought.

NOW, THEREFORE, I, EDMUND G. BROWN JR., Governor of the State of California, in accordance with the authority vested in me by the Constitution and statutes of the State of California, in particular Government Code sections 8567 and 8571 of the California Government Code, do hereby issue this Executive Order, effective immediately.

IT IS HEREBY ORDERED THAT:

1. The orders and provisions contained in my January 17, 2014 Proclamation, my April 25, 2014 Proclamation, and Executive Orders B-26-14 and B-28-14 remain in full force and effect except as modified herein.

SAVE WATER

2. The State Water Resources Control Board (Water Board) shall impose restrictions to achieve a statewide 25% reduction in potable urban water usage through February 28, 2016. These restrictions will require water suppliers to California's cities and towns to reduce usage as compared to the amount used in 2013. These restrictions should consider the relative per capita water usage of each water suppliers' service area, and require that those areas with high per capita use achieve proportionally greater reductions than those with low use. The California Public Utilities Commission is requested to take similar action with respect to investor-owned utilities providing water services.

3. The Department of Water Resources (the Department) shall lead a statewide initiative, in partnership with local agencies, to collectively replace 50 million square feet of lawns and ornamental turf with drought tolerant landscapes. The Department shall provide funding to allow for lawn replacement programs in underserved communities, which will complement local programs already underway across the state.

4. The California Energy Commission, jointly with the Department and the Water Board, shall implement a time-limited statewide appliance rebate program to provide monetary incentives for the replacement of inefficient household devices.

5. The Water Board shall impose restrictions to require that commercial, industrial, and institutional properties, such as campuses, golf courses, and cemeteries, immediately implement water efficiency measures to reduce potable water usage in an amount consistent with the reduction targets mandated by Directive 2 of this Executive Order.

6. The Water Board shall prohibit irrigation with potable water of ornamental turf on public street medians.

7. The Water Board shall prohibit irrigation with potable water outside of newly constructed homes and buildings that is not delivered by drip or microspray systems.

8. The Water Board shall direct urban water suppliers to develop rate structures and other pricing mechanisms, including but not limited to surcharges, fees, and penalties, to maximize water conservation consistent with statewide water restrictions. The Water Board is directed to adopt emergency regulations, as it deems necessary, pursuant to Water Code section 1058.5 to implement this directive. The Water Board is further directed to work with state agencies and water suppliers to identify mechanisms that would encourage and facilitate the adoption of rate structures and other pricing mechanisms that promote water conservation. The California Public Utilities Commission is requested to take similar action with respect to investor-owned utilities providing water services.

INCREASE ENFORCEMENT AGAINST WATER WASTE

9. The Water Board shall require urban water suppliers to provide monthly information on water usage, conservation, and enforcement on a permanent basis.

10. The Water Board shall require frequent reporting of water diversion and use by water right holders, conduct inspections to determine whether illegal diversions or wasteful and unreasonable use of water are occurring, and bring enforcement actions against illegal diverters and those engaging in the wasteful and unreasonable use of water. Pursuant to Government Code sections 8570 and 8627, the Water Board is granted authority to inspect property or diversion facilities to ascertain compliance with water rights laws and regulations where there is cause to believe such laws and regulations have been violated. When access is not granted by a property owner, the Water Board may obtain an inspection warrant pursuant to the procedures set forth in Title 13 (commencing with section 1822.50) of Part 3 of the Code of Civil Procedure for the purposes of conducting an inspection pursuant to this directive.

11. The Department shall update the State Model Water Efficient Landscape Ordinance through expedited regulation. This updated Ordinance shall increase water efficiency standards for new and existing landscapes through more efficient irrigation systems, greywater usage, onsite storm water capture, and by limiting the portion of landscapes that can be covered in turf. It will also require reporting on the implementation and enforcement of local ordinances, with required reports due by December 31, 2015. The Department shall provide information on local compliance to the Water Board, which shall consider adopting regulations or taking appropriate enforcement actions to promote compliance. The Department shall provide technical assistance and give priority in grant funding to public agencies for actions necessary to comply with local ordinances.

12. Agricultural water suppliers that supply water to more than 25,000 acres shall include in their required 2015 Agricultural Water Management Plans a detailed drought management plan that describes the actions and measures the supplier will take to manage water demand during drought. The Department shall require those plans to include quantification of water supplies and demands for 2013, 2014, and 2015 to the extent data is available. The Department will provide technical assistance to water suppliers in preparing the plans.

13. Agricultural water suppliers that supply water to 10,000 to 25,000 acres of irrigated lands shall develop Agricultural Water Management Plans and submit the plans to the Department by July 1, 2016. These plans shall include a detailed drought management plan and quantification of water supplies and demands in 2013, 2014, and 2015, to the extent that data is available. The Department shall give priority in grant funding to agricultural water suppliers that supply water to 10,000 to 25,000 acres of land for development and implementation of Agricultural Water Management Plans.

14. The Department shall report to Water Board on the status of the Agricultural Water Management Plan submittals within one month of receipt of those reports.

15. Local water agencies in high and medium priority groundwater basins shall immediately implement all requirements of the California Statewide Groundwater Elevation Monitoring Program pursuant to Water Code section 10933. The Department shall refer noncompliant local water agencies within high and medium priority groundwater basins to the Water Board by December 31, 2015, which shall consider adopting regulations or taking appropriate enforcement to promote compliance.

16. The California Energy Commission shall adopt emergency regulations establishing standards that improve the efficiency of water appliances, including toilets, urinals, and faucets available for sale and installation in new and existing buildings.

INVEST IN NEW TECHNOLOGIES

17. The California Energy Commission, jointly with the Department and the Water Board, shall implement a Water Energy Technology (WET) program to deploy innovative water management technologies for businesses, residents, industries, and agriculture. This program will achieve water and energy savings and greenhouse gas reductions by accelerating use of cutting-edge technologies such as renewable energy-powered desalination, integrated on-site reuse systems, water-use monitoring software, irrigation system timing and precision technology, and on-farm precision technology.

STREAMLINE GOVERNMENT RESPONSE

18. The Office of Emergency Services and the Department of Housing and Community Development shall work jointly with counties to provide temporary assistance for persons moving from housing units due to a lack of potable water who are served by a private well or water utility with less than 15 connections, and where all reasonable attempts to find a potable water source have been exhausted.

19. State permitting agencies shall prioritize review and approval of water infrastructure projects and programs that increase local water supplies, including water recycling facilities, reservoir improvement projects, surface water treatment plants, desalination plants, stormwater capture, and greywater systems. Agencies shall report to the Governor's Office on applications that have been pending for longer than 90 days.

20. The Department shall take actions required to plan and, if necessary, implement Emergency Drought Salinity Barriers in coordination and consultation with the Water Board and the Department of Fish and Wildlife at locations within the Sacramento - San Joaquin delta estuary. These barriers will be designed to conserve water for use later in the year to meet state and federal Endangered Species Act requirements, preserve to the extent possible water quality in the Delta, and retain water supply for essential human health and safety uses in 2015 and in the future.

21. The Water Board and the Department of Fish and Wildlife shall immediately consider any necessary regulatory approvals for the purpose of installation of the Emergency Drought Salinity Barriers.

22. The Department shall immediately consider voluntary crop idling water transfer and water exchange proposals of one year or less in duration that are initiated by local public agencies and approved in 2015 by the Department subject to the criteria set forth in Water Code section 1810.

23. The Water Board will prioritize new and amended safe drinking water permits that enhance water supply and reliability for community water systems facing water shortages or that expand service connections to include existing residences facing water shortages. As the Department of Public Health's drinking water program was transferred to the Water Board, any reference to the Department of Public Health in any prior Proclamation or Executive Order listed in Paragraph 1 is deemed to refer to the Water Board.

24. The California Department of Forestry and Fire Protection shall launch a public information campaign to educate the public on actions they can take to help to prevent wildfires including the proper treatment of dead and dying trees. Pursuant to Government Code section 8645, $1.2 million from the State Responsibility Area Fire Prevention Fund (Fund 3063) shall be allocated to the California Department of Forestry and Fire Protection to carry out this directive.

25. The Energy Commission shall expedite the processing of all applications or petitions for amendments to power plant certifications issued by the Energy Commission for the purpose of securing alternate water supply necessary for continued power plant operation. Title 20, section 1769 of the California Code of Regulations is hereby waived for any such petition, and the Energy Commission is authorized to create and implement an alternative process to consider such petitions. This process may delegate amendment approval authority, as appropriate, to the Energy Commission Executive Director. The Energy Commission shall give timely notice to all relevant local, regional, and state agencies of any petition subject to this directive, and shall post on its website any such petition.

26. For purposes of carrying out directives 2–9, 11, 16–17, 20–23, and 25, Division 13 (commencing with section 21000) of the Public Resources Code and regulations adopted pursuant to that Division are hereby suspended. This suspension applies to any actions taken by state agencies, and for actions taken by local agencies where the state agency with primary responsibility for implementing the directive concurs that local action is required, as well as for any necessary permits or approvals required to complete these actions. This suspension, and those specified in paragraph 9 of the January 17, 2014 Proclamation, paragraph 19 of the April 25, 2014 proclamation, and paragraph 4 of Executive Order B-26-14, shall remain in effect until May 31, 2016. Drought relief actions taken pursuant to these paragraphs that are started prior to May 31, 2016, but not completed, shall not be subject to Division 13 (commencing with section 21000) of the Public Resources Code for the time required to complete them.

27. For purposes of carrying out directives 20 and 21, section 13247 and Chapter 3 of Part 3 (commencing with section 85225) of the Water Code are suspended.

28. For actions called for in this proclamation in directive 20, the Department shall exercise any authority vested in the Central Valley Flood Protection Board, as codified in Water Code section 8521, et seq., that is necessary to enable these urgent actions to be taken more quickly than otherwise possible. The Director of the Department of Water Resources is specifically authorized, on behalf of the State of California, to request that the Secretary of the Army, on the recommendation of the Chief of Engineers of the Army Corps of Engineers, grant any permission required pursuant to section 14 of the Rivers and Harbors Act of 1899 and codified in section 48 of title 33 of the United States Code.

29. The Department is directed to enter into agreements with landowners for the purposes of planning and installation of the Emergency Drought Barriers in 2015 to the extent necessary to accommodate access to barrier locations, land-side and water-side construction, and materials staging in proximity to barrier locations. Where the Department is unable to reach an agreement with landowners, the Department may exercise the full authority of Government Code section 8572.

30. For purposes of this Executive Order, chapter 3.5 (commencing with section 11340) of part 1 of division 3 of the Government Code and chapter 5 (commencing with section 25400) of division 15 of the Public Resources Code are suspended for the development and adoption of regulations or guidelines needed to carry out the provisions in this Order. Any entity issuing regulations or guidelines pursuant to this directive shall conduct a public meeting on the regulations and guidelines prior to adopting them.

31. In order to ensure that equipment and services necessary for drought response can be procured quickly, the provisions of the Government Code and the Public Contract Code applicable to state contracts, including, but not limited to, advertising and competitive bidding requirements, are hereby suspended for directives 17, 20, and 24. Approval by the Department of Finance is required prior to the execution of any contract entered into pursuant to these directives.

This Executive Order is not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person.

I FURTHER DIRECT that as soon as hereafter possible, this Order be filed in the Office of the Secretary of State and that widespread publicity and notice be given to this Order.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 1st day of April 2015.

EDMUND G. BROWN JR.
Governor of California

ATTEST:

ALEX PADILLA
Secretary of State

EXHIBIT C

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VISTA WATER STORAGE DISTRICT

EXEMPT FROM FILING FEE
[Government Code §6103]

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF KERN, METROPOLITAN DIVISION

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT, a California Water Storage District; BUENA VISTA WATER STORAGE DISTRICT, a California Water Storage District,

Petitioners,

v.

CALIFORNIA DEPARTMENT OF WATER RESOURCES, a California State Agency,

Respondent,

KERN WATER BANK AUTHORITY, a California Joint Powers Authority; WESTSIDE MUTUAL WATER COMPANY, a California Mutual Water Company; DUDLEY RIDGE WATER DISTRICT, a California Water District; WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT, a California Water Storage District; SEMITROPIC WATER STORAGE DISTRICT, a California Water Storage District; KERN COUNTY WATER AGENCY, a Special Act Public Agency, on behalf of its IMROVEMENT DISTRICT NO. 4; TEJON-CASTAC WATER DISTRICT, a California Water District; and DOES 1 through 5000, inclusive,

Real Parties in Interest.

Case No.

PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR INJUNCTIVE AND DECLARATORY RELIEF

[CCP §§526, 527, 1085, 1094.5; Public Resources Code § 21000, et seq. (California Environmental Quality Act)]

Petitioners Rosedale-Rio Bravo Water Storage District (Rosedale) and Buena Vista Water Storage District (Buena Vista) (collectively "Petitioners") jointly bring this Petition for Writ of Mandate and Complaint for Injunctive and Declaratory Relief (Petition) and allege as follows:

INTRODUCTION AND PARTIES

1. Petitioners bring this action on behalf of themselves and on behalf of the landowners and water users within their boundaries. This Petition challenges actions by Respondent California Department of Water Resources (Respondent or DWR) approving and/or adopting the Final Environmental Impact Report (FEIR) on the Monterey Amendment to the State Water Project Contracts (Including Kern Water Bank Transfer) and Associated Actions as Part of a Settlement Agreement (Monterey Plus), and its decision to implement specific portions of the project described therein (Project). Although Petitioners do support the Monterey Amendment to the State Water Project, they object to the FEIR because, among other things, it does not adequately describe or address the past, present and future use and operation of the Kern Water Bank lands or the impacts thereof.

2. Petitioners bring this action against DWR in its capacity as the Lead Agency on the Project described herein. Respondent DWR is presently and has been, at all times relevant hereto, a public agency and political subdivision of the State of California, formed and existing pursuant to Division 1 of the California Water Code §120, et seq. As the Lead Agency on the Project, Respondent is responsible for preparation of an environmental document that adequately and accurately describes the Project and its impacts, and, if necessary, evaluates mitigation measures and/or alternatives to lessen or avoid any significant environmental impacts. Respondent is responsible for implementing and complying with the provisions of the California Environmental Quality Act (CEQA) and the CEQA Guidelines with respect to the Project.

3. Petitioners bring this action against the Kern Water Bank Authority ("KWBA"); Wheeler Ridge-Maricopa Water Storage District ("WRMWSD"); Semitropic Water Storage District ("SWSD"); Tejon-Castac Water District ("TCWD"); Dudley Ridge Water District (DRWD); the Kern County Water Agency (KCWA) on behalf of its Improvement District No. 4 ("ID4"); and Westside Mutual Water Company (WMWC) as Real Parties in Interest with respect to

the use and operation of the Kern Water Bank (KWB).

4. KWBA is presently, and at all times relevant hereto has been, a public entity and political subdivision of the State of California formed and existing pursuant to Division 7 of the California Government Code, Joint Exercise of Powers Act, §6500, et seq. Petitioners are informed and believe, and based thereon allege, that insofar as is material to this action, KWBA is presently and has been, at all times relevant hereto, the owner and operator of the KWB.

5. WRMWSD is presently and has been, at all times relevant hereto, a California Water Storage District organized and existing under and pursuant to California Water Storage District Law [Division 14 (commencing with §39000) of the California Water Code]. Petitioners are informed and believe, and based thereon allege, that insofar as is material to this action, WRMWSD is presently and has been, at all times relevant hereto, a participant in the KWBA.

6. SWSD is presently and has been, at all times relevant hereto, a California Water Storage District organized and existing under and pursuant to California Water Storage District Law [Division 14 (commencing with §39000) of the California Water Code]. Petitioners are informed and believe, and based thereon allege, that insofar as is material to this action, SWSD is presently and has been, at all times relevant hereto, a participant in the KWBA.

7. TCWD is presently and has been, at all times relevant hereto, a California Water District organized and existing under and pursuant to California Water District Law [Division 13 (commencing with §34000) of the California Water Code]. Petitioners are informed and believe, and based thereon allege, that insofar as is material to this action, TCWD is presently and has been, at all times relevant hereto, a participant in the KWBA.

8. DRWD is presently and has been, at all times relevant hereto, a California Water District organized and existing under and pursuant to California Water District Law [Division 13 (commencing with §34000) of the California Water Code]. Petitioners are informed and believe, and based thereon allege, that insofar as is material to this action, DRWD is presently and has been, at all times relevant hereto, a participant in the KWBA.

9. WMWC is presently and has been, at all times relevant hereto, a California mutual water company organized and existing under and pursuant to the laws of the State of California.

Petitioners are informed and believe, and based thereon allege, that insofar as is material to this action, WMWC is presently and has been, at all times relevant hereto, a participant in the KWBA.

10. KCWA is presently and has been, at all times relevant hereto, a political subdivision of the State of California organized and existing under the Kern County Water Agency Act [California Water Code Appendix, §99-1, et seq.], and the Board of Directors of KCWA is also the governing body of its Improvement District No. 4. Petitioners are informed and believe, and based thereon allege, that insofar as is material to this action, KCWA is presently and has been, at all times relevant hereto, a participant in the KWBA on behalf of ID4.

11. Petitioners bring this action as a result of Respondent's failure to adequately describe the Project, and to fully evaluate and disclose the reasonably foreseeable effects of the Project upon the environment, as well as the failure to adequately describe the environmental setting of the Project, the failure to adequately consider alternatives and mitigation measures, the failure to adequately respond to comments and to make appropriate findings regarding the environmental impacts of the Project, and the failure to otherwise comply with the California Environmental Quality Act (CEQA) and/or California State Guidelines implementing the same (CEQA Guidelines). [Public Resources Code §21000, et seq., Cal. Code Regs., Title 14 §15000, et seq.]. In each of these respects, among others raised in this Petition, Respondent has violated its duties under CEQA, abused its discretion, failed to proceed in a manner required by law, and have decided the matters complained of without the support of substantial evidence.

12. The project description in the FEIR is insufficient in that it fails to adequately describe past, present and future operations and use of the KWB and, in turn, fails to adequately analyze the impacts of such operations and use. Petitioners are informed and believe, and based thereon allege, that the use and operation of the KWB has actually and will potentially (i) adversely impact the quality and quantity of groundwater within the region; (ii) lower the groundwater table to dangerous and unacceptable levels; (iii) continue and exacerbate an unprecedented and improper reversal of hydraulic gradients within the Kern River alluvial fan area; (iv) cause existing wells to go dry; (v) result in substantial health and safety issues associated with the loss of wells serving municipal and domestic purposes; and (vi) cause subsidence. Notwithstanding these actual and

potential significant adverse impacts caused by the use and operation of the KWB, Respondent failed to undertake any proper or meaningful review or analysis of these and other effects of said Project activities and, thus, failed to comply with CEQA and the CEQA Guidelines.

13. Petitioner Rosedale-Rio Bravo Water Storage District is presently and has been, at all times relevant hereto, a California Water Storage District organized and existing under and pursuant to California Water Storage District Law [Division 14 (commencing with §39000) of the California Water Code]. Rosedale's boundaries are located exclusively within the boundaries of the County of Kern, State of California. Rosedale is authorized by California Water Storage District Law to commence and maintain this action on behalf of itself and on behalf of its landowners and water users.

14. Petitioner Buena Vista Water Storage District is presently and has been, at all times relevant hereto, a California Water Storage District organized and existing under and pursuant to California Water Storage District Law [Division 14 (commencing with §39000) of the California Water Code]. Buena Vista's boundaries are located exclusively within the boundaries of the County of Kern, State of California. Buena Vista is authorized by California Water Storage District Law to commence and maintain this action on behalf of itself and on behalf of its landowners and water users.

15. Insofar as is material to this action, Petitioners have continuously maintained public projects for groundwater replenishment and the diversion, delivery, storage, transportation, distribution and use of water for beneficial purposes. Petitioners store and pump groundwater existing in a common and interconnected groundwater basin shared by Petitioners and the KWB, for one or more of the following purposes: municipal, industrial, domestic, irrigation, stock watering and other reasonable and beneficial uses. Petitioners are informed and believe, and based thereon allege, that the KWB's past, current and future extraction of groundwater has and will potentially substantially and significantly affect groundwater levels underlying lands within the boundaries of Petitioners and underlying other public projects in which the Petitioners participate; the amount of groundwater available to and recoverable by Petitioners; the cost of such recovery; the quality of groundwater available to Petitioners; the historical hydraulic gradients within the

Kern River alluvial fan area; and the environment of the region. Petitioners are informed and believe, and thereon allege, that the past, present and future operations and use of the KWB will potentially deprive Petitioners and their landowners and water users of significant quantities of water, and will otherwise have significant or potentially significant long-term adverse impacts upon the environment within the boundaries of Petitioners, the groundwater basin shared by Petitioners and the KWB, and the environment, none of which consequences were adequately evaluated in the FEIR, or in any other environmental document in compliance with CEQA.

16. Petitioners are beneficially interested in Respondent's compliance with its duties and responsibilities under applicable laws, including CEQA. Petitioners are beneficially interested in Respondent's performance of its duties to apply all applicable laws and consider rationally and in good faith all record evidence in deciding whether to approve public projects.

17. Petitioners are unaware of the true names and capacities of DOES 1 through 5000 and therefore sue such persons, entities and organizations by these fictitious names. Petitioners are informed and believe, and based thereon allege, that those persons, entities and organizations fictitiously-named herein have an interest in the matters alleged in this action. When the true identities and capacities of said persons, entities and organizations have been determined, Petitioners will amend this Petition, with leave of court if necessary, to insert such identities and capacities.

VENUE AND JURISDICTION

18. The Kern County Superior Court has jurisdiction over the matters alleged herein pursuant to Code of Civil Procedure §§ 526, 527, 1085, 1094.5 and Public Resources Code §§ 21168 and 21168.5.

19. Venue is appropriate in the County of Kern pursuant to Code of Civil Procedure §393. Petitioners' causes of action arose in Kern County because the effects of Respondent's decisions will be felt in said county.

EXHAUSTION OF ADMINISTRATIVE REMEDIES

20. Petitioners have performed or are excused from performing any and all conditions precedent to the filing of this Petition, including compliance with Public Resources Code §21177,

and have fully exhausted all administrative remedies in that the determination by Respondent is final and no further administrative appeal procedures are provided by state or local law. Petitioners and other members of the public presented their specific objections to the decisions of DWR at the public meetings, hearings and/or through written comments submitted to DWR.

21. Within 30 days past, DWR took final action with respect to its approval of the Project and, on May 5, 2010, filed a Notice of Determination purportedly in compliance with CEQA.

22. Pursuant to California Government Code §905(i) this action is not subject to the California Torts Claim Act.

NOTICE

23. On June 2, 2010, prior to commencement of this action, Petitioners served written notice of commencement of this action on Respondent in accordance with the requirements of CEQA, and more specifically, Public Resources Code §21167.5. A true and correct copy of this notice and a proof of service is attached hereto as Exhibit "A" and is incorporated herein by this reference.

24. On June 3, 2010, Petitioners furnished the Attorney General of the State of California with a copy of this Petition in accordance with the requirements of CEQA, and more specifically, Public Resources Code §21167.7. A true and correct copy of the form of the notice to the Attorney General is attached hereto as Exhibit "B" and is incorporated herein by this reference.

25. Concurrent with the service of this Petition, Petitioners will serve on Respondent a request for preparation of the administrative record relating to this action in accordance with the requirements of CEQA, and more specifically, Public Resources Code §21167.6.

ATTORNEYS' FEES

26. Petitioners are entitled to recover attorneys fees from Respondent pursuant to Code of Civil Procedure §1021.5 because this action will, among other things, confer a significant benefit on the general public and a large class of persons, and the necessity and burden of private enforcement makes an award of fees appropriate.

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FACTUAL HISTORY

27. Respondent manages the State Water Project (SWP), a system of dams, reservoirs, canals and aqueducts that delivers water from the Delta area of the Sacramento River to Central and Southern California, including Kern County. In the 1960's, Respondent entered into contracts for the provision of water to local suppliers (Contractors).

28. Real Party in Interest KWBA is a Joint Powers Authority made up of five public agencies and one private mutual water company (which are the remaining Real Parties in Interest). The KWBA owns, operates and uses the KWB, a massive groundwater banking operation in Kern County. According to the KWBA, the KWB is the largest direct-recharge water-banking project in the world, the primary purpose of which is to recharge, store, and recover water to improve the water supply for its participants during periods of water shortages.

29. In the late 1980's and early 1990's, Respondent and the SWP Contractors disagreed over water allocation procedures and other provisions of their long-term water supply contracts.

30. In 1994, Respondent and some of the SWP Contractors executed the Monterey Agreement, an agreement which included provisions to modify the long-term water supply contracts and, in pertinent part, to sell or lease the KWB property to designated Contractors.

31. The modifications were incorporated into the long-term water supply contracts in what became known as the Monterey Amendment.

32. As part of the Monterey Amendment, Respondent was to transfer ownership of the KWB property to the Kern County Water Agency, which would, in turn, transfer said ownership to the KWBA.

33. In 1995, an EIR for the Monterey Amendment (the "Initial EIR") was certified by the Central Coast Water Authority, a joint powers agency representing several SWP Contractors.

34. In 1997, the KWBA adopted an *Addendum to Monterey EIR of the Kern Water Bank Authority, Kern Water Bank Habitat Conservation Plan/Natural Community Conservation Plan* (Addendum). The Addendum focuses almost exclusively on the impacts to wildlife habitat and other natural resources resulting from the construction and operation of KWB recharge basins. The Addendum does not adequately describe or address the groundwater impacts associated with

the use and operation of the KWB. To the limited extent groundwater impacts are addressed, the Addendum relies upon the analysis contained in the Initial EIR, which was ultimately decertified as described below.

35. In 2000, after legal challenges to the Initial EIR, the Court of Appeal for the Third Appellate District ordered that the Initial EIR be decertified because, among other things, DWR should have been the Lead Agency on the Project.

36. Following the invalidation of the Initial EIR, a Settlement Agreement was executed in 2003. Among other things, the Settlement Agreement required that DWR, as the Lead Agency, prepare an EIR for the Project and exercise its judgment regarding the impacts related to the transfer, development and operation of the KWB.

37. As required by the Settlement Agreement, Respondent prepared the *Monterey Amendment to the State Water Project (SWP) Contract (including the Kern Water Bank Transfer) and Associated Actions as Part of a Settlement Agreement (Monterey Plus) Draft Environmental Impact Report* (DEIR), which was circulated for public comment on or about October 15, 2007 and until January 14, 2008.

38. The DEIR was inadequate in several respects, one of which was its failure to adequately describe and analyze past, present and/or future use and operation of the KWB, which, in turn, resulted in an inadequate analysis and incorrect conclusions regarding the Project's actual and potential impacts on groundwater in Kern County, including impacts on the groundwater basin shared by Petitioners and the KWB. While the DEIR does describe some of the past recharge practices of the KWB, it does not adequately address all components and impacts of the present and future use and operation of the KWB, most notably with respect to KWB groundwater recovery operations. For example, the DEIR did not include any definite parameters describing future recovery operations, and did not adequately analyze any specific impacts that are likely to occur, and which in fact have occurred, at different levels of operations and use of the KWB for recharge or recovery purposes.

39. On or about January 14, 2008, Petitioners submitted a comment letter (Comment Letter) to Respondent expressing support for the Monterey Amendments, but also raising issues

relating to inadequacies in the DEIR, including the lack of an adequate project description and the lack of an analysis of the impacts from the past, present and potential use and operation of the KWB.

40. In the Comment Letter, Petitioners raised the following issues:

(a) Petitioners requested clarification as to whether the DEIR was intended to be a Project or Program EIR (as those terms are defined by CEQA) with respect to the past, present and/or potential future use and operation of the KWB.

(b) Petitioners objected to the project description in that it failed to adequately describe the Project as it relates to use and operation of the KWB and, as such, the DEIR failed to adequately analyze the impacts of such use and operation.

(c) Petitioners further objected to the inadequacy of the project description in that it failed to include an operating plan for the KWB which identifies realistic recharge and recovery parameters and/or which identifies resources (lands, bank accounts, etc.) devoted to water marketing (i.e., sales) and those resources devoted to meeting the dry-year requirements of KWB participants.

(d) Petitioners also objected to the DEIR in that it failed to adequately analyze the actual and potential effects of the past, present and potential use and operation of the KWB.

41. On or about January 14, 2008, the KWBA submitted a comment letter to Respondent (KWBA Comment Letter). The KWBA Comment Letter contradicts Petitioners' claims by asserting that the DEIR did address both past and future development, operation and use of the KWB. It also states the DEIR concluded that the past and future development, operation and use of the KWB will not result in any significant effects on the environment.

42. The FEIR was certified by Respondent on or around February 1, 2010. The FEIR made only minor changes to the text of the DEIR, and failed to adequately address the issues raised in Petitioners' Comment Letter. For example, contrary to the KWBA Comment Letter and Respondent's promise in the Settlement Agreement to exercise its judgment regarding the impacts related to the transfer, development and operation of the Kern Water Bank, the FEIR states that it is

not intended to cover specific operating parameters of the KWB or a detailed analysis of how the water in the KWB is stored or allocated.

43. On February 2, 2010, Petitioners again sent a letter to Respondent highlighting the deficiencies in the FEIR and describing the actual and potential significant impacts resulting from the operation and use of the KWB.

44. On May 4, 2010, the Director of DWR, Mark W. Cowin, signed a Memorandum that included, among other things, the following: adoption of findings and determinations on the Project and direction to implement certain mitigation measures into the Project; adoption of a Statement of Overriding Consideration for the Project; adoption of the Mitigation, Monitoring and Reporting Program for the Project; direction to Respondent to carry out the Project; a determination that Respondent had eliminated or substantially lessened all significant effects on the environment where feasible; a determination that any remaining significant effects on the environment found to be unavoidable are acceptable due to overriding considerations; and direction to file a Notice of Determination on the Project.

45. On May 5, 2010, a Notice of Determination was filed on the Project.

FIRST CAUSE OF ACTION

[California Environmental Quality Act]

46. Petitioners incorporate by this reference paragraphs 1 through 45 as though they were set forth in full herein.

[Inadequate Project Description]

47. Public Resources Code Sections 21100 and 21065, and 14 California Code of Regulations Section 15378(a) require that EIRs fully describe and analyze projects, meaning the whole of an action. An EIR must examine all phases of the project including planning, construction, and operation. Where an individual project is a necessary precedent for action on a larger project, or commits the lead agency to a larger project, with significant environmental effects, an EIR must address itself to the scope of the larger project. [14 Cal. Code Reg's. § 15165]. "Project" does not mean each separate government approval. [14 Cal. Code Reg's. § 15178(c)]. And when a site is being acquired for a public project, the environmental effects of the

project should be reviewed prior to the acquisition. [14 Cal. Code Reg's. § 15004].

48. Integral parts of the Project include the transfer of the KWB to the KWBA, and the past, present and future operation and use of the KWB. The EIR fails to adequately describe the scope of the operation and use of the KWB, which leads to an inadequate analysis of the environmental impacts of such operation and use, or of any way to mitigate those impacts, among other deficiencies.

49. The plan for the operation and use of the KWB remains uncertain. For example, there is no way to determine from the FEIR the extent of future recharge and recovery operations, which are components of the Project.

50. The deficiencies in the project description deprived the public, including Petitioners, of an opportunity to understand and meaningfully comment on the Project and its impacts, and rendered the analyses in the EIR of the Project and its impacts inadequate.

[Inadequate Description of the Environmental Setting]

51. An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. [14 Cal. Code Reg's. § 15125].

52. The subject EIR failed to include an adequate description of the Project's environmental setting in that it failed to adequately describe the physical conditions of other existing adjacent groundwater banking projects, other nearby public projects, including Petitioners' public projects, or the physical conditions on and/or under nearby landowners' and water users' land, including those within the Petitioners' boundaries.

53. These failures precluded the EIR from meaningfully analyzing the impacts of the Project on the existing environmental setting, including those features of the existing environment described above, and deprived the public, including Petitioners and Petitioners' landowners and water users, of an opportunity to meaningfully comment on the Project and its impacts on the existing environment.

///

[Inadequate Evaluation of Project Impacts]

54. Public Resources Code Section 21100(a) and 14 California Code of Regulations Sections 15126(a) and 15126.2 provide that an EIR must identify and focus on the significant environmental effects of a proposed project, giving due consideration to both short-term and long-term effects. An EIR must contain a sufficient degree of analysis to provide decision makers with information which allows them to make a decision which intelligently takes account of the environmental consequences. [14 Cal. Code Reg's. § 15151]. Drafting an EIR necessarily involves some degree of forecasting, and an agency must use its best efforts to find out and disclose all that it reasonably can. [14 Cal. Code Reg's. § 15144].

55. The FEIR fails to adequately consider and/or forecast the significant impacts of the use and operation of the KWB, including but not limited to the impacts identified in this Petition. The failure to adequately describe the scope of the Project necessarily resulted in an inadequate and/or incorrect analysis of the impacts of the Project on, among other things, the level, supply, quality and use of groundwater in the groundwater basin, as is more fully described in this Petition. For example, the FEIR concludes that the Project has and will have a beneficial effect on groundwater levels in Kern County, based upon the conclusion that the KWB will recover less water than it has recharged. The FEIR concludes, without describing or setting any parameters on the operation and use of the KWB, that this practice will continue in the future. This simple analysis is insufficient in that it fails to consider, among other things, the specific actual and potential impacts of continued groundwater recovery at a high level, the practice of recharging and recovering water from different areas, the deep drilling of groundwater recovery wells, or the construction and operation of multi-zone well completions.

56. In addition, an EIR must discuss significant cumulative impacts in conjunction with other planned or proposed projects. [14 Cal. Code Reg's. § 15130]. The FEIR does not adequately discuss cumulative impacts of the Project in connection with other groundwater banking and public projects which are foreseeable, planned, approved and/or have been constructed and operated, including but not limited to the Kern County Water Agency's Pioneer Project, the City of Bakersfield's 2800 Acre Project, the Berrenda Mesa Project, the West Kern/Buena Vista project,

Arvin-Edison Water Storage District, Semitropic Water Storage District, and Petitioners' projects, all of which share a common groundwater basin and are adjacent or proximate to the KWB.

[Inadequate Analysis of Alternatives]

57. Public Resources Code Section 21100(b)(4) and 14 California Code of Regulations Sections 15126(f) and 15126.6 require that an EIR must describe a range of alternatives to the proposed project which could feasibly attain the project's basic objectives, and evaluate the comparative merits of the alternatives.

58. The FEIR's analysis of alternatives is inadequate because it fails to adequately describe alternatives so that an adequate evaluation of the comparative merits of those alternatives could be conducted. Because the project description fails to adequately describe the Project, the purported alternatives do not include any alternatives for the actual present and potential future use and operation of the KWB which could feasibly attain the Project's objectives while also mitigating the Project's impacts.

59. Further, the FEIR fails to consider other reasonable alternatives, such as implementation of an operating plan for the KWB that would include specific parameters on the use and operation of the KWB, which would have reduced the Projects adverse impacts.

[Inadequate Consideration of Mitigation Measures]

60. Public Resources Code Section 21100(c) and 14 California Code of Regulations Sections 15126(e) and 15126.4 require that EIRs contain adequate evaluations of measures to mitigate adverse environmental impacts. In addition, 14 California Code of Regulations Section 15092(b) provides that a public agency shall not approve or carry out a project which has one or more significant environmental effects unless it has [e]liminated or substantially lessened all significant effects on the environment where feasible.

61. The FEIR's discussion of mitigation measures is inadequate in numerous respects, including but not limited to the following:

(a) Because the project description fails to adequately describe the use and operation of the KWB, it incorrectly concludes that no mitigation measures for groundwater impacts are necessary, and further fails to include an evaluation of the likelihood that

appropriate mitigation measures for the Project's impacts to groundwater will actually be adopted, and even if they are adopted, whether or not they will be effective in mitigating said impacts.

(b) The measures, if any, discussed in the FEIR as a means of mitigating groundwater impacts are not in fact mitigation measures at all, since they merely consist of further study of an impact or are too vague and conclusory to qualify as mitigation measures for the purposes of CEQA.

[Inadequate Response to Comments on the EIR]

62. Public agencies must provide a good faith, reasoned analysis in response to comments received on the EIR and conclusory statements unsupported by factual information will not suffice. Agencies must address recommendations and objections in detail and explain why specific comments and suggestions were not accepted. [14 Cal. Code Reg's. § 15008(c)].

63. The EIR does not comply with CEQA because Respondent failed to adequately respond to comments, suggestions, and recommendations made by Petitioners and others with regard to the Project's description, impacts, mitigation measures, alternatives, and/or other matters, as alleged herein.

[Inadequacy of Respondents CEQA Findings]

64. Respondent was required by CEQA to determine in written findings whether each of the Project's impacts are significant or not, and whether any significant effects can be avoided. With respect to any significant environmental effects which could not be avoided or mitigated, Respondent was further required to make findings that the mitigation measures necessary to reduce project impacts are either (1) solely within the responsibility and jurisdiction of another public agency which can and should adopt those measures, or (2) are made infeasible, along with any alternatives which could reduce impacts, by specific economic, social or other consideration. [14 Cal. Code Reg's. § 15091]. In such circumstances, the Lead Agency is required to find that the benefits of the proposed project outweigh the unavoidable adverse environmental effects. [14 Cal. Code Reg's. §§ 15092; 15093].

65. Respondent failed to make proper written findings as required by CEQA, because,

among other things:

(a) Respondent found that the Projects impacts on groundwater were not significant when there was not substantial evidence in the record to support the finding.

(b) Respondent failed to make adequate and/or accurate findings concerning the Project's impacts on groundwater.

66. In each of the respects enumerated herein, Respondent has violated its duties under CEQA, abused its discretion, failed to proceed in a manner required by law, and have decided the matters complained of without the support of substantial evidence. Accordingly, the certification of the FEIR and the approval of the Project activities described herein must be set aside.

[SECOND CAUSE OF ACTION]

[Injunctive Relief]

67. Petitioners incorporate by reference paragraphs 1 through 66 as though they were set forth in full herein.

68. Petitioners have exhausted their administrative remedies.

69. Petitioners are informed and believe, and thereon allege, that unless Petitioners are granted injunctive relief they will suffer irreparable harm in that the implementation of the Project activities described herein will cause permanent harm to Petitioners and will create the adverse environmental impacts described in this Petition, among others, to the detriment of Petitioners, their landowners, water users and others.

70. Petitioners are informed and believe, and thereon allege, that Petitioners lack an adequate remedy at law because monetary damages cannot be ascertained and Petitioners, their landowners and water users cannot be compensated for the environmental degradation caused by the Project activities described herein.

[THIRD CAUSE OF ACTION]

[Declaratory Relief]

71. Petitioners incorporate by reference paragraphs 1 through 70 as though they were set forth in full herein.

72. An actual controversy exists between the parties. Petitioners contend that

Respondent and Real Parties in Interest have acted in violation of CEQA. Respondent and Real Parties in Interest dispute this contention. A judicial resolution of this controversy is necessary and appropriate.

PRAYER

WHEREFORE, Petitioners pray as follows:

1. As to All Causes of Action herein, that this Court enter judgment determining and declaring that the approval of Project activities described herein does not comply with applicable law and therefore is null and void;

2. As to the First Cause of Action herein, that this Court enter judgment determining and declaring that Respondent failed to comply with CEQA and therefore the approval of the Project activities described herein was illegal and is null and void, and issue a writ of mandate commanding Respondent to do the following:

(a) to vacate and set aside its approval of the Project activities described herein;

(b) to vacate and set aside certification of the FEIR as it relates to the Project activities described herein;

(c) to prepare and certify a legally adequate EIR for the Project activities described herein;

(d) to suspend any and all activities described herein pursuant to Respondent's approval of said activities that could result in an adverse change or alteration to the environment as described in this Petition until Respondent has complied with all requirements of CEQA and all other applicable state and local laws, policies, ordinances, and regulations as are directed by this Court pursuant to Public Resources Code section 21168.9.

3. As to the Second Cause of Action, that this court enter a preliminary and/or permanent injunction enjoining Respondent and Real Parties in Interest from taking any action to operate and/or use the KWB in any way that could result in a significant adverse impact on the environment unless and until a lawful approval is obtained from Respondent after the preparation and consideration of an adequate EIR and until Respondent and Real Parties in Interest have fully

complied with all requirements of CEQA and all other applicable state and local laws, policies, ordinances and regulations.

4. As to the Third Cause of Action, that this Court enter a declaratory judgment consistent with paragraphs 1 and 2 of this prayer.

5. That Petitioners be awarded their costs of suit herein, including reasonable attorneys' fees; and

6. For such other and further relief as the Court may deem just and proper.

DATED: June 3, 2010

McMURTREY, HARTSOCK & WORTH

By: _____
Isaac L. St. Lawrence, Attorneys for
Petitioners, Rosedale-Rio Bravo Water Storage
District and Buena Vista Water Storage District

[Petition Deemed Verified Under Code of Civil Procedure Section 446]

C:\Users\Lapc\Documents-DISTRICTS\GENERAL FILES\BV-RRB v. DWR Petition for Writ of Mandate and Complaint.docx

EXHIBIT "A"

Gene R. McMurtrey
Robert W. Hartsock
James A. Worth

Isaac L. St. Lawrence
Rebecca A. Bon
Daniel N. Raylis

LAW OFFICES
McMURTREY, HARTSOCK & WORTH
A PROFESSIONAL CORPORATION

2001 22ND STREET, SUITE 100
BAKERSFIELD, CALIFORNIA 93301

AREA CODE 661
TELEPHONE 322-4617
FAX 322-8123

June 2, 2010

California Department of Water Resources
1416 9th Street
Sacramento, CA 95814

Office of the Attorney General
1300 "I" Street
Sacramento, CA 95814-2919

Re: NOTICE OF INTENT TO FILE CEQA PETITION

To Whom It May Concern:

PLEASE TAKE NOTICE, that pursuant to Public Resources Code §21167.5, Rosedale-Rio Bravo Water Storage District and Buena Vista Water Storage District ("Petitioners") intend to file a Petition under the provisions of the California Environmental Quality Act ("CEQA") against the California Department of Water Resources ("Respondent") as the lead agency certifying and/or adopting a Final Environmental Impact Report ("FEIR"). More specifically, the primary purpose of the Petition will be to challenge the approval and adoption of the FEIR on the Monterey Amendment to the State Water Project Contracts (Including Kern Water Bank Transfer) and Associated Actions as Part of a Settlement Agreement (Monterey Plus), and Respondent's decision to implement specific portions of the project described therein.

Generally speaking, the Petition will seek, among other things, the following relief: (1) a writ of mandate regarding alleged defects in the FEIR and Respondent's approval of specific project activities; (2) declaratory relief; (3) a preliminary and permanent injunction; and (4) costs of suit and attorneys' fees.

Sincerely,

McMURTREY, HARTSOCK & WORTH

By: _____
Isaac L. St. Lawrence
Attorneys for Rosedale-Rio Bravo Water Storage District and Buena Vista Water Storage District

ILS:gg
cc: Eric Averett, General Manager
Rosedale-Rio Bravo Water Storage District

Dan Bartel, General Manager
Buena Vista Water Storage District

PROOF OF SERVICE

STATE OF CALIFORNIA, COUNTY OF KERN

I, GUADALUPE GONZALEZ, declare: I am and was at the time of the service hereunder mentioned, over the age of eighteen (18) years and not a party to the within cause. My business address is 2001 22nd Street, Suite 100, Bakersfield, California 93301.

On June 2, 2010, I served the document(s) titled:

LETTER DATED JUNE 2, 2010 RE: NOTICE OF INTENT TO FILE CEQA PETITION

on the interested parties in this action, as set forth below:

California Department of Water Resources
1416 9th Street
Sacramento, CA 95814

Office of the Attorney General
1300 "I" Street
P. O. Box 944255
Sacramento, CA 94244-2550

XXX **(BY MAIL)** I am readily familiar with the firm's practice of collection and processing of documents for mailing. Under that practice, it would be deposited with the United States Postal Service on that same day with postage thereon fully prepaid at Bakersfield, California, in the ordinary course of business.

____ **(BY FACSIMILE TRANSMISSION)** A transmission report was properly issued by the sending facsimile machine, and the transmission was reported as completed and without error.

____ **(BY PERSONAL SERVICE)** I caused such envelope to be delivered by hand to the offices of the addressee(s).

____ **(BY OVERNIGHT COURIER)** I caused such envelope with delivery fees fully prepaid to be sent by Federal Express.

____ **(BY ELECTRONIC TRANSMISSION)** A transmission report was properly issued by the person sending, and the electronic transmission was reported as completed and without error.

Executed on June 2, 2010, at Bakersfield, California.

XXX **(STATE)** I declare under penalty of perjury under the laws of the State of California that the above is true and correct.

____ **(FEDERAL)** I declare that I am employed in the office of a member of the bar of this Court at whose direction the service was made.

GUADALUPE GONZALEZ

EXHIBIT "B"

Gene R. McMurtrey #042986
James A. Worth #147207
Isaac L. St. Lawrence #229789
McMURTREY, HARTSOCK & WORTH
2001 22nd Street, Suite 100
Bakersfield, CA 93301
Telephone: (661) 322-4417
Facsimile: (661) 322-8123

Attorneys for Petitioners,
ROSEDALE-RIO BRAVO WATER
STORAGE DISTRICT and BUENA
VISTA WATER STORAGE DISTRICT

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF KERN, METROPOLITAN DIVISION

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT, a California Water Storage District; BUENA VISTA WATER STORAGE DISTRICT, a California Water Storage District,

Petitioners,

v.

CALIFORNIA DEPARTMENT OF WATER RESOURCES, a California State Agency,

Respondent,

KERN WATER BANK AUTHORITY, a California Joint Powers Authority; WESTSIDE MUTUAL WATER COMPANY, a California Mutual Water Company; DUDLEY RIDGE WATER DISTRICT, a California Water District; WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT, a California Water Storage District; SEMITROPIC WATER STORAGE DISTRICT, a California Water Storage District; KERN COUNTY WATER AGENCY, a Special Act Public Agency, on behalf of its IMROVEMENT DISTRICT NO. 4; TEJON-CASTAC WATER DISTRICT, a California Water District; and DOES 1 through 5000, inclusive,

Real Parties in Interest.

Case No.

NOTICE TO ATTORNEY GENERAL

[Public Resources Code §21167.7; Code of Civil Procedure §388]

TO THE ATTORNEY GENERAL OF THE STATE OF CALIFORNIA:

PLEASE TAKE NOTICE, under Public Resources Code §21167.7 and Code of Civil Procedure §388, that on June 3, 2010 Petitioners Rosedale-Rio Bravo Water Storage District and Buena Vista Water Storage District filed a Petition for Writ of Mandate and Complaint for Injunctive and Declaratory Relief (Petition) against the California Department of Water Resources. The Petition alleges that Respondent violated the California Environmental Quality Act by approving and/or adopting the Final Environmental Impact Report on the Monterey Amendment to the State Water Project Contracts (Including Kern Water Bank Transfer) and Associated Actions as Part of a Settlement Agreement (Monterey Plus), and its decision to implement specific portions of the project described therein (Project).

A copy of the Petition is attached to this notice.

DATED: June 3, 2010

McMURTREY, HARTSOCK & WORTH

By: _____
Isaac L. St. Lawrence, Attorneys for
Petitioners, Rosedale-Rio Bravo Water Storage
District and Buena Vista Water Storage District

C:\Users\Lapr\Documents\DISTRICTS\GENERAL FILES-BV-RRB v. DWR\Notice to Attorney General.doc

PROOF OF SERVICE

STATE OF CALIFORNIA, COUNTY OF KERN

I, GUADALUPE GONZALEZ, declare: I am and was at the time of the service hereunder mentioned, over the age of eighteen (18) years and not a party to the within cause. My business address is 2001 22nd Street, Suite 100, Bakersfield, California 93301.

On June 3, 2010, I served the document(s) titled:

NOTICE TO ATTORNEY GENERAL

on the interested parties in this action, as set forth below:

Office of the Attorney General
1300 "I" Street
P. O. Box 944255
Sacramento, CA 94244-2550

XXX **(BY MAIL)** I am readily familiar with the firm's practice of collection and processing of documents for mailing. Under that practice, it would be deposited with the United States Postal Service on that same day with postage thereon fully prepaid at Bakersfield, California, in the ordinary course of business.

____ **(BY FACSIMILE TRANSMISSION)** A transmission report was properly issued by the sending facsimile machine, and the transmission was reported as completed and without error.

____ **(BY PERSONAL SERVICE)** I caused such envelope to be delivered by hand to the offices of the addressee(s).

____ **(BY OVERNIGHT COURIER)** I caused such envelope with delivery fees fully prepaid to be sent by overnight courier.

____ **(BY ELECTRONIC TRANSMISSION)** A transmission report was properly issued by the person sending, and the electronic transmission was reported as completed and without error.

Executed on June 3, 2010, at Bakersfield, California.

XXX **(STATE)** I declare under penalty of perjury under the laws of the State of California that the above is true and correct.

____ **(FEDERAL)** I declare that I am employed in the office of a member of the bar of this Court at whose direction the service was made.

GUADALUPE GONZALEZ

EXHIBIT D

CM-010

ATTORNEY OR PARTY WITHOUT ATTORNEY (Name, state Bar number, and address):
Gene R. McMurtrey, Esq. (#042986); Isaac L. St. Lawrence, Esq. (#229789)
McMURTREY, HARTSOCK & WORTH
2001 22nd Street, Suite 100
Bakersfield, CA 93301
TELEPHONE NO.: (661) 322-4417 FAX NO.: (661) 322-8123
ATTORNEY FOR (Name): Plaintiffs

FOR COURT USE ONLY

SUPERIOR COURT OF CALIFORNIA, COUNTY OF KERN
STREET ADDRESS: 1415 Truxtun Avenue
MAILING ADDRESS: 1415 Truxtun Avenue
CITY AND ZIP CODE: Bakersfield, CA 93301
BRANCH NAME: Metropolitan Division

CASE NAME:
ROSEDALE-RIO BRAVO v. KERN WATER BANK AUTHORITY

CIVIL CASE COVER SHEET
☑ Unlimited (Amount demanded exceeds $25,000) ☐ Limited (Amount demanded is $25,000 or less)

Complex Case Designation
☐ Counter ☐ Joinder
Filed with first appearance by defendant (Cal. Rules of Court, rule 3.402)

CASE NUMBER:
JUDGE:
DEPT:

Items 1–6 below must be completed (see instructions on page 2).

1. Check **one** box below for the case type that best describes this case:

Auto Tort
☐ Auto (22)
☐ Uninsured motorist (46)

Other PI/PD/WD (Personal Injury/Property Damage/Wrongful Death) Tort
☐ Asbestos (04)
☐ Product liability (24)
☐ Medical malpractice (45)
☐ Other PI/PD/WD (23)

Non-PI/PD/WD (Other) Tort
☐ Business tort/unfair business practice (07)
☐ Civil rights (08)
☐ Defamation (13)
☐ Fraud (16)
☐ Intellectual property (19)
☐ Professional negligence (25)
☐ Other non-PI/PD/WD tort (35)

Employment
☐ Wrongful termination (36)
☐ Other employment (15)

Contract
☐ Breach of contract/warranty (06)
☐ Rule 3.740 collections (09)
☐ Other collections (09)
☐ Insurance coverage (18)
☑ Other contract (37)

Real Property
☐ Eminent domain/Inverse condemnation (14)
☐ Wrongful eviction (33)
☐ Other real property (26)

Unlawful Detainer
☐ Commercial (31)
☐ Residential (32)
☐ Drugs (38)

Judicial Review
☐ Asset forfeiture (05)
☐ Petition re: arbitration award (11)
☐ Writ of mandate (02)
☐ Other judicial review (39)

Provisionally Complex Civil Litigation (Cal. Rules of Court, rules 3.400–3.403)
☐ Antitrust/Trade regulation (03)
☐ Construction defect (10)
☐ Mass tort (40)
☐ Securities litigation (28)
☐ Environmental/Toxic tort (30)
☐ Insurance coverage claims arising from the above listed provisionally complex case types (41)

Enforcement of Judgment
☐ Enforcement of judgment (20)

Miscellaneous Civil Complaint
☐ RICO (27)
☐ Other complaint *(not specified above)* (42)

Miscellaneous Civil Petition
☐ Partnership and corporate governance (21)
☐ Other petition *(not specified above)* (43)

2. This case ☐ is ☑ is not complex under rule 3.400 of the California Rules of Court. If the case is complex, mark the factors requiring exceptional judicial management:
   a. ☐ Large number of separately represented parties
   b. ☐ Extensive motion practice raising difficult or novel issues that will be time-consuming to resolve
   c. ☐ Substantial amount of documentary evidence
   d. ☐ Large number of witnesses
   e. ☐ Coordination with related actions pending in one or more courts in other counties, states, or countries, or in a federal court
   f. ☐ Substantial postjudgment judicial supervision
3. Remedies sought *(check all that apply):* a. ☑ monetary b. ☑ nonmonetary; declaratory or injunctive relief c. ☐ punitive
4. Number of causes of action *(specify):*
5. This case ☐ is ☑ is not a class action suit.
6. If there are any known related cases, file and serve a notice of related case. *(You may use form CM-015.)*

Date: September 16, 2010
ISAAC L. ST. LAWWRENCE
(TYPE OR PRINT NAME)

(SIGNATURE OF PARTY OR ATTORNEY FOR PARTY)

NOTICE
- Plaintiff must file this cover sheet with the first paper filed in the action or proceeding (except small claims cases or cases filed under the Probate Code, Family Code, or Welfare and Institutions Code). (Cal. Rules of Court, rule 3.220.) Failure to file may result in sanctions.
- File this cover sheet in addition to any cover sheet required by local court rule.
- If this case is complex under rule 3.400 et seq. of the California Rules of Court, you must serve a copy of this cover sheet on **all** other parties to the action or proceeding.
- Unless this is a collections case under rule 3.740 or a complex case, this cover sheet will be used for statistical purposes only.

Page 1 of 2

Form Adopted for Mandatory Use
Judicial Council of California
CM-010 [Rev. July 1, 2007]

CIVIL CASE COVER SHEET

Cal. Rules of Court, rules 2.30, 3.220, 3.400–3.403, 3.740;
Cal. Standards of Judicial Administration, std. 3.10
www.courtinfo.ca.gov

SUM-100

SUMMONS
(CITACION JUDICIAL)

FOR COURT USE ONLY
(SOLO PARA USO DE LA CORTE)

NOTICE TO DEFENDANT:
(AVISO AL DEMANDADO):

SEE ATTACHMENT.

YOU ARE BEING SUED BY PLAINTIFF:
(LO ESTÁ DEMANDANDO EL DEMANDANTE):

SEE ATTACHMENT.

NOTICE! You have been sued. The court may decide against you without your being heard unless you respond within 30 days. Read the information below.

You have 30 CALENDAR DAYS after this summons and legal papers are served on you to file a written response at this court and have a copy served on the plaintiff. A letter or phone call will not protect you. Your written response must be in proper legal form if you want the court to hear your case. There may be a court form that you can use for your response. You can find these court forms and more information at the California Courts Online Self-Help Center (*www.courtinfo.ca.gov/selfhelp*), your county law library, or the courthouse nearest you. If you cannot pay the filing fee, ask the court clerk for a fee waiver form. If you do not file your response on time, you may lose the case by default, and your wages, money, and property may be taken without further warning from the court.

There are other legal requirements. You may want to call an attorney right away. If you do not know an attorney, you may want to call an attorney referral service. If you cannot afford an attorney, you may be eligible for free legal services from a nonprofit legal services program. You can locate these nonprofit groups at the California Legal Services Web site (*www.lawhelpcalifornia.org*), the California Courts Online Self-Help Center (*www.courtinfo.ca.gov/selfhelp*), or by contacting your local court or county bar association. **NOTE:** The court has a statutory lien for waived fees and costs on any settlement or arbitration award of $10,000 or more in a civil case. The court's lien must be paid before the court will dismiss the case.

¡AVISO! *Lo han demandado. Si no responde dentro de 30 días, la corte puede decidir en su contra sin escuchar su versión. Lea la información a continuación.*

Tiene 30 DÍAS DE CALENDARIO después de que le entreguen esta citación y papeles legales para presentar una respuesta por escrito en esta corte y hacer que se entregue una copia al demandante. Una carta o una llamada telefónica no lo protegen. Su respuesta por escrito tiene que estar en formato legal correcto si desea que procesen su caso en la corte. Es posible que haya un formulario que usted pueda usar para su respuesta. Puede encontrar estos formularios de la corte y más información en el Centro de Ayuda de las Cortes de California (www.sucorte.ca.gov), en la biblioteca de leyes de su condado o en la corte que le quede más cerca. Si no puede pagar la cuota de presentación, pida al secretario de la corte que le dé un formulario de exención de pago de cuotas. Si no presenta su respuesta a tiempo, puede perder el caso por incumplimiento y la corte le podrá quitar su sueldo, dinero y bienes sin más advertencia.

Hay otros requisitos legales. Es recomendable que llame a un abogado inmediatamente. Si no conoce a un abogado, puede llamar a un servicio de remisión a abogados. Si no puede pagar a un abogado, es posible que cumpla con los requisitos para obtener servicios legales gratuitos de un programa de servicios legales sin fines de lucro. Puede encontrar estos grupos sin fines de lucro en el sitio web de California Legal Services, (www.lawhelpcalifornia.org), en el Centro de Ayuda de las Cortes de California, (www.sucorte.ca.gov) o poniéndose en contacto con la corte o el colegio de abogados locales. AVISO: Por ley, la corte tiene derecho a reclamar las cuotas y los costos exentos por imponer un gravamen sobre cualquier recuperación de $10,000 ó más de valor recibida mediante un acuerdo o una concesión de arbitraje en un caso de derecho civil. Tiene que pagar el gravamen de la corte antes de que la corte pueda desechar el caso.

The name and address of the court is:
(El nombre y dirección de la corte es): Kern County Superior Court
Metropolitan Division, 1415 Truxtun Avenue
Bakersfield, CA 93301

CASE NUMBER:
(Número del Caso):

The name, address, and telephone number of plaintiff's attorney, or plaintiff without an attorney, is:
(El nombre, la dirección y el número de teléfono del abogado del demandante, o del demandante que no tiene abogado, es):
Gene R. McMurtrey, Esq.; Isaac L. St. Lawrence, Esq. (661) 322-4417
McMURTREY, HARTSOCK & WORTH, 2001 22nd Street, Suite 100, Bakersfield, CA 93301

DATE: *(Fecha)* Clerk, by *(Secretario)* _____, Deputy *(Adjunto)*

(For proof of service of this summons, use Proof of Service of Summons *(form POS-010).)*
(Para prueba de entrega de esta citatión use el formulario Proof of Service of Summons, *(POS-010)).*

[SEAL]

NOTICE TO THE PERSON SERVED: You are served
1. ☐ as an individual defendant.
2. ☐ as the person sued under the fictitious name of *(specify):*
3. ☐ on behalf of *(specify):*
   under: ☐ CCP 416.10 (corporation) ☐ CCP 416.60 (minor)
   ☐ CCP 416.20 (defunct corporation) ☐ CCP 416.70 (conservatee)
   ☐ CCP 416.40 (association or partnership) ☐ CCP 416.90 (authorized person)
   ☐ other *(specify):*
4. ☐ by personal delivery on *(date):*

Form Adopted for Mandatory Use
Judicial Council of California
SUM-100 [Rev. July 1, 2009]

SUMMONS

Page 1 of 1
Code of Civil Procedure §§ 412.20, 465
www.courtinfo.ca.gov

SUM-200(A)

SHORT TITLE:	CASE NUMBER:
Rosedale-Rio Bravo v. Kern Water Bank Authority	

INSTRUCTIONS FOR USE

- This form may be used as an attachment to any summons if space does not permit the listing of all parties on the summons.
- If this attachment is used, insert the following statement in the plaintiff or defendant box on the summons: "Additional Parties Attachment form is attached."

List additional parties *(Check only one box. Use a separate page for each type of party.)*:

☑ Plaintiff ☐ Defendant ☐ Cross-Complainant ☐ Cross-Defendant

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT, a California Water Storage District; BUENA VISTA WATER STORAGE DISTRICT, a California Water Storage District; HENRY MILLER WATER DISTRICT, a California Water District; and KERN DELTA WATER DISTRICT, a California Water District

Form Adopted for Mandatory Use
Judicial Council of California
SUM-200(A) [Rev. January 1, 2007]

ADDITIONAL PARTIES ATTACHMENT
Attachment to Summons

SUM-200(A)

SHORT TITLE:	CASE NUMBER:
Rosedale-Rio Bravo v. Kern Water Bank Authority	

INSTRUCTIONS FOR USE

- This form may be used as an attachment to any summons if space does not permit the listing of all parties on the summons.
- If this attachment is used, insert the following statement in the plaintiff or defendant box on the summons: "Additional Parties Attachment form is attached."

List additional parties *(Check only one box. Use a separate page for each type of party.)*:

☐ Plaintiff ☑ Defendant ☐ Cross-Complainant ☐ Cross-Defendant

KERN WATER BANK AUTHORITY, a Joint Powers Authority; and DOES 1-100

Page 1 of 1

Form Adopted for Mandatory Use
Judicial Council of California
SUM-200(A) [Rev. January 1, 2007]

ADDITIONAL PARTIES ATTACHMENT
Attachment to Summons

PLD-C-001

ATTORNEY OR PARTY WITHOUT ATTORNEY *(Name, State Bar number, and address):*
Gene R. McMurtrey #042986 Isaac L. St. Lawrence #229789
McMurtrey, Hartsock & Worth
2001 22nd Street, Suite 100
Bakersfield, CA 93301
TELEPHONE NO: 661-322-4417 FAX NO. *(Optional):* 661-322-8123
E-MAIL ADDRESS *(Optional):*
ATTORNEY FOR *(Name):* Rosedale-Rio Bravo; Buena Vista; Henry Miller; Kern Delta

FOR COURT USE ONLY

SUPERIOR COURT OF CALIFORNIA, COUNTY OF Kern
STREET ADDRESS: 1415 Truxtun Avenue
MAILING ADDRESS: 1415 Truxtun Avenue
CITY AND ZIP CODE: Bakersfield, CA 93301
BRANCH NAME: Metropolitan Division

PLAINTIFF: SEE ATTACHED FOR FULL CAPTION

DEFENDANT:

☑ DOES 1 TO 100

CONTRACT

☑ **COMPLAINT** ☐ **AMENDED COMPLAINT *(Number):***

☐ **CROSS-COMPLAINT** ☐ **AMENDED CROSS-COMPLAINT *(Number):***

Jurisdiction *(check all that apply):*
☐ **ACTION IS A LIMITED CIVIL CASE**
Amount demanded ☐ **does not exceed $10,000**
☐ **exceeds $10,000 but does not exceed $25,000**
☑ **ACTION IS AN UNLIMITED CIVIL CASE (exceeds $25,000)**
☐ **ACTION IS RECLASSIFIED by this amended complaint or cross-complaint**
☐ **from limited to unlimited**
☐ **from unlimited to limited**

CASE NUMBER:

1. **Plaintiff*** *(name or names):*
Rosedale-Rio Bravo WSD; Buena Vista WSD; Henry Miller Water District; Kern Delta Water District
alleges causes of action against **defendant*** *(name or names):*
Kern Water Bank Authority
2. This pleading, including attachments and exhibits, consists of the following number of pages: 66
3. a. Each plaintiff named above is a competent adult
☑ **except** plaintiff *(name):* Rosedale-Rio Bravo WSD; Buena Vista WSD; Henry Miller WD; Kern Delta...
(1) ☐ a corporation qualified to do business in California
(2) ☐ an unincorporated entity *(describe):*
(3) ☑ other *(specify):*
Public Entities formed pursuant to Water Code §39000 et seq. or Water Code §34000 et seq.
b. ☐ Plaintiff *(name):*
a. ☐ has complied with the fictitious business name laws and is doing business under the fictitious name *(specify):*
b. ☐ has complied with all licensing requirements as a licensed *(specify):*
c. ☐ Information about additional plaintiffs who are not competent adults is shown in Attachment 3c.
4. a. Each defendant named above is a natural person
☑ **except** defendant *(name):* Kern Water Bank Authority
(1) ☐ a business organization, form unknown
(2) ☐ a corporation
(3) ☐ an unincorporated entity *(describe):*
(4) ☑ a public entity *(describe):* A Joint Powers Authority
(5) ☐ other *(specify):*

☐ **except** defendant *(name):*
(1) ☐ a business organization, form unknown
(2) ☐ a corporation
(3) ☐ an unincorporated entity *(describe):*
(4) ☐ a public entity *(describe):*
(5) ☐ other *(specify):*

* If this form is used as a cross-complaint, plaintiff means cross-complainant and defendant means cross-defendant.

Form Approved for Optional Use
Judicial Council of California
PLD-C-001 [Rev. January 1, 2007]

COMPLAINT—Contract

Code of Civil Procedure, § 425.12

PLD-C-001

SHORT TITLE:	CASE NUMBER:
Rosedale-Rio Bravo WSD et al. v. Kern Water Bank Authority	

4. *(Continued)*
   b. The true names of defendants sued as Does are unknown to plaintiff.
      (1) ☑ Doe defendants *(specify Doe numbers):* 1 - 20 were the agents or employees of the named defendants and acted within the scope of that agency or employment.
      (2) ☑ Doe defendants *(specify Doe numbers):* 20 - 100 are persons whose capacities are unknown to plaintiff.
   c. ☐ Information about additional defendants who are not natural persons is contained in Attachment 4c.
   d. ☐ Defendants who are joined under Code of Civil Procedure section 382 are *(names):*

5. ☑ Plaintiff is required to comply with a claims statute, **and**
   a. ☐ has complied with applicable claims statutes, *or*
   b. ☑ is excused from complying because *(specify):*
      Govt. Code §905(i)

6. ☐ This action is subject to ☐ Civil Code section 1812.10 ☐ Civil Code section 2984.4.
7. This court is the proper court because
   a. ☑ a defendant entered into the contract here.
   b. ☐ a defendant lived here when the contract was entered into.
   c. ☐ a defendant lives here now.
   d. ☑ the contract was to be performed here.
   e. ☐ a defendant is a corporation or unincorporated association and its principal place of business is here.
   f. ☑ real property that is the subject of this action is located here.
   g. ☐ other *(specify):*

8. The following causes of action are attached and the statements above apply to each *(each complaint must have one or more causes of action attached):*
   ☑ Breach of Contract
   ☐ Common Counts
   ☑ Other *(specify):*
   Declaratory Relief, Injunction, and Specific Performance.

9. ☐ Other allegations:

10. **Plaintiff prays** for judgment for costs of suit; for such relief as is fair, just, and equitable; and for
    a. ☑ damages of: $ According to Proof
    b. ☑ interest on the damages
       (1) ☑ according to proof
       (2) ☐ at the rate of *(specify):* percent per year from *(date):*
    c. ☑ attorney's fees
       (1) ☐ of: $
       (2) ☑ according to proof.
    d. ☑ other *(specify):*
       Declaratory Relief, Permanent Injunction, and Specific Performance.

11. ☑ The paragraphs of this pleading alleged on information and belief are as follows *(specify paragraph numbers):*
    BC-2(c) & (d), DR-3

Date: September 16, 2010

Isaac L. St. Lawrence #229789 ▶ _____
(TYPE OR PRINT NAME) (SIGNATURE OF PLAINTIFF OR ATTORNEY)

(If you wish to verify this pleading, affix a verification.)

MC-025

SHORT TITLE:	CASE NUMBER:
Rosedale-Rio Bravo WSD et al. v. Kern Water Bank Authority	

ATTACHMENT *(Number):* CAPTION

(This Attachment may be used with any Judicial Council form.)

PLAINTIFFS:

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT, a California Water Storage District; BUENA VISTA WATER STORAGE DISTRICT, a California Water Storage District; HENRY MILLER WATER DISTRICT, a California Water District; and KERN DELTA WATER DISTRICT, a California Water District.

v.

DEFENDANTS:

KERN WATER BANK AUTHORITY, a Joint Powers Authority; and DOES 1-100.

(If the item that this Attachment concerns is made under penalty of perjury, all statements in this Attachment are made under penalty of perjury.)

Page 1 of 1

(Add pages as required)

Form Approved for Optional Use
Judicial Council of California
MC-025 [Rev. July 1, 2009]

ATTACHMENT
to Judicial Council Form

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PLD-C-001(1)

SHORT TITLE:	CASE NUMBER:
Rosedale-Rio Bravo WSD et al. v. Kern Water Bank Authority	

First (number) **CAUSE OF ACTION—Breach of Contract**

ATTACHMENT TO ☑ Complaint ☐ Cross - Complaint

(Use a separate cause of action form for each cause of action.)

BC-1. Plaintiff *(name):* Rosedale-Rio Bravo WSD; Buena Vista WSD; Henry Miller WD & Kern Delta..,

alleges that on or about *(date):* December 14, 1995

a ☑ written ☐ oral ☐ other *(specify):*

agreement was made between *(name parties to agreement):*

Kern Water Bank Authority and Kern County Water Agency

☑ A copy of the agreement is attached as Exhibit A, or

☐ The essential terms of the agreement ☐ are stated in Attachment BC-1 ☐ are as follows *(specify):*

BC-2. On or about *(dates):* within the last 4 years

defendant breached the agreement by ☑ the acts specified in Attachment BC-2 ☐ the following acts *(specify):*

See Attachment BC-2

BC-3. Plaintiff has performed all obligations to defendant except those obligations plaintiff was prevented or excused from performing.

BC-4. Plaintiff suffered damages legally (proximately) caused by defendant's breach of the agreement

☐ as stated in Attachment BC-4 ☑ as follows *(specify):*

As a direct and proximate result of Defendant's breach of the Agreement, Plaintiffs have suffered and continue to suffer damages, including but not limited to, increased operating costs. In addition, Plaintiffs have suffered incidental and consequential damages, fees and costs. The exact amount of monetary damages is presently unknown, and Plaintiffs will ask leave to amend its pleadings to set forth the exact amount when the same is ascertained.

BC-5. ☑ Plaintiff is entitled to attorney fees by an agreement or a statute

☐ of $

☑ according to proof.

BC-6. ☐ Other:

Page _____

Form Approved for Optional Use
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PLD-C-001(1) [Rev. January 1, 2007]

Code of Civil Procedure, § 425.12
www.courtinfo.ca.gov

MC-025

SHORT TITLE:	CASE NUMBER:
Rosedale-Rio Bravo WSD et al. v. Kern Water Bank Authority	

ATTACHMENT *(Number):* BC-2

(This Attachment may be used with any Judicial Council form.)

a. On or about December 14, 1995, Defendant Kern Water Bank Authority entered into an agreement with the Kern County Water Agency regarding the operation of the Kern Water Bank and entitled "Declaration of Covenants Conditions and Restrictions" ("Agreement") a copy of which is attached as Exhibit A and made a part of this pleading.

b. By the terms of the Agreement, Defendant agreed to operate the Kern Water Bank project in a manner that would provide Plaintiffs with use of the Kern Water Bank facilities in certain specified circumstances. The Agreement was made for the Plaintiffs benefit in that it gave Plaintiffs a second priority right to use the Kern Water Bank facilities for the recharge and/or recovery of water as it specifically provided:
"To the extent there is recharge, storage and/or recovery capacity available in the Project facilities beyond that needed for the first priority ("Excess Capacity"), Agency Basic Contract Member Units, including Agency and its improvement districts, shall have the second priority right to use the Project for the recharge and/or recovery of water for use in the boundaries of Agency if they pay the Fair Compensation for such use or a lesser amount agreed to by KWBA [Kern Water Bank Authority]." [Agreement ¶4.2].

c. By Definition under the terms of the Agreement, Plaintiffs are "Agency Basic Contract Member Units" which are defined as: "those member units that entered into long-term water supply contracts with the Agency prior to January 1, 1996, for an entitlement to a portion of the State Water Project..." [Agreement ¶1.0(a)].

d. Plaintiffs are informed and believe, and thereon allege, that within four years last past, Defendant has violated the provision of the Agreement described above and has therefore breached the Agreement by refusing to permit Plaintiffs to use and exercise its second priority rights as described above.

e. Plaintiffs have made several demands, both verbally and in writing, that Defendant perform its obligations under the Agreement, to no avail.

f. Within four years last past, Plaintiffs have continued to attempt to exercise their rights under the Agreement and Defendant continues to refuse to allow Plaintiffs access and use of their second priority rights pursuant to the Agreement and/or continues to place such restrictions upon such use as to deny the right.

(If the item that this Attachment concerns is made under penalty of perjury, all statements in this Attachment are made under penalty of perjury.)

Page 1 of 1

(Add pages as required)

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MC-025

SHORT TITLE:	CASE NUMBER:
Rosedale-Rio Bravo WSD et al. v. Kern Water Bank Authority	

ATTACHMENT *(Number):* 8(a)

(This Attachment may be used with any Judicial Council form.)

SECOND CAUSE OF ACTION
(Declaratory Relief)

DR-1. Plaintiffs reallege and incorporate, as though fully set forth herein, each and every allegation in paragraphs 1 through 11 and BC-1 though BC-6 of this Complaint.

DR-2. An actual controversy has arisen and now exists between Plaintiffs and Defendant concerning Defendant's operation of the Kern Water Bank project and the duties and rights under the Covenants, Conditions, and Restrictions governing the operation of said project

DR-3. Plaintiffs contend that Defendant acted in violation of law and contract in each of the respects set forth in the prior causes of action. Plaintiffs contend that Defendant must cease and desist from restricting Plaintiffs' second priority right to use Kern Water Bank facilities for the recharge and/or recovery of water pursuant to the terms of the Covenants, Conditions, and Restrictions. Plaintiffs are informed and believe, and thereon allege, that Defendant contends otherwise.

DR-4. Accordingly, a judicial resolution of this controversy and a declaration of the rights of the parties herein are necessary and appropriate in accordance with Code of Civil Procedure §1060.

(If the item that this Attachment concerns is made under penalty of perjury, all statements in this Attachment are made under penalty of perjury.)

Page 1 of 1

(Add pages as required)

MC-025

SHORT TITLE:	CASE NUMBER:
Rosedale-Rio Bravo WSD et al. v. Kern Water Bank Authority	

ATTACHMENT *(Number):* 8(b)

(This Attachment may be used with any Judicial Council form.)

THIRD CAUSE OF ACTION
(Injunction)

IR-1. Plaintiffs reallege and incorporate, as though fully set forth herein, each and every allegation in paragraphs 1 through 11, paragraphs BC-1 though BC-6, and paragraphs DR-1 through DR-4 of this Complaint.

IR-2. Unless Plaintiffs are granted injunctive relief, they will suffer irreparable harm in that they will lose the ability and right to access and use the Kern Water Bank facilities for the recharge and/or recovery of water as a second priority right holder. Such loss will cause, create, continue or exacerbate (i) significant groundwater impacts within the boundaries of Plaintiffs and (ii) a significant loss of resources, including, but not limited to, the loss of an opportunity to capture water which would significantly benefit Plaintiffs and their landowners.

IR-3. Plaintiffs are entitled to an injunction and order, pursuant to Code of Civil Procedure §§ 526 and 527, directing Defendant to cease and desist from limiting Plaintiffs from exercising their second priority rights pursuant to the Agreement, including without limitation limiting the use of the Kern Water Bank facilities in a manner exceeding the limitation imposed in the Agreement.

IR-4. Plaintiffs have no adequate legal remedy in that damages, if awarded, cannot be properly ascertained since the damages from continued refusal of second priority rights pursuant to the Agreement are difficult to assess and are overly speculative, and damages will be inadequate to compensate Plaintiffs for their detriment suffered by it, including destruction and/or loss of real property and/or real property rights. Additionally, continued restrictions on Plaintiffs' second priority rights, in violation of the terms and provisions of the Agreement, constitute a continuing breach of contract which would lead to a multiplicity of lawsuits.

(If the item that this Attachment concerns is made under penalty of perjury, all statements in this Attachment are made under penalty of perjury.)

Page 1 of 1

(Add pages as required)

Form Approved for Optional Use
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MC-025 [Rev. July 1, 2009]

ATTACHMENT
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MC-025

SHORT TITLE:	CASE NUMBER:
Rosedale-Rio Bravo WSD et al. v. Kern Water Bank Authority	

ATTACHMENT *(Number)*: 8(c)

(This Attachment may be used with any Judicial Council form.)

FOURTH CAUSE OF ACTION
(Specific Performance)

SP-1. Plaintiffs reallege and incorporate, as though fully set forth herein, each and every allegation in paragraphs 1 through 11, paragraphs BC-1 though BC-6, paragraphs DR-1 through DR-4, and paragraphs IR-1 through IR-4 of this Complaint.

SP-2. The consideration set forth in the Agreement was fair and reasonable at the time the Agreement was entered into. Plaintiffs have and/or are willing to pay the fair compensation for use of its second priority rights and use of the Kern Water Bank facilities, and the Agreement is, as to Defendant, just and reasonable.

SP-3. Plaintiffs have performed all conditions, covenants, and promises required by it on its part to be performed in accordance with the terms and conditions of the Agreement.

SP-4. Respondent has failed and refused, and continues to fail and refuse, to perform the conditions of the Agreement on its part as set forth in the First Cause of Action of this Complaint (Paragraphs BC-2, supra).

SP-5. Plaintiffs have no adequate legal remedy in that damages, if awarded, cannot be properly ascertained since the damages from continued refusal of second priority rights pursuant to the Agreement are difficult to assess and are overly speculative, and damages will be inadequate to compensate Plaintiffs for their detriment suffered by it, including destruction and/or loss of real property and/or real property rights. Additionally, continued restrictions on Plaintiffs' second priority rights, in violation and in excess of the terms and provisions of the Agreement, constitute a continuing breach of contract which would lead to a multiplicity of lawsuits.

(If the item that this Attachment concerns is made under penalty of perjury, all statements in this Attachment are made under penalty of perjury.)

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(Add pages as required)

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MC-025 [Rev. July 1, 2009]

ATTACHMENT
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EXHIBIT "A"

RECORDING REQUESTED BY:
CHICAGO TITLE CO. ESCROW NO.
B643002-mm.
RECORDING REQUESTED BY/
AND MAIL TO:

KERN COUNTY WATER AGENCY
POST OFFICE BOX 58
BAKERSFIELD, CALIFORNIA 93302-0058

EXEMPT FROM RECORDING FEE
PURSUANT TO GOVERNMENT CODE
SECTION 27383

James Maples, Assessor-Recorder
Kern County Official Records

PATTI
Pages: 57
8/09/1996
12:00:00

DOCUMENT #:0196102058

0196102058

Fees....
Taxes...
Other...
Stat. Types: 1 TOTAL PAID...

DECLARATION OF
COVENANTS CONDITIONS & RESTRICTIONS

This Declaration is made this 14th day of Dec, 1995 by the KERN WATER BANK AUTHORITY, a California Joint Powers Authority ("KWBA") for the benefit of the KERN COUNTY WATER AGENCY, a California public agency ("Agency").

WHEREAS, KWBA and Agency have entered into a Transfer and Exchange Agreement, dated December 13, 1995, which at Section 3 provides for execution and recording of this Declaration upon the Agency transferring the Real Property described at Exhibit B to KWBA.

NOW, THEREFORE, KWBA DOES HEREBY PROVIDE THIS DECLARATION OF COVENANTS, CONDITIONS & RESTRICTIONS:

1.0 Definitions: The following definitions shall apply to this Declaration:

(a) "Agency Basic Contract Member Units": shall mean those member units that entered into long-term water supply contracts with the Agency prior to January 1, 1996, for an entitlement to a portion of the State Water Project furnished to the Agency annually by the State of California pursuant to the Agency's November 15, 1963 water supply contract with the State of California and any amendments thereto.

(b) "Agency Non-Basic Member Units": shall mean any member units of the Agency other than Agency Basic Contract Member Units.

(c) "Agency Member Units": shall mean member units of the Agency as that term is defined in Section 2(g) of the Kern County Water Agency Act, California Statutes 1961, Chapter 1003, as amended.

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(d) "Member Entities": shall mean those entities that have become members of the Kern Water Bank Authority by executing the Joint Powers Agreement for the Kern Water Bank Authority, and their successors and assigns that become members.

(e) "Project": shall mean the Project described in Article V of the Joint Powers Agreement for the Kern Water Bank Authority.

(f) "Property": shall mean the approximately 19,890 acres of real property together with all improvements thereon located within Kern County, California, more fully described in Exhibit A attached hereto and incorporated herein by reference.

(g) "SWP Agricultural Contractors": for purposes of this Declaration shall mean the following State Water Project contractors: County of Kings; Dudley Ridge Water District; Empire West Side Irrigation District; Kern County Water Agency; Oak Flat Water District; and Tulare Lake Basin Water Storage District.

(h) "SWP Urban Contractors": shall mean every State Water Project contractor other than the SWP Agricultural Contractors.

2.0 General - Property Benefitted & Burdened By Declaration: It is the intent of the parties that each restraint or restriction relating to the use, repair, maintenance or improvement of the Property shall constitute a covenant running with the land, binding upon all successive owners of all or any portion of the Property. Such covenants shall be for the benefit of the land of Agency as described in Exhibit A, and shall burden the Property described in Exhibit B.

3.0 Use Of Property:

3.1 The annual consumptive use of groundwater upon any of the Property by KWBA, any successor in interest to KWBA, or any transferee of any interest in the Property, shall be limited to 0.3 acre feet per acre; provided however, that KWBA, any successor in interest thereto, or any transferee of any interest in any of the Property may make arrangements for additional supplies, which may include water banked by KWBA and/or its Member Entities. In the event of a breach of the restrictions provided for in this Section, Agency shall have the rights and remedies provided for in Section 3.6.

3.2 Neither the whole, nor any part, nor any interest in the property described in Exhibit C, may be sold, transferred, leased, subleased, assigned, conveyed or encumbered without the express prior written consent of Agency Board of Directors , provided that (i) Agency shall not unreasonably withhold such consent; and (ii) upon consultation with the Agency, such property may be encumbered as a bona fide security for improvements upon this Property used for water banking purposes and such restrictions on transfer shall not apply to any transfer upon or deed in lieu of foreclosure of such permitted encumbrance or be binding upon any transferee pursuant to or in lieu of foreclosure or upon

such transferee's successors and assigns. In no event shall withholding of consent of the Agency be deemed unreasonable if Agency determines that the property involved can be used economically for groundwater storage and recovery for agricultural water use in Kern County. If Agency so determines, and KWBA disputes such determination, the matter shall be resolved by arbitration in accordance with the provisions of Title 9 (commencing with Section 1280) of Part 3 of the California Code of Civil Procedure. In determining whether the property affected can be economically used for groundwater storage and recovery for agricultural use in Kern County, the arbitrator shall not consider the possible economic returns from any other potential uses of the property. If the arbitrator determines that the property affected can not be used economically for such purpose, and KWBA thereafter elects to dispose of such property, Agency shall have a right of first refusal to purchase or lease such property on the same terms and conditions as those provided for in the proposed sale or lease. Any offer, acceptance, or agreement for such sale or lease by KWBA with a third party must state in writing that it is subject to such rights of Agency. KWBA shall serve written notice on Agency of the terms of such proposed sale or lease, and or any material amendments or modifications of such terms. Agency shall have 90 days after receipt of written notice of the terms of such sale or lease, or of any material amendments or modifications of such terms, whichever is later, to exercise such right of first refusal. In the event of a breach of the restrictions provided for in this Section, Agency shall have the rights and remedies specified in Section 3.6.

3.3 The property described in Exhibit D may be sold, transferred, leased, subleased, assigned, conveyed or encumbered; provided that all of the net proceeds from such disposition shall be used solely for the development, operation (including purchase of water) or maintenance of the Project, including any amortization of indebtedness incurred for such development, operation or maintenance, unless (i) substantially all the property described at Exhibit C has been or is being disposed of because it has been determined by the Agency or an arbitrator in accordance with the procedure set forth in Section 3.2 that the property described in Exhibit C can not be used economically for groundwater storage and recovery for agricultural water used in Kern County, or (ii) otherwise agreed to in writing by the Agency. In the event of a breach of the restrictions provided for in this Section, Agency shall have the rights and remedies provided for in Section 3.6.

3.4 The property described in Exhibit E may be sold, transferred, leased, subleased, assigned, conveyed or encumbered; provided that all of the net proceeds from such disposition shall be used solely for the development, operation (including purchase of water) or maintenance of the Project, including any amortization of indebtedness incurred for such development, operation or maintenance, unless (i) substantially all the property described at Exhibit C has been or is being disposed of because it has been determined by the Agency or an arbitrator in accordance with the procedure set forth in Section 3.2 that the property described in Exhibit C can not be used economically for groundwater storage and recovery for agricultural water used in Kern County, or (ii) otherwise agreed to in writing by the Agency. In the event that any of the property described in Exhibit E is sold, transferred, or conveyed, and KWBA does not retain and reserve a fee interest or a permanent exclusive easement, to

each of the well sites located thereon described in Exhibit F, together with any pumps or motors or other equipment used in connection with such wells, Agency shall have and is hereby granted an option (the "Option") to purchase such property at the fair market value. Agency may exercise the Option only if KWBA attempts to sell, transfer or convey any property listed on Exhibit E without retaining and reserving the well sites located thereon listed on Exhibit F. The Option shall be exercised by the Agency providing written notice to KWBA of the exercise of such option within 30 days of Agency's receipt of written notice from KWBA or any record owner of title to such property of a proposed sale, conveyance or transfer. Within 90 days of the date the parties agree as to the fair market value of the Property or within 90 days of the date of the appraisal provided for below, whichever is earlier, Agency and the owner of such property shall enter into the purchase agreement attached hereto as Exhibit G. The purchase price for such property shall be the fair market value of the property. In the event that the parties can not agree to the fair market value of the property within 30 days after the exercise of the Option, the parties shall select an M.A.I. appraiser to appraise the property. Each party shall pay one-half of the cost of such appraisal. In the event that the parties do not agree upon an appraiser within 45 days after the exercise of the Option, each party shall name an appraiser, and those appraisers shall jointly name an appraiser to appraise such property. In no event shall KWBA consummate more than three transfers or other transactions subject to this section without retaining the rights to such well sites.

3.5 KWBA may request that Agency make property which is subject to the restrictions contained in 3.2, subject instead to the provisions of 3.3. Such modification shall be subject to the written consent of the Agency; provided, Agency shall not unreasonably withhold such consent. If the Agency so determines, and KWBA disputes such determination, the matter shall be resolved by arbitration in accordance with the provisions of Title 9 (commencing with Section 1280) of Part 3 of the California Code of Civil Procedure. In the event the Agency so consents, Agency and KWBA shall promptly execute, acknowledge and record an appropriate amendment to this Declaration containing such modification.

3.6 In the event that KWBA, or any successor in interest to KWBA, or any transferee, lessee, sublessee or assignee of the Property affected, shall violate any of the restrictions or restraints upon such Property, or enter into any agreement which would cause such restrictions or restraints to be violated, or otherwise breach the terms of Sections 3.2, 3.3, 3.4 or 3.5, Agency shall have the following rights and remedies, at its sole election:

3.6.1 Agency shall be entitled to a temporary restraining order, and preliminary and permanent injunctions, restraining the breach of such restrictions; and in addition; any sale, transfer, lease, sublease, assignment, conveyance, encumbrance or use in violation or breach of the terms of Sections 3.3, 3.4 or 3.5 of this Declaration shall be void and of no force or effect; and Agency shall further be entitled to declaratory relief so providing;

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3.6.2 Agency shall be entitled to any other remedies it may have at law or in equity.

3.7 The foregoing provisions of Sections 3.1 through 3.6 of this Declaration shall not apply if KWBA elects to change its form to another form of public entity, and in connection with such change of form transfers title to the Property to such successor entity, provided that (i) 66-2/3% of the members of the KWBA are members of or participants in the successor agency; and (ii) such successor agency assumes the obligations under this Declaration in the same manner as required of the KWBA. The foregoing provisions of Sections 3.1 through 3.6 of this Declaration also shall not apply to any succession to the rights, interests and obligations of KWBA pursuant to Section 5.6(c) of the Joint Powers Agreement of the KWBA, dated October 16, 1995, as amended from time to time, provided that the reconstituted Authority assumes the obligations under this Declaration in the same manner as required of the KWBA.

4.0 Priorities For Use Of The Project:

4.1. The KWBA Member Entities shall have the first priority right to use the Project for the recharge, storage and/or recovery of water primarily for the use within the boundaries of the Agency and Dudley Ridge Water District. Included within such priority will be uses of the Project for recharge of high flow Kern River flows under terms and conditions of agreement(s) entered into between the KWBA or any of its Member Entities and the holders of Kern River water rights. The KWBA and/or its Member Entities intend to enter into long term exchanges and programs with other entities including entities outside of Agency boundaries. Such exchanges will be subject to the following:

4.1.1 Any such exchange or program with interests outside the boundaries of the SWP Agricultural Contractors, shall be subject to the approval of Agency under the same terms and conditions as Agency applies to other Agency Member Units.

4.1.2 If approved, these transactions will be included in this first priority use category.

4.2 To the extent there is recharge, storage and/or recovery capacity available in the Project facilities beyond that needed for the first priority ("Excess Capacity"), Agency Basic Contract Member Units, including Agency and its improvement districts, shall have the second priority right to use the Project for the recharge and/or recovery of water for use in the boundaries of Agency if they pay the Fair Compensation for such use or a lesser amount agreed to by KWBA. The meaning of "Fair Compensation" shall be the same as that set forth in California Water Code section 1811. The KWBA Board of Directors may establish from time to time such rates consistent with said section 1811.

4.3 The third priority shall be any Agency Non-Basic Contract Member Unit for use within Kern County, subject to the approval of terms and conditions acceptable

to the KWBA and approval of Agency, where Agency approval would otherwise be required absent the Project.

4.4 The fourth priority shall be any person, entity or organization within the County of Kern for use within Kern County, subject to terms and conditions acceptable to KWBA and approval of Agency, where Agency approval would otherwise be required absent the Project.

4.5 Any excess Capacity available beyond that needed for these first four priorities can be made available to other persons, entities, or organizations, including SWP Urban Contractors, on terms and conditions acceptable to the KWBA and Agency.

IN WITNESS HEREOF, this Declaration has been executed the date first above written.

KERN WATER BANK AUTHORITY

BY _____
WILLIAM D. PHILLIMORE

Its: Chairman

KERN COUNTY WATER AGENCY

BY _____
ADRIENNE JO MATHEWS

Its: President

223315.2

6

EXHIBIT E

KERN RIVER WATER SERVICE AGREEMENT

THIS AGREEMENT, made as of the 31st day of August, 1961, by and between ANDERSON CANAL, INC., JAMES CANAL, INC., JOYCE CANAL, INC., PIONEER CANAL, INC., and PLUNKET CANAL, INC.; all corporations duly organized and existing under and by virtue of the laws of the State of California (herein called "Canal Companies"), as First Parties, and ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT, a water storage district duly organized and existing under and by virtue of the laws of the State of California (herein called "Rosedale District"), as Second Party,

W I T N E S S E T H:

THAT WHEREAS:

A. Canal Companies execute this agreement on their own behalf and on behalf of all the parties of the second part (or their successors in interest) in and to that certain contract known as the "Miller-Haggin Agreement", dated July 28, 1888, and recorded in the Office of the County Recorder of Kern County, California, in Book 2 of Agreements, at page 40, as amended and supplemented, and all of the parties (or their successors in interest) whose water rights on the Kern River were adjudicated among themselves in that certain judgment known as the "Shaw Decree", rendered August 6, 1900, by the Superior Court of the State of California in and for the County of Kern, Honorable Lucien Shaw, Judge, in that certain Action No. 1901 entitled "Farmers Canal Company, et al., Plaintiffs, vs. J. R.

1.

Simmons, et al., Defendants", who might wish to share in the benefits and obligations of this agreement (herein called "Other Affiliates").

B. The increasing agricultural irrigation requirements of lands within Kern County are causing a continuing decline in the level of the ground-water table from which water in the Rosedale District is now drawn by pumps for irrigation purposes.

C. The Rosedale District was formed to provide an organized public entity that could cope with and solve the mutual water problems confronting residents and property owners of the area contained within the Rosedale District.

D. Canal Companies have observed that river seepage losses between First Point of Measurement and Second Point of Measurement on the Kern River have been increasing substantially during recent years, and the extent of such increased losses has become a matter of great concern to Canal Companies.

E. It is anticipated that future ground-water pumping conditions can be improved by the importation of additional surface water into the Rosedale District.

F. Canal Companies are undertaking to make improvements in the channel of the Kern River, the first phase being the construction of a concrete-lined canal, starting in the channel of the Kern River near the outlet of the Friant-Kern Canal in the West One-Half of Section 33, Township 29 South, Range 27 East, M.D.B.& M., running in a Southwesterly direction south of Kern River and terminating in the channel of Kern River at Second Point of Meas-

urement in the Northeast Quarter of Section 24, Township 30 South, Range 25 East, M.D.B.& M., hereinafter called the "Kern River Canal".

G. There is and for some years has been a shortage of water in Kern County, and because of such shortage, Rosedale District needs an additional permanent source of water.

H. Canal Companies are willing to make available to Rosedale District a permanent supply of water, and to furnish water transportation service, in the amounts and under the terms and conditions set forth in this agreement.

I. The parties desire to share in the mutual benefits which will accrue to them from construction of the Kern River Canal.

NOW, THEREFORE, Canal Companies and Rosedale District hereby agree with each other as follows:

1. Water Sale.

Canal Companies agree to sell to Rosedale District, and Rosedale District agrees to buy from Canal Companies, ten thousand (10,000) acre-feet of water per year computed as hereinafter provided upon a cumulative annual average basis, at the price and in accordance with the provisions hereinafter set forth, as follows:

(a) Term: The term of this agreement for the sale and purchase of water shall commence on the first day of January of the calendar year next following the calendar year in which the Kern River Canal is completed and placed in operation, and shall continue until terminated by mutual written consent or agreement of the Canal Companies and Rosedale District.

3.

(b) Quantity: The quantity of water to be sold hereunder will vary from year to year, but the cumulative annual average quantity delivered hereunder as of the end of any calendar year shall never be less than ten thousand (10,000) acre-feet per year. Such cumulative annual average quantity shall be computed as of the end of each calendar year during the term hereof by dividing the total quantity of water sold hereunder from the commencement of the term hereof to the end of such calendar year by the number of calendar years embraced within that period of time. The total quantity delivered hereunder during any period of five (5) consecutive calendar years of the term hereof shall never be less than five thousand (5,000) acre-feet.

(c) Deliveries: All water sold by Canal Companies to Rosedale District hereunder shall be delivered at Rosedale District's Diversion Works on Kern River in Section One (1), Township Thirty (30) South, Range Twenty-Six (26) East, M.D.B.& M. All such deliveries of water shall be made at such times and at such rates as Canal Companies deem practicable in the light of available water supplies, unused capacity in the Kern River Canal, and other pertinent factors; provided, however, that Canal Companies shall not without the prior written consent of Rosedale District deliver water hereunder at rates of flow exceeding one hundred sixty-seven (167) cubic feet per second or at times which would interfere with Rosedale District's receipt of water under its "Contract for Short Term Water Service" with the United States Bureau of Reclamation as described in the "Report on Proposed Project for Rosedale-Rio Bravo

Water Storage District" dated February, 1960, or any extension thereof, or any other temporary or short-term contract of a similar nature hereafter made between the Rosedale District and the Bureau of Reclamation for a comparable water supply in replacement for said Contract so described in said Report.

(d) Maximum Annual Deliveries: The quantity of water delivered by Canal Companies to Rosedale District hereunder during any calendar year shall not, without the consent of Rosedale District, exceed whichever of the following maximum limits shall be applicable:

(1) In each and every calendar year the maximum delivery hereunder shall be forty thousand (40,000) acre-feet.

(2) In each calendar year during which Rosedale District shall receive more than thirty thousand (30,000), but not more than forty-five thousand (45,000), acre-feet of water at its Rosedale District Diversion Works from the Bureau of Reclamation pursuant to the contract or contracts described in Paragraph 1(c) hereof, the maximum delivery hereunder shall be forty thousand (40,000) acre-feet minus one (1) acre-foot for each acre-foot of water in excess of thirty thousand (30,000) acre-feet so received from the Bureau of Reclamation during the year.

(3) In each calendar year during which Rosedale District shall receive more than forty-five thousand (45,000) acre-feet of water at its Rosedale District Diversion Works from the Bureau of Reclamation pursu-

ant to said contract or contracts, the maximum delivery hereunder shall be twenty-five thousand (25,000) acre-feet, of which ten thousand (10,000) acre-feet may be delivered whenever permissible under Paragraph 1(c) hereof and the other fifteen thousand (15,000) acre-feet may be delivered at any time during the same calendar year after the lapse of ninety (90) consecutive days following the discontinuance of deliveries of water to Rosedale District at its Rosedale District Diversion Works from the Bureau of Reclamation pursuant to said contract or contracts and the completion of deliveries hereunder of the aforementioned ten thousand (10,000) acre-feet of water.

(4) The total quantity of water sold hereunder at the end of any calendar year during the term hereof shall not, without the consent of Rosedale District, exceed by more than sixty thousand (60,000) acre-feet a quantity equal to the product obtained by multiplying ten thousand (10,000) acre-feet by the number of years elapsing from the commencement of the term hereof to the end of such calendar year.

(e) Notice of Deliveries: Not less than thirty (30) days prior to any contemplated delivery of water to Rosedale District hereunder, Canal Companies shall give Rosedale District written or oral notice of the date and rate of such contemplated delivery. The giving of any such notice shall not, however, obligate Canal Companies to make delivery in accordance with such notice.

(f) Refusal of Water: If Rosedale District shall refuse to accept delivery of any water tendered for delivery

by Canal Companies in accordance with the provisions of this contract, the quantity so tendered and refused shall nevertheless be included as "water delivered" in computing the cumulative average annual quantity of water sold hereunder pursuant to Paragraph 1(b) hereof.

(g) Free Water: In recognition of the possibility that the construction and operation of the Kern River Canal may reduce to some extent the quantity of water seeping or percolating from the Kern River Channel to and under the lands within Rosedale District, Canal Companies and Rosedale District agree that the first four thousand (4,000) acre-feet out of each successive ten thousand (10,000) acre-feet of water delivered to Rosedale District hereunder shall be deemed and is agreed to be full replacement for any and all such reduction in such seepage and percolation and shall be sold and delivered to Rosedale District free of charge. Such water shall, however, be deemed for all purposes to be water sold hereunder and shall be included in computing the cumulative average annual quantity of water sold hereunder pursuant to Paragraph 1(b) hereof.

(h) Price: The price for all water sold hereunder other than the first 4,000 acre-feet out of each successive 10,000 acre-feet shall be One Dollar ($1.00) per acre-foot.

(i) Additional Water Sales: Whenever the quantities of water delivered hereunder shall equal the applicable maximum limit specified above in Paragraph 1(d) hereof in any calendar year, the parties may, by mutual agreement

from time to time, provide for the sale and delivery of additional water by Canal Companies to Rosedale District hereunder at the rate of One Dollar ($1.00) per acre-foot.

(j) Use of Water: All water sold by Canal Companies to Rosedale District hereunder shall be used only within the boundaries of Rosedale District and not elsewhere, provided, however, that Rosedale District may enter into agreements providing for the delivery of such water to, in exchange for a like quantity of water from, areas outside the boundaries of Rosedale District, and provided further that before any such exchange is entered into, Canal Companies shall be notified thereof in writing and the method of exchange shall be subject to Canal Companies prior written approval.

(k) Modification of Schedules: Each and all of the maximum limits and schedules specified herein for water deliveries hereunder may be modified at any time or from time to time, either temporarily or permanently, by mutual agreement of Canal Companies and Rosedale District.

2. Transportation of Other Rosedale District Water.

(a) Upon completion of the Kern River Canal, Canal Companies agree, subject to the qualifications stated below, to transport from time to time upon written request of Rosedale District water purchased by Rosedale District from the United States Bureau of Reclamation through Canal Companies' facilities from the general vicinity of the terminal point of the Friant-Kern Canal to Rosedale District's diversion works in Section 1, Township 30 South, Range 26 East, M.D.B.&M., on the Kern River for a charge of ten

cents (10¢) per acre-foot of Rosedale District water so transported. Canal Companies agree to transport such water only when there is capacity in the Kern River Canal available for such purposes and such canal is not being used for the purpose of meeting Canal Companies' own requirements, the requirements of Other Affiliates, or the requirements of other persons pursuant to commitments existing on the date hereof pertaining to the transportation of water in the Kern River Canal.

(b) All Rosedale District water transported pursuant to this paragraph shall bear its own share of transportation losses, including but not limited to evaporation and seepage.

3. Kern River Channel Improvements

(a) The Rosedale District consents to and approves the construction and operation by Canal Companies of the Kern River Canal described above; provided that the maximum carrying capacity of such canal so constructed by Canal Companies shall not exceed eleven hundred (1100) cubic feet per second. Rosedale District makes no commitment, however, with respect to the construction or operation of any other canal between the outlet of Friant-Kern Canal and Second Point of Measurement nor with respect to any possible enlargement of the above-described Kern River Canal by Canal Companies or other parties above a maximum capacity of eleven hundred (1100) cubic feet per second. Rosedale District also agrees that it will not oppose the construction and operation of a similar canal of not exceeding 1100 cubic feet per second in capacity between the Calloway Weir in the Kern River Channel and the outlet of Friant-Kern Canal.

9.

(b) If Canal Companies or Other Affiliates are required by any court order in a proceeding commenced by or on behalf of any person as owner or operator of lands within Rosedale District to release into Kern River Channel any water which could be transported in the Kern River Canal within the capacity limits of 1100 cubic feet per second, or to deliver any water to the Rosedale District or to any such land, then all of such water so ordered to be released or delivered shall be deemed to have been sold and delivered to Rosedale District pursuant to Paragraph 1 of this agreement in partial satisfaction of Canal Companies' obligation to sell and deliver to Rosedale District a cumulative annual average quantity of at least ten thousand (10,000) acre-feet, and all such water shall be included in all computations of the cumulative average annual quantity of water delivered hereunder, but Rosedale District shall not be required to pay for such water pursuant to Paragraph 1(h) hereof.

4. Payments for Sale and Transportation of Water.

(a) The payments specified in Paragraphs 1(h), 1(i) and 2(a) hereof shall be adjusted annually upon request of either party upward or downward in proportion to the percentage variation in the Price Index for the "All Commodities" classification of the Wholesale Price Indices for Major Commodity Groups published by the Bureau of Labor Statistics of the United States Department of Labor, which index uses the years 1947 to 1949 as the base years, and which stood at 119.6 for the month of November, 1960. In the event of the discontinuance of said Index, the adjustment shall thereafter

be made upon the basis of whatever index shall replace or supersede the discontinued index. Said adjustment shall be made as of January 1 of each calendar year, and said payments shall be adjusted upward or downward in proportion to the percentage variation from the point at which said index stood on the first day of January of the first calendar year of the term of this agreement.

(b) As soon as possible after the end of each calendar year Canal Companies shall furnish Rosedale District with a written statement of all charges due with respect to operations hereunder during such calendar year pursuant to this agreement, and within ninety (90) days after the receipt of such statement Rosedale District agrees to pay the full amount thereof to Canal Companies at their office in Bakersfield, California.

5. Notices.

Any notice hereunder to either party shall be deemed to have been given if deposited in the United States Mail in a sealed envelope, postpaid, certified and addressed as follows:

To Canal Companies: Anderson Canal, Inc.
James Canal, Inc.
Joyce Canal, Inc.
Pioneer Canal, Inc.
Plunket Canal, Inc.
Post Office Box 380
Bakersfield, California

To Rosedale District: Rosedale-Rio Bravo Water Storage District
2714 L Street
Bakersfield, California

Any party may change its address by giving the other party written notice of its new address.

11.

6. Succession.

This agreement shall bind and inure to the benefit of the successors and assigns of each of the parties to this agreement. Neither this agreement nor any of its rights hereunder may be assigned by Rosedale District, however, without the prior written consent of Canal Companies.

EXECUTED in seven counterparts at Bakersfield, California, as of the day and year first above written.

ANDERSON CANAL, INC.

By William T. Boyle
President

(SEAL) Attest: D. S. Atwood
Secretary

JAMES CANAL, INC.

By William T. Boyle
President

(SEAL) Attest: D. S. Atwood
Secretary

JOYCE CANAL, INC.

By William T. Boyle
President

(SEAL) Attest: D. S. Atwood
Secretary

PIONEER CANAL, INC.

By William T. Boyle
President

(SEAL) Attest: D. S. Atwood
Secretary

PLUNKET CANAL, INC.

By William T. Boyle
President

(SEAL) Attest: D. S. Atwood
Secretary

First Parties

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT

By Paul E. Payne
President

(SEAL) Attest: Orma W. Palmer
ASSISTANT Secretary

Second Party

12.

EXHIBIT F

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER WR-2010-0010

In the Matter of the Petitions to Revise the
Declaration of Fully Appropriated Streams to Allow
Processing of Applications to Appropriate Water from the Kern River

SOURCE: Kern River

COUNTIES: Kern and Tulare

ORDER AMENDING DECLARATION OF FULLY APPROPRIATED STREAMS TO REMOVE DESIGNATION OF THE KERN RIVER AS FULLY APPROPRIATED

BY THE BOARD:

1.0 INTRODUCTION

Pursuant to Water Code sections 1205 through 1207, the State Water Resources Control Board (State Water Board or Board) has adopted and periodically revised the Declaration of Fully Appropriated Streams (Declaration). The Declaration includes a list of streams that have been found to be fully appropriated for all or part of the year based on court decisions or decisions by the State Water Board. The Kern River system has been found to be fully appropriated throughout the year from Buena Vista Sink upstream, including all tributaries where hydraulic continuity exists in Kern County. The Kern River system was included in the original Declaration adopted by State Water Board Order WR 89-25, and it remains listed on the most recent revised Declaration adopted by State Water Board Orders WR 91-07 and WR 98-08. Order 89-25 cited State Water Rights Board Decision 1196 (D-1196), issued on October 29, 1964, as the basis for including the Kern River on the Declaration. D-1196 was based on the fact that "there was no showing that there is unappropriated water available" in the Kern River watershed. (D-1196, p.5.)

In 2007, in accordance with California Code of Regulations, title 23, section 871, five petitions were filed with the State Water Board, Division of Water Rights (Division), requesting revision of the Kern River's fully appropriated status as listed in the Declaration. The five petitions were

received from: North Kern Water Storage District and City of Shafter, City of Bakersfield, Buena Vista Water Storage District, Kern Water Bank Authority and Kern County Water Agency (Petitioners). Petitioners also filed applications to appropriate water. Petitioners cited the Fifth District Court of Appeal's decision in *North Kern Water Storage District v. Kern Delta Water District* (1997) (147 Cal.App.4th 555 [54 Cal.Rptr.3d 578]) (North Kern Decision) as the basis for filing the petitions. The Fifth District's ruling found that there was a partial forfeiture of Kern Delta Water District's (Kern Delta) pre-1914 water rights on the Kern River.

2.0 BACKGROUND

California Code of Regulations, title 23, section 871 provides that the State Water Board may revoke or revise the Declaration upon its own motion or upon petition of any interested person. In this instance, the Board received the petitions from the above-named entities to revise the Declaration. In a memorandum dated October 8, 2008, the State Water Board Deputy Director for Water Rights concluded that there was sufficient information to process the petitions and conduct a hearing on the question of whether the Declaration should be revised. The Board held a pre-hearing Conference on September 24, 2009. The purpose of the pre-hearing conference was to receive comments from the parties and other participants on the scope of the hearing, the status of any negotiations to resolve protests, and any other appropriate procedural issues. Representatives of the following parties participated in the pre-hearing conference: Kern County Water Authority, Buena Vista Water Storage District, North Kern Water Storage District, Kern County Water Agency, City of Shafter[1] and the City of Bakersfield.

The primary concern of the parties raised at the pre-hearing conference was the scope of evidence that would be considered in this proceeding. In his letter of September 25, 2009, Board Member Arthur Baggett, Jr., the hearing officer for this proceeding, stated that, as expressed in the Notice of Public Hearing, the purpose of this proceeding is to determine if there has been a change in circumstances since the Kern River was included in the Declaration sufficient to justify the State Water Board revising the Declaration for the purpose of processing water right applications for the Kern River. Therefore, the parties were requested to limit evidence and testimony to whether additional information, based on court decisions or Board

[1] At the pre-hearing conference, these five parties, collectively called the North Kern Petitioners, agreed to consolidate testimony and file most exhibits jointly. The North Kern Petitioners likewise agreed to conduct direct and cross-examination of witnesses jointly. Each participant was allowed to give a separate opening statement and closing statement.

orders, or hydrological data showing periods of flows exceeding recognized rights, has become available since the Board listed the Kern River as fully appropriated.

A question was also asked regarding whether the State Water Board would accept evidence pertaining to contractual disputes over water in the Kern River. Board Member Baggett's September 25, 2009 letter to the service list stated that to the extent that these disputes are relevant to whether additional information has become available to justify the Board revising the Declaration, then such evidence may be considered.

The final issue raised at the pre-hearing conference was the extent to which instream flows and public trust matters would be addressed in this hearing. In his September 25, 2009 letter, the Hearing Officer stated public trust issues did not appear to be relevant to this proceeding. This issue is addressed more fully in Section 5.0 of this order.

The Board held a public evidentiary hearing on October 26-27, 2009. The hearing provided an opportunity for the petitioners and all interested parties to present evidence and argument in support of their positions. Following the hearing, the Board received legal briefs from the City of Bakersfield; the North Kern Petitioners, jointly; and the Kern County Water Agency, separately.

3.0 DESCRIPTION OF PENDING PETITIONS AND APPLICATIONS

Each petitioner submitted an application to appropriate the water identified in the petitions as follows:

1) Buena Vista Water Storage District's petition and application request a right to collect a maximum of 520,000 acre-feet/annum (afa) in surface and underground storage, and to directly divert a maximum amount of 180,000 afa for the purpose of irrigation.

2) City of Bakersfield's petition and application propose combined direct diversion and surface and underground storage of 90,000 afa. The purpose of use is for irrigation, domestic, municipal, recreation, industrial, fish and wildlife enhancement, and water quality uses.

3) Kern County Water Agency's petition and application propose combined direct diversion and surface and underground storage of 2,279,000 afa. The purpose of use is for municipal, irrigation, and aquifer storage.

4) Kern Water Bank Authority's petition and application propose to directly divert at a rate of 10 cubic feet per second (cfs) for 5,000 afa for municipal use, 1,500 cfs for 490,000 afa for irrigation use, and 15 cfs for 5,000 afa for industrial use. The total combined amount taken by direct diversion and underground storage will be 500,000 afa.

5) North Kern Water Storage District and City of Shafter's petition and application request to directly divert at a rate of 1,850 cfs. The maximum combined amount of direct use and surface and underground storage is 500,000 afa. The application by North Kern Water Storage District and City of Shafter lists irrigation, groundwater replenishment, municipal, industrial, domestic and other uses, of the water.

4.0 EVIDENCE SUPPORTING REVISION OF FULLY APPROPRIATED STREAM DECLARATION

As described above, the purpose of the hearing was to receive evidence and testimony regarding whether additional information has become available since the Board listed the Kern River as fully appropriated to justify the State Water Board revising the Declaration for the purpose of processing water right applications for the Kern River. The information could be based on court decisions or Board orders, or hydrological data showing periods of flows exceeding recognized rights. To this end, both Bakersfield and the North Kern Petitioners presented evidence that in some years there are periods of flows exceeding recognized rights in the Kern River, even without regard to any additional water that may be available due to the Kern Delta's partial forfeiture of its pre-1914 water rights. (Bakersfield 2-1, p. 15 ¶ 69 & 70; Joint Exhibit (JE)-46, pp. 2-3, ¶ 4.)

Specifically, Bakersfield submitted exhibit 2-18, which is a table of water diversions via the Kern River/California Aqueduct Intertie (Intertie). This table shows Kern River water being diverted into the Intertie in nine separate years since 1978.

Likewise, the North Kern Petitioners presented a graph; exhibit JE 67, showing Kern River water "undistributed to existing entitlements" in several years. Daniel Easton, witness for the North

Kern Petitioners, explained in his written and oral testimony that there was what he calls "undistributed release" water in at least eight months since 1964. (JE-46, p. 12, ¶ 28; Reporter's Transcript (R.T.) pp. 208-209.) Mr. Easton testified that water diverted into the Intertie is in excess of traditionally held and exercised rights and claims of right to Kern River water, and that whenever water has been released into the Intertie in the past, all Kern River water right claims had already been satisfied. (R.T. p. 264.) This water is, by definition, unappropriated water.

When asked about this "undistributed" water, Mr. Easton expressed his belief that the North Kern Decision would not have changed the availability of water in years of high flows; that water would have been available in those years anyway. (R.T. pp. 210-211.) Because the purpose of this hearing was to determine whether there is unappropriated water in the Kern River, not limited to whether the North Kern Decision made additional water available for appropriation, Mr. Easton's point merely reinforces the fact that in some years there is unappropriated water. Mr. Easton's point that water would have been available in those years regardless of the North Kern Decision further supports the conclusion that unappropriated water exists in the Kern River in some years.

In addition to the undisputed evidence that water has historically been diverted into the Intertie, and that those diversions are in excess of any proprietary water rights to the diversion and use of Kern River water, the evidence presented by the parties did not clearly resolve whether the partial forfeiture of Kern Delta's rights itself created any additional unappropriated water. Because, however, there is sufficient evidence, as discussed above, to justify the State Water Board revising the Declaration for the purpose of processing water right applications for the Kern River, the Board will not make a determination at this time regarding whether the other pre-1914 rights claimants will use, in full, any water released to the Kern River by the forfeiture judgment. It will be up to the applicants to show when and how much available water there is for appropriation in the context of the Division's processing of those applications.

5.0 ENVIRONMENTAL ISSUES/PUBLIC TRUST

Several parties raised the issue of the extent to which instream flows and public trust matters would be addressed in this hearing. In his September 25, 2009 letter to the service list, the Hearing Officer stated that based on the key issues identified in the August 24, 2009 Notice of Public Hearing, public trust issues did not appear to be relevant to this proceeding. As specified in the Notice of Public Hearing, no determination regarding approval of the pending applications for appropriation of water will be made until after the State Water Board makes a determination on whether the stream system is fully appropriated.

The environmental issues associated with the North Kern Petitioners' and City of Bakersfield's water right applications will be addressed by the State Water Board in the context of processing Petitioners' applications. Prior to any potential approval or decision to proceed with a proposed project, these entities and the State Water Board must fulfill their obligations under the California Environmental Quality Act (CEQA). (Pub. Res. Code, § 21000 et seq.) In addition to meeting statutory responsibilities under CEQA, the State Water Board will comply with its obligation to consider environmental and public interest issues under the Water Code and the public trust doctrine in the context of processing the water right applications submitted by Petitioners. As such, those issues are not relevant to this order.

6.0 CONCLUSION

It is clear from the evidence and testimony submitted by the parties to this hearing that, even without regard to the North Kern Decision, there is some unappropriated water in the Kern River. The State Water Board recognizes that processing water right applications will require consideration of numerous issues not addressed in this order, including those discussed above, the specific amounts of water available for appropriation under the applications, the season of water availability, the public interest in approval or denial of the applications, and any conditions to be included in any permits that may be issued on the applications. As indicated in the hearing notice, the focus of the Board's inquiry in this proceeding was on the relatively narrow task of determining if the evidentiary record supports revising the fully appropriated status of the Kern River. Based on our review of the record and the findings above, we conclude that the Declaration of Fully Appropriated Streams, as adopted by State Water Board Orders WR 89-25, WR 91-07 and WR 98-08, should be revised to allow for processing the applications to

appropriate water from the Kern River in accordance with the provisions of the Water Code and other applicable law.

ORDER

IT IS HEREBY ORDERED THAT, based upon the foregoing findings:

1) The Declaration of Fully Appropriated Streams, as adopted by the State Water Board in Orders WR 89-25, WR 91-07 and WR 98-08, is amended to allow for processing applications to appropriate water from the Kern River.[2]

2) The Division shall process any water right applications accepted as a result of this order in accordance with applicable law.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on February 16, 2010.

AYE:	Chairman Charles R. Hoppin Vice Chair Frances Spivy-Weber Board Member Arthur G. Baggett, Jr. Board Member Tam M. Doduc Board Member Walter G. Pettit
NAY:	None
ABSENT:	None
ABSTAIN:	None

Jeanine Townsend
Clerk to the Board

[2] This order does not affect the separate designations of the North Fork Kern River or the unnamed spring tributary to Cuddy Creek as fully appropriated.

EXHIBIT G

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER WR 2010-0016

In the Matter of Petition for Reconsideration of

North Kern Water Storage District
City of Shafter
Buena Vista Water Storage District
Kern Water Bank Authority
Kern County Water Agency

Regarding Order Amending Declaration of Fully Appropriate Streams
To Remove Designation of the Kern River as Fully Appropriated

ORDER DENYING RECONSIDERATION

BY THE BOARD:

1.0 INTRODUCTION

On February 16, 2010, the State Water Resources Control Board (State Water Board or Board) issued State Water Board Order (Order) WR 2010-0010 amending the Declaration of Fully Appropriated Streams (FAS declaration) to remove the designation of the Kern River as fully appropriated. The FAS declaration was amended based on evidence showing unappropriated water in the Kern River. North Kern Water Storage District, City of Shafter, Buena Vista Water Storage District, Kern Water Bank Authority and Kern County Water Agency (Petitioners) jointly filed a petition for reconsideration on March 18, 2010 (Petition). Petitioners request that the State Water Board amend Order WR 2010-0010 to find that the petitioners requesting revision of the FAS declaration failed to demonstrate the existence of unappropriated water available for appropriation, and for that reason dismiss all petitions to revise the declaration. Petitioners also request that the Board amend Order WR 2010-0010 to "clearly state that occasional flood flows are not the basis for amending the FAS declaration absent an application" to place such waters to beneficial use, and for that reason dismiss all petitions to revise the declaration. In the alternative, Petitioners ask that the Board reopen the proceeding to receive further evidence regarding whether the Fifth District Court of Appeal's (Court of Appeal) decision in *North Kern*

Water Storage District v. Kern Delta Water District (*North Kern*) (1997) 147 Cal.App.4th 555 resulted in additional water available for appropriation and definitively resolve that issue before accepting any water right applications on the Kern River.

2.0 GROUNDS FOR RECONSIDERATION

Any person interested in any application, permit or license affected by a State Water Board decision or order may petition for reconsideration of the decision or order. (Cal. Code Regs., tit. 23, § 768.)[1] The legal bases for reconsideration are: (a) irregularity in the proceedings, or any ruling, or abuse of discretion, by which the person was prevented from having a fair hearing; (b) the decision or order is not supported by substantial evidence; (c) there is relevant evidence which, in the exercise of reasonable diligence, could not have been produced; or (d) error in law.

The State Water Board may refuse to reconsider a decision or order if the petition for reconsideration fails to raise substantial issues related to the causes for reconsideration set forth in section 768 of the State Water Board's regulations. (§ 770, subd. (a)(1).) Alternatively, after review of the record, the State Water Board may deny the petition if the State Water Board finds that the decision or order in question was appropriate and proper, set aside or modify the decision or order, or take other appropriate action. (*Id.*, subd. (a)(2)(A)-(C).)

3.0 LEGAL AND FACTUAL BACKGROUND

The Kern River system was previously found to be fully appropriated throughout the year from the Buena Vista Sink upstream, including all tributaries where hydraulic continuity exists in Kern County, and, pursuant to Water Code section 1205, was included in the original FAS declaration. (Order WR 89-25.) That original FAS declaration cited State Water Rights Board D1196 (D1196), issued on October 29, 1964, as the basis for including the Kern River in the declaration. (Order WR 89-25, pp. 13-14.)

[1] All further regulatory references are to the State Water Board's regulations located in title 23 of the California Code of Regulations unless otherwise indicated.

In 2007, five petitions were filed with the State Water Board's Division of Water Rights (Division), requesting revision of the Kern River's fully appropriated status as listed in the FAS Declaration. The five petitions were received from the North Kern Water Storage District (North Kern) and City of Shafter, City of Bakersfield, Buena Vista Water Storage District, Kern Water Bank Authority and Kern County Water Agency. The petitions cited *North Kern* as the basis for filing the petitions. The Court of Appeal's ruling in *North Kern* found that there was a partial forfeiture of Kern Delta Water District's pre-1914 water rights on the Kern River, leaving it to the State Water Board to determine whether the Kern River is no longer fully appropriated. (*North Kern*, *supra*, 147 Cal.App.4th p. 583.)

Pursuant to section 871, subdivision (b), Victoria Whitney, the State Water Board Deputy Director for Water Rights, issued a memorandum dated October 8, 2008 (Whitney Memo), concluding that there is sufficient information to process the petitions and conduct a hearing on the question of whether the FAS declaration should be revised. The Whitney Memo identified two changes in circumstances since D1196 was issued in 1964 that provide bases for concluding that water may be available for appropriation. First, water has been diverted from the Kern River into the California Aqueduct on numerous occasions since the aqueduct's construction in 1977. (Whitney Memo, pp. 3-4.) Second, *North Kern* found that some of the rights that were considered in D1196 had been partially forfeited. (*Id.*, at pp. 3-5.)

On August 24, 2009, the Board issued a Notice of Public Hearing and Pre-Hearing Conference (Hearing Notice), stating that any action on the petitions would be for purposes of determining whether the Declaration should be revised, and no determination regarding approval of the pending applications will be made until after the Board makes a determination on whether the stream system is fully appropriated. (Hearing Notice, p. 2.) Pursuant to the Hearing Notice, the State Water Board held a pre-hearing conference on September 24, 2009 and a public hearing on October 26 and 27, 2009. After receiving all evidence, the Board accepted closing arguments, and on February 16, 2010, issued Order WR 2010-0010 amending the FAS Declaration to remove the designation of the Kern River as fully appropriated. Order WR 2010-0010 concluded that there is unappropriated water on the Kern River, because water in excess of any proprietary water right to diversion from the Kern River has been diverted into the Kern River-California Aqueduct Intertie (Intertie). (*Id.*, pp. 4-5.) Having determined that there is some unappropriated water on the Kern River without regard to the forfeiture,

Order WR 2010-0010 concluded that it was unnecessary to determine how much, if any, additional water was made available through forfeiture. (*Id.*, pp. 5-6.)

4.0 DISCUSSION

Petitioners offer six reasons why they believe Order WR 2010-0010 is inappropriate and improper. In summary, these arguments claim that it has not been established that any additional water has been made available for appropriation as a result of forfeiture, and that it was inappropriate to consider other changes in circumstances indicating that water is available for appropriation.

4.1 It is not necessary for the evidentiary record to prove that the *North Kern* decision created "new water."

In Order WR 2010-0010, the Board concluded that even without regard to the *North Kern* decision, the evidentiary record established that there is some unappropriated water in the Kern River. Petitioners contend that "a petition [must] be dismissed unless the petitioner proves the existence of 'new water'." (Petition, p. 4.) Petitioners equate "new water" with a demonstration that the *Kern River* decision made additional water supplies available in excess of that needed to satisfy existing rights. (See *id.*, pp. 7-8.)

The Water Code does not set any specific limitation on the factors that may be considered in determining whether to revise the FAS declaration. (Wat. Code, § 1205, subd. (c).) State Water Board regulations indicate that the FAS declaration may be revised based on "any relevant factor, including but not limited to a change in circumstances …. " (§ 871, subd. (b).) The diversion of water into the California Aqueduct through the Intertie in amounts in excess of those needed to meet the demands of proprietary water right holders on the Kern River is a relevant factor because it constitutes a change in circumstance and demonstrates that there is unappropriated water on the Kern River.

In support of their argument that the existence of "new water" must be established, Petitioners rely on Order WR 2000-12.[2] However, Order WR 2000-12 does not specify such a requirement. As Petitioners recognize, Order WR 2000-12 determined that there was a basis for revising the FAS declaration because "water previously lost as flood flows can now be stored or regulated by the new Seven Oaks Dam flood control project." (Order WR 2000-12 at p. 1, see *id.* at pp. 13-14.) One of the circumstances justifying a revision of the FAS declaration here – the construction of a major water development project making it possible to capture what were previously considered to be flood flows that could not practicably be appropriated – is essentially the same as identified as a basis for modifying the FAS declaration in Order WR 2000-12.[3]

4.2 The Board was not required to determine whether the North Kern decision resulted in unappropriated water.

Petitioners contend that the Board improperly deferred a decision whether the *North Kern* decision resulted in appropriated water. Because the evidence in the record established that there is some unappropriated water in the Kern River even without regard to the forfeiture issue, it was unnecessary to determine whether the *North Kern* decision resulted in unappropriated water. It is not necessary to determine how much unappropriated water is available, and therefore is not necessary, at this stage, to determine whether there are additional reasons unappropriated water may be available beyond that identified as a basis for deciding that at least some unappropriated water is available. Once it is determined that there is adequate cause to revise the FAS declaration, the determination whether sufficient unappropriated water is available for the diversion and use proposed under an application can best be decided in proceedings to issue or deny a permit on that application. As stated in Order WR 2010-0010:

> [P]rocessing water right applications will require consideration of numerous issues not addressed in this order, including … the specific amounts of water available for appropriation under the applications, the season of water

[2] Petitioners also rely on an unpublished draft Board order concerning the American River. Because a draft order has not been adopted by the Board, it does not constitute "longstanding FAS precedent," and Petitioners' reliance on it is misplaced.

[3] Petitioners characterize the water made available by the Seven Oaks flood control project as "new water." (Petition, p. 6.) Applying Petitioners' definition of "new water," water made available through flood control facilities that divert water through the Intertie would also constitute "new water." Because the Water Code, Board regulations and Board precedents do not establish any requirement for "new water," we see no need to define the term.

> availability, the public interest in approval or denial of the applications, and any conditions to be included in any permits that may be issued on the applications.

(Order WR 2010-0010, p. 6.)

The Board has been consistently clear that these issues would not be decided during this particular portion of the proceeding, and that "[a]s indicated in the hearing notice, the focus of the Board's inquiry in this proceeding was on the relatively narrow task of determining if the evidentiary record supports revising the fully appropriated status of the Kern River." (*Ibid.*)

This approach is consistent with the Board's approach in previous Board orders. As part of an order revising the FAS declaration as applied to the Santa Ana River, the Board stated:

> All questions regarding the specific amount of water available for appropriation under the applications, the season of water availability, approval or denial of the applications, and the conditions to be included in any permit(s) that may be issued... will be resolved in further proceedings on each application pursuant to applicable provisions of the Water Code.

(Order WR 2000-12, p. 2.)

In Order WR 94-1, the Board denied a request for modification of the declaration for the Kern River because there had been no "showing that hydrologic conditions in the Kern River have changed or that other circumstances exist which justify the continued processing of Application 27554." (Order WR 94-1, p. 9.) The Board did not suggest that the petitioner was required to show exactly how much water had been made available in order for the Board to revise the declaration. The Board merely required a sufficient showing of the availability of at least some unappropriated water as to justify the processing of an application.

Contrary to Petitioners' contentions, this approach is not in conflict with the *North Kern* decision. The Court of Appeal held that "the initial determination whether the forfeiture creates an allocable excess is reserved in the first instance to [the State Water Board]." (*North Kern*, *supra*, 147 Cal.App.4th p. 584.) The *North Kern* decision did not dictate that the Board would make its determination as part of its processing of a petition for revising the FAS declaration. If the FAS declaration is revised based on a determination that at least some water is available for appropriation, the Board may determine how much, if any, water is made available as a result of forfeiture as part of its subsequent review of an application to appropriate the water alleged to

have been forfeited. The approach followed by the Board in Order WR 2010-0010, where the Board determines to what extent unappropriated water is available as a result of the forfeiture in the context of a request by a party seeking to appropriate that water, is fully consistent with the *North Kern* decision. (See *id.*, p. 583 [the "determination will be made" by the State Water Board in reviewing "a petition of a potential appropriator of the excess."].)[4]

4.3 The evidence in the record supports the conclusion that water diverted into the Intertie is unappropriated water.

The Whitney Memo directly raises the issue of water diverted into the Intertie, stating that "the agreement [between the Department of Water Resources (DWR), the Kern County Water Agency and other water districts asserting water rights on the Kern River] limits Intertie diversions to flood flows *in excess of the needs of the districts claiming water rights on the Kern River.*" (Whitney Memo, p. 3, italics in original.) Evidence presented at the hearing, as described in Order WR 2010-0010, directly supports this conclusion. Petitioners contend that the evidence supporting this conclusion cannot be relied upon.

Petitioners concede that substantial amounts of water have been diverted into the California Aqueduct, with diversions occurring on several occasions. (See Order WR 2010-0010, pp. 4-5.) They claim, however, that the testimony that these diversions were in excess of the needs of water right holders should be disregarded because the witnesses did not have the expertise necessary to conduct a legal analysis for the water rights of parties claiming rights on the Kern River. (Petition, pp. 13-14.) Petitioners' argument mischaracterizes the nature of the testimony, which was based on the demands of those claiming entitlements, not the amounts to which the claimants might be entitled if they both intended to divert and reasonably needed the water for beneficial use. All water rights are limited to amounts reasonably necessary for beneficial use (Wat. Code, §§ 100, 101), and even if water could be put to beneficial use, it is unappropriated water if no water right holder intends to use it. (See *id.*, § 1201.) The witnesses were familiar

[4] We do not read the Court of Appeal's use of the word "petition" as intended to exclude the State Water Board's consideration of the issue as part of its processing of a water right application. There is no indication that the court had any intent to limit the discretion vested in the Board, including the discretion to decide which procedures the Board should employ in making its determination.

with hydrologic conditions and water demands on the Kern River, and were competent to testify on those issues. (See Joint Exhibit (JE) 46 and Bakersfield Exhibit 2-1.) Their testimony was more than adequate to support the conclusion that the waters diverted into the Intertie are taken from flows in excess of the amounts reasonably necessary to meet the demands of those with entitlements to divert water for beneficial use from the Kern River.

Based on previous determinations that the Kern River is fully appropriated, Petitioners also contend that the record indicates that diversions though the Intertie were not in excess of proprietary rights. (Petition, pp. 15-17.) But these determinations were based on conditions as they were understood to be prior to construction of the Intertie. (See, e.g., D1196; see also Order WR 89-25 [basing determination on the record before the Board when it issued D1196].) Moreover, these determinations and testimony cited by Petitioners are addressed to the general issue of whether unappropriated water is available under most conditions, and does not specifically address the relatively infrequently occurring conditions prevailing at times when water is diverted though the Intertie. Far from establishing that there is never any unappropriated water on the Kern River, Petitioners' reliance on previous determinations underscores the point that the evidence concerning diversions through the Intertie amounts to changed conditions.

Petitioners contend that there is "no evidence" that the water diverted through the Intertie has been "anything other" than water voluntarily transferred pursuant to pre-1914 appropriative rights. (See Petition, p. 18, citing Wat. Code, § 1706.)[5] But a voluntary transfer would be made pursuant to the entitlements and demands of Kern River users, contrary to the testimony that diversions through the Intertie are based on water in excess of those demands. (See JE 46 and Bakersfield Exhibit 2-1; see also Whitney Memo, p. 3 ["the agreement [between DWR, the Kern County Water Agency and other water districts asserting water rights on the Kern River] limits Intertie diversions to flood flows *in excess of the needs of the districts claiming water rights on*

[5] In the alternative, Petitioners contend that if the water diverted into the Aqueduct is being diverted solely for flood control purposes, and not for beneficial use, then the diversions are not subject to the Board's water right authority. (Petition, p. 18-19; see generally State Water Board Decision 100, p. 61 [flood control is not a beneficial use].) The purpose of these proceedings is not to determine whether water diverted though the Intertie is subsequently put to beneficial use for which a water right permit is required, but merely to determine whether the FAS declaration should be revised. Evidence that water is being diverted through the Intertie and exported from the Kern River watershed during periods when the diversion does not injure any water right holder on the Kern River, where there is no permit authorizing appropriation of water diverted through the Intertie, establishes the availability of unappropriated water whether or not a permit is required for those diversions.

the Kern River."].) The testimony also indicated that diversions were made for flood control purposes. (Reporter's Transcript, pp. 263-265.) There is no evidence in the record that any, let alone all, of the water diverted through the Intertie was delivered pursuant to a voluntary transfer under pre-1914 water rights.

4.4 In determining whether to revise the FAS declaration, the Board is not limited to consideration of sources of unappropriated water sought to be appropriated by a party petitioning for revision of the FAS declaration.

Petitioners suggest that because there are no applications for water diverted into the Intertie, the Board cannot amend the FAS declaration based on the availability of that water. (Petition, pp. 19-21.) However, the procedures for revising the FAS declaration do not limit the Board's consideration to water sought to be appropriated in an application filed by a petitioner, or even require that an application be filed. Board regulations establish that the Board may revise the declaration based either on the recommendation of the Deputy Director for Water Rights, as provided by section 871, subdivision (b), or based on a petition of a person seeking revision of the fully appropriated status of a stream system, as provided by section 871, subdivision (c). Subdivision (b) does not include any requirement for the filing of an application, and under subdivision (c), a petitioner "may," but is not required to, file an application accompanying the petition. (§ 871, subd. (c)(2).) The proceedings leading to adoption of Order WR 2010-0010 were based both on the recommendations of the Deputy Director for Water Rights and the petitions that had been filed.

Petitioners claim that they did not have proper notice that the availability of water diverted into the Intertie was relevant to whether the FAS declaration should be revised. This contention is without merit. The Whitney Memo, which was sent to the parties under cover of letter dated October 30, 2008, directly raises the issue of water diverted into the Intertie and unambiguously specifies that construction and use of the Intertie constitute changed circumstances since 1964. (Whitney Memo, p. 4.) The hearing notice clearly identified this memo as part of its discussion of the bases for the proceedings, and included a link to the Whitney Memo. (Hearing Notice, p. 2.) The Hearing Notice recited the conclusion that "there is sufficient information to process the petitions *and conduct a hearing on the question of whether the Declaration should be revised pursuant to California Code of Regulations, title 23, section 871, subdivision (b).*" (*Ibid.*) Thus, the parties were on notice that the hearing would include consideration of the

recommendations of the Deputy Director for Water Rights, as provided by section 871, subdivision (b), including the Deputy Director's recommendation that the FAS declaration be revised due to changed circumstances involving diversions into the Intertie, and not based solely on the petitions, pursuant to section 871, subdivision (c).

4.5 The potential for issuance of temporary permits does not preclude revision of the FAS declaration.

Petitioners claim it was legal error to revise the FAS declaration based on evidence indicating unappropriated water is available intermittently, during periods of high flows. (Petition, pp. 21-23.) Petitioners point out that these flows could be appropriated based on temporary permits, even if a stream system is listed as fully appropriated in the FAS declaration. (See Wat. Code, §§ 1206, subd. (c), 1425 et seq.) The temporary permit procedure is not intended as a substitute for approval of appropriations pursuant to the ordinary permitting process. (See *id.*, § 1425, subds. (a) [authorizing temporary permits based on "urgent need"] & (c) [the Board ordinarily should not issue a temporary permit if the applicant has not exercised due diligence to obtain a permit pursuant to the ordinary permitting process].) The desirability of authorizing appropriations though the ordinary permitting process, instead of through repeated issuance of temporary permits, is underscored by the statement in the Whitney Memo that "DWR has informed the State Water Board that it intends to use the Intertie more frequently over the next several years." (Whitney Memo, p. 3.)

While Petitioners are correct that temporary permits could be issued to authorize appropriations of flood flows, it does not follow that a temporary permit is the best or only method for authorizing such appropriation, as the circumstances where a temporary permit may be issued include almost any other circumstance that might support amendment of the FAS declaration to remove a fully appropriated listing. A temporary permit may be issued if unappropriated water is available on a stream system listed as fully appropriated, and permitting the appropriation would further the state policy that waters should be put to beneficial use to the fullest extent to which they are capable. (Wat. Code, § 1425, subd. (c).) If the FAS declaration could not be amended under circumstances where a temporary permit could be issued, the FAS declaration could not be amended based on changed circumstances indicating that unappropriated water is available. The Water Code provides the Board with broad authority to revoke or revise a declaration that a stream system is fully appropriated, without any reference to whether unappropriated waters are

available only occasionally or could be appropriated pursuant to temporary permits. (*Id.*, § 1205, subd. (c).) Adopting Petitioners' argument would eliminate that discretion, leaving the Board with little or no ability to revise a declaration that a stream system is fully appropriated.

In Order WR 2000-12, the Board revised the declaration that the Santa Ana River is fully appropriated based on occasional flood flows. Petitioners do not contend that Order WR 2000-12 was incorrectly decided, but instead argue that the Board's authority to revise the FAS declaration based on intermittently or occasionally available flows is limited to cases where an application is filed to appropriate those flows. (Petition, pp. 22-23.) As discussed above, however, the Board's authority to revise the FAS declaration is not limited to those issues that must be decided in addressing an application accompanying a petition to revise the FAS declaration.

As in the case of Order WR 2000-12, revising the FAS declaration here is consistent with the constitutional policy of putting waters to beneficial use to the fullest extent to which they are capable. (Cal. Const., art. X, § 2.) Revising the FAS declaration allows for the filing of applications to obtain rights to put to beneficial use high flows initially diverted for flood control purposes pursuant to the statutory appropriative rights procedures, and these statutory procedures are in furtherance of the constitutional policy. (See Wat. Code, § 1050.)[6]

[6] Order WR 2010-0010 and this order do not specifically address the issue of whether a permit is required for current operations of the Intertie. It is unnecessary to address that issue in order to determine that the FAS declaration should be revised, and the Department of Water Resources has requested that we not make a determination on the issue at this time. The Board's decision not to address the issue should not be construed as a determination that no permit is required or that the Board has any misgivings about the opinions expressed by the Chief Counsel in a memo dated January 22, 2007. Allowing parties to obtain water rights for beneficial use of waters diverted through the Intertie helps promote the constitutional policy of putting water to full beneficial use, and the Legislative determination that this policy should be implemented through the statutory permitting and licensing system, whether or not a permit is required for diversions through the Intertie.

4.6 Order WR 2010-0010 is not unlawfully broad or uncertain.

Petitioners observe that the Board has discretion to impose conditions and limitations when it revises the FAS declaration to remove the designation of a stream system as fully appropriated, but cite no authority requiring the Board to impose conditions and limitations. In this case, the Board has determined that at least some unappropriated water is available, but has not determined how much. While some water rights on the Kern River have been partially forfeited under the *North Kern* decision, and some water may be available for appropriation as a result, it has not been determined how much, if any, unappropriated water has become available, or under what conditions it may have become available due to forfeiture. In addition, while water has been diverted through the Intertie only occasionally, it appears that the Intertie will be used more frequently in the future. In these circumstances, it would be difficult, if not impossible, to craft conditions or limitations that would meaningfully limit the types of applications that could be filed without having the undesirable effect of precluding applications seeking to appropriate water that is in fact unappropriated.

In these circumstances, Order WR 2010-0010 reasonably concluded that issues concerning the specific amounts of water available for appropriation, the season of water availability, and other issues relevant to determining whether water rights permits may be issued are best determined as part of the processing of water right applications. (Order WR 2010-0010, p. 6.) As part of its evaluation of a water right application, the Board may require the applicant to prepare and submit a water availability analysis. (See Wat. Code, §§ 1260, subd. (k), 1275, subd. (a).) The Board may also require of those who protest the application based on claims that the appropriation would divert water to which they are entitled, that they provide information supporting their protests. (*Id.*, § 1335, subd. (c)(3).) These procedures allow the Board to address availability of unappropriated water as part of application processing in greater detail than in a FAS declaration proceeding. Application processing procedures also serve to address other relevant issues, including environmental and public trust issues. (Order WR 2010-0010, p. 6.)

While the Board has discretion to impose conditions and limitations on the applications it will consider, imposing conditions like those suggested by Petitioners is neither necessary nor desirable at this time. If, as part of its consideration of an application, the Board issues an order

or decision determining that no water is available for appropriation under particular seasons or conditions, including but not limited to a determination that no water is available for appropriation taking into account waters reasonably necessary for the protection of instream beneficial uses under those seasons or conditions, the Board may amend the FAS declaration at that time. (See Wat. Code, §§ 1205, subd. (b), 1243.)

ORDER

IT IS HEREBY ORDERED THAT, for the foregoing reasons, Petitioners' petition for reconsideration is denied.

CERTIFICATION

The undersigned Clerk of the Board does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on May 4, 2010.

AYE:	Chairman Charles R. Hoppin Vice Chair Frances Spivy-Weber Board Member Arthur G. Baggett, Jr. Board Member Tam M. Doduc Board Member Walter G. Pettit
NAY:	None
ABSENT:	None
ABSTAIN:	None

Jeanine Townsend
Clerk to the Board

EXHIBIT H

TYPE OR PRINT
IN BLACK INK
(For instructions, see booklet: "How to File an Application to Appropriate Water in California")

APPLICATION NO. 31819

California Environmental Protection Agency

State Water Resources Control Board
Division of Water Rights
P.O. Box 2000, Sacramento, CA 95812-2000
Tel: (916) 341-5300 Fax: (916) 341-5400
www.waterboards.ca.gov/waterrights

APPLICATION TO APPROPRIATE WATER

1. APPLICANT/AGENT

	APPLICANT	ASSIGNED AGENT (if any)
Name	ROSEDALE-RIO BRAVO WATER	
	STORAGE DISTRICT	
Mailing Address	P. O. Box 867	
City, State & Zip	Bakersfield, CA 93302	
Telephone	661-589-6045	
Fax	661-589-1867	
E-mail	eaverett@rrbwsd.com	

2. OWNERSHIP INFORMATION (Please check type of ownership.)

☐ Sole Owner ☐ Limited Liability Company (LLC) ☐ General Partnership*
☐ Limited Partnership* ☐ Business Trust ☐ Husband/Wife Co-Ownership
☐ Corporation ☐ Joint Venture ☒ Other See Attachment 1, Sec. 2

*Please identify the names, addresses and phone numbers of all partners.

3. PROJECT DESCRIPTION (Provide a detailed description of your project, including, but not limited to, type of construction activity, area to be graded or excavated, and how the water will be used.) Add additional pages if needed and check box below and label as an attachment.

See Attachment 1, Sec. 3.

2010 JAN 29 PM 2 3

☒ For continuation, see Attachment No. 1

DFG ? 1/29/2010 $850.00 RP

1/29/2010 $454,960.00 RP

4. PURPOSE OF USE, DIVERSION/STORAGE AMOUNT AND SEASON

a. PURPOSE OF USE (irrigation, domestic, etc.)	DIRECT DIVERSION				STORAGE		
	AMOUNT		SEASON OF DIVERSION		AMOUNT	SEASON OF COLLECTION	
	Rate (cfs or gpd)*	Acre-feet per annum	Beginning date (month & day)	Ending date (month & day)	Acre-feet per annum	Beginning date (month & day)	Ending date (month & day)
Domestic		65,750	Jan. 1	Dec. 31			
	Total afa	65,750		Total afa			

☐ *See Attachment No.* ___ * If rate is less than 0.025 cubic feet per second (cfs), use gallons per day (gpd).

b. Total combined amount taken by direct diversion and storage during any one year will be 65,750 acre-feet.

c. Reservoir storage is: ☐ onstream ☐ offstream ☐ underground (If underground storage, attach Underground Storage Form.)

d. County in which diversion is located: Kern County in which water will be used: Riverside, Los Angeles and Orange

5. SOURCES AND POINTS OF DIVERSION/REDIVERSION

a. Sources and Points of Diversion (POD)/Points of Rediversion (PORD):

☒ POD / ☐ PORD # 1 Kern River/Cal. Aqueduct Intertie tributary to _____ thence _____

☐ POD / ☐ PORD # _____ tributary to _____ thence _____

☐ POD / ☐ PORD # _____ tributary to _____ thence _____

☐ POD / ☐ PORD # _____ tributary to _____ thence _____

If needed, attach additional pages, check box below and label attachment

☐ *See Attachment No.* ___

b. State Planar and Public Land Survey Coordinate Description:

POD/ PORD #	CALIFORNIA COORDINATES (NAD 83)	ZONE	POINT IS WITHIN (40-acre subdivision)	SECTION	TOWN-SHIP	RANGE	BASE AND MERIDIAN
	See Attachment 1, Sec. 5(b) Attachment 3		¼ of ¼				
			¼ of ¼				
			¼ of ¼				
			¼ of ¼				

If needed, attach additional pages, check box below and label attachment

☒ *See Attachment No.* 1 & 3

c. Name of the post office most often used by those living near the proposed point(s) of diversion: Tupman, California

6. WATER AVAILABILITY

a. Have you attached a water availability analysis for this project? ☐ YES ☒ NO
If NO, provide sufficient information to demonstrate that there is reasonable likelihood that unappropriated water is available for the proposed appropriation: If needed, attach additional pages, check box below and label attachment.
See Attachment 2.

☒ *See Attachment No.* 2

b. Is your project located on a stream system declared to be fully appropriated by the State Water Resources Control Board (State Water Board) during your proposed season of diversion?
☐ YES ☒ NO

c. In an average year, does the stream dry up at any point downstream of your project? ☐ YES ☒ NO
If YES, during which months? ☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec

d. What alternate sources of water are available if a portion of your requested diversion season must be excluded because water is not available for appropriation? (e.g., percolating groundwater, purchased water, etc.) If needed, attach additional pages, check box below and label attachment
See Attachment 1, Sec. 6(d).

☒ *See Attachment No.* 1

7. PLACE OF USE

a.

USE IS WITHIN (40-acre subdivision)	SECTION*	TOWNSHIP	RANGE	BASE & MERIDIAN	IF IRRIGATED	
					Acres	Presently cultivated?
¼ of ¼	See Attachment 1, Sec. 7; Attachment 4					☐ YES ☐ NO
¼ of ¼						☐ YES ☐ NO
¼ of ¼						☐ YES ☐ NO
¼ of ¼						☐ YES ☐ NO
¼ of ¼						☐ YES ☐ NO
¼ of ¼						☐ YES ☐ NO
¼ of ¼						☐ YES ☐ NO
¼ of ¼						☐ YES ☐ NO
				Total Acres:		

*Please indicate if section is projected with a "(P)" following the section number.

☐ *See Attachment No.* ___ Please provide the Assessor's Parcel Number(s) for the place of use:

8. PROJECT SCHEDULE

Project is: ☐ proposed, ☐ partially complete or ☒ complete (Year completed - 1975).

Extent of completion: 100%

Estimated amount of time in years it will take for construction to be completed: N/A

Estimated amount of time in years it will take for water to be put to full beneficial use: N/A

9. JUSTIFICATION OF AMOUNTS REQUESTED

a. ☐ IRRIGATION: Maximum area to be irrigated in any one year: _____ acres.

CROP	ACRES	METHOD OF IRRIGATION (sprinklers, flooding, etc.)	WATER USE (Acre-feet/Yr.)	SEASON OF WATER USE	
				Beginning date (month & day)	Ending date (month & day)

☐ *See Attachment No. ___*

b. ☐ DOMESTIC: Number of residences to be served: _____ Separately owned?
☐ YES ☐ NO Number of people to be served: _____ Estimated daily use per person is: _____ gallons per day Area of domestic lawns and gardens: _____ square feet
Incidental domestic uses:
_____
(dust control area, number and kind of domestic animals, etc.)

a. ☐ STOCKWATERING: Kind of stock: _____ Maximum number: _____
Describe type of operation: _____
(feedlot, dairy, range, etc.)

d. ☐ RECREATIONAL: Type of recreation: ☐ Fishing ☐ Swimming ☐ Boating ☐ Other _____

e. ☒ MUNICIPAL:

POPULATION List for 5-year periods until use is completed		MAXIMUM MONTH		ANNUAL USE		
Period	Population	Average daily use (gallons per capita)	Rate of diversion (cfs)	Average daily use (gallons per capita)	Acre-foot (per capita)	Total (acre-feet)
Present	See Attachment 1, Sec. 9.					

☒ *See Attachment No. 1*

Month of maximum use during year: N/A
Month of minimum use during year: N/A

f. ☐ HEAT CONTROL: Area to be heat controlled: _____ net acres
Type of crops protected: _____
Rate at which water is applied to use: _____ gpm per acre
Heat protection season will begin _____ (month and day) and end _____ (month and day).

g. ☐ FROST PROTECTION: Area to be frost protected: _____ net acres
Type of crops protected: _____
Rate at which water is applied to use: _____ gpm per acre
The frost protection season will begin _____ (month & day) and end _____ (month & day).

h. ☐ INDUSTRIAL: Type of industry:

Basis for determination of amount of water needed: _____

i. ☐ MINING: Name of the claim: _____ ☐ Patented ☐ Unpatented
Nature of the mine: _____ Mineral(s) to be mined: _____
Type of milling or processing: _____
After use, the water will be discharged into _____ (watercourse)
in _____ ¼ of _____ ¼ of Section _____, T _____, R _____, _____B. & M.

j. ☐ POWER: Total head to be utilized: _____ feet
Maximum flow through the penstock: _____ cfs Maximum theoretical horsepower capable of being generated by the works (cfs x fall ÷ 8.8): _____
Electrical capacity (hp x 0.746 x efficiency): _____ kilowatts at: _____% efficiency
After use, the water will be discharged into _____ (watercourse)
in _____ ¼ of _____ ¼ of Section _____, T _____, R _____, _____B&M. FERC No.: _____

k. ☐ FISH AND WILDLIFE PRESERVATION AND/OR ENHANCEMENT: List specific species and habitat type that will be preserved or enhanced: _____

l. ☐ OTHER: Describe use: _____
Basis for determination of amount of water needed: _____

10. DIVERSION AND DISTRIBUTION METHOD

a. Diversion will be by gravity by means of: Kern River/Cal. Aqueduct Intertie
(dam, pipe in unobstructed channel, pipe through dam, siphon, weir, gate, etc.)

b. Diversion will be by pumping from: _____
(sump, offset well, channel, reservoir, etc)
Pump discharge rate: _____ ☐ cfs or ☐ gpd Horsepower: _____
Pump Efficiency: _____

c. Conduit from diversion point to first lateral or to offstream storage reservoir:

CONDUIT (pipe or channel)	MATERIAL (type of pipe or channel lining; indicate if pipe is buried or not)	CROSS-SECTION (pipe diameter, or ditch depth and top and bottom width) (inches or feet)	LENGTH (feet)	TOTAL LIFT OR FALL		CAPACITY (cfs, gpd or gpm)
				feet	+ or -	
N/A						

☐ *See Attachment No. ___*

d. Storage reservoirs: (For underground storage, complete and attach underground storage form)

RESERVOIR NAME OR NUMBER	DAM				RESERVOIR		
	Vertical height from downstream toe of slope to spillway level (feet)	Construction material	Length (feet)	Freeboard: dam height above spillway crest (feet)	Surface area when full (acres)	Capacity (acre-feet)	Maximum water depth (feet)
N/A							

☐ *See Attachment No. ___*

e. Outlet pipe: Complete for storage reservoirs having a capacity of 10 acre-feet or more.

RESERVOIR NAME OR NUMBER	OUTLET PIPE				
	Diameter in inches	Length in feet	Fall: Vertical distance between entrance and exit of outlet pipe in feet	Head: Vertical distance from spillway to entrance of outlet pipe in feet	Dead Storage: Storage below entrance of outlet pipe in acre-feet
N/A					

☐ *See Attachment No. ___*

e. If water will be stored and the reservoir is not at the point of diversion, the maximum rate of diversion to off-stream storage will be _____ cfs. Diversion to offstream storage will be made by:
☐ Pumping ☐ Gravity

11. CONSERVATION AND MONITORING

a. What methods will you use to conserve water? Explain.
The Project will conserve local groundwater supplies by substituting Intertie Water for groundwater extraction.

b. How will you monitor your diversion to be sure you are within the limits of your water right and you are not wasting water? ☐ Weir ☒ Meter ☐ Periodic sampling ☐ Other (describe)

12. RIGHT OF ACCESS

a. Does the applicant own all the land where the water will be diverted, transported and used?
☐ YES ☒ NO
If NO, I ☐ do ☒ do not have a recorded easement or written authorization allowing me access.

b. List the names and mailing addresses of all affected landowners and state what steps are being taken to obtain access:
Dept. of Water of Natural Resources; P. O. Box 942836, Sacramento, CA 94236
Kern County Water Agency, 3200 Rio Mirada Drive, Bakersfield, CA 93308

☐ *See Attachment No. ___*

13. EXISTING WATER RIGHTS AND RELATED FILINGS

a. Do you claim an existing right for the use of all or part of the water sought by this application?
☐ YES ☒ NO
If YES, please specify: ☐ Riparian ☐ Pre-1914 ☐ Registration ☐ Permit ☐ License
☐ Percolating groundwater ☐ Adjudicated ☐ Other (specify) _____

b. For each existing right claimed, state the source, year of first use, purpose, season and location of the point of diversion (to within quarter-quarter section). Include number of registration, permit, license, or statement of water diversion and use, if applicable.

☐ *See Attachment No. ___*

c. List any related applications, registrations, permits, or licenses located in the proposed place of use or that utilize the same point(s) of diversion.

☐ *See Attachment No. ___*

14. OTHER SOURCES OF WATER

Are you presently using, or do you intend to use, purchased water or water supplied by contract in connection with this project? ☐ Yes ☒ No If yes, please explain:

15. MAP REQUIREMENTS

The Division cannot process your application without accurate information showing the source of water and location of water use. You must include a map with this application form that clearly indicates the quarter/quarter, section, township, range, and meridian of (1) the proposed points of diversion and (2) the place of use. A copy of a U.S.G.S. quadrangle/topographic map of your project area is preferred, and can be obtained from sporting goods stores or through the Internet at http://topomaps.usgs.gov. A certified engineering map is required when (1) appropriating more than three cubic feet per second by direct diversion, (2) constructing a dam which will be under the jurisdiction of the Division of Safety of Dams, (3) creating a reservoir with a surface area in excess of ten acres or (4) appropriating more than 1,000 acre-feet per annum by underground storage. See the instruction booklet for more information.

☒ *See Attachment No. 3 & 4*

ENVIRONMENTAL INFORMATION

Note: Before a water right permit may be issued for your project, the State Water Board must consider the information contained in an environmental document prepared in compliance with the California Environmental Quality Act (CEQA). This form is not a CEQA document. If a CEQA document has not yet been prepared for your project, a determination must be made of who is responsible for its preparation. If the State Water Board is determined to be responsible for preparing the CEQA document, the applicant will be required to pay all costs associated with the environmental evaluation and preparation of the required documents. Please answer the following questions to the best of your ability and submit with this application any studies that have been conducted regarding the environmental evaluation of your project.

16. COUNTY PERMITS

a. Contact your county planning or public works department and provide the following information:

Person contacted: _____ Date of contact: _____
Department: _____ Telephone: (____)
County Zoning Designation:

Are any county permits required for your project? ☐ YES ☒ NO If YES, check appropriate box below:
☐ Grading permit ☐ Use permit ☐ Watercourse ☐ Obstruction permit ☐ Change of zoning
☐ General plan change ☐ Other (explain):

b. Have you obtained any of the required permits described above? ☐ YES ☐ NO
If YES, provide a complete copy of each permit obtained.
☐ *See Attachment No. ___*

17. STATE/FEDERAL PERMITS AND REQUIREMENTS

a. Check any additional state or federal permits required for your project:
☐ Federal Energy Regulatory Commission ☐ U.S. Forest Service ☐ U.S. Bureau of Land Management ☐ U.S. Corps of Engineers ☐ U.S. Natural Res. Conservation Service ☐ Calif. Dept. of Fish and Game ☐ State Lands Commission ☐ Calif. Dept. of Water Resources (Div. of Safety of Dams) ☐ Calif. Coastal Commission ☐ State Reclamation Board ☐ Other (specify)
N/A

b. For each agency from which a permit is required, provide the following information:

AGENCY	PERMIT TYPE	PERSON(S) CONTACTED	CONTACT DATE	TELEPHONE NO.

☐ *See Attachment No. ___*

c. Does your proposed project involve any construction or grading-related activity that has significantly altered or would significantly alter the bed, bank, or riparian habitat of any stream or lake? ☐ YES ☒ NO
If YES, explain:

☐ *See Attachment No. ___*

b. Have you contacted the California Department of Fish and Game concerning your project?
☐ YES ☒ NO If YES, name, telephone number and date of contact:

18. ENVIRONMENTAL DOCUMENT

a. Has any California public agency prepared an environmental document for your project?
☒ YES ☐ NO

b. If YES, submit a copy of the latest environmental document(s) prepared, including a copy of the notice of determination adopted by the California public agency. Public agency:
See Attachment 1, Sec. 18; Attachment 5

c. If NO, check the appropriate box and explain below, if necessary:
☐ The applicant is a California public agency and will be preparing the environmental document.*
☐ I expect that the State Water Board will be preparing the environmental document.**
☐ I expect that a California public agency other than the State Water Board will be preparing the environmental document.* Public agency: ___
☐ *See Attachment No. ___*

* Note: When completed, submit a copy of the final environmental document (including notice of determination) or notice of exemption to the State Water Board, Division of Water Rights and proof of payment of the State Clearinghouse filing fee. Processing of your application cannot be completed until these documents are submitted.

** Note: CEQA requires that the State Water Board, as Lead Agency, prepare the environmental document. The information contained in the environmental document must be developed by the applicant and at the applicant's expense under the direction of the State Water Board, Division of Water Rights.

19. WASTE/WASTEWATER

a. Will your project, during construction or operation, (1) generate waste or wastewater containing such things as sewage, industrial chemicals, metals, or agricultural chemicals, or (2) cause erosion, turbidity or sedimentation? ☐ YES ☐ NO
If YES, or you are unsure of your answer, explain below and contact your local Regional Water Quality Control Board for the following information (See instruction booklet for address and telephone no.):
N/A

☐ *See Attachment No. ___*

b. Will a waste discharge permit be required for your project? ☐ YES ☐ NO
Person contacted: _____ Date of contact: _____

c. What method of treatment and disposal will be used? _____

☐ *See Attachment No. ___*

20. ARCHEOLOGY

a. Have any archeological reports been prepared on this project? ☐ YES ☒ NO
b. Will you be preparing an archeological report to satisfy another public agency? ☐ YES ☒ NO
c. Do you know of any archeological or historic sites located within the general project area?
☐ YES ☒ NO If YES, explain:

☐ *See Attachment No. ___*

21. ENVIRONMENTAL SETTING

Attach **two complete sets of color photographs**, clearly dated and labeled, showing the vegetation that exists at the following three locations:

☒ Along the stream channel immediately downstream from the proposed point(s) of diversion.
☒ Along the stream channel immediately upstream from the proposed point(s) of diversion.
☒ At the place(s) where the water is to be used. See the attached maps.
☒ *See Attachment No.* 6

SUBMITTAL FEES

Calculate your application filing fee using the "Water Right Fee Schedule Summary" that was enclosed in the application packet. The "Water Right Fee Schedule Summary" can also be viewed at the Division of Water Rights' website (www.waterrights.ca.gov).

A check for the application filing fee, payable to the "Division of Water Rights" and an $850 check for the Streamflow Protection Standards review fee [Pub. Resources Code § 10005(a)], payable to the "California Department of Fish and Game," must accompany this application. All applicable fees are required at the time of filing. If the application fees are not received, your application will not be accepted and will be returned to you. Please check the fee schedule for any fee changes prior to submitting the application.

DECLARATION AND SIGNATURE

I declare under penalty of perjury that all information provided is true and correct to the best of my knowledge and belief. I authorize my agent, if I have designated one above, to act on my behalf regarding this water right application.

Signature of Applicant	General Manager Title or Relationship	January 29, 2010 Date
Signature of Co-Applicant (if any)	Title or Relationship	Date

Applications that are not completely filled out and/or do not have the appropriate fees will not be accepted. In the event that the Division has to return the application because it is incomplete, a portion of the application submittal fee will be charged for the initial review.

"APPLICATION TO APPROPRIATE WATER" CHECKLIST

Before you submit your application, be sure to:

- ☐ **Answer each question completely.**
- ☐ **Number, label and include all necessary attachments.**
- ☐ **Include a legible map that meets the requirements discussed in the instruction booklet.**
- ☐ **Include the Water Availability Analysis or sufficient information to demonstrate that there is reasonable likelihood that unappropriated water is available for the proposed appropriation.**
- ☐ **Include two complete sets of color photographs of the project site.**
- ☐ **Enclose a check for the required fee, payable to the Division of Water Rights.**
- ☐ **Enclose an $850 check for the Streamflow Protection Standards review fee, payable to the Department of Fish and Game.**
- ☐ **Sign and date the application.**

Send the original and one copy of the entire application to:

State Water Resources Control Board
Division of Water Rights
P.O. Box 2000
Sacramento, CA 95812-2000

Attachment 1

ATTACHMENT 1

Rosedale-Rio Bravo Water Storage District's
Application to Appropriate Water

2. OWNERSHIP INFORMATION

Rosedale-Rio Bravo Water Storage District ("RRB") is a California water storage district formed and existing pursuant to California Water Code section 39000, et seq., and located within the County of Kern, State of California.

3. PROJECT DESCRIPTION

RRB's project consists of diverting for reasonable and beneficial use up to an annual total of 65,750 acre-feet of water from the Kern River via the Kern River - California Aqueduct Intertie ("Intertie"). The water to be diverted by RRB is any water flowing in the Kern River which is in excess of the needs or claims of existing Kern River water right holders and which is, therefore, offered to the Intertie for disposal ("Intertie Water"). Evidence has shown that in certain years there are periods of days, weeks or months when Intertie Water is available (see ATTACHMENT 2).

RRB will use existing facilities (i.e., the Intertie and the California Aqueduct) to deliver Intertie Water to third parties, thereby fulfilling duties and obligations under existing contracts for the banking, storage and sale of water. Implementation of this project will enable RRB to meet its contractual obligations while reducing groundwater recovery within RRB. This will in turn conserve energy, maintain higher groundwater levels, and result in better management of RRB's water supplies.

RRB currently has contractual obligations to provide and deliver water to the following entities in the specified amounts:

CONTRACTUAL PARTNER	PLACE OF USE	MAXIMUM ANNUAL DELIVERY
Castaic Lake Water Agency	Castaic Lake Water Agency Service Area	8,250 AF
Glorious Land Company & Coachella Valley Water District	Coachella Valley Water District Service Area	20,000 AF

Castaic Lake Water Agency	Castaic Lake Water Agency Service Area	20,000 AF
Irvine Ranch Water District	Service Area	17,500 AF

5(b) SOURCES AND POINTS OF DIVERSION/REDIVERSION

The Intertie is located within Section 5, T31S, R25E approximately S 86° 42' 18" W a distance of 1058 feet from the NE corner of said Section 5. The Intertie location is shown on the Map designated ATTACHMENT 3 (coordinates were taken from the Kern County GIS).

6(d). WATER AVAILABILITY

RRB is currently meeting its contractual obligations through extraction and delivery, directly or by exchange, of previously banked water. When available, Intertie Water will be substituted for groundwater extraction thus enabling RRB to reduce energy costs and improve groundwater levels by retaining the previously banked water. This project is consistent with RRB's projects submitted as part of the Kern County Integrated Regional Water Management Plan, of which RRB is a participant.

7. PLACE OF USE

RRB will deliver Intertie Water to the recipient third parties (identified above) in the California Aqueduct at its connection to the Intertie. The recipient third parties transport the Intertie Water, directly or by exchange, to their respective service areas. The Intertie Water (or substitute water acquired by exchange) will be used within the boundaries of the recipient third party. The boundaries of the recipient third parties are shown on the Map designated ATTACHMENT 4.

9. JUSTIFICATION OF AMOUNTS REQUESTED

Castaic Lake Water Agency Sale Program:
RRB and Buena Vista Water Storage District (BV) developed the Water Banking and Recovery Program (Recovery Program) to re-regulate high-flow water supplies utilizing recharge, storage and recovery facilities available to both parties. The Castaic Lake Water Agency (Castaic) has entered into a long-term agreement with RRB & Buena Vista to purchase 11,000 acre-feet per year (AFY) from the Recovery Program. An additional 9,000 AFY could be purchased in years when additional water is available.

ATTACHMENT 1 **Page 2 of 5**

Water delivered by RRB to Castaic is utilized within the Castaic service area and is a key component of the Castaic Urban Water Management Plan reliability analysis. The Castaic service area encompasses the service area of four (4) retail water service providers who collectively provide an annual water supply of 100,050 AFY and serve a population of 196,000. The water provided by Castaic is utilized for single/multifamily homes, commercial, industrial, institutional/governmental and landscaping.

Castaic's purchase of water from the Recovery Program enables Castaic to mitigate fluctuations in State Water Project (SWP) supplies and ensure a more reliable long-term supply.

Castaic Lake Water Agency Banking Program:
In an effort to ensure a more reliable water supply, Castaic entered into an agreement with RRB for the recharge, storage and recovery of water supplies available to Castaic. Castaic, through its agreement with RRB, may recharge up to 200,000 acre-feet and has the ability to call upon up to 20,000 AFY.

The water supply banked by Castaic in RRB is used to augment Castaic's SWP supplies during drought and to ensure a more reliable water supply.

Glorious Land Company:
The GLC program entails the delivery of 220,000 acre-feet of water to GLC over an initial term of 33 years, with an average of 6,667 AFY. The Coachella Valley Water District (Coachella) acts as the water service provider for the GLC project. Coachella will utilize water delivered by RRB within its service area and make a like amount of previously banked groundwater available to GLC. RRB has the ability to deliver up to 20,000 AFY to Coachella, subject to approval by Coachella for any amount over 9,500 AFY.

The GLC program provides GLC with the water supply necessary water to support urban development within the Coachella service area and comply with SB 221 & SB 610.

Irvine Ranch Water District:
Irvine Ranch Water District (Irvine) and RRB entered into a water banking program (Strand Ranch Project) whereby Irvine may deliver surplus SWP or other available supplies to RRB for recharge, storage and banking for future return to Irvine during periods of reduced allocation on the SWP. The Strand Ranch Project provides Irvine with the ability to call upon 17,500 AFY of previously banked water in RRB for return to Irvine.

Irvine provides potable and recycled water to municipal, industrial and agricultural customers within its 114,560 acre service area within Orange County. Irvine provides approximately 56,000 AFY of potable and 30,000 AFY of recycled water. Irvine provides water service to

approximately 316,000 residents. Approximately 60% of Irvine's water supply is from local sources with the remaining 40% coming to Irvine from the SWP through its contract with Metropolitan Water District of Southern California.

The Strand Ranch Project provides Irvine with the ability to re-regulate high-flow or other surplus supplies into RRB for re-regulation within the Strand Ranch Project. The Strand Ranch Project significantly improves Irvine's ability to meet dry-year water supply needs and provide a more reliable water supply to its constituents.

18. ENVIRONMENTAL DOCUMENT

The storage, banking and sale projects identified in this application have been reviewed pursuant to the California Environmental Quality Act ("CEQA") as shown by the following documents:

PROJECT	CEQA DOCUMENTATION	DATE COMPLETED
Castaic Lake Water Agency Water Sale Program	Buena Vista WSD / Rosedale-Rio Bravo WSD FEIR	9/1/2002
Glorious Land Company & Coachella Valley Water District Water Sale Program	Mitigated Negative Declaration	12/12/2002
Castaic Lake Water Agency Water Banking Program	Master EIR	7/17/2001
Irvine Ranch Water District Water Banking Program	Strand Ranch FEIR	5/1/2008
All RRB Projects	Master EIR	7/17/2001

A copy of each of the identified environmental documents is contained on the CD which is submitted with this Application as ATTACHMENT 5.

CERTIFICATION

I, ERIC L. AVERETT, do hereby declare under penalty of perjury under the laws of the state of California that the information provided in this Attachment to Application to Appropriate Water is true and correct to the best of my knowledge and belief.

Dated this 29 of January, 2010 in Bakersfield, California

Eric L. Averett,
General Manager, Rosedale-Rio Bravo
Water Storage District

ATTACHMENT 1 **Page 5 of 5**

Attachment 2

REPORT of the KERN RIVER WATERMASTER

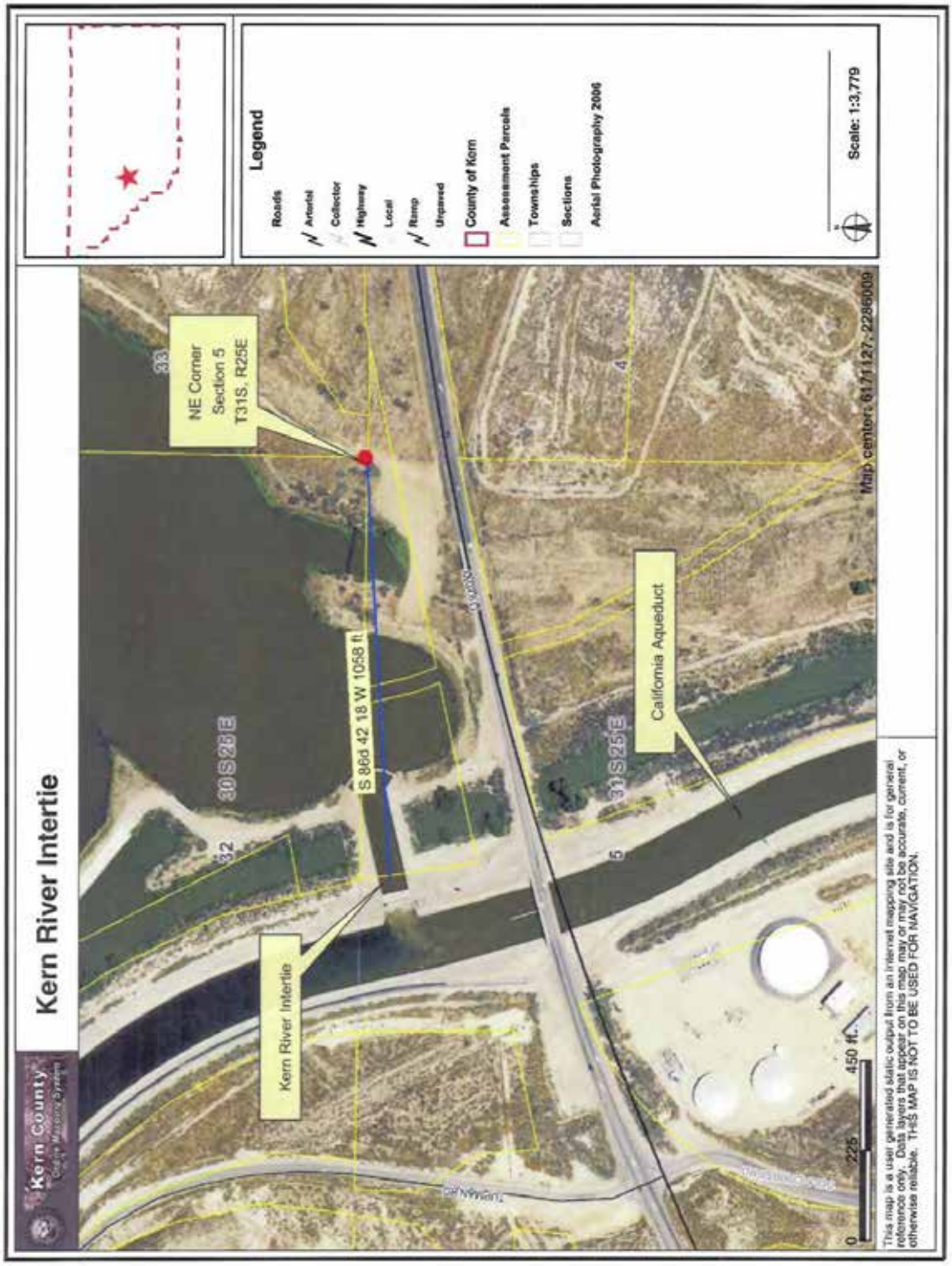
TABLE OF WATER DIVERSIONS VIA THE KERN RIVER / CALIFORNIA AQUEDUCT INTERTIE

Quantities in acre-feet
Except Where Noted....

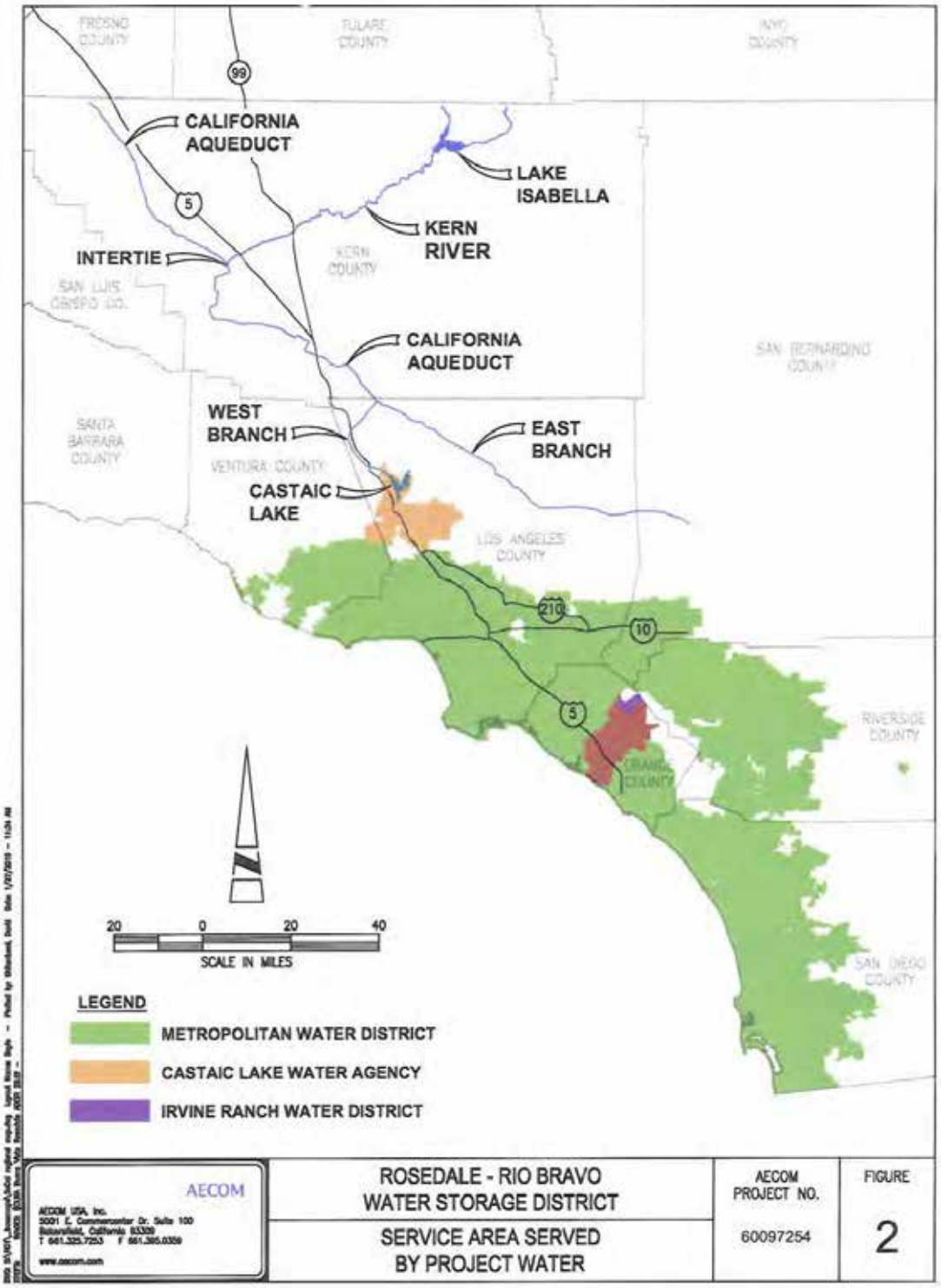
YEAR	KERN RIVER WATER	DAYS OF OPERATION	FRIANT-KERN WATER	DAYS OF OPERATION	TOTAL WATER	TOTAL DAYS OF OPERATION	KERN RIVER ANNUAL FLOW IN PERCENT OF NORMAL
1978	168,818	84	9,113	16	177,931	84	234%
1980	138,816	112	0	0	138,816	112	212%
1982	10,339	13	11,968	21	22,307	34	171%
1983	664,036	283	96,200	83	760,236	338	331%
1984 1)	26,720	40	0	0	26,720	40	91%
1986	1,868	3	15,580	22	17,448	25	190%
1997	1,793	7	51,055	48	52,848	48	122%
1998	130,226	71	57,822	44	188,048	97	243%
2006 2)	73,411	49	28,329	30	101,740	49	170%
TOTALS	1,216,027	662	270,067	264	1,486,094	827	

1) KR Intertie flows carryover from 1983 Isabella storage.
2) KR Intertie flows due to storage restrictions imposed on Isabella Reservoir

Attachment 3


Kern River Intertie
Kern County
Legend
Roads
Arterial
Collector
Highway
Local
Ramp
Unpaved
County of Kern
Assessment Parcels
Townships
Sections
Aerial Photography 2006
Scale: 1:3,779
NE Corner
Section 5
T31S. R25E
S 86d 42 18 W 1058 ft.
Kern River Intertie
California Aqueduct
30 S 26 E
31 S 25 E
32
33
4
5
Map center: 617127, 2286009
0
225
450 ft.
This map is a user generated static output from an internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

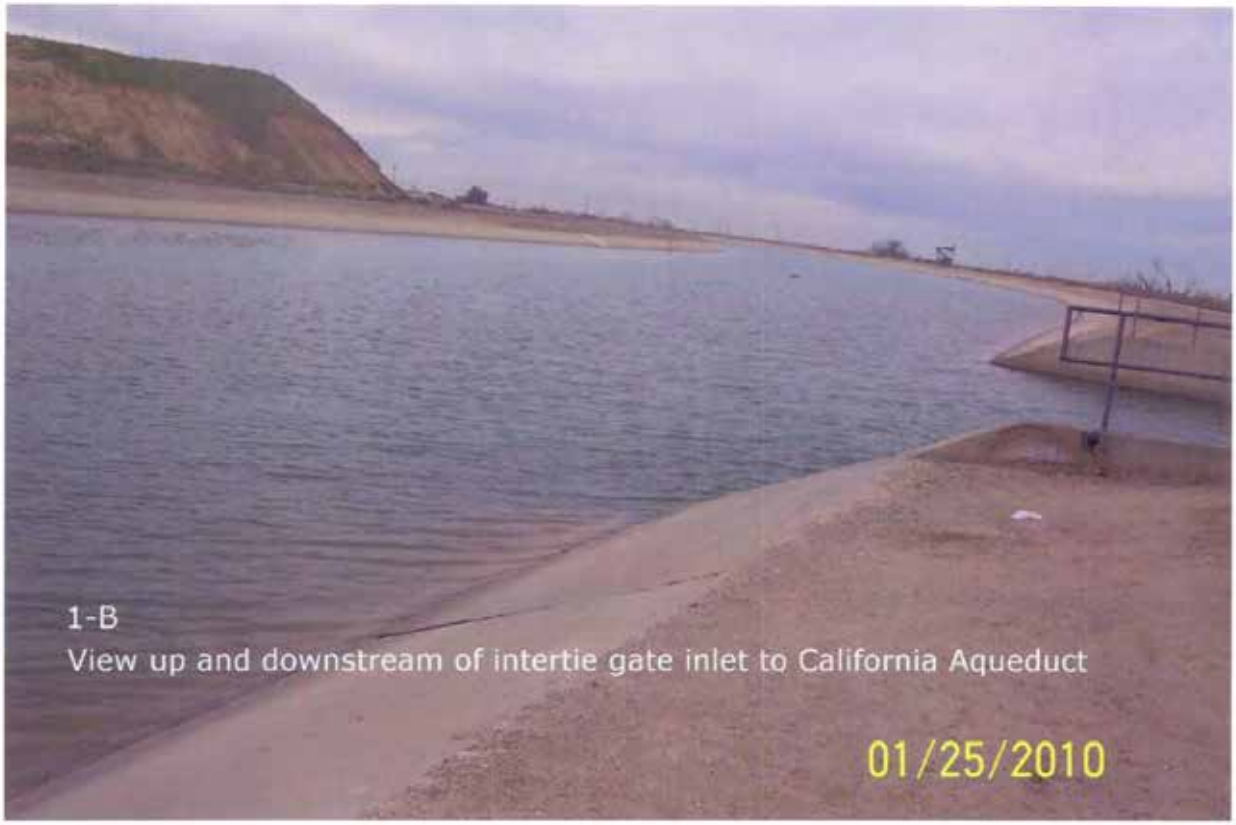
Attachment 4

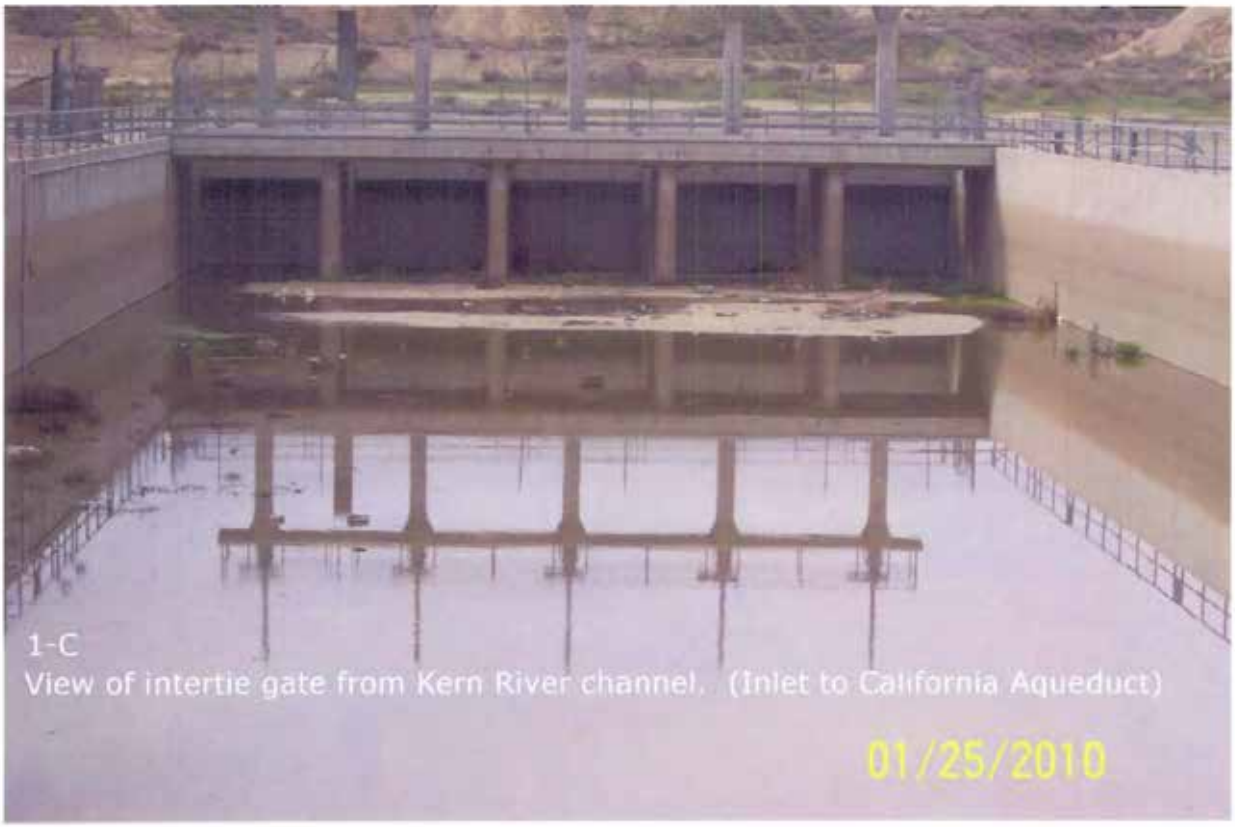

FRESNO COUNTY
TULARE COUNTY
INYO COUNTY
99
CALIFORNIA AQUEDUCT
LAKE ISABELLA
5
KERN RIVER
INTERTIE
KERN COUNTY
SAN LUIS OBISPO CO.
CALIFORNIA AQUEDUCT
SAN BERNARDINO COUNTY
WEST BRANCH
EAST BRANCH
SANTA BARBARA COUNTY
VENTURA COUNTY
CASTAIC LAKE
LOS ANGELES COUNTY
210
10
5
RIVERSIDE COUNTY
ORANGE COUNTY
SAN DIEGO COUNTY
20 0 20 40
SCALE IN MILES
LEGEND
METROPOLITAN WATER DISTRICT
CASTAIC LAKE WATER AGENCY
IRVINE RANCH WATER DISTRICT
AECOM
AECOM USA, Inc.
3001 E. Commerce Dr. Suite 100
Bakersfield, California 93309
T 661.325.7253 F 661.365.0359
www.aecom.com
ROSEDALE - RIO BRAVO WATER STORAGE DISTRICT
SERVICE AREA SERVED BY PROJECT WATER
AECOM PROJECT NO.
60097254
FIGURE
2

Attachment 5

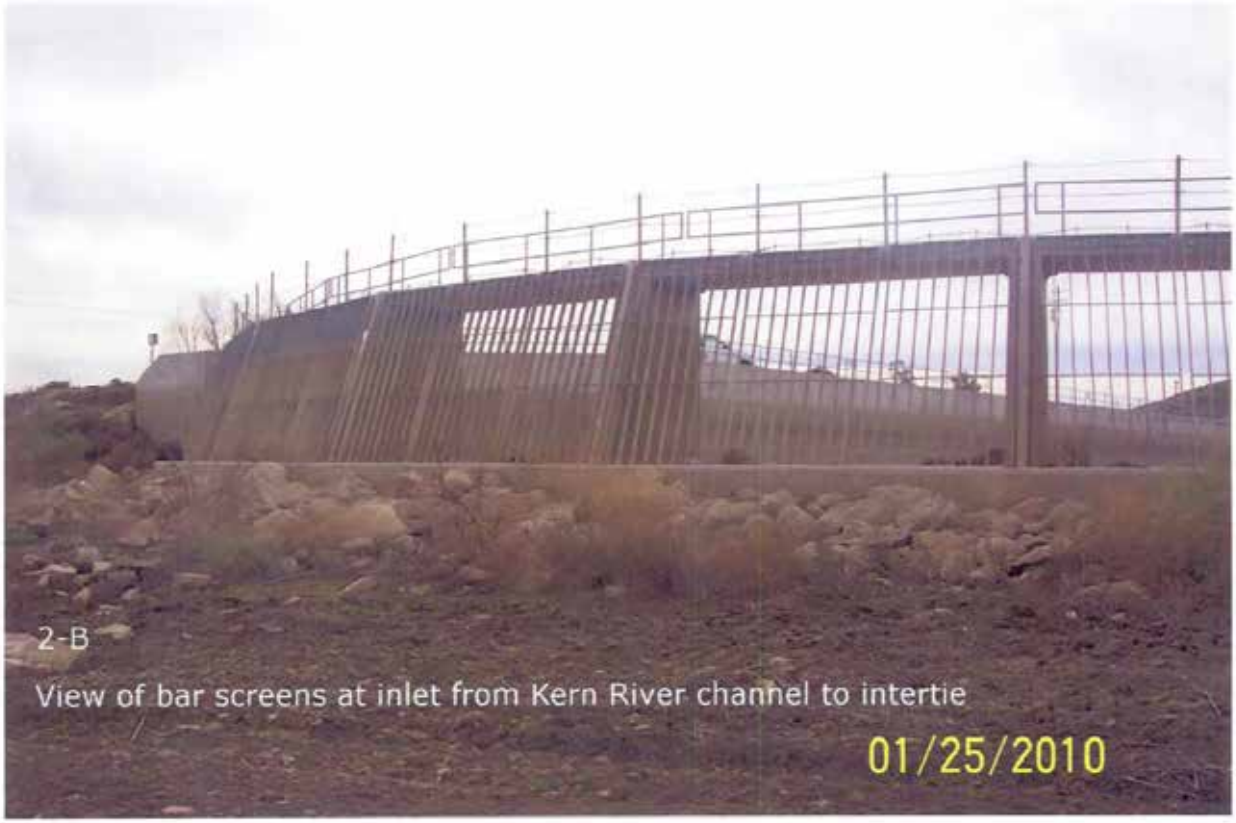
Attachment 6

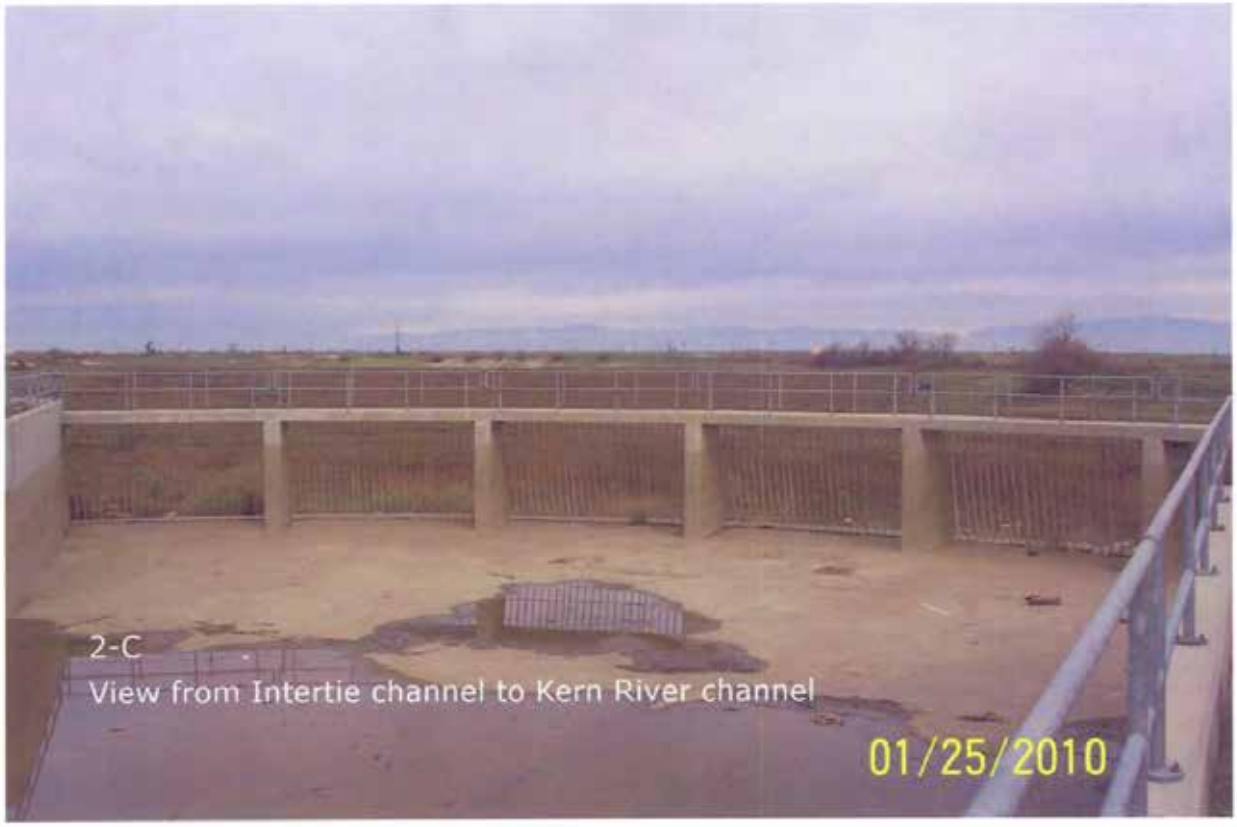

1-A
View of intertie gates into California Aqueduct
01/25/2010


1-B
View up and downstream of intertie gate inlet to California Aqueduct
01/25/2010


1-C
View of intertie gate from Kern River channel. (Inlet to California Aqueduct)
01/25/2010

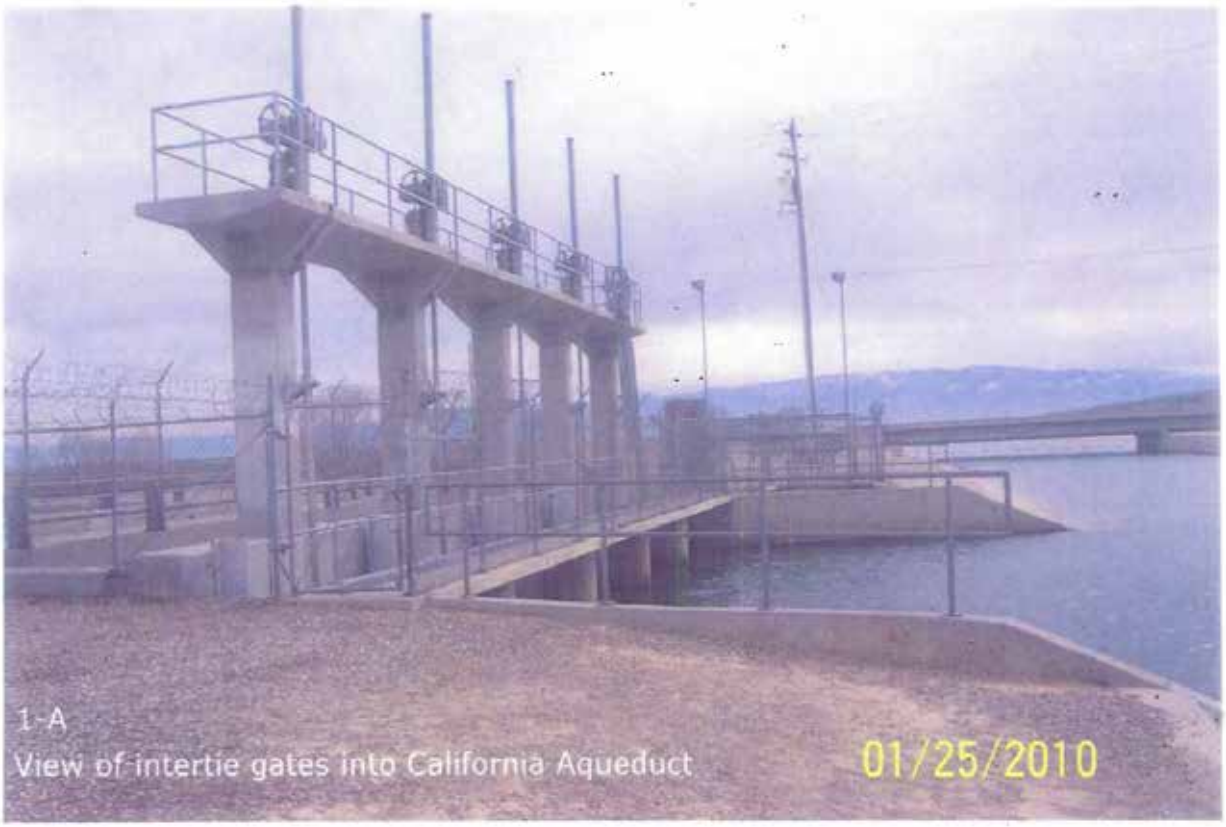

2-A
View of bar screens from Kern River channel to intertie channel
01/25/2010

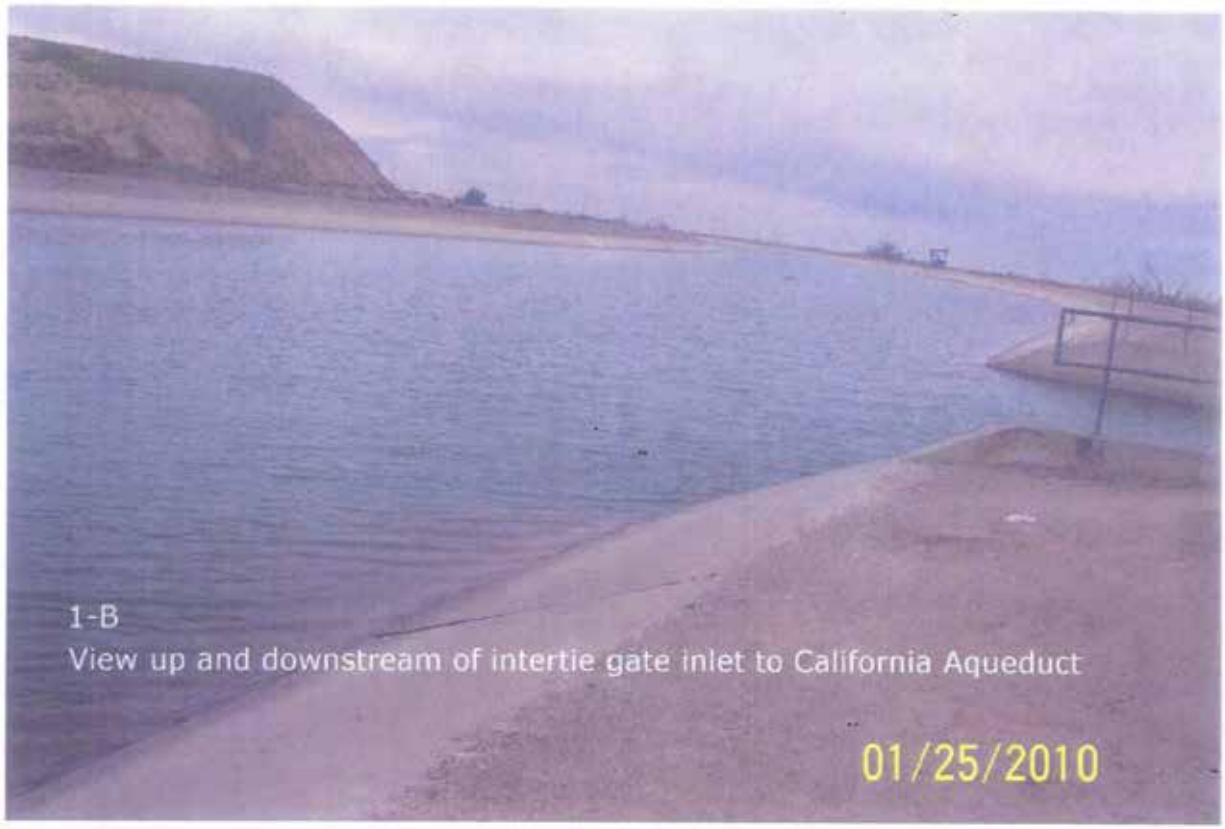

2-B
View of bar screens at inlet from Kern River channel to intertie
01/25/2010


2-C
View from Intertie channel to Kern River channel
01/25/2010

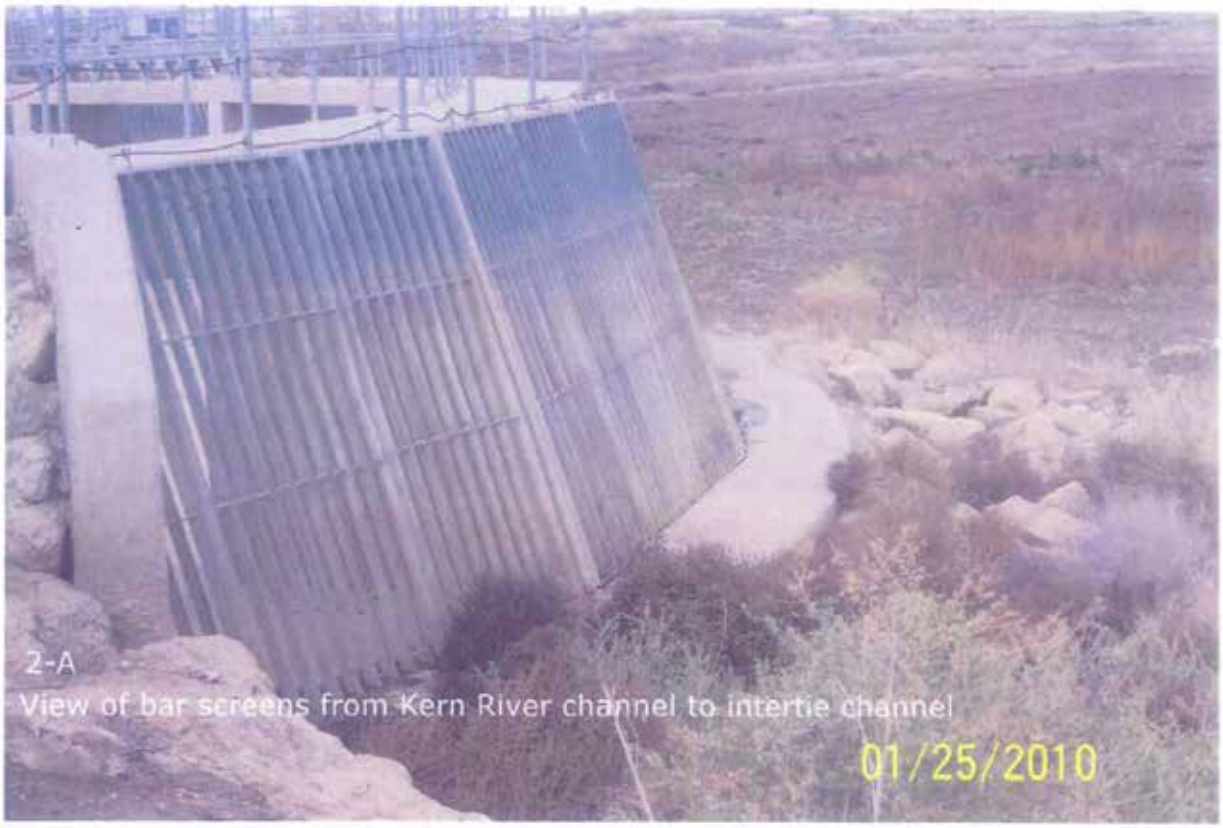

3-A
View of Kern River channel / detention basin in front of bar screens
01/26/2010

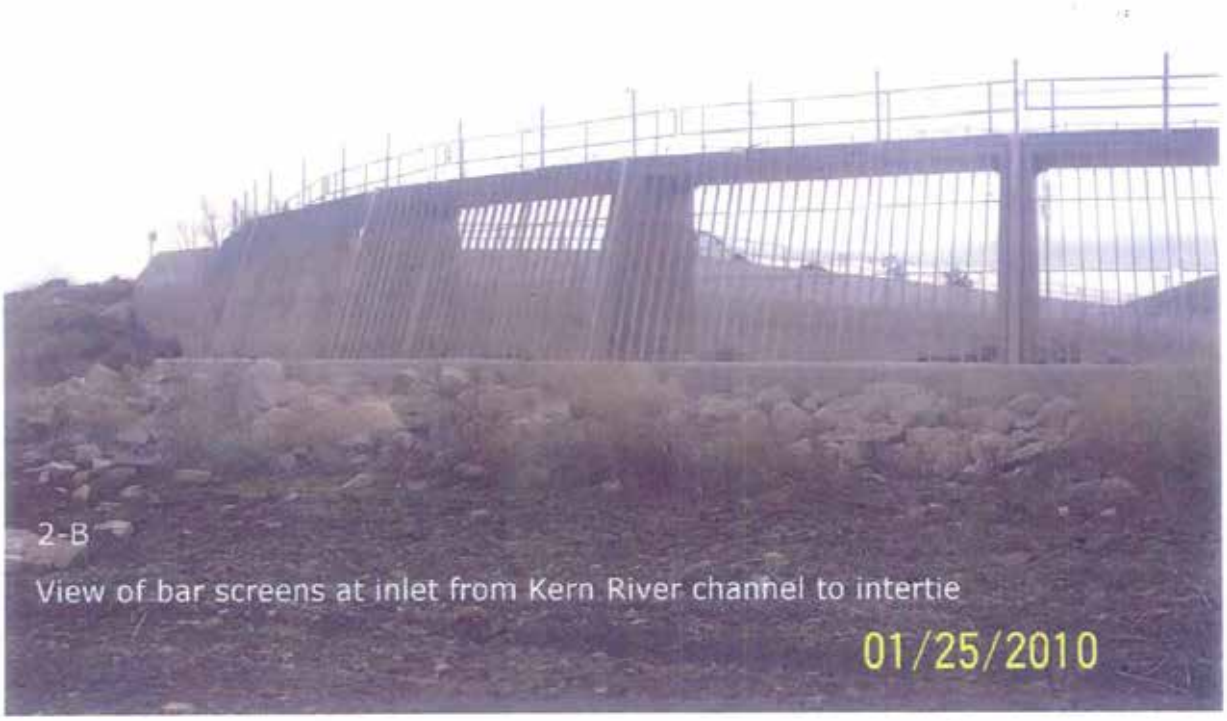

Kern County
Kern River - Ca Aqueduct Intertie
1-A
1-B
1-C
2-A
2-B
2-C
3-A
Legend
Roads
Arterial
Collector
Highway
Local
Ramp
Unpaved
County of Kern
Aerial Photo 2008
0
105
210 ft.
Scale: 1:1,824

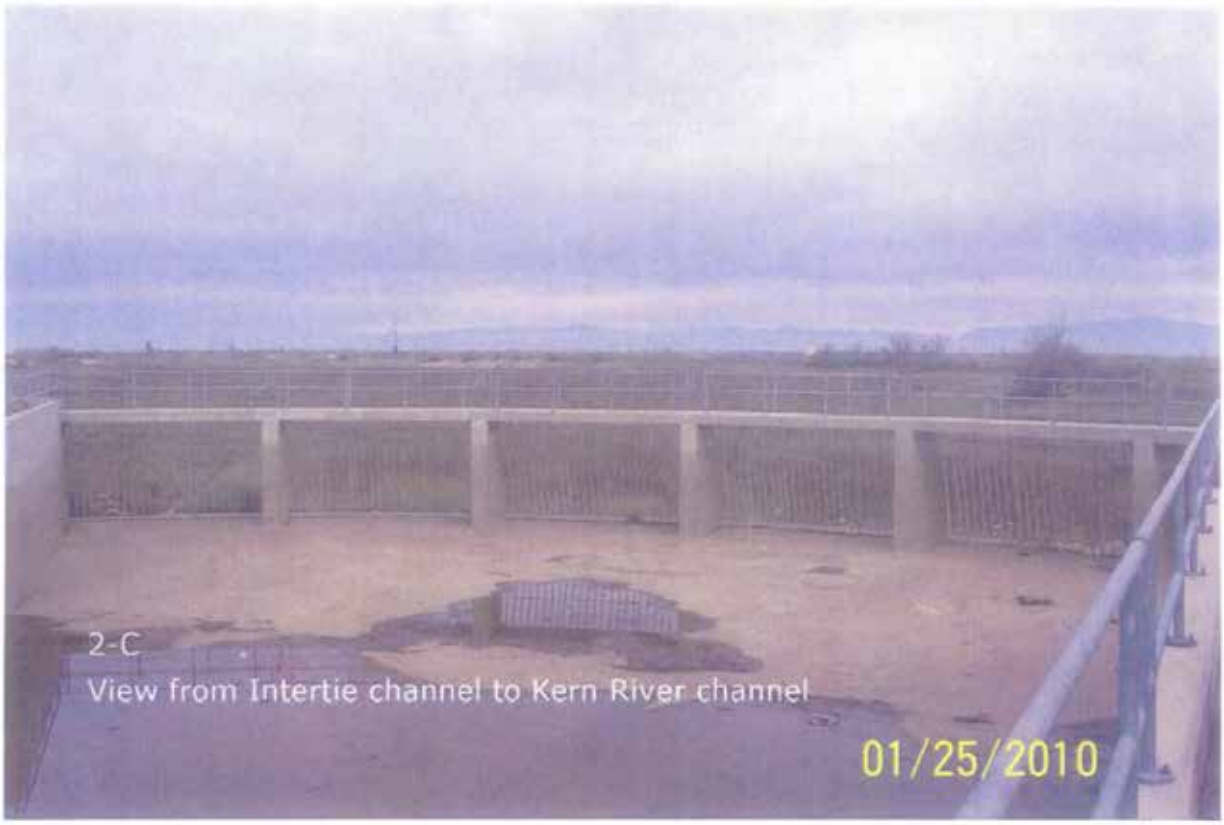

1-A
View of intertie gates into California Aqueduct
01/25/2010


1-B
View up and downstream of intertie gate inlet to California Aqueduct
01/25/2010


1-C
View of intertie gate from Kern River channel. (Inlet to California Aqueduct)
01/25/2010


2-A
View of bar screens from Kern River channel to intertie channel
01/25/2010


2-B
View of bar screens at inlet from Kern River channel to intertie
01/25/2010


2-C
View from Intertie channel to Kern River channel
01/25/2010


3-A
View of Kern River channel / detention basin in front of bar screens
01/26/2010

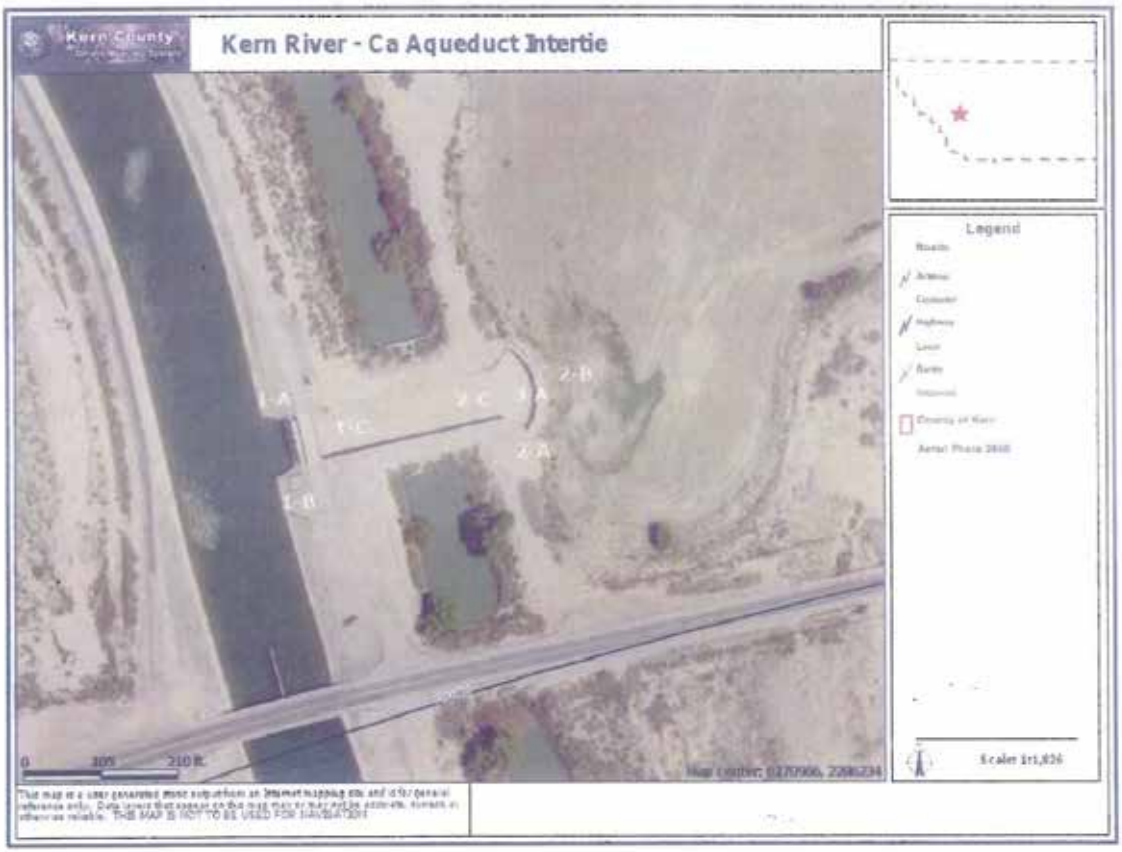
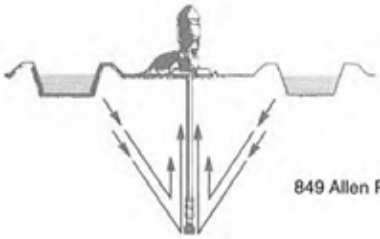

Kern River - Ca Aqueduct Intertie
Legend
Scale 1:1,826

EXHIBIT I



ROSEDALE - RIO BRAVO
WATER STORAGE DISTRICT
849 Allen Road • P. O. Box 867 • Bakersfield, California 93302-0867 • (661) 589-6045 • FAX (661) 589-1867

February 20, 2010

City of Bakersfield Water Resources
1000 Buena Vista Road
Bakersfield, CA 93311

Attention: Mark Lambert

Re: Application to Appropriate Intertie Water

Dear Mr. Lambert:

As you are aware, Rosedale-Rio Bravo Water Storage District (Rosedale) recently filed an application with the State Water Resources Control Board (SWRCB) to appropriate water delivered to the Kern River/California Aqueduct Intertie (Intertie). Rosedale's decision to file this application was based upon the SWRCB proposed draft order to revise the fully appropriated stream status of the Kern River based on water delivered to the Intertie.

The intent of this letter is to attempt to dispel concerns regarding the nature of Rosedale's application. Rosedale intentionally structured its application to avoid creating conflict with Kern River right holders and to only seek to appropriate those waters which are surplus to the needs and/or claims of these entities. This is demonstrated in the Project Description of Attachment 1, to Rosedale's application where Rosedale states *"The water to be delivered by Rosedale is any water that is flowing in the Kern River which is in excess of the needs or claims of existing Kern River water right holders and which is, therefore, offered to the Intertie for disposal".*

Rosedale's belief that its application would not be in conflict with the existing Kern River right holders was, in part, based upon testimony provided by Mr. Daniel Easton, expert witness for the North Kern Petitioners, who apparently testified that *"water diverted to the Intertie is in excess of traditionally held and exercised rights and claims of right to Kern River water and that whenever water had been released into the intertie in the past, all Kern River water right claims had been satisfied."* Rosedale felt that water delivered to the Intertie, based upon this testimony, was considered to be outside the "needs or claims" of existing Kern River right holders even by those water right holders themselves.

In light of the proposed draft order, it seemed likely to Rosedale that someone would file an application to appropriate water offered to the Intertie, such as water hungry developers in Southern California. Since the Rosedale application is intended to provide local benefits, we consider it a better option.

While recognizing the various rights of the Kern River interests, Rosedale will actively seek to appropriate any Friant-Kern water and/or any water deemed to be surplus to the needs and/or claims of Kern River right holders. Should the SWRCB determine that water delivered to the Intertie is "abandoned" then Rosedale's application may have merit without constituting a challenge or infringement upon existing Kern River rights.

I hope this letter provides a better understanding as to the motive and intent of the Rosedale application to appropriate water delivered to the Intertie. Rosedale values its relationship with the various Kern River interests and does not seek to infringe upon any existing and vested rights to Kern River water.

Sincerely,

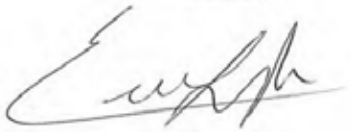


EXHIBIT J

FEDERAL REGISTER

Vol. 78 Tuesday,
No. 127 July 2, 2013

Part II

Department of the Interior

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Buena Vista Lake Shrew; Final Rule

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R8–ES–2009–0062; 4500030114]

RIN 1018–AW85

Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Buena Vista Lake Shrew

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), designate critical habitat for the Buena Vista Lake shrew (*Sorex ornatus relictus*) under the Endangered Species Act (Act). In total, approximately 2,485 acres (1,006 hectares) in Kings and Kern Counties, California, fall within the boundaries of the critical habitat designation. The effect of this regulation is to conserve the Buena Vista Lake shrew's habitat under the Act.

DATES: This rule becomes effective on August 1, 2013.

ADDRESSES: This final rule is available on the Internet at *http://www.regulations.gov*. at Docket No. FWS–R8–ES–2009–0062. Comments and materials received, as well as supporting documentation used in preparing this final rule, are available for public inspection, by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Sacramento, CA, 95825; telephone 916–414–6600; facsimile 916–414–6713.

The coordinates or plot points, or both, from which the maps were generated are included in the administrative record for this critical habitat designation and are available at *http://criticalhabitat.fws.gov/crithab/*, and at *http://www.regulations.gov* at Docket No. FWS–RS–ES–2009–0062, and at the Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**). Any additional tools or supporting information that we developed for this critical habitat designation will also be available at the Fish and Wildlife Service Web site and Field Office set out above, and may also be included in the preamble or at *http://www.regulations.gov*.

FOR FURTHER INFORMATION CONTACT: Karen Leyse, Listing Coordinator, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Sacramento, CA, 95825; telephone 916–414–6600; facsimile 916–414–6713. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

The critical habitat areas we are designating in this rule constitute our current best assessment of the areas that meet the definition of critical habitat for the Buena Vista Lake shrew. In total, we are designating approximately 2,485 acres (ac) (1,006 hectares (ha)), in six units in Kings and Kern Counties, California, as critical habitat for the subspecies. This is a final rule to designate critical habitat for the Buena Vista Lake shrew (shrew).

Why we need to publish a rule. Under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), any species that is determined to be a threatened or endangered species requires critical habitat to be designated, to the maximum extent prudent and determinable. Designations and revisions of critical habitat can only be completed by issuing a rule. We listed the Buena Vista Lake shrew as an endangered species in 2002 (67 FR 10101; March 6, 2002), proposed critical habitat in 2004 (69 FR 51417; August 19, 2004), and designated final critical habitat in 2005 (70 FR 3438; January 24, 2005). The previous final designation excluded all but 84 acres (ac) under section 4(b)(2) of the Act. In 2009, under the terms of a settlement agreement, we reproposed the areas originally proposed in 2004 (74 FR 53999; October 21, 2009). We subsequently received new information on additional areas occupied by the shrew, and so revised the proposed critical habitat on July 10, 2012, to include two additional areas and one modification to an existing unit (77 FR 40706). Based on the settlement agreement, we are to submit a final designation to the **Federal Register** by June 29, 2013.

The basis for our action. Section 4(b)(2) of the Act states that the Secretary shall designate critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary can exclude an area from critical habitat if she determines the benefits of exclusion outweigh the benefits of designation, unless the exclusion will result in the extinction of the species. The critical habitat areas we are designating in this rule constitute our current best assessment of the areas that meet the definition of critical habitat for the Buena Vista Lake shrew.

We have prepared an economic analysis of the designation of critical habitat. In order to consider economic impacts, we have prepared an analysis of the economic impacts of the critical habitat designations and related factors. We announced the availability of the draft economic analysis (DEA) in the **Federal Register** on March 5, 2013 (78 FR 14245), allowing the public to provide comments on our analysis. We have incorporated the comments and have completed the final economic analysis (FEA) concurrently with this final determination.

Peer review and public comment. We sought comments from independent specialists to ensure that our designation is based on scientifically sound data and analyses. We requested opinions from four knowledgeable individuals with scientific expertise to review our technical assumptions, analysis, and whether or not we had used the best available information. We received responses from two of the four peer reviewers. The peer reviewers that responded provided additional information, and suggestions to improve this final rule. Information we received from the peer reviews is incorporated in this final revised designation. We also considered all comments and information received from the public during the comment period.

Previous Federal Actions

We published a final rule listing the shrew as endangered in the **Federal Register** on March 6, 2002 (67 FR 10101). The final listing rule is available at *http://www.fws.gov/policy/library/2005/05-982.pdf*. Please refer to the final listing rule for information on Federal actions prior to March 6, 2002, and for additional information on the shrew and its habitat.

On January 12, 2004, the United States District Court for the Eastern District of California issued a Memorandum Opinion and Order (*Kern County Farm Bureau et al.* v. *Anne Badgley, Regional Director of the United States Fish and Wildlife Service, Region 1 et al.*, CV F 02–5376 AWIDLB). The order required us to publish a proposed critical habitat determination for the shrew by July 12, 2004, and a final determination by January 12, 2005. On July 8, 2004, the court extended the deadline for submitting the proposed rule to the **Federal Register** to August 13, 2004. We submitted a proposed rule by the required date, which was published in the **Federal Register** on August 19, 2004 (69 FR 51417). We published a notice in the **Federal**

Register making available the DEA for the proposed designation on November 30, 2004 (69 FR 69578), and then published a final critical habitat designation on January 24, 2005 (70 FR 3438). The final designation excluded four of the five proposed units, based on the Secretary of the Interior's authority under section 4(b)(2) of the Act, that the benefits of exclusion outweighed the benefits of inclusion, and that exclusion would not result in the extinction of the subspecies.

In response to a legal complaint and resulting settlement agreement (*Center for Biological Diversity* v. *United States Fish and Wildlife, et al.*, Case No. 08–CV–01490–AWI–GSA), we published a new proposed designation, encompassing the same area as the 2004 proposed designation, on October 21, 2009 (74 FR 53999). We subsequently published a notice in the **Federal Register** on April 28, 2011 (76 FR 23781), announcing the availability of a new DEA, and the reopening of the comment period for the new proposed critical habitat designation, the associated DEA, and the amended required determinations. This document also announced a public hearing, which was held in Bakersfield, California, on June 8, 2011. On March 6, 2012, we were granted an extension by the Court to consider additional information on the shrew prior to publishing our new final critical habitat designation (*Center for Biological Diversity* v. *Kempthorne et al.*, Case 1:08–cv–01490–AWI–GSA, filed March 7, 2012). We published a revised proposed rule on July 10, 2012 (77 FR 40706), in which we proposed to designate approximately 5,182 ac (2,098 ha) in seven units in Kings and Kern Counties, California. We published a notice in the **Federal Register** making available the revised DEA on March 5, 2013 (78 FR 14245), and reopened the comment period on the revised proposed designation and revised DEA. We also announced a public hearing in that document, which took place in Bakersfield, California, on March 28, 2013.

Background

It is our intent to discuss below only those topics directly relevant to designating critical habitat for the Buena Vista Lake shrew in this final rule. For additional background information, please see the proposed designation of critical habitat for the Buena Vista Lake shrew published on July 10, 2012 (77 FR 40706), and available at *http://ecos.fws.gov*. That information is incorporated by reference into this final rule.

Species Information. The Buena Vista Lake shrew is a mammal, approximately the size of a mouse. Like other shrews, the subspecies has a long snout, tiny bead-like eyes, ears that are concealed, or nearly concealed by soft fur, and five toes on each foot (Burt and Grossenheider 1964, p. 2; Ingles 1965, pp. 81–84). Shrews are active day or night. When they are not sleeping, they are searching for food (Burt and Grossenheider 1964, p. 3). The Buena Vista Lake shrew is one of nine subspecies within the ornate shrew (*Sorex ornatus*) species complex known to occur in California (Hall 1981, pp. 37, 38; Owen and Hoffmann 1983, pp. 1–4; Maldonado 1992, p. 3).

Summary of Comments and Recommendations

We requested written comments from the public on the proposed designation of critical habitat for the Buena Vista Lake shrew during four comment periods, which took place subsequent to the 2009 proposal (73 FR 53999), the 2011 NOA (76 FR 23781), the 2012 revised proposal (77 FR 40705), and the 2013 notice of availability of the revised DEA (78 FR 14245) (see Previous Federal Actions, above). Each of the comment periods ran for 60 days. We contacted appropriate Federal, State, and local agencies; scientific organizations; and other interested parties and invited them to comment on the proposed rule and draft economic analysis during these comment periods.

During the first comment period, we received five comment letters addressing the proposed critical habitat designation. During the second comment period, we received eight comment letters addressing the proposed critical habitat designation or the 2011 draft economic analysis. During the June 8, 2011, public hearing, one individual provided written comments, but we did not receive oral comments directly addressing the proposed designation. During the third comment period, we received four comments directly addressing the 2012 revised proposed critical habitat designation or the 2011 DEA. During the fourth comment period, we received four comments addressing the 2012 revised proposed critical habitat designation or the 2013 DEA. During the March 28, 2013, public hearing, we received one oral comment addressing the 2012 revised proposed critical habitat designation or the 2013 DEA.

All substantive information provided during comment periods has either been incorporated directly into this final determination or addressed below. Comments received were grouped into general issues specifically relating to the proposed critical habitat designation for the shrew and are addressed in the following summary and incorporated into the final rule as appropriate.

Peer Review

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinions from four knowledgeable individuals with scientific expertise that included familiarity with the species, the geographic region in which the species occurs, and conservation biology principles. We received responses from two of the peer reviewers.

We reviewed all comments received from the peer reviewers for substantive issues and new information regarding critical habitat for the shrew. The peer reviewers provided additional information, clarifications, and suggestions to improve the final critical habitat rule. We address the two peer reviewers comments in the following summary and have incorporated them into the final rule as appropriate.

Peer Reviewer Comments

(1) *Comment:* One peer reviewer referred to the designation as essential to the conservation of the species, and indicated his agreement with our use of best available evidence, our methods, and our identification of essential habitat features (primary constituent elements (PCEs)). He stated that the rule appears to be supported by the latest scientific information; that we have accurately described that information; and that scientific uncertainties seem to have been clearly identified with the implications of those uncertainties described. He also noted that he has no additional information regarding the shrew's conservation needs, or indicating the location of additional populations, but that he is in the process of finalizing a genetic analysis of the shrew as compared to other subspecies in the San Joaquin Valley.

Our Response: We thank the reviewer for his comments. Should the genetic analysis provide significant new information regarding essential habitat or populations, we have the option of revising our designation in the future to take the information into account.

(2) *Comment:* The second peer reviewer stated that, because the quantity of habitat necessary to conserve viable populations of the shrew is unknown, all remaining habitat known or suspected to be suitable should be protected. He concluded it was therefore appropriate and necessary to designate the 5,182 ac in 7 units that we had proposed.

Our Response: We are designating all occupied areas containing the specific physical and biological features (the primary constituent elements) essential to the shrew. We delineated each area according to the extent of those features on the landscape, thereby including contiguous areas with essential habitat features to which a shrew population could reasonably be expected to extend. When we learned of the additional occupied areas, we published a revised proposal to include those areas in the designation as well. We consider the proposed areas sufficient for the conservation of the shrew because the proposed areas contain a variety of habitats usable by the shrew, meet the recovery goals established for the shrew (Service 1998, p. 192), and are large enough to accommodate expanding populations.

Although we are excluding one of the seven proposed units (see Exclusions, below), we are doing so because we consider the benefits of exclusion to outweigh the benefits of inclusion for the conservation of the shrew in that area. The area (Unit 3) is already protected by various means, and additional protections and benefits to the shrew may result due to exclusion. We thus consider this designation to follow the basic philosophy expressed by the reviewer: that all areas of essential habitat with the potential to benefit the shrew should be protected.

(3) *Comment:* The peer reviewer strongly recommended that we not exclude Unit 3, because the City of Bakersfield's habitat management plan for the area does not ensure optimal conditions for the shrew. Specifically, the plan allows extended periods without water, periodic flooding, and periodic ground disturbance for maintenance and repair of pumps and other equipment. The reviewer also noted that the City has not yet officially adopted the management plan.

Our Response: The City of Bakersfield has now submitted information to indicate it had officially adopted the management plan (Bakersfield Water Board Committee 2011, entire; Chianello 2013, p. 2). Although the habitat management plan may not be completely optimal for the shrew, we consider it to provide the best conservation option. Designation of the unit as critical habitat would not prevent the management drawbacks identified by the reviewer, since these drawbacks do not involve action by a Federal agency. We have worked with the City of Bakersfield over multiple years to address monitoring and protection of shrew habitat. We have consequently concluded that excluding the unit from designation will assist our partnership with the City of Bakersfield to manage more effectively for the conservation of the shrew while still accommodating the City's use of the area as a groundwater recharge basin. For further analysis of the tradeoffs and benefits involved in our decision to exclude, see Exclusions Under Section 4(b)(2) of the Act—Kern Fan Water Recharge Area, below.

(4) *Comment:* The peer reviewer suggested we consider designation of the Wind Wolves Preserve (WWP), in southwestern Kern County. We had indicated in the proposed rule (77 FR 40709; July 10, 2012) that shrews in the Wind Wolves Preserve were expected to be adorned ornate shrews (*Sorex ornatus ornatus*), based on preliminary unpublished data from a mitochondrial DNA analysis of a tissue sample taken from one shrew at that location. The reviewer indicated his understanding, based on conversations with the geneticist who conducted the analysis, that the Wind Wolves sample was actually more similar to Buena Vista Lake shrews than to adorned ornate shrews. The reviewer also noted that additional samples from Wind Wolves Preserve still remain to be statistically analyzed, and that these could potentially corroborate the hypothesis that the shrews at Wind Wolves Preserve are Buena Vista Lake shrews.

Our Response: In considering whether to propose the Wind Wolves site as critical habitat for the Buena Vista Lake shrew, Service staff with expertise in genetics reviewed papers on shrew taxonomy and habitat by Dr. Maldonado and others, and noted that the historical range of Buena Vista Lake shrew, as depicted by Owen and Hoffman (1983), shows the Buena Vista Lake shrew as embedded within the range of the more common California ornate shrew (*S. ornatus ornatus*), which occupies more upland areas. They also found that the mitochondrial DNA of the one shrew sample contained a genetic type that occurs in ornate shrews at Tranquility and Helm, but not in any Buena Vista Lake shrew occurrences, suggesting that Wind Wolves Preserve might be the California ornate shrew. Our staff communicated with Dr. Maldonado, who supported our tentative conclusion that the Wind Wolves site contains California ornate shrews (Maldonado 2011, unpaginated). We are aware of the further genetic testing that Dr. Maldonado is conducting, and welcome further information from his study. However, we are responsible for using the best available information to complete the rule within the regulatory time-frame. When genetic analysis of the Wind Wolves samples is completed, if the analysis supports the presence of Buena Vista Lake shrews at the Wind Wolves Preserve, the critical habitat designation may be revised to take such data into account.

Comments From States

During the development of the proposed rule and this final rule, we coordinated with the appropriate State agencies regarding the designation. Section 4(i) of the Act states, "the Secretary shall submit to the State agency a written justification for his failure to adopt regulations consistent with the agency's comments or petition." We did not receive any comments from State agencies regarding this critical habitat designation.

Public Comments

(5) *Comment:* Several commenters asked us to exclude Unit 2 based on the implementation of a biological opinion (BO) that we issued in 2004 for a wetlands restoration and enhancement project funded though the North American Wetlands Conservation Act (NAWCA) within the historical lake bed of Goose Lake (Service 2004).

Our Response: The terms and conditions in the BO all applied to the means by which groundbreaking activities would be carried out for the project (Service 2004, pp. 20–22). There was thus little provision established for ongoing management of the property for the benefit of the shrew after completion of the project. The BO did include several conservation recommendations, including: (1) that the effects of restoration activities on the shrew be monitored; (2) that an outreach and education program for the shrew be developed; and (3) that a programmatic BO be undertaken that would consider long-term seasonal wetlands maintenance actions. To our knowledge, none of these recommended conservation actions have been undertaken. In balancing the benefits of exclusion against the benefits of designation, we generally consider the extent to which exclusion would result in ongoing benefits that would not otherwise be realized. Because the NAWCA-funded wetlands improvement project is a completed project, and no ongoing management plan has been established for the conservation benefit of the shrew under the associated BO, the Secretary is not exercising her discretion to exclude Unit 2 under section 4(b)(2) of the Act.

(6) *Comment:* Several commenters asked us to exclude Unit 3 based on the completion and implementation of a

habitat management plan (HMP) for the area.

Our Response: The Secretary has determined that the benefits of exclusion outweigh the benefits of inclusion of the area identified in Unit 3 as critical habitat. As a result, she has excluded Unit 3 under section 4(b)(2) of the Act. See Exclusions below for further discussion of this exclusion.

(7) *Comment:* Three commenters noted that, contrary to our description, the shrew is included as a covered species under the conservation easement establishing the Coles Levee Ecosystem Preserve, which overlaps most of Unit 4. One commenter added that the easement specifically benefits the shrew by establishing a year-round water supply to the artificial pond near which shrews were first found on the unit.

Our Response: Although the easement agreement does not specifically use the term "covered species" to apply to the shrew, the shrew is listed in the easement agreement as a "species of concern" (ARCO and CDFG 1992a, p. 9, Exhibit G p. 5). This qualifies it for certain additional protections beyond those applicable under the agreement to native species generally (ARCO and CDFG 1992a, pp. 7–9). However, these additional measures primarily cover actions that must be taken in association with groundbreaking activities, and do not add protections beyond those typically required for an incidental take permit under the Act.

None of the provisions of the conservation easement, or its associated documents such as the management permit, require or mention a year-round water supply for the artificial pond near which shrews were first found on the unit.

(8) *Comment:* Two commenters asked us to exclude Unit 4 based on: (1) a habitat conservation plan (Elk Hills HCP), which they indicated is being prepared for the nearby Elk Hills Oil Fields; and (2) the location of the unit within the confines of the Coles Levee Ecosystem Preserve.

Our Response: The Elk Hills HCP has been in preparation since approximately 2005, and is likely to require several more years for completion. Although the Buena Vista Lake shrew is likely to be a covered species, the Elk Hills HCP is intended primarily to minimize and mitigate impacts to upland species from oil and gas production in the Elk Hills Oil Fields (Live Oak Associates (LOA). 2006, pp. 1–3, 5). The Elk Hills Oil Fields area is a 75 square-mile (sq-mi) (194 square-kilometer (sq-km)) area west of Unit 4. The Elk Hills HCP will encompass the Elk Hills Oil Fields, as well as selected rights-of-way and conservation lands within a buffer area surrounding the oil fields (LOA 2006, pp. 5, 8, 9). Although Unit 4 lies within the buffer area, not all lands within that area will be covered by the Elk Hills HCP. The best information currently available to us does not indicate whether Unit 4 will be among those areas afforded protection or not. Because the Elk Hills HCP is still unfinished with no expected date of completion and because it is unclear at this time whether the Elk Hills HCP will apply to the Coles Levee Unit, we do not consider the Elk Hills HCP to add to the benefits of excluding the unit from critical habitat designation. Accordingly, we are not recommending and the Secretary is not considering that the areas identified as critical habitat within the proposed Elk Hills HCP be excluded under section 4(b)(2) of the Act.

The 6,059-ac (2,452-ha) Coles Levee Ecosystem Preserve was established in 1992 (Aera Energy 2011, p. 1), and is covered by a conservation easement held by the California Department of Fish and Wildlife (CDFW) (formerly the California Department of Fish and Game (CDFG)). Approximately 143 ac (58 ha) of the 270 ac (109 ha) in Unit 4 are within the Preserve. We interpret the comment to apply only to those areas of overlap. The purpose of the easement is to preserve the property in a natural condition, subject to oil and gas operations of the property owner (ARCO and CDFG 1992a, pp. 1, 2; ARCO and CDFG 1992b, p. 1). The easement includes terms under which habitat disrupted or destroyed by oil and gas operations can be mitigated by designation of lands within the property as compensation lands, (ARCO and CDFG 1992a, pp. 3, 4). All lands not otherwise being used for oil and gas operations are subject to various wildlife protection provisions, some of which likely benefit the shrew. Such provisions include: (1) Restrictions on use of the property to wildlife conservation, and to oil and gas exploration and production; (2) various operation restrictions designed to minimize impacts to wildlife; (3) reclamation provisions for areas no longer needed for oil or gas extraction; and (4) phasing out of then-existing agricultural leases (ARCO and CDFG 1992a, pp. 2, 4–6, 10).

A management permit attached to the easement also requires biological monitoring for implementation of the wildlife mitigation measures, and an annual management meeting between CDFW and the landowner (ARCO and CDFG 1992a, Exhibit D, pp. 5, 6). These provisions are still being carried out by Aera Energy, which obtained ownership of the property from ARCO in 1998 (Occidental of Elk Hills 2009, p. 3; Vance 2013, p. 1). However, Aera Energy does not have an active management permit for the area (Vance 2013, p. 1), so the requirements established by the management permit written for ARCO (Exhibit D) are presumably not enforceable against Aera.

In considering whether to exclude a particular area from designation, such as those portions of Unit 4 that are within the Coles Levee Ecosystem Preserve, we compare the benefits for the listed species of including the area, to the benefits for the listed species of excluding the area (see Exclusions, below). In this case, the shrew would be unlikely to benefit from exclusion. The conservation easement establishing the Coles Levee Ecosystem Preserve was not designed to protect or enhance riparian and wetland habitat. No partnerships exist between ourselves and other entities to advance shrew conservation in the area, so designation does not have the potential to disrupt such partnerships; and the Preserve will continue to operate in the same manner whether we exclude it from designation or not.

We have expressed concern in the past regarding the potential impacts of designation on CDFW's ability to manage for the shrew (70 FR 3457). CDFW is not currently managing for the shrew in the area, with the exception of avoidance measures established by the easement agreement related to groundbreaking activities (as discussed in our response to the previous comment) (Vance 2013, p. 1). Additionally, we expect incremental costs resulting from critical habitat designation in Unit 4 (in the form of additional time spent for Section 7 consultation) to be low, and to be borne primarily by ourselves, any other involved Federal agency, and the project proponent rather than by CDFW (IEc 2013, pp. 4–4, 4–5, 4–9, 4–10). We therefore expect any additional regulatory burden of critical habitat on CDFW to be minimal. In contrast, designation of the area may benefit the shrew by publicizing the shrew's presence and habitat requirements at the site, thereby allowing present and future landowners to better take those requirements into account in their land-use planning. Accordingly, we are not recommending and the Secretary is not considering that the areas identified as critical habitat within the Coles Levee Unit be excluded under section 4(b)(2) of the Act.

(9) *Comment:* Several commenters stated that certain proposed units should not be included in the final critical habitat designation because they are already subject to adequate management or protection, and therefore fail to meet the Act's definition of critical habitat as areas that "may require special management considerations or protection" (15 U.S.C. 1532(5)(A)(i)). Another commenter asked us to include all proposed areas, regardless of adequate management. The commenter noted that two courts, including the 9th Circuit, have indicated that adequate management is not a valid reason to avoid designation.

Our Response: We no longer consider adequate management or protections to be a sufficient basis for not designating an area as critical habitat. However, if an area has adequate management or protections, and if designation of critical habitat in the area may compromise the conservation of the species in some manner, then the Secretary may determine that the benefits of excluding the area from designation outweigh the benefits of inclusion (see Exclusions Based on Other Relevant Impacts, below).

(10) *Comment:* Several commenters asked us to exclude portions of Units 2 through 5 based on expected economic impacts, and on perceived impacts to public health and safety. The commenters were concerned that health and safety impacts would result from potential disruptions to water conveyance through the units, and to operation and maintenance of existing facilities such as natural gas pipelines. Other commenters asked us to designate all proposed critical habitat, and to make no exclusions.

Our Response: We are required by section 4(b)(2) of the Act to take into account the economic and other relevant impacts of critical habitat designation. The Secretary may account for those impacts by excluding any area for which the benefits of exclusion outweigh the benefits of designation, so long as this will not result in extinction of the species. Areas that do not contain any physical or biological features for the species, but that are within critical habitat units, do not constitute critical habitat and need not be excluded.

Critical habitat only directly affects Federal agencies. It does not affect the normal operation, maintenance, repair, or replacement of existing non-Federal facilities unless activities involve Federal agencies (permitting, funding). The delivery of water through existing canals, or of natural gas through existing pipes, on private or state land constitutes the normal operation of those structures, and would not trigger section 7 consultation regardless of whether those structures were located within critical habitat. Additionally, some facilities for which exclusions were requested lack all the physical or biological features identified for the shrew, and so do not constitute critical habitat despite being located within the boundaries of a unit (see comment 11, below). These areas were included within the boundaries of the units because of the difficulty of removing these areas due to mapping constraints. Accordingly, with the exception of Unit 3 (see Exclusions below) the Secretary is not exercising her discretion to exclude any areas based on economic or other impacts.

(11) *Comment:* Various commenters asked us to redraw portions of Units 2 through 5 to avoid areas without any physical or biological features or their specific PCEs, such as vegetation-free canals, roads, and pipeline right-of-ways. Additionally, one commenter provided survey information to indicate that several basin areas in Unit 3 are without PCEs for the shrew. Another commenter stated that, based on his first-hand knowledge of the area, most of Unit 2 lacks an overstory of willows and cottonwoods, and that therefore the area does not qualify as critical habitat due to lack of a PCE.

Our Response: Based on the information provided, we reevaluated the proposed critical habitat boundaries in Units 2 through 5. As a result, we redrew the maps for Units 2 and 5 to remove two large, primarily concrete-lined canals that do not contain the physical or biological features required by the shrew, or any specific PCEs. In most cases, however, the redrawing of critical habitat units to avoid individual requested areas would require the use of impracticably fine mapping scales. Accordingly, we have removed such areas lacking the physical or biological features from the designation textually, by including the following paragraph in the regulatory description of Buena Vista Lake shrew critical habitat under the Regulation Promulgation section below: "Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located" as of the effective date of the designation.

An overstory of willows and cottonwoods is not a PCE for the Buena Vista Lake shrew. Rather, it is an example of plants that may be present in areas exhibiting the first PCE: riparian or wetland communities containing a complex vegetative structure, with a thick cover of leaf litter or dense mats of low-lying vegetation. Additionally, a given area need only support one of the three PCEs in order to be eligible for designation as critical habitat. As discussed under *Unit 2: Goose Lake Unit*, below, Unit 2 provides suitable moisture for the shrew (PCE 2), as indicated by its scattered freshwater marsh and riparian areas (some of which have been recently restored), and by the intermittent use of the area as a groundwater recharge basin. It also supports a complex vegetative structure (PCE 1) in many areas, including *Frankenia spp.* (frankenia), *Allenrolfea occidentalis* (iodine bush), and *Suaeda spp.* (seepweed) along the slough channels; *Typha spp.* (cattails), *Scirpus spp.* (bulrushes), and *Distichilis spp.* (saltgrass) in intermittently saturated areas; and dense mats of saltgrass and other shrubs in the southern portion of the unit. As is true of all the units, we lack direct evidence of a consistent and diverse supply of prey for the shrew in the unit (PCE 3), but reasonably infer such a supply based on the existence in the unit of habitat that would support it. Such habitat is demonstrated by the presence of the other two PCEs

Because we are excluding Unit 3 in its entirety under section 4(b)(2) (see Exclusions, below), we do not reach the question of whether the unit should be redrawn to reflect a lack of PCEs in certain basins.

(12) *Comment:* Several commenters asked us to redraw Unit 5 to avoid the New Rim Ditch, levee, and adjacent roadway. One commenter also disagreed with our statement in the proposed designation that the moisture regime in Unit 5 is maintained by runoff from the New Rim Ditch, and submitted a report from an engineer who inspected the site and concluded such runoff or seepage was unlikely because, based on the high water mark in the ditch, the water in the ditch remains lower than the surrounding land.

Our Response: The bounds of Unit 5, as drawn for the proposed rule and finalized here, do not include the New Rim Ditch and its associated levee and roadway. We have removed reference to runoff from the New Rim Ditch as a contributing factor to the moisture regime in the unit.

(13) *Comment:* Several commenters expressed concern that critical habitat designation would limit various land use practices including: mosquito abatement procedures; groundwater recharge practices around Bakersfield; water conveyance to surrounding farmland; oil and gas development; and flood management.

Our Response: Critical habitat designations do not affect ongoing land

use practices conducted without the involvement of a Federal agency. Consultation on critical habitat is only triggered when there is a Federal nexus (action carried out, funded, or authorized by a Federal agency). None of the activities listed above require Federal permits or other direct Federal action when carried out on non-Federal lands. Accordingly, we do not expect critical habitat designation to affect these activities.

(14) *Comment:* One commenter indicated that, based on recent trapping surveys, only 6.5 ac (2.6 ha) of habitat in Unit 2 was occupied by the shrew, and the shrew trapped at those locations may have been the adorned ornate shrew (*Sorex ornatus ornatus*).

Our Response: The report for the trapping survey in question states that it was not possible from the trapping effort to determine the abundance or distribution of shrews on the site, but that the distance between capture points suggested they may be widely distributed (Uptain *et al.* 2004, p. 8). We drew the bounds of Unit 2 to encompass those areas in the vicinity of the trapping locations that exhibit at least one of the three PCEs essential to the Buena Vista Lake shrew. We characterize shrews trapped in that area as Buena Vista Lake shrews because the area is within the mesic (moist) lower elevation range of the Buena Vista Lake shrew rather than the semi-arid higher elevation range of the adorned ornate shrew (77 FR 40709). Genetic tests conducted in 2006 on samples from the Goose Lake population are consistent with this characterization (Maldonado 2006, p. i; Service 2011, pp. 9, 10).

(15) *Comment:* One commenter expressed concern that no standardized survey methodology was employed for the identification of areas occupied by Buena Vista Lake shrews.

Our Response: We are required by section 4(b)(2) of the Act to designate critical habitat on the basis of the best scientific data available. The surveys and other information we used to determine occupied locations constitute those best data, despite the lack of a standardized survey methodology.

(16) *Comment:* Two commenters thought we should include additional habitat in the designation to provide for recovery. One of those commenters noted that the areas proposed do not meet the recovery recommendations of our recovery plan for Upland Species of the San Joaquin Valley, California ("Recovery Plan", Service 1998, p. 192).

Our Response: We note that, normally, it is not necessary for critical habitat to coincide with recovery plan recommendations in order to meet its requirements under the Act. Recovery plans, when available, constitute part of the best scientific evidence that we must consider when designating critical habitat. However, recovery plans do not themselves identify areas with features essential to the conservation of a species. They can therefore inform, but may not determine, the critical habitat designation process.

In addition, the comment regarding the recovery plan was made in response to our 2009 proposed designation, which included approximately 4,649 ac (1,881 ha) in five units. The Recovery Plan recommended three or more disjunct occupied sites comprising a total of 4,940 ac (2,000 ha). Our revised proposed designation of July, 2012 (77 FR 40705) included two additional units, and also increased the acreage of one of the existing units (Unit 4). Accordingly, the revised proposal included approximately 5,182 ac (2,098 ha) in 7 units, and thus met the acreage recommendations of the Recovery Plan. We are completely excluding one of those units (Unit 3) from critical habitat designation (see Exclusions, below), but the site retains the physical and biological habitat features that the shrew requires, and will be managed for the shrew's conservation. We therefore consider the final critical habitat designation to comport well with the recovery plan recommendations.

(17) *Comment:* One commenter requested the legal descriptions of the units.

Our Response: The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at *http://criticalhabitat.fws.gov/crithab/*, and at *http://www.regulations.gov* at Docket No. FWS–R8–ES–2009–0062, and at the Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**, above).

(18) *Comment:* One commenter noted that the DEA was not available during the comment period immediately following publication of the 2012 revised proposed critical habitat designation (77 FR 40705). The commenter was concerned that: (1) We would proceed with critical habitat designation without completing the DEA; (2) commenters on the proposed rule would not have the benefit of information provided by the DEA; and (3) the opening of a separate comment period subsequent to completion of the DEA would improperly incrementalize the notice and comment process.

Our Response: We published a notice in the **Federal Register** making available our completed DEA on March 5, 2013 (78 FR 14245). The notice opened a 60-day comment period for comments on either the DEA or on the July 10, 2012, proposed designation (77 FR 40706). Commenters therefore have had the benefit of reviewing both the proposed designation and a completed DEA during an open comment period and were able to comment on the proposed rule, the revised proposed rule, the DEA, and all associated documents in a nonincrementalized fashion.

(19) *Comment:* Several commenters stated that the critical habitat designation provides no conservation benefit for the shrew, as indicated both by our statements to that effect in our 2004 proposed and 2005 final designations, and by the fact that the DEA estimates critical habitat to result in no additional conservation actions beyond those that would have been implemented due to the shrew's status as an endangered species.

Our Response: Our 2004 and 2005 documents indicated our opinion at the time that critical habitat provides "little" additional protection "in most circumstances." The statement thus does not indicate that critical habitat provides no additional protection to the shrew. Additionally, while the DEA does state that we are "unable to foresee a circumstance in which critical habitat would change the conservation efforts recommended for the shrew" (IEc 2013, p. ES–4), that does not account for benefits resulting from the educational and notification value of critical habitat. For instance, by identifying and publishing here the physical and biological habitat features required by the shrew, we inform landowners and Federal agencies of the shrew's habitat needs prior to the beginning of any subsequent consultations, thereby allowing them to plan for, and better incorporate, appropriate avoidance and minimization measures into their initial project descriptions.

(20) *Comment:* Several commenters noted that section 2(c)(2) of the Act requires us to "cooperate with State and local agencies to resolve water resource issues in concert with the conservation of endangered species." The commenters stated that critical habitat designation for the shrew would raise such issues, and that we must therefore cooperate with State and local agencies (to a greater extent than we have already) in order to resolve them.

Our Response: We do not expect the designation of critical habitat for the shrew to raise water resource issues. Water deliveries through existing canals

in designated units constitute non-Federal actions, and so do not require consultation for impacts to critical habitat. Construction of new canals within critical habitat would potentially affect the shrew directly, and so would trigger consultation regardless of critical habitat designation.

(21) *Comment:* One commenter stated that we did not vigorously defend our 2005 final critical habitat designation, and that in reaching a settlement agreement to repropose critical habitat we excluded many affected parties from the process.

Our Response: By reaching a settlement agreement on the designation of critical habitat, we have not excluded any affected parties from the overall process of critical habitat designation. In fact the opposite may be true as we have had four comment periods totaling 140 days and two public hearings on the 2009 proposed critical habitat and 2012 revision.

(22) *Comment:* One comment stated that the economic analysis should provide an analysis of the monetary benefits of critical habitat designation. The comment describes, that while Executive Order 12866 directs Federal agencies to provide an assessment of both the social costs and benefits of proposed regulatory actions, the Draft Economic Analysis (DEA) fails to evaluate the benefits and only calculates the costs. The comment further stated that methodologies exist to calculate both direct and ancillary benefits, such as maintaining open space, maintaining or revegetating riparian areas for protecting and improving water quality and quantity, preservation of native habitat and migration corridors for other species, and protection of clean air. Because these and other benefits of critical habitat designation were not quantified or detailed qualitatively, the comment asserted that the DEA is inadequate and the Secretary should not rely on it to exclude any areas from critical habitat.

Our Response: As described in Chapter 5 of the DEA, critical habitat designation is not expected to generate: (1) Additional conservation measures for the Buena Vista Lake shrew; (2) changes in economic activity; or (3) changes to land management. Absent any changes in the above, incremental economic benefits are not expected to result from the designation of critical habitat.

(23) *Comment:* One comment stated that the term "ancillary benefits" in the DEA appears to minimize the importance of all coincident benefits of critical habitat designation.

Our Response: The DEA defines "ancillary benefits" consistent with the Office of Management and Budget's (OMB's) Circular A–4, which provides Federal Agencies with guidelines for conducting economic analyses of regulations. Specifically section 2.3.3 of the DEA defines ancillary benefits as, "favorable impacts of a rulemaking that are typically unrelated, or secondary, to the statutory purpose of the rulemaking." Chapter 5 of the DEA clarifies that the primary intended purpose of the critical habitat designation is to support the conservation of the Buena Vista Lake shrew. Thus, any other potential benefits would be considered ancillary benefits of the rulemaking.

(24) *Comment:* Two comments stated that the DEA does not analyze the cumulative effects of critical habitat designation. One commenter stated that there would be indirect and cumulative economic and social effects of lost local water resources. In addition, a comment stated that there will be cumulative effects on water management activities, farming, and other activities on neighboring properties of designating all four units collectively.

Our Response: Chapter 1 of the DEA describes that the geographic scope of the analysis includes all the units of proposed critical habitat, as described in the proposed rule. The analysis therefore considers the potential economic impact of designating all units as critical habitat for the species. Further, as discussed in Chapter 4 of the DEA, we are unable to foresee a circumstance in which critical habitat designation would change the conservation efforts recommended for the shrew. Consequently, the incremental impacts quantified in the DEA are limited to additional administrative costs of section 7 consultation. Critical habitat designation is not anticipated to affect water management, farming and other activities within or adjacent to the critical habitat area.

(25) *Comment:* One comment stated that the economic analysis should include all occupied and suitable unoccupied habitat and not rely on the draft critical habitat as described in the proposed rule. Another comment asserted that the economic analysis fails to include all critical habitat areas for the recovery of the species.

Our Response: The economic analysis evaluates potential impacts of critical habitat designation in the areas in which we have proposed critical habitat in the proposed rule. The proposed rule did not include any proposed, unoccupied habitat for the species; accordingly, the economic analysis does not consider impacts of designating these areas as critical habitat. We have determined that the areas designated as critical habitat are sufficient to meet the standards of conserving the species and its habitat and other unoccupied areas were not needed for the species.

(26) *Comment:* One comment stated that the conclusion in the DEA that conservation efforts under the Draft Kern County Valley Floor Habitat Conservation Plan (HCP) are unlikely to change due to critical habitat designation is incorrect. The comment asserts that, when critical habitat is designated, we and California Department of Fish and Wildlife staff review designated lands under heightened scrutiny, resulting in greater survey, take avoidance, and mitigation requirements for any potential project. Similarly, the comment states, both agencies will view properties that are proximate to critical habitat lands as being subject to similar scrutiny and will be concerned about higher mitigation and avoidance requirements.

Our Response: As discussed in Section 4.2.6 of the DEA, we anticipate that the same conservation efforts for the shrew will be recommended for the Kern County Valley Floor HCP regardless of whether critical habitat is designated. Specifically, because locations occupied by the shrew are so rare, we expect to recommend protection of such locations for the HCP whether or not CH is designated. As such, critical habitat is not expected to change any survey, mitigation, or other conservation efforts that we recommend be incorporated into the HCP for the shrew.

(27) *Comment:* According to one comment provided on the DEA, critical habitat could adversely affect agricultural productivity and the ability of the affected agricultural and urban water districts to operate if water deliveries are restricted. The comment further stated that the entire City of Bakersfield Kern Fan Water Recharge Unit is proposed for designation and that designation would result in restricted groundwater recharge practices that would adversely affect the ability of the City to provide adequate public drinking water supplies. The commenter stated that the analysis should consider the economic impacts of restricting water supply operations and maintenance upstream of the proposed critical habitat.

Our Response: As described in Section 3.3 of the DEA, the City of Bakersfield owns all acres included in proposed Unit 3, which is located entirely within the Kern Fan Water

Recharge Area (KFWRA). The City operates the site for the purposes of flood control, wildlife conservation, limited access public uses, water conservation, and mineral production. In 2004, the City developed a Buena Vista Lake shrew management plan for the site and has managed the area according to this plan since 2005, including surveying for the species, limiting public access, terminating livestock grazing, zoning and managing the entire area as open space, and engaging in water-spreading activities. We do not expect review of this management plan following critical habitat to result in recommendations for changes in shrew conservation. As a result, no additional restrictions to groundwater recharge practices or water supply operations and maintenance are anticipated to result from the designation of critical habitat for the shrew.

(28) *Comment:* One comment expressed concern that the critical habitat designation may adversely affect the duties of the District to manage the Outlet Canal of the Coles Levee in Unit 4 for the purposes of water delivery and flood control. The comment noted that the current management regime of the Canal and Coles Levee Preserve already provide conservation benefits to the shrew and that the District is in the process of preparing a detailed management plan for the shrew. In addition, the comment stated that the current management of the artificial pond on the Coles Levee Preserve according to a conservation easement held by the California Department of Fish and Wildlife is designated to benefit the shrew.

Our Response: Section 3.4 of the DEA identifies Aera Energy, Inc. as the manager of 223 ac (90 ha) of proposed critical habitat in Unit 4. Consistent with this comment letter, the Environmental Health and Safety Advisor of Aera Energy, Inc. confirmed that the proposed critical habitat is located in a slough within which preserve managers implement conservation for several species, including the shrew. The DEA also describes that wells within the proposed Unit are managed under a conservation easement agreement that incorporates conservation practices that are similar to those that we recommended through section 7 consultation for other activities. This comment letter adds that management of the Outlet Canal also considers impacts on shrews. It is because activities in Unit 4 are already managed for the conservation of the species that no section 7 consultations have taken place in Unit 4 that consider the shrew. In the case that a Federal nexus exists triggering section 7 consultation on activities in this area in the future, we may review these activities, including operations of the Outlet Canal or management of the artificial pond or energy developments. However, we do not anticipate that critical habitat designation will significantly change the outcome of any section 7 consultations. Although we will fully evaluate the effects of future Federal actions being consulted upon to ensure that the action does not result in adverse modification to designated critical habitat, we expect any recommendations we make to avoid jeopardy to the species will also in most instances avoid adverse modification to critical habitat.

(29) *Comment:* One comment noted that the DEA statement in section 3.4 that, "Unit 4 is located entirely within the Coles Levee Ecosystem Preserve," is incorrect. The commenter stated that therefore the economic analysis likely ignores economic impacts to other landowners and easement holders in Unit 4.

Our Response: The referenced sentence in Section 3.4 is corrected in the Final Economic Analysis (FEA) to reflect that Aera Energy manages a portion of Unit 4 as the Coles Levee Ecosystem Preserve. Activities occurring within Unit 4, however, are currently managed with shrew conservation in mind under various conservation easements and management plans, as described above. Further, we expect that any conservation recommendations we may make as part of consultation on activities in this area in the future would be made regardless of critical habitat designation. Consequently, the error highlighted in this comment does not affect the conclusions of the DEA.

(30) *Comment:* A comment stated that the DEA underestimates economic impacts of critical habitat designation, asserting that critical habitat designation restricts the free use of property, including water and water rights, and therefore imposes an opportunity cost on property owners.

Our Response: Chapter 2 of the DEA describes the regulatory requirements of critical habitat designation as follows: "When critical habitat is designated, section 7 requires Federal agencies to ensure that their actions will not result in the destruction or adverse modification of critical habitat (in addition to considering whether the actions are likely to jeopardize the continued existence of the species)." As such, critical habitat designation does not directly restrict or regulate private activities occurring on private lands absent Federal funding or permitting. In the case of Buena Vista Lake shrew critical habitat, activities that may result in the destruction or adverse modification of critical habitat would likely also result in jeopardy to the species. Critical habitat is therefore not expected to result in additional recommendations for conservation for the species and does not further restrict, for example water rights, beyond effects generated by the listing of the species. The DEA acknowledges that, in some cases, critical habitat may generate indirect impacts on property owners, for example in the case that the designation triggers changes in State or local regulations or land management practices. The DEA did not, however, identify such changes as likely to result from critical habitat designation for the Buena Vista Lake shrew.

(31) *Comment:* A comment stated that the DEA fails to address the economic report prepared by Dr. Sunding and submitted as a comment to the previous (2004) proposed critical habitat and associated economic analysis. Dr. Sunding concluded that critical habitat for the Buena Vista Lake shrew could "have the potential to exceed $21.8 million annually with a present value of over $311 million."

Our Response: The analysis developed by Dr. Sunding is based on assumptions regarding restrictions on water access due to the designation of critical habitat. Specifically, the analysis considers a scenario in which the banked water from the Kern River and Friant-Kern Canal in Unit 3 are made unavailable to the Pioneer Project, Kern Water Bank, and Berrenda Mesa Project. The analysis then estimates the "replacement value" of this water at a rate of $209 per acre-foot for a total of $9.1 million per year (43,337 acre-feet banked annually). The analysis then evaluates "secondary impacts" resulting from timing of water supply and economic dislocation, assuming a revenue multiplier of 2.2 (essentially bringing the $209 per acre-foot estimate to $500 per acre-foot). The resulting present-value impacts are in excess of $311 million ($21.8 million annually).

As described above and detailed in Chapter 4 of the DEA, critical habitat designation is not anticipated to result in additional conservation for the shrew (i.e., we do not anticipate critical habitat to result in additional restrictions on water access). The assumption that the banked water from the Kern River and Friant-Kern Canal in Unit 3 would be inaccessible because of critical habitat designation is therefore not an expected impact of critical habitat designation. Consequently, the results of Dr.

Sunding's evaluation are not considered impacts of critical habitat designation in the DEA.

(33) *Comment:* According to one comment, proposed Unit 5 consists of two separate legal parcels separated by a north south canal that is capable of receiving water flows through the New Rim Ditch and conveying supplemental water to 940 ac (380 ha) of nearby land. In the case that the designation results in the canal becoming not usable, up to 6,400 ac (2,590 ha) of farm ground will be affected. The comment asserted that this could result in hundreds of thousands of dollars in reconstruction costs for an alternate delivery system in addition to the impact on the 6,400 ac (2,590 ha) of farmland.

Our Response: As described above and in Chapter 4 of the DEA, critical habitat designation for the shrew is not expected to result in additional restrictions on water use or access. As such, we do not anticipate the need to reconstruct alternate delivery systems because of critical habitat designation.

(34) *Comment:* One comment stated that the DEA fails to appreciate the loss inherent in the need for buffer zones around the critical habitat, which in essence become "unofficial" critical habitat requiring another buffer and so on.

Our Response: The DEA evaluates potential economic impacts on projects or activities that may result in the destruction or adverse modification of critical habitat. This includes projects or activities outside of the critical habitat area that may affect the primary constituent elements within the critical habitat area. The designation of critical habitat does not inherently result in the creation of buffer zones in areas adjacent to the designated critical habitat, and so would not properly be a subject of analysis in the Economic Analysis at either the draft or final stage.

(35) *Comment:* A comment submitted by Southern California Gas (SoCalGas) clarifies that the San Joaquin Valley (SJV) HCP, if finalized, will incorporate conservation for the Buena Vista Lake shrew as the species is known to occur in this area. The comment notes that page 3–13 of the DEA describes our uncertainty with respect to the nature of Buena Vista Lake shrew conservation measures that SoCalGas plans to incorporate into the HCP. SoCalGas commented that it intends to perform preactivity surveys in suitable Buena Vista Lake shrew habitat, establish exclusion zones around suitable habitat, and provide biological monitors during construction, as well as restore or compensate for disturbed habitat.

Our Response: The FEA incorporates the clarifications from SoCalGas with respect to the SJV HCP.

(36) *Comment:* One comment stated that the DEA does not recognize costs to ourselves resulting from the cycle of critical habitat rulemaking and litigation that we identified in the 2005 final rule as taking up a significant portion of the our budget.

Our Response: The purpose of the economic analysis is to identify the incremental impacts associated with the designation of critical habitat. Although the costs of revising or re-doing critical habitat based on litigation is of concern and can require significant time and resources, we cannot predict when these costs may occur or to what degree in the future. Additionally, identifying and including these types of costs are outside the scope of our requirements for determining the economic impacts for a specific critical habitat designation.

Summary of Changes From the Proposed Rule

In preparing our final designation of critical habitat for the Buena Vista Lake shrew, we reviewed comments received regarding the 2009 proposed designation, the 2012 revised proposed designation, the initial DEA of 2011, and the revised DEA of 2013. We revised the map unit labels in our 2013 document noticing the availability of the revised DEA, and we keep those revised labels in this final designation. Additionally, this final designation reflects minor clarifications in the text of the 2012 revised proposal, as well as the following more substantive changes:

(1) Under section 4(b)(2) of the Act, the Secretary is excluding proposed Unit 3 (the Kern Fan Recharge Unit). For more information, refer to Exclusions Based on Other Relevant Impacts, below.

(2) We have refined our mapping boundaries by removing large canals lacking PCEs from Units 2 and 5 (Goose Lake and Coles Levee Units).

(3) We evaluated any suggested changes and clarifications we received from the public during our public comment periods and incorporated those changes into this final designation as appropriate.

Critical Habitat

Background

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species, and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with ourselves, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) of the Act would apply, but even in the event of a destruction or adverse modification finding, the obligation of the Federal action agency and the landowner is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or

biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical or biological features within an area, we focus on the principal biological or physical constituent elements (primary constituent elements such as roost sites, nesting grounds, seasonal wetlands, water quality, tide, soil type) that are essential to the conservation of the species. Primary constituent elements are those specific elements of the physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. For example, an area currently occupied by the species but that was not occupied at the time of listing may be essential to the conservation of the species and may be included in the critical habitat designation. We designate critical habitat in areas outside the geographical area occupied by a species only when a designation limited to its range would be inadequate to ensure the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific and commercial data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106–554; H.R. 5658)), and our associated Information Quality Guidelines provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include the recovery plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, other unpublished materials, or experts' opinions or personal knowledge.

Habitat is dynamic, and species may move from one area to another over time. We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act, (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to insure their actions are not likely to jeopardize the continued existence of any endangered or threatened species, and (3) section 9 of the Act's prohibitions on taking any individual of the species, including taking caused by actions that affect habitat. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of this species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

Physical or Biological Features

In accordance with section 3(5)(A)(i) and 4(b)(1)(A) of the Act and regulations at 50 CFR 424.12, in determining which areas within the geographical area occupied by the species at the time of listing to designate as critical habitat, we consider the physical or biological features essential to the conservation of the species and which may require special management considerations or protection. These include, but are not limited to:

(1) Space for individual and population growth and for normal behavior;

(2) Food, water, air, light, minerals, or other nutritional or physiological requirements;

(3) Cover or shelter;

(4) Sites for breeding, reproduction, or rearing (or development) of offspring; and

(5) Habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of a species.

We derive the specific physical or biological features essential for the Buena Vista Lake shrew from studies of this species' habitat, ecology, and life history as described in the Critical Habitat section of the revised proposed rule to designate critical habitat published in the **Federal Register** on July 10, 2012 (77 FR 40706), and in the information presented below. Additional information can be found in the final listing rule published in the **Federal Register** on March 6, 2002 (67 FR 10101); in the 2011 5-Year Review and in the Recovery Plan for Upland Species of the San Joaquin Valley, California (*http://ecos.fws.gov*). We have determined that the Buena Vista Lake shrew requires the following physical or biological features:

Space for Individual and Population Growth and Normal Behavior

Historically, the Buena Vista Lake shrew was recorded in association with perennial and intermittent wetland habitats along riparian corridors, marsh edges, and other palustrine (marsh type) habitats in the southern San Joaquin Valley of California. The shrew presumably occurred in the moist habitat surrounding wetland margins in the Kern, Buena Vista, Goose, and Tulare Lakes on the valley floor below elevations of 350 feet (ft) (107 meters (m)) (Grinnell 1932, p. 389; Hall 1981, p. 38; Williams and Kilburn 1984, p. 953; Williams 1986, p. 13; Service 1998, p. 163). With the draining and conversion of the majority of the Buena Vista Lake shrew's natural habitat from wetland to agriculture, and the channelization of riparian corridors for water conveyance structures, the vegetative communities associated with the Buena Vista Lake shrew were lost or degraded, and nonnative plant species replaced those associated with the shrew (Grinnell 1932, p. 389; Mercer and Morgan, 1991 p. 9; Griggs 1992, p. 11; Service 1998, p. 163). Open water does not appear to be necessary for the survival of the shrew. The habitat where

the shrew has been found contains areas with both open water and mesic environments (Maldonado 1992, p. 3; Williams and Harpster, 2001 p. 12). However, the availability of water contributes to improved vegetation structure and diversity, which improves cover availability. The presence of water also attracts potential prey species, improving prey diversity and availability.

Current survey information has identified eight areas where the Buena Vista Lake shrew has been found in recent years (Maldonado 2006, p. 16; Williams and Harpster 2001, p. 1; ESRP 2005, p. 11): the former Kern Lake Preserve (Kern Preserve) on the old Kern Lake bed, the Kern Fan water recharge area, the Coles Levee Ecological Preserve (Coles Levee), the Kern National Wildlife Refuge (Kern NWR), the Goose Lake slough bottoms (Goose Lake), the Atwell Island land retirement demonstration site (Atwell Island), the Lemoore Wetland Reserve, and the Semitropic Ecological Reserve (also known as Main Drain or Chicca and Sons). Based on most areas in which Buena Vista Lake shrews have been found, the shrew appears to strongly prefer marshy areas or areas with moist riparian habitat.

The single occupied site lacking these characteristics is Atwell Island, which has no standing water or riparian vegetation, and which is surrounded by intensively farmed cropland. As discussed in our proposed critical habitat designation (77 FR 40706), we speculate that shrews may persist at Atwell Island by inhabiting rodent burrows and deep cracks in the soil, both of which may provide additional moisture, invertebrate prey, and cover for the shrews. However, we currently lack sufficient information to determine the long-term suitability of this habitat type for Buena Vista Lake shrews, and do not currently believe that this type of habitat is essential to the conservation of the species and so have not designated the Atwell Island site as critical habitat.

Food, Water, Air, Light, Minerals, or Other Nutritional or Physiological Requirements

The specific feeding and foraging habits of the Buena Vista Lake shrew are not well known. In general, shrews primarily feed on insects and other animals, mostly invertebrates (Harris 1990, p. 2; Maldonado 1992, p. 6). Food probably is not cached and stored, so the shrew must forage periodically day and night to maintain its high metabolic rate (Burt and Grossenheider 1964, p. 3).

Vegetation in the marshy and moist riparian communities described above provide a diversity of structural layers and plant species and likely contribute to the availability of prey for shrews. Therefore, conservation of the shrew should include consideration of the habitat needs of prey species, including structural and species diversity and seasonal availability. Shrew habitat must provide sufficient prey base and cover from which to hunt in an appropriate configuration and proximity to nesting sites. The shrew feeds indiscriminately on available larvae and adults of several species of aquatic and terrestrial insects. An abundance of invertebrates is associated with moist habitats, such as wetland edges, riparian habitat, or edges of lakes, ponds, or drainages that possess a dense vegetative cover (Owen and Hoffmann 1983, p. 3). Therefore, based on the information above, we identify a consistent and diverse supply of invertebrate prey to be an essential component of the biological features essential for the conservation of the Buena Vista Lake shrew.

Cover or Shelter

The vegetative communities associated in general with Buena Vista Lake shrew occupancy are characterized by the presence of (but are not limited to): *Populus fremontii* (Fremont cottonwood), *Salix spp.* (willows), *Salicornia spp.* (glasswort), *Elymus spp.* (wild-rye grass), *Juncus spp.* (rush grass), and other emergent vegetation (Service 1998, p. 163). These communities are present at all sites but Atwell Island. In addition, Maldonado (1992, p. 6) found shrews in areas of moist ground that was covered with leaf litter and near other low-lying vegetation, branches, tree roots, and fallen logs; or in areas with cool, moist soil beneath dense mats of vegetation that were kept moist by proximity to the water line. He described specific habitat features that would provide suitable habitat for the shrew: (1) Dense vegetative cover; (2) a thick, three-dimensional understory layer of vegetation and felled logs, branches, and detritus or debris; (3) heavy understory of leaf litter with duff overlying soils; (4) proximity to suitable moisture; and (5) a year-round supply of invertebrate prey. Williams and Harpster (2001, p. 12) determined that, although moist soil in areas with an overstory of willows or cottonwoods appeared to be favored, they doubted that such overstory was essential.

The communities in which Buena Vista Lake shrews have primarily been found are characterized by dense mats of leaf litter or herbaceous vegetation. The insect prey of the shrew also thrives in the dense matted vegetation. Although shrews have also been found at Atwell Island, in an area largely devoid of vegetation but characterized by deep cracks in the soils, little is currently known of the shrew or habitat needs at this site.

The Buena Vista Lake shrew is preyed upon by small mammalian predators as well as by avian predators (Maldonado 1992, p. 7). Dense vegetative structure provides the cover or shelter essential for evading predators. It also serves as habitat for breeding and reproduction, and allows for the protection and rearing of offspring and the growth of adult shrews. Therefore, based on the information above, we identify riparian and wetland communities, and areas with suitable soil moisture that support a complex vegetative structure with a thick cover of leaf litter or dense mats of low-lying vegetation to be the essential components of the physical and biological features essential to the conservation of the species.

Sites for Breeding, Reproduction, or Rearing (or Development) of Offspring

Little is known about the reproductive needs of the Buena Vista Lake shrew. The breeding season begins in February or March and ends in May or June, but can be extended depending on habitat quality and available moisture (Paul Collins 2000, p. 12). The edges of wetland or marshy habitat provide the shrew with a sheltered and hospitable environment, and provide a prey base that enables the shrew to give birth and raise its young. The dense vegetative understory also provides young with cover from predators. Dense vegetation also allows for the soil moisture necessary for a consistent supply of terrestrial and aquatic insect prey (Freas 1990, p. 8; Kirkland 1991, p. 15; Maldonado 1992, p. 3; Maldonado *et al.* 1998, p. 1; Ma and Talmage 2001, p. 123).

Habitats Protected From Disturbance or Representative of the Historical, Geographic, and Ecological Distributions of the Species

Preserving what little habitat remains for the Buena Vista Lake shrew is crucial to the survival of the species. Many factors negatively impact and restrict the shrew and its habitat, including selenium toxicity, habitat fragmentation, urban development, and the effects of climate change. The combined effects of climate change and habitat fragmentation have put immense pressure on species in highly altered or developed areas like the San Joaquin

Valley (Hannah *et al.* 2005, p. 4). Development, draining of wetlands, or the conversion of areas to agriculture has restricted the species to small islands of habitat with little to no connectivity or opportunity for expansion of its range. Climate change is a particular challenge for a variety of species because the interaction between additional stressors associated with climate change and current stressors could push species beyond their ability to survive (Lovejoy 2005, pp. 325–326), including the Buena Vista Lake shrew.

Climate Change

Our analyses under the Endangered Species Act include consideration of ongoing and projected changes in climate. The terms "climate" and "climate change" are defined by the Intergovernmental Panel on Climate Change (IPCC). The term "climate" refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007a, p. 78). The term "climate change" thus refers to a change in the mean or variability of one or more measures of climate (such as, temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007a, p. 78).

Scientific measurements spanning several decades demonstrate that changes in climate are occurring, and that the rate of change has been faster since the 1950s. Examples include warming of the global climate system, and substantial increases in precipitation in some regions of the world and decreases in other regions. (For these and other examples, see IPCC 2007a, p. 30; and Solomon *et al.* 2007, pp. 35–54, 82–85). Results of scientific analyses presented by the IPCC show that most of the observed increase in global average temperature since the mid-20th century cannot be explained by natural variability in climate, and is "very likely" (defined by the IPCC as 90 percent or higher probability) due to the observed increase in greenhouse gas (GHG) concentrations in the atmosphere as a result of human activities, particularly carbon dioxide emissions from use of fossil fuels (IPCC 2007a, pp. 5–6 and figures SPM.3 and SPM.4; Solomon *et al.* 2007, pp. 21–35). Further confirmation of the role of GHGs comes from analyses by Huber and Knutti (2011, p. 4), who concluded it is extremely likely that approximately 75 percent of global warming since 1950 has been caused by human activities.

Scientists use a variety of climate models, which include consideration of natural processes and variability, as well as various scenarios of potential levels and timing of GHG emissions, to evaluate the causes of changes already observed and to project future changes in temperature and other climate conditions (Meehl *et al.* 2007, entire; Ganguly *et al.* 2009, pp. 11555, 15558; Prinn *et al.* 2011, pp. 527, 529). All combinations of models and emissions scenarios yield very similar projections of increases in the most common measure of climate change, average global surface temperature (commonly known as global warming), until about 2030. Although projections of the magnitude and rate of warming differ after about 2030, the overall trajectory of all the projections is one of increased global warming through the end of this century, even for the projections based on scenarios that assume that GHG emissions will stabilize or decline. Thus, there is strong scientific support for projections that warming will continue through the 21st century, and that the magnitude and rate of change will be influenced substantially by the extent of GHG emissions (IPCC 2007a, pp. 44–45; Meehl *et al.* 2007, pp. 760–764 and 797–811; Ganguly *et al.* 2009, pp. 15555–15558; Prinn *et al.* 2011, pp. 527, 529) (also see IPCC 2007b, p. 8, for a summary of other global projections of climate-related changes, such as frequency of heat waves and changes in precipitation; and IPCC 2011 (entire) for a summary of observations and projections of extreme climate events).

Various changes in climate may have direct or indirect effects on species. These effects may be positive, neutral, or negative, and they may change over time, depending on the species and other relevant considerations, such as interactions of climate with other variables (e.g., habitat fragmentation) (IPCC 2007, pp. 8–14, 18–19). Identifying likely effects often involves aspects of climate change vulnerability analysis. Vulnerability refers to the degree to which a species (or system) is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the type, magnitude, and rate of climate change and variation to which a species is exposed, its sensitivity, and its adaptive capacity (IPCC 2007a, p. 89; see also Glick *et al.* 2011, pp. 19–22). There is no single method for conducting such analyses that applies to all situations (Glick *et al.* 2011, p. 3). We use our expert judgment and appropriate analytical approaches to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

Current climate change projections for terrestrial areas in the Northern Hemisphere indicate warmer air temperatures, more intense precipitation events, and increased summer continental drying (Field *et al.* 1999, pp. 1–3; Hayhoe *et al.* 2004, p. 12422; Cayan *et al.* 2005, p. 6; IPCC 2007, p. 1181). Climate change may lead to increased frequency and duration of severe storms and droughts (McLaughlin *et al.* 2002, p. 6074; Cook *et al.* 2004, p. 1015; Golladay *et al.* 2004, p. 504). Climate projections for smaller subregions such as California remain uncertain. However, modeling of hydrological responses to potential climate change in the San Joaquin watershed suggests that the hydrological system is very sensitive to climatic variations on a monthly and annual basis, with changes in crop phenology and water use suggested (Ficklin *et al.* 2009, pp. 25–27).

Use of downscaled climate modeling for the Sacramento-San Joaquin River Basin shows projected warming, with substantial decadal and interannual variability and altered streamflow seasonality in the southern San Joaquin Valley, suggesting that water infrastructure modifications would be needed to address changing conditions (Vanrheenen *et al.* 2004, pp. 1, 265–279). Due to the Buena Vista Lake shrew's reliance on dense riparian vegetation and adequate moisture in wetland areas, either increased drying of its home range or changes in water delivery practices that reduce water runoff could negatively affect the shrew, while increases in runoff could benefit the shrew. Regardless of the uncertainty of the specific effects of climate change on the Buena Vista Lake shrew, the current information does point to the general negative effects of areas being dryer and more unpredictable as far as precipitation and water availability. As a result, the effects of climate change overall will most likely be negative for the shrew and its habitat.

Primary Constituent Elements for the Buena Vista Lake Shrew

Under the Act and its implementing regulations, we are required to identify the physical or biological features essential to the conservation of the shrew in areas occupied at the time of listing, focusing on the features' primary constituent elements. Primary constituent elements are those specific elements of the physical or biological features that provide for a species' life-

history processes and are essential to the conservation of the species.

Based on our current knowledge of the physical or biological features and habitat characteristics required to sustain the species' life-history processes, we determine that the primary constituent elements specific to the shrew are:

Permanent and intermittent riparian or wetland communities that contain:

- A complex vegetative structure with a thick cover of leaf litter or dense mats of low-lying vegetation. Associated plant species can include, but are not limited to, Fremont cottonwoods, willows, glasswort, wild-rye grass, and rush grass. Although moist soil in areas with an overstory of willows or cottonwoods appears to be favored, such overstory may not be essential.
- Suitable moisture supplied by a shallow water table, irrigation, or proximity to permanent or semipermanent water; and
- A consistent and diverse supply of prey. Although the specific prey species used by the Buena Vista Lake shrew have not been identified, ornate shrews are known to eat a variety of terrestrial and aquatic invertebrates, including amphipods, slugs, and insects.

Special Management Considerations or Protections

When designating critical habitat, we assess whether specific areas within the geographical area occupied by the species at the time of listing contain features that are essential to the conservation of the species and which may require special management considerations or protection (16 U.S.C. 1536(3)(5)(A)(i)).

All designated critical habitat units will require some level of management to address the current and future threats to the physical and biological features essential to the conservation of the Buena Vista Lake shrew. Special management considerations or protection may be required to minimize habitat destruction, degradation, or fragmentation associated with such threats as the following: Changes in the water supply allocations, water diversions, flooding, oil and gas extraction, nonnative vegetation, and agriculture. For example, the Coles Levee area is within the boundaries of a proposed oil and gas exploration proposal. Agricultural pressures to convert land to agriculture remain in the southern San Joaquin Valley, with agricultural conversion to orchards noted to have occurred recently in the general area.

The designated units are located in areas characterized by large-scale agricultural production, and consequently, the units may be exposed to a number of pesticides, which could detrimentally impact the species. The Buena Vista Lake shrew currently exists on small remnant patches of natural habitat in and around the margins of a landscape that is otherwise dominated by agriculture. The Buena Vista Lake shrew could be indirectly exposed to pesticides from drift during spraying of crops where pesticide application measures to prevent drift are not followed, or potentially directly exposed during herbicide treatment of canal zones and ditch banks, wetland or riparian edges, or roadsides where shrews might exist. Reduced reproduction in Buena Vista Lake shrews could be directly caused by pesticides ingested through grooming, and secondarily from feeding on contaminated insects (Sheffield and Lochmiller 2001, p. 284). A variety of toxicants, including pesticides and heavy metals, have been shown to negatively affect insectivores, including shrews, that have a high basal metabolism and tight energy balance. Treatment-related decreases in invertebrate prey availability may be especially significant to such insectivore populations (Ma and Talmage 2001, pp. 133–152).

The Buena Vista Lake shrew also faces high risks from random catastrophic events (such as floods or drought) (Service 1998, p. 163). The low numbers of Buena Vista Lake shrews located in small isolated areas increases the risk of a random catastrophic event eliminating entire populations or severely diminishing Buena Vista Lake shrew numbers to the point that recovery is precluded. These threats and others mentioned above could render the habitat less suitable for the Buena Vista Lake shrew by washing away leaf litter and complex vegetation structure (floods) or drying wetland habitat so that vegetative and prey communities die (drought), and special management may be needed to address these threats.

In summary, the critical habitat units identified in this designation may require special management considerations or protection to provide a functioning hydrological regime to maintain the requisite riparian and wetland habitat, which is essential in providing the space and cover necessary to sustain the entire life-cycle needs of the shrew, as well as its invertebrate prey. Changes in water supply could result in the alteration of the moisture regime, which could lead to reduced water quality or hydroperiod, loss of suitable invertebrate supply for feeding, and loss of complex vegetative structure for cover. The units may also require special management considerations due to ongoing pressures for agricultural conversion and oil and gas exploration, and pesticide use, and vulnerabilities associated with low population size and population fragmentation.

Criteria Used To Identify Critical Habitat

As required by section 4(b)(2) of the Act, we used the best scientific data available to designate critical habitat. We reviewed available information pertaining to the habitat requirements of this species. We designated units based on their possession of sufficient elements of physical or biological features being present to support the shrew's life processes.

In accordance with the Act and its implementing regulation at 50 CFR 424.12(e), we considered whether designating additional areas—outside those occupied at the time of listing—would be necessary to ensure the conservation of the species. At the time of listing, we were aware of four locations (Kern Lake, Kern National Wildlife Refuge, Coles Levee, and the Kern Fan Water Recharge Area) where the Buena Vista Lake shrew was extant, but we also noted that additional remnant patches of wetland and riparian habitat within the Tulare Basin had not been surveyed and might support the shrew (67 FR 10101, 10103). We considered the geographical area occupied by the species to include all areas of remnant wetland and riparian habitat within the Tulare Basin. Shrews were also known from Atwell Island, Tulare County (Williams and Harpster 2001, pp. 13, 14), but had not been identified as Buena Vista Lake shrews at that time. In January 2003, a fifth site, Goose Lake, was surveyed and Buena Vista Lake shrews were also identified at this location (ESRP 2004, p. 8). The Goose Lake Unit was included in the original proposal to designate critical habitat (69 FR 69578). The Lemoore and Semitropic sites were first surveyed for the Buena Vista Lake shrew in April 2005, and Buena Vista Lake shrews were captured at these sites (ESRP 2005, p. 11, 12).

We are only designating areas within the geographical area occupied by the species at the time of listing in 2002. We include as occupied those areas that meet the following two conditions: (1) They contain the physical or biological features that are essential to the conservation of the species, and (2) they were identified as occupied in the original listing documents or later confirmed to be occupied after 2002.

We consider critical habitat units in which shrews were first found after 2002 (units 2, 6 and 7) to have been occupied at time of listing, because the likelihood of dispersal to such areas after listing is very low, and because no surveys had been conducted in those areas prior to listing. Shrews, in general, have small home ranges in which they spend most of their lives, and generally exhibit a high degree of site-attachment. Males and juveniles of some species have been documented to disperse during the breeding season, with movement within a season varying between species from under 10 feet (a few meters) to, in one case, documented movement of 0.5 mi (800 meters) within a year (Churchfield 1990, pp. 55, 56). Because shrews generally only live a single year, half a mile would be the most we would reasonably expect a group of shrews (or a pregnant female) to disperse. No critical habitat unit is in such close proximity to other units or occupied areas. Accordingly, any shrew populations found in a given unit after listing can be assumed to have been present in those areas prior to listing, barring evidence to the contrary such as prelisting surveys. All proposed units retain wetland or riparian features and are within the Tulare Basin, the described historical range of the Buena Vista Lake shrew.

We identified the designated lands based on the presence of the primary constituent elements described above, coupled with occupancy by the shrew (as established by sighting of shrews at the location). These criteria yielded seven units, which we proposed for designation on July 10, 2012 (77 FR 40706). As discussed above, the only occupied site not proposed for designation was Atwell Island, because of its lack of the physical or biological features determined to be essential to the conservation of the species. Because we consider all designated units to have been occupied at the time of listing, we consider them to meet all the first prong of the Act's definition of critical habitat (16 U.S.C. (3)(5)(A)(i), see Background section above).

We also consider all such designated areas to be essential for the conservation of the shrew. Within the historical range of the shrew, these seven units represent the only known remaining areas that contain both extant shrew populations and the PCEs on which the conservation of those populations depends. Additionally, by protecting a variety of habitats and conditions that contain the PCEs, we will increase the ability of the shrew to survive stochastic environmental events (fire, drought, or flood), or demographic (low recruitment), or genetic (inbreeding) problems. Suitable habitat within the historical range is limited, although conservation of substantial areas of remaining habitat in the Semitropic area is expected to benefit the shrew. Remaining habitats are vulnerable to both anthropogenic and natural threats. Also, these areas provide habitats essential for the maintenance and growth of self-sustaining populations of shrews throughout their range. Because all the units are essential to the conservation of the shrew, any units that may subsequently be determined to have been unoccupied at time of listing (based on new information, for instance), will continue to function as critical habitat under the second prong of the Act's critical habitat definition (16 U.S.C. (3)(5)(A)(ii)).

Methodology Overview

As required by section 4(b)(2) of the Act and regulations at 50 CFR 424.12, we used the best scientific and commercial data available to determine the specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical and biological features that are essential to the conservation of the shrew and which may require special management. This included data and information contained in, but not limited to, the proposed and final rules listing the shrew (65 FR 35033, June 1, 2000; 67 FR 10101, March 6, 2002); the Recovery Plan for Upland Species of the San Joaquin Valley, California (Service 1998); the original proposed critical habitat designation (69 FR 51417, August 19, 2004); the 5-year status review for the shrew (Buena Vista Lake Ornate Shrew 5-Year Review: Summary and Evaluation, Service 2011); research and survey observations published in peer-reviewed articles (Grinnell 1932, 1933; Hall 1981; Owen and Hoffman 1983; Williams and Kilburn 1984; Williams 1986; Maldonado *et al.* 2001; and Maldonado *et al.* 2004); habitat and wetland mapping and other data collected and reports submitted by biologists holding section 10(a)(1)(A) recovery permits; biological assessments provided to us through section 7 consultations; reports and documents that are on file in our field office (Center for Conservation Biology 1990; Maldonado *et al.* 1998; ESRP 1999; ESRP 2004; ESRP 2005; and Maldonado 2006); personal discussions with experts inside and outside of our agency with extensive knowledge of the shrew and habitat in the area; and information received during all previous comment periods.

The five critical habitat units that we originally proposed were delineated by creating roughly defined areas for each unit by screen-digitizing polygons (map units) using ArcView (Environmental Systems Research Institute, Inc. (ESRI)), a computer Geographic Information System (GIS) program. The polygons were created by overlaying current and historical species location points (California Natural Diversity Database (CNDDB) 2004), and mapped wetland habitats (California Department of Water Resources 1998) or other wetland location information, onto SPOT imagery (satellite aerial photography) (CNES/SPOT Image Corporation 1993–2000) and Digital Ortho-rectified Quarter Quadrangles (DOQQs) (USGS 1993–1998) for areas containing the Buena Vista Lake shrew. We utilized GIS data derived from a variety of Federal, State, and local agencies, and from private organizations and individuals. To identify where essential habitat for the shrew occurs, we evaluated the GIS habitat mapping and species occurrence information from the CNDDB (2004). We presumed occurrences identified in CNDDB to be extant unless there was affirmative documentation that an occurrence had been extirpated. We also relied on unpublished species occurrence data contained within our files, including section 10(a)(1)(A) reports and biological assessments, on site visits, and on visual habitat evaluation in areas known to have shrews, and in areas within the historical ranges that had potential to contain shrew habitat.

For the five units, the polygons of identified habitat were further evaluated. Several factors were used to more precisely delineate the proposed critical habitat units from within these roughly defined areas. We reviewed any information in the Recovery Plan for Upland Species of the San Joaquin Valley, California (Service 1998), other peer-reviewed literature or expert opinion for the shrew to determine if the designated areas would meet the species' needs for conservation and whether these areas contained the appropriate primary constituent elements. We refined boundaries using satellite imagery, soil type coverages, vegetation land cover data, and agricultural or urban land use data to eliminate areas that did not contain the appropriate vegetation or associated native plant species, as well as features such as cultivated agriculture fields, development, and other areas that are unlikely to contribute to the conservation of the shrew.

For the revision of the Coles Levee Unit, and the addition of the Lemoore

and Semitropic Units, we used shrew occurrence data collected by ESRP (Maldonado 2006, pp. 24–27; Phillips 2011), projected data within ArcView (ESRI), and delineated unit polygons. The polygons were created by overlaying species location points (Phillips 2011) onto NAIP imagery (aerial photography) (National Agriculture Imagery Program 2012) to identify wetland and vegetation features, such as vegetated canals, canals with cleared vegetation, vegetated sloughs, agricultural fields, and general changes in vegetation and land type. We also projected the original proposed units onto NAIP imagery and again used additional GIS data derived from a variety of Federal, State, and local agencies.

When determining critical habitat boundaries within this final rule, we made every effort to avoid including developed areas such as lands covered by buildings, pavement, and other structures because such lands lack physical or biological features for the shrew. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this final rule have been excluded by text in the rule and are not designated as critical habitat. Therefore, a Federal action involving these lands will not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the specific action would affect the physical or biological features in the adjacent critical habitat.

The critical habitat designation is defined by the map or maps, as modified by any accompanying regulatory text, presented at the end of this document in the rule portion. We include more detailed information on the boundaries of the critical habitat designation in the preamble of this document. We will make the coordinates or plot points or both on which each map is based available to the public on *http://www.regulations.gov* at Docket No. FWS–R8–ES–2009–0062, on our Internet sites *http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A0DV*, and at the field office responsible for the designation (see **FOR FURTHER INFORMATION CONTACT** above).

Final Critical Habitat Designation

We are designating six units as critical habitat for the Buena Vista Lake shrew. The critical habitat areas described below constitute our best assessment at this time of areas that meet the definition of critical habitat. Those six units are: (1) Kern National Wildlife Refuge Unit, (2) Goose Lake Unit, (4) Coles Levee Unit, (5) Kern Lake Unit, (6) Semitropic Ecological Reserve Unit, and (7) Lemoore Wetland Reserve Unit. Note that proposed Unit 3 (the Kern Fan Water Recharge Unit) has been excluded from final designation due to the existing habitat conservation plan (see Exclusions, below). All units are occupied by the subspecies.

TABLE 1—CRITICAL HABITAT UNITS FOR THE BUENA VISTA LAKE SHREW

[Area estimates reflect all land within critical habitat unit boundaries.]

Critical habitat unit	Size of area in acres (Hectares)				
	Total	Federal	State	Local	Private
1. Kern National Wildlife Refuge Unit					
Subunit 1A	274 (111)	274 (111)			
Subunit 1B	66 (27)	66 (27)			
Subunit 1C	47 (19)	47 (19)			
2. Goose Lake Unit					
Subunit 2A	159 (64)	.....	.....	.....	159 (64)
Subunit 2B	1,115 (451)	.....	.....	.....	1,115 (451)
Coles Levee Unit	270 (109)	.....	46 (19)	6 (2)	217 (88)
5. Kern Lake Unit					
Subunit 5A	34 (14)	.....	.....	.....	34, (14)
Subunit 5B	51 (21)	.....	.....	.....	51 (21)
6. Semitropic Ecological Reserve Unit	372 (151)	.....	3456 (140)	.....	27 (11)
7. Lemoore Wetland Reserve Unit	97 (39)	.....	.....	.....	97 (39)
Total	2,485 (1,006)	387 (157)	391 (159)	6 (2)	1,700 (688)

Note: Area sizes may not sum due to rounding.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for the Buena Vista Lake shrew, below.

Unit 1: Kern National Wildlife Refuge Unit

Unit 1 consists of a total of approximately 387 ac (157 ha). The Kern NWR Unit is completely comprised of Federal lands, and is located within the Kern NWR in northwestern Kern County. The Kern NWR Critical Habitat Unit consists of three subunits: Subunit 1A is approximately 274 ac (111 ha); subunit 1B is 66 ac (27 ha); and subunit 1C is 47 ac (19 ha). The unit was occupied at the time of listing, is currently occupied, and contains the physical and biological features that are essential to the conservation of the shrew. Shrew habitat in Unit 1 receives water from the California Aqueduct. One of the areas where Buena Vista Lake shrews are present has standing water from September 1 through approximately April 15. After that time, the trees in the area may receive irrigation water so the area may possibly remain damp through May, but the area is dry for approximately 3 months during the summer. Another area of known Buena Vista Lake shrew occurrences has standing water from the second week of August through the winter and into early July, and is only dry for a short time during the summer. Buena Vista Lake shrew have been captured in remnant riparian and slough habitat at the Refuge (Service 2005, pp. 48, 49).

Like all the critical habitat units we are designating here (see *Criteria Used to Designate Critical Habitat*, above), this unit is essential to the conservation of the shrew because it is occupied, and because the subunits include riparian habitat that contain the appropriate

physical or biological features and primary constituent elements for the shrew. *Populus fremontii* trees (Fremont cottonwood) and *Salix spp.* (willow) are the dominant woody plants in riparian areas. Additional plants include bulrushes, cattails, *Juncus spp.* (rushes), *Heleocharis palustris* (spike rush), and *Sagittaria longiloba* (arrowhead). Other plant communities on the refuge that support shrews are valley iodine bush scrub, dominated by iodine bush, seepweed, *Frankenia salina* (alkali heath), and salt-cedar scrub, which is dominated by *Tamarix spp.* (salt cedar). Both of these communities occupy sites with moist, alkaline soils.

The Kern NWR completed a Comprehensive Conservation Plan (CCP) for the Kern and Pixley NWRs in February 2005 (Service 2005, pp. 1–103). The CCP provides objectives for maintenance and restoration of Buena Vista Lake shrew habitat on the Kern NWR. Objectives listed in the CCP include: completing baseline censuses and monitoring for the shrew; enhancement and maintenance of the 215-ac (87-ha) riparian habitat through regular watering to provide habitat for riparian species including the shrew; and additional restoration of 15 ac (6 ha) of riparian habitat along canals in a portion of the Refuge to benefit the shrew and riparian bird species (Service 2005, pp. 84, 85). The physical and biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats from nonnative species such as salt cedar, and from changes in hydrology due to offsite water management.

Unit 2: Goose Lake Unit

The Goose Lake Unit consists of a total of approximately 1,274 ac (515 ha) of private land, and is located about 10 mi (16 km) south of Kern NWR in northwestern Kern County, in the historical lake bed of Goose Lake. The Goose Lake Unit consists of two subunits: Subunit 2A contains 159 ac (64 ha), and Subunit 2B contains 1,115 ac (451 ha). We consider that the unit was occupied at the time of listing and assume that it was not identified as occupied at that time because it had not yet been surveyed for small mammals. In January 2003, when the area was first surveyed for small mammals, approximately 6.5 ac (2.6 ha) of potential shrew habitat located along the Goose Lake sloughs were surveyed (ESRP 2004, p. 8), resulting in the capture of five Buena Vista Lake shrews. The maximum distance between two shrew captures was 1.6 mi (2.6 km), suggesting that Buena Vista Lake shrews are widely distributed on the site. The unit has been determined to have the necessary physical or biological features present and therefore meets the definition of critical habitat under section 3(5)(A)(i) of the Act. The unit was included in the 2004 proposed critical habitat designation.

Although we continue to presume that the unit meets the definition of critical habitat under section 3(5)(A)(i) of the Act (prong 1), we are also designating the unit under section 3(5)(A)(ii) of the Act (prong 2). As discussed above under *Criteria Used To Identify Critical Habitat*, even if subsequent evidence were to indicate that the unit was not occupied at the time of listing, it would remain critical habitat under the second prong of the Act's definition. The unit is essential for the conservation of the shrew because it is among the very few remaining areas that support both an extant shrew population and the physical and biological features necessary to conserve that population.

In the past, Buena Vista Lake shrew habitat in this unit experienced widespread losses due to the diversion of water for agricultural purposes. However, small, degraded examples of freshwater marsh and riparian communities still exist in the area of Goose Lake and Jerry Slough (a portion of historical Goose Slough, an overflow channel of the Kern River), allowing shrews to persist in the area. Dominant vegetation along the slough channels includes frankenia, iodine bush, and seepweed. The northern portion of the unit consists of scattered mature iodine bush shrubs in an area that has relatively moist soils. The southern portion of the unit is characterized by a dense mat of saltgrass and clumps of iodine bush and seepweed. A portion of the unit currently exhibits inundation and saturation during the winter months. Dominant vegetation in these areas has included cattails, bulrushes, and saltgrass.

The area consisting of the former bed of Goose Lake is managed by the Semitropic Water Storage District (WSD) as a ground-water recharge basin. Water from the California Aqueduct is transferred to the Goose Lake area in years of abundant water, where it is allowed to recharge the aquifer that is used for irrigated agriculture. At the time that the unit was originally proposed, the landowners, in cooperation with Ducks Unlimited, Inc. and Semitropic WSD, proposed to create and restore habitat for waterfowl in the unit area; wetland restoration that we expected to substantially increase the quantity and quality of Buena Vista Lake shrew habitat on the site. Restoration activities were completed in the last 6 years. The physical and biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats from nonnative species such as salt cedar, from recreational use, and from changes in hydrology due to water management and maintenance of water conveyance facilities. No conservation agreements currently cover this land.

Unit 3: Kern Fan Recharge Unit

The Kern Fan Recharge Unit was excluded under section 4(b)(2) of the Act. See Exclusions section below.

Unit 4: Coles Levee Unit

The Coles Levee Unit is approximately 270 ac (109 ha) in Kern County, of which 217 ac (88 ha) is owned by Aera Energy. An additional 46 ac (19 ha) are State lands within the Tule Elk Reserve, and 6 ac (2 ha) are part of a Kern County park. The unit is located northeast of Tupman Road near the town of Tupman, is directly northeast of the California Aqueduct, and is largely within the Coles Levee Ecosystem Preserve, which was established as a mitigation bank in 1992, in an agreement between Atlantic Richfield Company (ARCO) and CDFW. The preserve serves as a mitigation bank to compensate for the loss of habitat for listed upland species; the Buena Vista Lake shrew is not a covered species. ARCO had been issued an incidental take permit under section 10(a)(1)(B) of the Act for the Coles Levee Ecological Preserve Area (Service 2001, p. 1). However, the take authorization provided by the permit lapsed when ARCO sold the property to the current owner and the permit was not transferred. Habitat on the preserve consists mostly of highly degraded upland saltbush and mesquite scrub, and is interlaced with slough channels for the historical Kern River fan where the river entered Buena Vista Lake from the northeast. Most slough channels are dry except in times of heavy flooding. This site runs parallel to the Kern River bed and contains approximately 2 mi (3.2 km) of much-degraded riparian vegetation along the Kern River.

A manmade pond, which was constructed in the late 1990s or early 2000s, is located within the unit. Water from the adjacent oil fields is constantly pumped into the basin. Vegetation includes bulrushes, *Urtica dioica* (stinging nettle), *Baccharis salicifolia* (mulefat), salt grass, *Atriplex lentiformis* (quailbush), and *Conium maculatum*

(poison hemlock). A few willows and Fremont cottonwoods are scattered throughout the area.

In the 2009 proposed rule (74 FR 53999, October 21, 2009), we reproposed 214 ac (87 ha) of critical habitat as the Coles Levee Unit. In this unit, Buena Vista Lake shrews were originally captured along a nature trail that was adjacent to a slough, and were close to the water's edge where there was abundant ground cover but little or no canopy cover. The unit is delineated in a general southeast to northwest direction, along both sides of the Kern River Flood Channel and Outlet Canal, which runs through the Preserve. During a construction project in the summer of 2011, two Buena Vista Lake shrews were found just north of the previous northerly boundary of the unit. We have therefore extended the unit boundary along both sides of the canal to encompass the contiguous riparian habitat to the point where water is no longer retained and riparian vegetation essentially stops, thereby including riparian habitat along the Outlet Canal within the Tule Elk Reserve.

This unit is essential to the conservation of the species because it was occupied at the time of listing (67 FR 10102), is considered currently occupied, and includes willow-cottonwood riparian habitat that contains the PCEs. The physical and biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats from construction activities associated with projects to tie-in water conveyance facilities to the California Aqueduct and oil and gas-related activities, including pipeline projects. The area adjacent to Coles Levee is a site of active gas and oil production, and the Coles Levee Unit is within an area that was recently proposed for additional oil and gas exploration.

Unit 5: Kern Lake Unit

The Kern Lake Unit is approximately 85 ac (35 ha) in size, and is located at the edge of the historical Kern Lake, approximately 16 miles south of Bakersfield in southwestern Kern County. This unit lies between Hwy 99 and Interstate 5, south of Herring Road near the New Rim Ditch. The Kern Lake Unit consists of two subunits: Subunit 5A contains 34 ac (14 ha), and Subunit 5B contains 51 ac (21 ha). The unit was occupied at the time of listing, is considered currently occupied, and contains the physical and biological features that are essential to the conservation of the Buena Vista Lake shrew. Since the advent of reclamation and development, the surrounding lands have seen intensive cattle and sheep ranching and, more recently, cotton and alfalfa farming. Currently, Kern Lake itself is generally a dry lake bed; however, the unit contains wet alkali meadows and a spring-fed pond known as "Gator Pond," which is located near the shoreline of the lake bed. A portion of the runoff from the surrounding hills travels through underground aquifers, surfacing as artesian springs at the pond. The heavy clay soils support a distinctive assemblage of native species, providing an island of native vegetation situated among agricultural lands. The unit contains three ecologically significant natural communities: freshwater marsh, alkali meadow, and iodine bush scrub.

This unit is essential to the conservation of the species because it is currently occupied and includes habitat that contains the PCEs identified for the shrew. The Kern Lake area was formerly managed by the Nature Conservancy for the J.G. Boswell Company, and was once thought to contain the last remaining population of the Buena Vista Lake shrew.

The physical and biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats from reductions in water delivery, from effects of surrounding agricultural use, and from industrial and commercial development. This area does not have a conservation easement and is managed by the landowners. We are unaware of any plans to develop this site; however, it is within a matrix of lands managed for agricultural production.

Unit 6: Semitropic Ecological Reserve Unit

The Semitropic Ecological Reserve Unit is approximately 372 ac (151 ha) in size and is located about 7 mi (11 km) south of Kern NWR and 7 mi (11 km) north of the Goose Lake Unit along the Main Drain Canal in Kern County. It is bordered on the south by State Route 46, approximately 2 mi (3 km) east of the intersection with Interstate 5. The CDFW holds 345 ac (140 ha) under fee title, and manages the area as part of the Semitropic Ecological Reserve. An additional 27 ac (11 ha) of the unit are private land.

We consider that the unit was occupied at the time of listing and assume that it was not identified as occupied at that time because it had not yet been surveyed for small mammals (see Criteria Used To Identify Critical Habitat). Buena Vista Lake shrews were identified in the unit on April 27, 2005, when it was first surveyed for small mammals (ESRP 2005, pp. 10–13). At that time, Buena Vista Lake shrews were found in the southwestern portion of the unit, next to the Main Drain Canal. The unit has been determined to have the necessary PCEs present and therefore meets the definition of critical habitat under section 3(5)(A)(i) of the Act. Although we presume that the unit meets the definition of critical habitat under section 3(5)(A)(i) of the Act, we are also designating the unit under section 3(5)(A)(ii) of the Act. Even if the unit was not occupied at the time of listing, it is essential for the conservation of the Buena Vista Lake shrew due to its location approximately midway between Units 1 and 2, and location near the southern edge of remnant natural wetland and riparian habitat. The unit is also essential for the conservation of the shrew because it is considered to be currently occupied, and contains a matrix of riparian and wetland habitat, including riparian habitat both along the canal and within and adjacent to oxbow and slough features.

The major vegetative associations at the site are valley saltbush scrub and valley sink scrub. Valley saltbush scrub is found within the relatively well-drained soils at slightly higher elevations, and the valley sink scrub is found in the heavier clay soils. Dominant vegetation at the site includes *Bromus diandrus* (ripgut brome), *Bromus madritensis ssp. rubens* (red brome), *Carex spp.* (sedges), *Juncus spp.* (rushes), *Polygonum spp.* (knotweed), *Polypogon monspeliensis* (rabbitfoot grass), *Rumex crispus* (curly dock), and *Vulpia myuros* (foxtail fescue). There is a light overstory of cottonwoods at the trapping location where the most Buena Vista Lake shrews have been observed.

The physical and biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats from ongoing oil and gas exploration and development, ongoing conversion of natural lands for agricultural development, changes in water management, weed control activities including use of herbicides, and the occurrence of range trespass in an open range area. Semitropic reserve lands are not fenced and are subject to occasional range trespass by sheep and cattle (CDFW 2012). State lands in the unit were acquired under the provisions of the Metro Bakersfield Habitat Conservation Plan (HCP), and are managed for listed upland species. Location of the Main Drain Canal in the unit, and the presence of wetland

features are expected to benefit the shrew, although the shrew is not a covered species under the HCP. The State does not yet have a management plan for the Semitropic Ecological Reserve.

Unit 7: Lemoore Wetland Reserve Unit

The Lemoore Wetland Reserve Unit, 97 ac (39 ha) in size, is located east of the Lemoore Naval Air Station and is 4 mi (6 km) west of the City of Lemoore in Kings County. The unit is bounded along the southern border by State Route 198, and on the north and west sides by a bare water-conveyance canal. The unit is managed by the Natural Resources Conservation Service for waterfowl enhancement.

We consider that the unit was occupied at the time of listing and that it was not identified as occupied at that time because it had not yet been surveyed for small mammals (see *Criteria Used To Identify Critical Habitat*). Buena Vista Lake shrews were identified in the unit in April 2005, when it was first surveyed for small mammals (ESRP 2005, pp. 10–13). The unit has been determined to have the necessary PCEs present and, therefore, meets the definition of critical habitat under section 3(5)(A)(i) of the Act. Although we presume that the unit meets the definition of critical habitat under section 3(5)(A)(i) of the Act, we are also designating the unit under section 3(5)(A)(ii) of the Act. The unit is essential for the conservation of the shrew due to its location at the northernmost extent of the subspecies' range and its geographic isolation from other units, due to occupancy, and due to remnant natural wetland and riparian habitat that contains the PCEs.

The site is part of an area that was created to provide a place for city storm water to percolate and drop potential contaminants to shield the Kings River during years of flood runoff. Portions of the area are flooded periodically, forming fragmented wetland communities throughout the area.

The plant communities of the Lemoore Wetland Reserve Unit include a mixture of vegetation communities: nonnative grassland, vernal marsh, and elements of valley sink scrub. Commonly occurring plants include *Brassica nigra* (black mustard), red brome, *B. hordeaceus* (soft chess), saltgrass, alkali heath, rushes, *Lactuca serriola* (prickly lettuce), rabbitfoot grass, cottonwood, *Rumex crispus* (curly dock), *Salix ssp.* (willow), *Scirpus ssp.* (bulrush), *Sonchus oleraceus* (common sowthistle), cattails, foxtail fescue and *Xanthium strumarium* (cocklebur). This unit is essential to the conservation of the species because it is currently occupied and contains the PCEs identified for the shrew.

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies, including ourselves, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with us on any agency action which is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

Decisions by the 5th and 9th Circuit Courts of Appeals have invalidated our regulatory definition of "destruction or adverse modification" (50 CFR 402.02) (see *Sierra Club* v. *U.S. Fish and Wildlife Service et al.*, 245 F.3d 434, 442 (5th Cir. 2001) and *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service*, 378 F. 3d 1059 (9th Cir. 2004)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the statutory provisions of the Act, we determine destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from ourselves under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat, and actions on State, tribal, local, or private lands that are not federally funded or authorized, do not require section 7 consultation.

As a result of section 7 consultation, we document compliance with the requirements of section 7(a)(2) through our issuance of:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or

(2) A biological opinion for Federal actions that may affect, and are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species, or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives for the project, if any are identifiable. The alternatives identify how the likelihood of jeopardy to the species, or destruction or adverse modification of critical habitat, may be avoided. We define "reasonable and prudent alternatives" (at 50 CFR 402.02) as alternative actions identified during consultation that:

(1) Can be implemented in a manner consistent with the intended purpose of the action,

(2) Can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction,

(3) Are economically and technologically feasible, and

(4) Would, in the Director's opinion, avoid the likelihood of jeopardizing the continued existence of the listed species or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where we have listed a new species or subsequently designated critical habitat that may be affected and the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law). Consequently, Federal agencies sometimes may need to request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions with discretionary involvement or control may affect subsequently listed species or designated critical habitat.

Application of the "Adverse Modification" Standard

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species. Activities that may destroy or adversely modify critical habitat are those that alter the essential physical or biological features to an extent that appreciably reduces the conservation value of critical habitat for the Buena Vista Lake shrew.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation. We list examples of such activities below. All such activities would also trigger consultation in the absence of critical habitat, as required by section 7(a)(2) of the Act, in order to avoid jeopardizing the continued existence of the subspecies. Activities that may affect critical habitat, when carried out, funded, or authorized by a Federal agency, should result in consultation for the shrew. These activities include, but are not limited to:

(1) Actions carried out, permitted or funded by Federal agencies that would affect the delivery of water to riparian or wetland areas within critical habitat. Such activities could include damming, diversion, and channelization. These activities could eliminate or reduce the habitat necessary for the reproduction, sheltering, or growth of Buena Vista Lake shrews.

(2) Groundbreaking activities within critical habitat, as carried out, permitted, or funded by Federal agencies. Such activities could include construction of roads or communication towers, Superfund site cleanup, and projects to control erosion or flooding. These activities could eliminate or reduce the complex vegetative structure, soil moisture, or prey base necessary for reproduction, sheltering, foraging, or growth of Buena Vista Lake shrews.

(3) Activities carried out, permitted, or funded by Federal agencies that could affect water quality within critical habitat, including the deposition of silt. Such activities could include placement of fill into wetlands or discharge of oil or other pollutants into streams. These activities could eliminate or reduce the habitat and prey base necessary for the reproduction, feeding, or growth of Buena Vista Lake shrews.

(4) Activities carried out on critical habitat designated on Federal lands (Unit 1) that could reduce the complex vegetative structure, soil moisture, or prey base of critical habitat. Such activities could include fire management actions or invasive species removal. These activities could eliminate or reduce the habitat or prey base necessary for reproduction, sheltering, foraging, or growth of Buena Vista Lake shrews.

Exemptions

Application of Section 4(a)(3) of the Act

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete an integrated natural resources management plan (INRMP) by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

(1) An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;

(2) A statement of goals and priorities;

(3) A detailed description of management actions to be implemented to provide for these ecological needs; and

(4) A monitoring and adaptive management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108–136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: "The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation."

There are no Department of Defense lands within the proposed critical habitat designation. Therefore, we are not exempting lands from this final designation of critical habitat for the Buena Vista Lake shrew pursuant to section 4(a)(3)(B)(i) of the Act.

Exclusions

Application of Section 4(b)(2) of the Act

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if she determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless she determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

In considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the Secretary may exercise her discretion to exclude the area only if such exclusion would not result in the extinction of the species.

When identifying the benefits of inclusion for an area, we consider the additional regulatory benefits that area would receive from the protection from adverse modification or destruction as a result of actions with a Federal nexus; the educational benefits of mapping essential habitat for recovery of the listed species; and any benefits that may result from a designation due to State or Federal laws that may apply to critical habitat.

When identifying the benefits of exclusion, we consider, among other things, whether exclusion of a specific area is likely to result in conservation; the continuation, strengthening, or encouragement of partnerships; or implementation of a management plan that provides equal to or more conservation than a critical habitat designation would provide.

In the case of the Buena Vista Lake shrew, the benefits of critical habitat include public awareness of the shrew's presence and the importance of habitat protection, and in cases where a Federal nexus exists, increased habitat protection for the shrew due to the protection from adverse modification or destruction of critical habitat.

When we evaluate the existence of a management plan when considering the benefits of exclusion, we consider a variety of factors, including but not limited to, whether the plan is finalized; how it provides for the conservation of the essential physical or biological features; whether there is a reasonable expectation that the conservation management strategies and actions contained in a management plan will be implemented into the future; whether the conservation strategies in the plan are likely to be effective; and whether the plan contains a monitoring program or adaptive management to ensure that the conservation measures are effective and can be adapted in the future in response to new information.

After identifying the benefits of inclusion and the benefits of exclusion, we carefully weigh the two sides to evaluate whether the benefits of exclusion outweigh those of inclusion. If our analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, we then determine whether exclusion would result in extinction. If exclusion of an area from critical habitat will result in extinction, we will not exclude it from the designation.

Summary of Exclusions

Based on the information provided by entities seeking exclusion, as well as additional public comments and information received, we evaluated whether certain lands in the proposed critical habitat (Units 2, 3, 4, and 7 in their entirety, and portions of Units 2, 3, 4, 5, and 7) were appropriate for exclusion from this final designation pursuant to section 4(b)(2) of the Act. We identified Unit 3 (Kern Fan Water Recharge Unit) in its entirety (2,687 ac (1,088 ha)) for exclusion from critical habitat designation for the shrew.

We are excluding this area because we believe that:

(1) Its value for conservation will be preserved for the foreseeable future by existing protective actions, and, therefore:

(2) It is appropriate for exclusion under the "other relevant impacts" provisions of section 4(b)(2) of the Act.

Exclusions Based on Economic Impacts

Under section 4(b)(2) of the Act, we consider the economic impacts of specifying any particular area as critical habitat. In order to consider economic impacts, we prepared a draft economic analysis (DEA) of the proposed critical habitat designation and related factors (Industrial Economics (IEc) 2013a) (available at *http://www.regulations.gov*, Docket No. FWS–R8–ES–2009–0062). We then opened a public comment period announcing the availability of the DEA (78 FR 14245; March 5, 2013), and subsequently completed a final economic analysis (FEA) (IEc 2013b) (also available at *http://www.regulations.gov*, Docket No. FWS–R8–ES–2009–0062), on which we base our determination of economic exclusions.

The intent of the FEA is to quantify the economic impacts of all potential conservation efforts for the Buena Vista Lake shrew. Some of these costs will likely be incurred regardless of whether we designate critical habitat (baseline). The economic impact of the final critical habitat designation is analyzed by comparing scenarios both "with critical habitat" and "without critical habitat." The "without critical habitat" scenario represents the baseline for the analysis, considering protections already in place for the species (e.g., under the Federal listing and other Federal, State, and local regulations). The baseline, therefore, represents the costs incurred regardless of whether critical habitat is designated. The "with critical habitat" scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts are those not expected to occur absent the designation of critical habitat for the species. In other words, the incremental costs are those attributable solely to the designation of critical habitat above and beyond the baseline costs; these are the costs we consider in the final designation of critical habitat. The analysis looks retrospectively at baseline impacts incurred since the species was listed, and forecasts both baseline and incremental impacts likely to occur with the designation of critical habitat.

The FEA also addresses how potential economic impacts are likely to be distributed, including an assessment of any local or regional impacts of habitat conservation and the potential effects of conservation activities on government agencies, private businesses, and individuals. The FEA measures lost economic efficiency associated with residential and commercial development and public projects and activities, such as economic impacts on water management and transportation projects, Federal lands, small entities, and the energy industry. Decisionmakers can use this information to assess whether the effects of the designation might unduly burden a particular group or economic sector. Finally, the FEA looks retrospectively at costs that have been incurred since 2002 (the year of the species' listing) (67 FR 10101), and considers those costs that may occur in the 20 years following the designation of critical habitat, which was determined to be the appropriate period for analysis because limited planning information was available for most activities to forecast activity levels for projects beyond a 20-year timeframe.

The FEA quantifies economic impacts of Buena Vista Lake shrew conservation efforts associated with various economic activities, including: (1) Water management; (2) agricultural production; and (3) energy development. Incremental impacts (attributable to critical habitat) are expected to result from the need for additional consultations between ourselves and other Federal agencies seeking to fund or permit new projects in critical habitat units. The total estimated incremental economic impact for all areas proposed as revised critical habitat over the next 20 years is $130,000 ($11,000 annualized), assuming a 7 percent discount rate. More than half of those impacts ($79,000) are estimated to apply to Unit 3, which we are excluding based on an established habitat management plan for the area (see Exclusions Based on Other Relevant Impacts below). Please refer to the FEA for a comprehensive discussion of all potential impacts.

Because the impacts of critical habitat estimated by the FEA are relatively low, and not distributed in such a way as to unduly burden any particular area or group, the Secretary is not exercising her discretion to exclude any units based on economic impacts. A copy of the FEA with supporting documents may be obtained by contacting the Sacramento Fish and Wildlife Office (see **ADDRESSES**) or by downloading from the Internet at *www.regulations.gov*, (Docket No. FWS–R8–ES–2009–0062).

Exclusions Based on National Security Impacts

Under section 4(b)(2) of the Act, we consider whether there are lands owned or managed by the Department of Defense (DOD) where a national security impact might exist. We have determined that the lands within Buena Vista Lake shrew critical habitat units are not owned or managed by the Department of

Defense, and, therefore, we anticipate no impact on national security. Consequently, the Secretary is not exercising her discretion to exclude any areas from this final designation based on impacts on national security.

Exclusions Based on Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security. We consider a number of factors including whether the landowners have developed any HCPs or other management plans for the area, or whether any conservation partnerships would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at any tribal issues, and consider the government-to-government relationship of the United States with tribal entities. We also consider any social impacts that might occur because of the designation.

Land and Resource Management Plans, Conservation Plans, or Agreements based on Conservation Partnerships

We consider a current land management or conservation plan to provide adequate management or protection if it meets the following criteria:

(1) The plan is complete and provides the same or better level of protection from adverse modification or destruction than that provided through a consultation under section 7 of the Act;

(2) There is a reasonable expectation that the conservation management strategies and actions will be implemented for the foreseeable future, based on past practices, written guidance, or regulations; and

(3) The plan provides conservation strategies and measures consistent with currently accepted principles of conservation biology.

We consider the habitat management plan operated by the City of Bakersfield for the Kern Fan Water Recharge Area (Kern Fan Habitat Management Plan (HMP)) to fulfill the above criteria, and the Secretary is therefore excluding non-Federal lands covered by this plan (all of Unit 3) that provide for the conservation of the Buena Vista Lake shrew.

Exclusions Under Section 4(b)(2) of the Act—Kern Fan Water Recharge Area

Proposed Unit 3 is covered in its entirety by the Kern Fan Water Recharge Area, which is owned and operated by the City of Bakersfield. The Water Recharge Area consists of approximately 2,800 ac (1,133 ha) west of Bakersfield, on which the City spreads water, as available, from the Kern River and State Water Project (LOA 2004, p. 8). By spreading water over the Recharge Area, the City is able to buffer downstream flooding and allow for the recharge of underground aquifers. Water used in this fashion also supports the physical or biological features essential to the shrew. The City has worked closely with us since 2004 to develop and implement a habitat management plan (Kern Fan HMP) for the conservation of the shrew (LOA 2004, entire).

The Kern Fan HMP benefits the shrew in several ways. First, it incorporates several preexisting beneficial management practices, thereby making those practices more likely to persist, and giving us input regarding any future proposals to change them. The practices include limitation of public access to the site, cessation of livestock grazing, and maintenance of the site as open space left predominantly in its natural vegetative state (LOA 2004, pp. 20, 21). Second, it applies the results of a baseline habitat survey to establish priorities according to which available waters will be spread so as to most benefit the shrew (LOA 2004, pp. 22–24). Third, it establishes a monitoring program involving yearly habitat surveys (LOA 2004, pp. 25–27). And fourth, it incorporates adaptive management provisions by establishing goals for various areas and adjusting management to meet those goals as necessary (LOA 2004, pp. 24, 27–28). The plan requires monitoring results to be shared with us, and provides for yearly meetings between ourselves and the City to discuss adaptive management options (LOA 2004, p. 28).

The City of Bakersfield has carried out the terms of this plan since 2005 (LOA 2005, entire; LOA 2006, entire; LOA 2007, entire; LOA 2008, entire; LOA 2009, entire; LOA 2010, entire; LOA 2012a, entire; LOA 2012b, entire). In 2011, with our input, the City proposed an addendum, referred to as the "Enhanced Management Plan," under which monitoring efforts would be expanded to include prey-base surveys and trapping surveys for presence of the shrew (LOA 2011, p. 8). The Enhanced Management Plan also provided additional assurances that the plan would continue to be carried out, by calling for funding provisions and for the establishment of a City resolution to codify the City's long-term commitment (LOA 2011, p. 7). That resolution has been passed, subject to a condition that we exclude the Kern Fan Water Recharge Area from critical habitat designation (Bakersfield Water Board Committee 2011, entire).

Benefits of Inclusion—Kern Fan Water Recharge Area

The potential benefits to the shrew of designating the proposed Kern Fan Water Recharge Unit as critical habitat include increased oversight of Federal agencies to assure that they do not permit, fund, or carry out actions in the area that could destroy or adversely modify critical habitat. However, because Buena Vista Lake shrews occur in the proposed unit, Federal agencies carrying out actions affecting the area would be required to consult with us if their actions might affect the shrew, even in the absence of critical habitat (IEc 2013, p. 4–3). Critical habitat may result in additional protective measures from consultation due to the additional emphasis it places on habitat, and due to the different standard used under the Act for judging impacts to that habitat. However, in this particular case, we expect that additional protective measures resulting from critical habitat would be rare. Any such benefits would also be limited to ameliorating the potential impacts of Federal actions. They would not extend to proactive, ongoing management of the habitat to maintain or increase essential habitat features.

Critical habitat designation would also serve to alert the public and State agencies of the presence of the shrew in the area. However, the City of Bakersfield's habitat management plan for the shrew would also serve that purpose to some extent.

Benefits of Exclusion—Kern Fan Water Recharge Area

The benefits of exclusion, in this case, would include the continued participation of the City of Bakersfield in its established habitat management plan (LOA 2004, entire), and the adoption by the city of additional improvements as specified in the Enhanced Management Plan (LOA 2011, entire). As discussed above, this would mean habitat protection, monitoring of conditions, and adaptive management to benefit the shrew on an ongoing basis, regardless of actions by Federal agencies in the area. In considering the potential benefits of any management plan we must also consider the likelihood that the plan will continue to be implemented in the future. The City of Bakersfield has demonstrated a commitment to continued implementation by consistently carrying out the terms of the 2004 management plan since its inception. The City's prospective adoption of the Enhanced

Management Plan, and its passage of a conditional resolution indicating commitment to that plan and continued funding, also provide strong indications that the City will implement the plan into the indefinite future.

Additional benefits of exclusion include the building of a working relationship between ourselves and the City of Bakersfield, which may foster an atmosphere of mutual trust and input by both sides into shrew conservation actions. Successful establishment of such a relationship can increase the likelihood that other landowners may be willing to enter similar relationships for the benefit of threatened and endangered species.

Benefits of Exclusion Outweigh Benefits of Inclusion—Kern Fan Water Recharge Area

Both designation and exclusion of the Kern Fan Recharge Area provide direct and indirect benefits for the shrew, which we must weigh against each other while taking into account the likelihood that such benefits will actually be realized. In this case, we consider the direct benefits of exclusion to outweigh those of designation, because exclusion can lead to ongoing adaptive conservation management under the Kern Fan HMP. In contrast, designation can only protect the shrew against certain Federal actions, and because the area is occupied year-round by the shrew, most of those actions are already covered by the Act's prohibition against jeopardizing the continued existence of a listed species (16 U.S.C. 1536(7)(a)(2)).

Similarly, the indirect benefits of exclusion (the fostering of a working relationship with the City of Bakersfield to provide for the conservation of the shrew), outweigh the indirect benefits of designation (alerting the public to the shrew's presence in the area). Another indirect benefit of critical habitat is the establishment and general publication of the habitat needs of the species, but this benefit can be realized through this designation without need to designate the Kern Fan Water Recharge Area specifically.

Finally, although the benefits of designating the Kern Fan area are essentially certain, the benefits of exclusion are also very likely to occur. The City of Bakersfield has established a long-standing practice of following its habitat management plan for the conservation benefit of the shrew. They have also worked closely with us to improve the plan, and have passed a city ordinance to codify their intent to carry out the terms of the improved plan into the indefinite future. Accordingly, we find that the conservation benefits of excluding the Kern Fan Water Recharge Area from critical habitat designation outweigh the conservation benefits of specifying the area as part of the shrew's critical habitat.

Exclusion Will Not Result in Extinction of the Subspecies

Because of the conservation benefits and habitat protections discussed above that the City of Bakersfield will implement, with our input, in the absence of critical habitat designation and because the shrew is known from seven existing locations, six of which we are designating as critical habitat, we conclude that exclusion of the Kern Fan Water Recharge Area (proposed Unit 3) will not result in extinction of the subspecies. Therefore, based on the above discussion, the Secretary is exercising her discretion to exclude approximately 2,687 ac (1,088 ha) of land in the Kern Fan Water Recharge Area from this final revised critical habitat designation.

Required Determinations

Regulatory Planning and Review (Executive Orders 12866 and 13563)

Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget will review all significant rules. The Office of Information and Regulatory Affairs has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of E.O. 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this rule in a manner consistent with these requirements.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; 5 U.S.C. 801 *et seq.*), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of an agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities. In this final rule, we are certifying that the critical habitat designation for the Buena Vista Lake shrew will not have a significant economic impact on a substantial number of small entities. The following discussion explains our rationale.

According to the Small Business Administration, small entities include small organizations, such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; as well as small businesses. Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than $5 million in annual sales, general and heavy construction businesses with less than $27.5 million in annual business, special trade contractors doing less than $11.5 million in annual business, and agricultural businesses with annual sales less than $750,000. To determine if potential economic impacts on these small entities are significant, we consider the types of activities that might trigger regulatory impacts under this rule, as well as the types of project modifications that may result. In general, the term "significant economic impact" is meant to apply to a typical small business firm's business operations.

To determine if the final designation of critical habitat for the shrew would significantly affect a substantial number of small entities, we consider the number of small entities affected within particular types of economic activities (e.g., energy, local government). We apply the "substantial number" test individually to each industry to determine if certification is appropriate. However, the SBREFA does not explicitly define "substantial number"

or "significant economic impact." Consequently, to assess whether a "substantial number" of small entities is affected by this designation, this analysis considers the relative number of small entities likely to be impacted in an area. In some circumstances, especially with critical habitat designations of limited extent, we may aggregate across all industries and consider whether the total number of small entities affected is substantial. In estimating the number of small entities potentially affected, we also consider whether their activities have any Federal involvement.

Designation of critical habitat only affects activities authorized, funded, or carried out by Federal agencies. Some kinds of activities are unlikely to have any Federal involvement and so will not be affected by critical habitat designation. In areas where the species is present, Federal agencies already are required to consult with us under section 7 of the Act on activities they authorize, fund, or carry out that may affect the Buena Vista Lake shrew. Federal agencies also must consult with us if their activities may affect critical habitat. Designation of critical habitat, therefore, could result in an additional economic impact on small entities due to the requirement to reinitiate consultation for ongoing Federal activities (see *Application of the "Adverse Modification Standard"* section).

In our final economic analysis of the critical habitat designation, we evaluated the potential economic effects on small business entities resulting from conservation actions related to the listing of the Buena Vista Lake shrew and the designation of critical habitat. The analysis is based on the estimated impacts associated with the rulemaking as described in Chapters 3 through 5 and Appendix A of the analysis and evaluates the potential for economic impacts related to: (1) Water management (availability and delivery); (2) agricultural production; and (3) energy development.

The incremental impacts for this designation are expected to consist almost entirely of administrative costs. These costs are likely to be borne by city and county governmental jurisdictions, as well as several energy utilities. Exhibit A–1 of the FEA describes entities that may potentially be affected by critical habitat designation and assesses whether they are considered small entities under the RFA based on the applicable small entity thresholds by North American Industry Classification System (NAICS) code. While there is a potential for other third party involvement, these are the entities we foresee potentially participating in consultation. As shown in Exhibit A–1, none of the entities expected to bear incremental impacts is considered to be small under the RFA. Potentially, some incremental impacts borne by the energy utilities may be passed on to individual customers in the form of increased energy prices. However, given the small size of the impacts, such an outcome is unlikely.

In summary, we considered whether this designation would result in a significant economic effect on a substantial number of small entities. Based on the above reasoning and currently available information, we concluded that this rule would not result in a significant economic impact on a substantial number of small entities. None of the entities potentially affected in any significant way by such costs qualify as small entities under the SBREFA. Therefore, we are certifying that the designation of critical habitat for the Buena Vista Lake shrew will not have a significant economic impact on a substantial number of small entities, and a regulatory flexibility analysis is not required.

Energy Supply, Distribution, or Use—Executive Order 13211

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. OMB has provided guidance for implementing this Executive Order that outlines nine outcomes that may constitute "a significant adverse effect" when compared to not taking the regulatory action under consideration:

- Reductions in crude oil supply in excess of 10,000 barrels per day (bbls);
- Reductions in fuel production in excess of 4,000 barrels per day;
- Reductions in coal production in excess of 5 million tons per year;
- Reductions in natural gas production in excess of 25 million mcf per year;
- Reductions in electricity production in excess of 1 billion kilowatt-hours per year or in excess of 500 megawatts of installed capacity;
- Increases in energy use required by the regulatory action that exceed the thresholds above;
- Increases in the cost of energy production in excess of one percent;
- Increases in the cost of energy distribution in excess of one percent; or
- Other similarly adverse outcomes.

Although two energy companies operate facilities within the designation (Pacific Gas and Electric (PG&E) and Southern California Gas Company (SoCal Gas)), we do not anticipate recommending additional shrew conservation measures on their activities due to the designation of critical habitat. As a result, we do not anticipate critical habitat designation to affect energy use, production, or distribution. Additional administrative time spent consulting with us due to critical habitat may cost these companies $2,000 on an annualized basis, which is less than 0.01 percent of the annual revenues of either PG&E or SoCal Gas.

In addition, our analysis concludes that it is possible that solar energy developments and oil and gas exploration may be proposed in the future within the critical habitat. No current plans exist for these activities, however. In the case that future solar energy project or oil and gas developments are proposed, we do not expect the presence of critical habitat for the shrew to change our recommendations with respect to shrew conservation. That is, all conservation efforts recommended via section 7 consultation on these projects would be made regardless of whether critical habitat is designated. Consequently, the only costs would be from the relatively minor administrative effort to consider critical habitat as part of future consultations.

Accordingly, the FEA finds that none of the potential outcomes listed above are likely to result from this designation of critical habitat (IEc 2013, Appendix A). Thus, based on information in the economic analysis, energy-related impacts associated with Buena Vista Lake shrew conservation activities within critical habitat are not expected. As such, the designation of critical habitat is not expected to significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), we make the following findings:

(1) This rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or tribal governments, or the private sector, and includes both "Federal intergovernmental mandates" and "Federal private sector mandates." These terms are defined in 2 U.S.C. 658(5)–(7). "Federal intergovernmental

mandate" includes a regulation that "would impose an enforceable duty upon State, local, or tribal governments" with two exceptions. It excludes "a condition of Federal assistance." It also excludes "a duty arising from participation in a voluntary Federal program," unless the regulation "relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority," if the provision would "increase the stringency of conditions of assistance" or "place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding," and the State, local, or tribal governments "lack authority" to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. "Federal private sector mandate" includes a regulation that "would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program."

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule will significantly or uniquely affect small governments because the designation of critical habitat imposes no obligations on State or local governments. By definition, Federal agencies are not considered small entities, although the activities they fund or permit may be proposed or carried out by small entities. Also, this rule would not produce a Federal mandate of $100 million or greater in any year; that is, it is not a "significant regulatory action" under the Unfunded Mandates Reform Act. The FEA concludes incremental impacts may occur due to administrative costs of section 7 consultations; however, these are not expected to significantly affect small governments.

Consequently, we do not believe that this critical habitat designation will significantly or uniquely affect small government entities. As such, a Small Government Agency Plan is not required.

Takings—Executive Order 12630

In accordance with Executive Order 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for the Buena Vista Lake shrew in a takings implications assessment. As discussed above, the designation of critical habitat affects only Federal actions. Although private parties that receive Federal funding, assistance, or require approval or authorization from a Federal agency for an action may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. The FEA has concluded that this critical habitat designation does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. The takings implications assessment concludes that this designation of critical habitat for the Buena Vista Lake shrew does not pose significant takings implications for lands within or affected by the designation.

Federalism—Executive Order 13132

In accordance with Executive Order 13132 (Federalism), this rule does not have significant federalism effects. A federalism impact summary statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we specifically met with, requested information from, and coordinated development of this critical habitat designation with appropriate State resource agencies in California. We did not receive comments from State agencies. The designation of critical habitat in areas currently occupied by the Buena Vista Lake shrew may impose nominal additional restrictions to those currently in place and, therefore, may have little incremental impact on State and local governments and their activities. The designation may have some benefit to these governments in that the areas that contain the physical or biological features essential to the conservation of the species are more clearly defined, and the elements of the features of the habitat necessary to the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist local governments in long-range planning (rather than having them wait for case-by-case section 7 consultations to occur).

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

Civil Justice Reform—Executive Order 12988

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and that it meets the applicable standards set forth in sections 3(a) and 3(b)(2) of the Order. We are designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, the rule identifies the elements of physical or biological features essential to the conservation of the Buena Vista Lake shrew. The designated areas of critical habitat are presented on maps, and the rule provides several options for the interested public to obtain more detailed location information, if desired.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501

et seq.). This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County* v. *Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes. We determined that there are no tribal lands occupied by the Buena Vista Lake shrew at the time of listing that contain the physical or biological features essential to conservation of the species, and no tribal lands unoccupied by the shrew that are essential for the conservation of the species. Therefore, we are not designating critical habitat for the shrew on tribal lands.

References Cited

A complete list of all references cited is available on the Internet at *http://www.regulations.gov* and upon request from the Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Author(s)

The primary authors of this rulemaking are the staff members of the Sacramento Fish and Wildlife Office.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Regulation Promulgation

Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

■ 1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 1531–1544; 4201–4245; unless otherwise noted.

■ 2. In § 17.95, amend paragraph (a) by revising the entry for "Buena Vista Lake Shrew (*Sorex ornatus relictus*)", to read as follows:

§ 17.95 Critical habitat—fish and wildlife.

(a) *Mammals.*

* * * * *

Buena Vista Lake Shrew (*Sorex ornatus relictus*)

(1) Critical habitat units are depicted for Kings and Kern Counties, California, on the maps below.

(2) Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of the Buena Vista Lake shrew consist of permanent and intermittent riparian or wetland communities that contain:

(i) A complex vegetative structure with a thick cover of leaf litter or dense mats of low-lying vegetation. Associated plant species can include, but are not limited to, Fremont cottonwoods, willows, glasswort, wild-rye grass, and rush grass. Although moist soil in areas with an overstory of willows or cottonwoods appears to be favored, such overstory may not be essential.

(ii) Suitable moisture supplied by a shallow water table, irrigation, or proximity to permanent or semipermanent water.

(iii) A consistent and diverse supply of prey. Although the specific prey species used by the Buena Vista Lake shrew have not been identified, ornate shrews are known to eat a variety of terrestrial and aquatic invertebrates, including amphipods, slugs, and insects.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of this rule.

(4) *Critical habitat map units.* Data layers defining map units were created on a base of USGS 7.5′ quadrangles, and critical habitat units were then mapped using Universal Transverse Mercator (UTM) coordinates. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at *http://criticalhabitat.fws.gov/crithab/*, and at *http://www.regulations.gov* at Docket No. FWS–R8–ES–2009–0062, and at the field office responsible for this designation. You may obtain field office location information by contacting one of our regional offices, the addresses of which are listed at 50 CFR 2.2.

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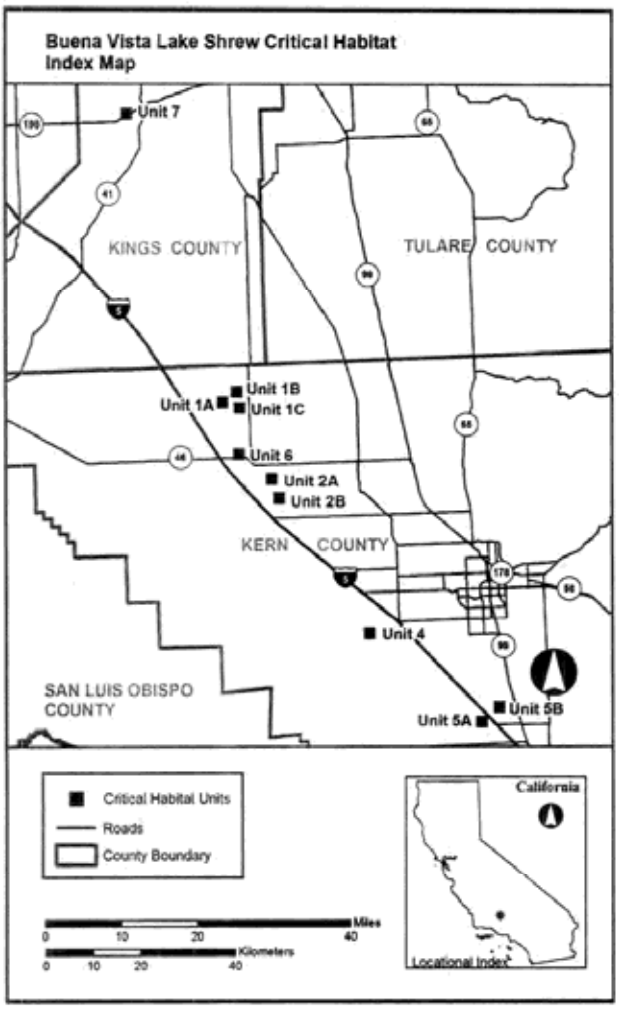
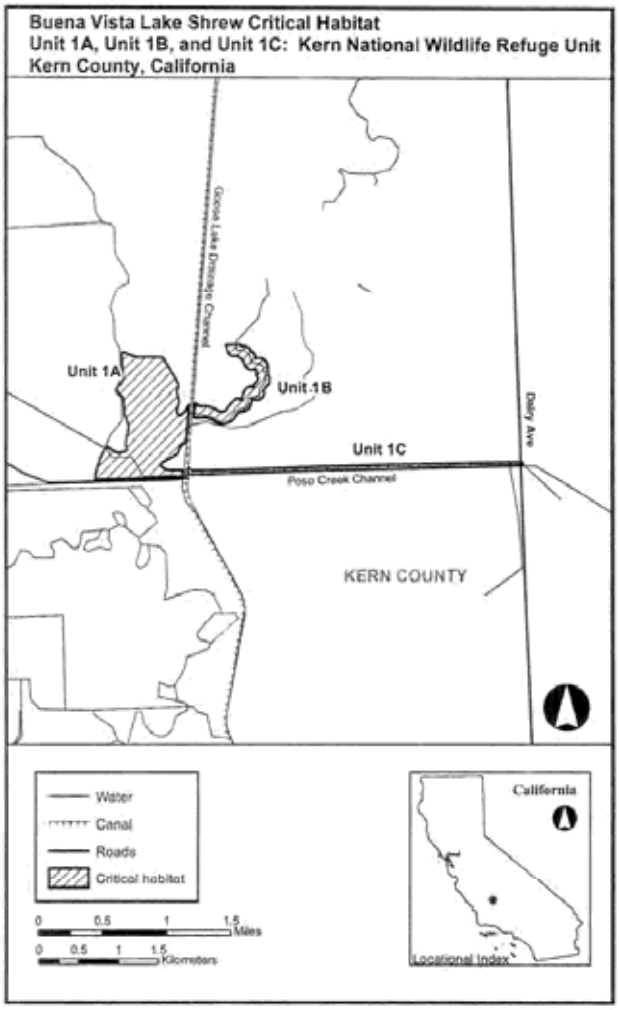
(5) Index map of Buena Vista Lake shrew critical habitat units follows:

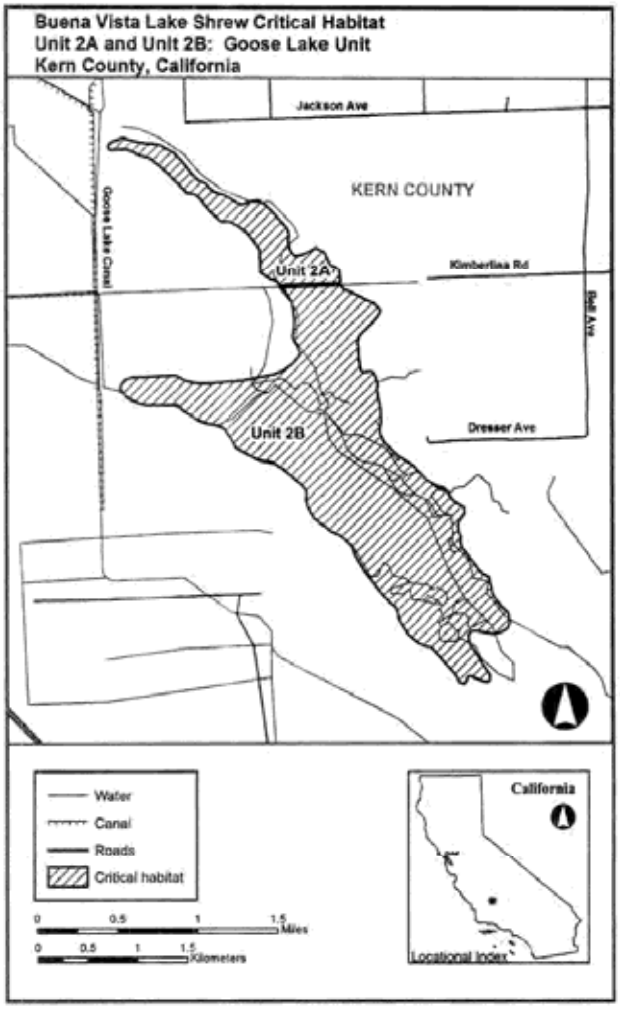


(6) Unit 1: Kern National Wildlife Refuge Unit, Kern County, California.

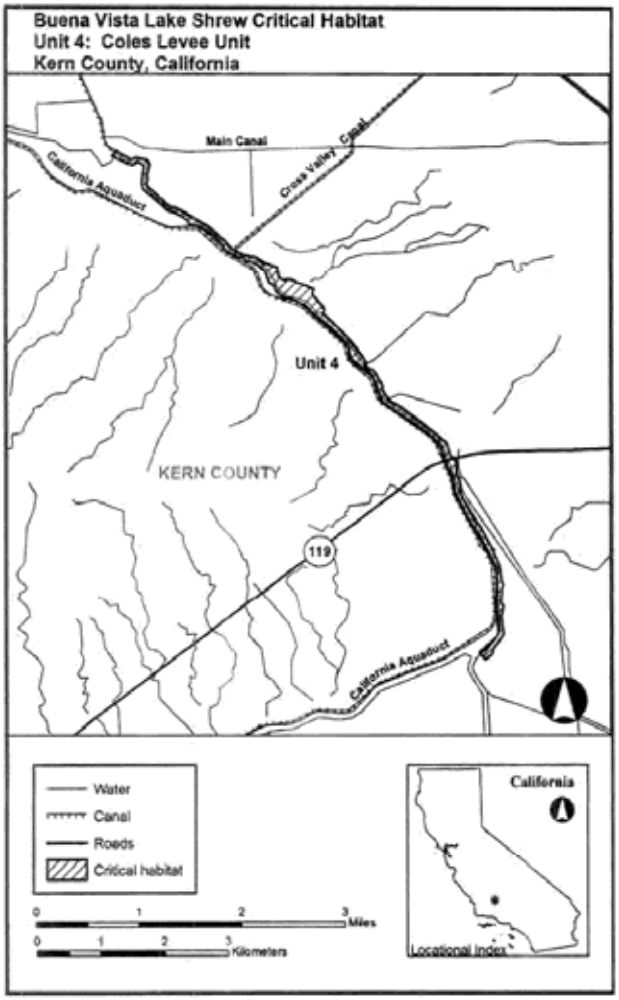
Note: Map of Unit 1, Kern National Wildlife Refuge Unit, follows:



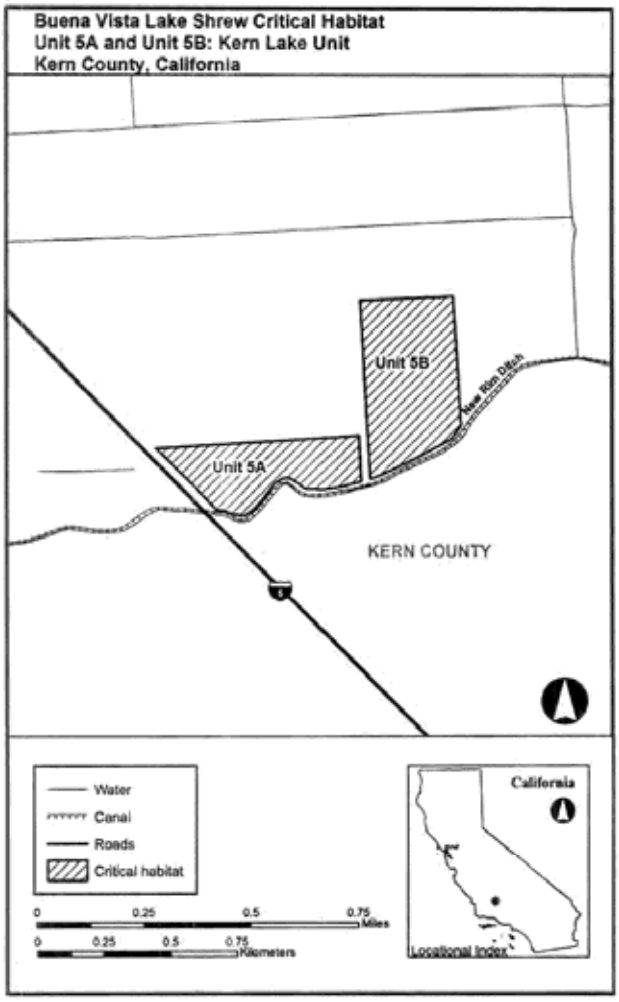
(7) Unit 2: Goose Lake Unit, Kern County, California. Note: Map of Unit 2, Goose Lake Unit, follows:



(8) Unit 4: Coles Levee Unit, Kern County, California. Note: Map of Unit 4, Coles Levee Unit, follows:



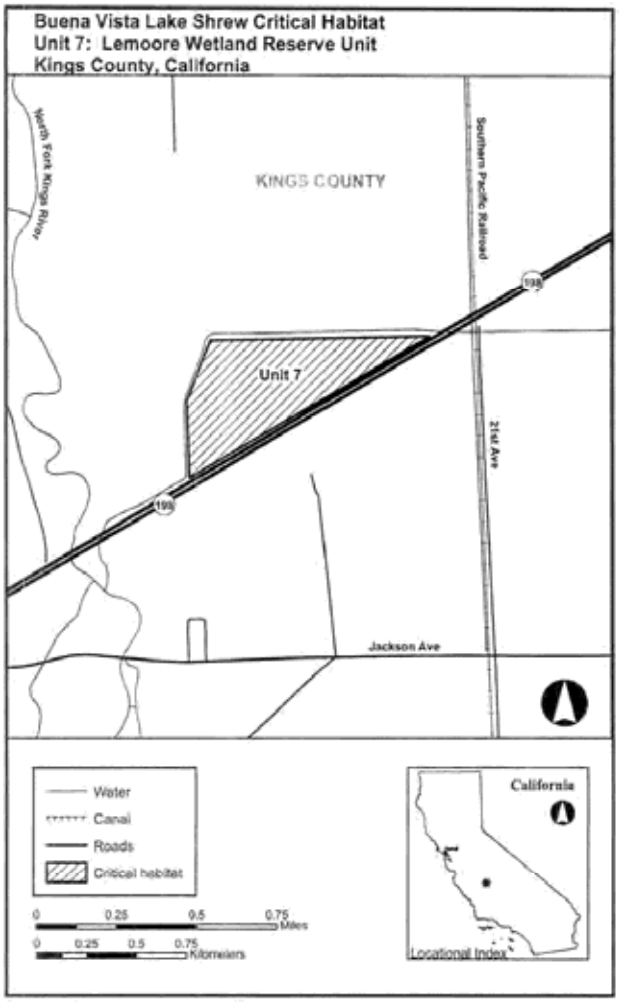
(9) Unit 5: Kern Lake Unit, Kern County, California. Note: Map of Unit 5, Kern Lake Unit, follows:



(10) Unit 6: Semitropic Ecological Reserve Unit, Kern County, California.

Note: Map of Unit 6, Semitropic Ecological Reserve Unit, follows:

(11) Unit 7: Lemoore Wetland Reserve Unit, Kings County, California. Note: Map of Unit 7, Lemoore Wetland Reserve Unit, follows:



* * * * *

Dated: June 20, 2013.

Rachel Jacobson,

Principal Deputy Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 2013–15586 Filed 7–1–13; 8:45 am]

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CHAPTER 10
Responses to Comments

The comment letters received during the public review period for the Draft EIR are included in Chapter 9. In this Chapter 10, Rosedale provides individual responses to the bracketed comments in each letter. In some instances, in response to the comment, Rosedale has made additions or deletions to the text of Draft EIR; additions are included as <u>underlined text</u> and deletions as ~~stricken text~~.

Letter 1: Department of Conservation, Division of Land Resource Protection

DOC-1

The comment provides an overview of the proposed project and details the location of the Stockdale East and Stockdale West properties within Kern County. The comment states that both Stockdale East and Stockdale West properties are located within Kern County's Agricultural Preserve Program, are under Williamson Act contracts, and are classified as Prime Farmland by the Farmland Mapping and Monitoring Program (FMMP), and that the third project site will undergo project-level environmental review when determined.

The comment's assessment is consistent with the Draft EIR analysis in Section 3.2 on pages 3.2-9 through 3.2-12. Due to the fact that the location of the third Stockdale project site is unknown at this time, Mitigation Measure AGR-1 would require compliance with Kern County's *Agricultural Preserve Standard Uniform Rules* as applicable to avoid conflict with agricultural zoning or potential Williamson Act contracts.

DOC-2

The comment states that approximately 165 acres of the Stockdale East site is subject to a Restrictive Covenant and Equitable Servitude Agreement for Agricultural Land Preservation (Agreement) between Rosedale and SunEdison, as part of SunEdison's effort to mitigate the loss of Important Farmland due to implementation of its Adobe Solar project. The comment also states that water recharge facilities may be compatible with agricultural use under provisions in the *Agricultural Preserve Standard Uniform Rules* (Uniform Rules).

Section 3.2 of the Draft EIR on page 3.2-10 states that approximately 165 acres of Stockdale East is subject to the Agreement, which requires Rosedale to use the land for commercial agricultural purposes for seven months out of each twelve month period, subject to Rosedale's right to use the property for water management and water recharge purposes. The Agreement also allows for the construction of recharge ponds, wells, pumps, pipelines and any other facilities for the production, generation, storage or transmission of water. As such, the proposed project would be

consistent with the Agreement by maintaining commercial agricultural uses at Stockdale East when not otherwise in use for water management or water recharge purposes.

DOC-3

The comment suggests that the Draft EIR state that uses on the project site meet the requirements of Kern County's Uniform Rules. The comment also suggests that the Draft EIR should address how Rosedale will document that the mitigation land is being used in a manner that is consistent with the Restrictive Covenant and Equitable Servitude Agreement for Agricultural Land Preservation (Agreement) between Rosedale and SunEdison.

"Compatible Uses" under the Uniform Rules include "[t]he erection, construction, alteration, operation, and maintenance of…water…facilities and similar public service facilities by … public agencies" (Draft EIR, Section 3.2.2, page 3.2-6). The proposed project will include such facilities, which are thus compatible as stated under the Uniform Rules. In addition, Rosedale will comply with all provisions of said Agreement as required in the operation of the proposed project (Section 3.2.3 pages 3.2-9 to 3.2-10). No formal documentation or reporting is required.

DOC-4

The comment requests notification of future hearing dates and staff reports regarding the proposed project.

The commenting party will be added to the mailing list for the proposed project.

Letter 2: San Joaquin Valley Air Pollution Control District

APCD-1

The comment states that the San Joaquin Valley Air Pollution Control District (APCD) has previously commented on the proposed project and has no additional comments. The comment states that APCD staff is available to meet with Rosedale to discuss regulatory requirements for the project.

The comment is noted for the record.

Letter 3: Kern Water Bank Authority

KWBA-1

The comment states that the Kern Water Bank Authority (KWBA) owns and operates the Kern Water Bank groundwater banking and recovery project adjacent to and immediately south of the proposed project, and that both Rosedale and KWBA overlie a common interconnected groundwater basin. For this reason, the comment states that KWBA facilities and operations may be adversely affected by the proposed project.

Section 3.9 of the Draft EIR on pages 3.9-22 through 3.9-26 includes an assessment of impacts of the proposed project on groundwater levels surrounding Stockdale East and Stockdale West, including impacts to Kern Water Bank Well 6D03 just south of Stockdale West and north of the Cross Valley Canal (CVC). During low (2004) and historical low (2009-2010) conditions, maximum well interference at the Kern Water Bank Well 6D03 would be 17 feet in the

shallow/intermediate aquifer and 20 feet in the deep aquifer, and 28 feet in the deep aquifer, respectively.

KWBA-2

The comment cites legal principles with reference to *CEQA Guidelines* and California case law [§ 15378(a); *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 729-30; *Citizens for a Sustainable Treasure Island v. City & County of San Francisco* (2014) 227 Cal.App.4th 1036, 1055; and *Dry Creek Citizens Coalition v. County of Tulare* (1999) 70 Cal.App.4th 20].

The comment does not specifically address the Draft EIR, except to state, "[w]here the project description is inadequate, as here, the EIR's analysis cannot be relied upon to provide a full disclosure of potential impacts, or adequate analysis of alternatives or mitigation measures." The comment is not supported by substantial evidence. The project description is contained in Chapter 2 of the Draft EIR and includes an "Overview and Project Location" in Section 2.1; a statement of project objectives in Section 2.2; an explanation of the purpose and need for the project in Section 2.3; a description of the proposed project in Section 2.4, including its recharge facilities in Section 2.4.1; its potential recharge water supplies in Section 2.4.2; its recovery facilities in Section 2.4.3; and its conveyance facilities in Section 2.4.4; a description of project construction activities in Section 2.5; a description of project operations in Section 2.6; maintenance in Section 2.7; and project approvals in Section 2.8. The project description includes all the information required by CEQA to comprise an adequate description of the project without supplying extensive detail beyond that needed for evaluation and review of the environmental impacts (*CEQA Guidelines* §15124).

KWBA-3

The comment states that Draft EIR should analyze the impacts of integrated operations with other existing extraction and recharge facilities.

The Draft EIR evaluates the individual impacts of the proposed project, as a stand-alone project, given the anticipated capacities for recharge and extraction as defined in the Project Description. The proposed project facilities will be integrated and operated in coordination with Rosedale's other facilities as part of the Conjunctive Use Program. Operation of Rosedale's existing facilities is part of baseline conditions for groundwater conditions, including the existing Enns Pond and Strand Ranch facilities, which include recharge basins and ten wells (Draft EIR, Section 3.9, pages 3.9-1, 3.9-9, 3.9-22, 3.9-23). Thus, assessment of the proposed project impacts using a groundwater flow model, which includes pumping from the five onsite Stockdale wells as well as regional pumping under baseline conditions (See Draft EIR Appendix E, page 11) provides an assessment of impacts due to "coordinated" operation with other existing Rosedale facilities. These are facilities with which operation of the proposed project would be coordinated and operated simultaneously.

The offsite wells for the Strand Ranch Project have been included in the Drought Relief Project and are not constructed yet. The impacts of operating wells associated with the Drought Relief

Project have been modeled, and the analysis included all existing Rosedale wells along with the proposed project wells on Stockdale East and Stockdale West. The result of this analysis is reported in the cumulative impacts analysis in the Draft EIR (Chapter 4 pages 4-7, and 4-13 to 4-16). The report documenting such results is cited in the Draft EIR (page 4-20): *Technical Memorandum: 2014 Drought Relief Project*, Prepared for Rosedale by Thomas Harder & Co, November 3, 2014 (THC, 2014). This technical memorandum is provided as an appendix to this Final EIR (see Appendix I). Therefore the Draft EIR evaluates the whole of the action for the project, by considering operation of the proposed project in conjunction with other existing and planned future projects with which the proposed project facilities would be integrated and their operation coordinated.

KWBA-4

The comment states that the Draft EIR's groundwater impact analysis does not evaluate the "whole of the action" because it only looks at the impact of operating five wells on baseline groundwater levels for about 10 months. The comment also states that the Draft EIR's groundwater impact analysis does not evaluate the "whole of the action" because it assumes extraction wells only operate one year (10 months) at a time and assumes groundwater levels will rebound before extraction wells are operated again (per Appendix E, page 15). As such, the Project Description should contain this limitation. The comment also states that during drought years, water extractions do and can occur for multiple year periods, and that the Draft EIR fails to evaluate groundwater and other impacts resulting from multiple and consecutive years of extraction operations.

Please see response to KWBA-3. The analysis conducted to assess impacts of operating recovery wells associated with the proposed project modeled 10 months of pumping as an example of a typical operational scenario for Rosedale's Conjunctive Use Program, based on estimated recovery capacities (see Draft EIR, page 3.9-23). This approach is a reasonable estimation of future project operations, based upon the experience of Rosedale and other nearby banking and recovery projects. The current drought has imposed atypical conditions and operating scenarios on water banking programs throughout the State, resulting in consecutive years of groundwater pumping. The Notice of Preparation was issued prior to these atypical conditions.

In the event that the proposed project would result in groundwater pumping for more than 10 months, a greater relative decline in groundwater levels may occur, assuming all other projects in the area continue pumping as well. As stated in the Draft EIR (page 3.9-25), drawdown associated with the proposed project may have no adverse effects on pre-existing nearby wells, particularly if drawdown results in groundwater levels at or above historic lows. In the event that project pumping would result in drawdown that would affect the ability of neighboring wells to produce water, regardless of the number of months of pumping, such an impact would be identified and mitigated through implementation of the LTOP, as explained in the Draft EIR on page 3.9-26.

KWBA-5

The comment cites legal principles with reference to California case law [*County of Inyo, supra; San Joaquin Raptor Rescue Ctr. v. County of Merced (2007) 149 Cal.App.4th 645.*].

The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record. See also response to KWBA-3 and KWBA-4.

KWBA-6

The comment states that the Draft EIR Project Description is lacking in detail, specifically whether the integrated nature of the project would result in unbalanced recharge and recovery operations (extract water from project wells previously banked in recharge facilities elsewhere in Rosedale's service area) thereby increasing impacts.

The primary objective of the proposed project is to provide maximum operational flexibility between various programs and facilities within Rosedale's Conjunctive Use Program. Figure 2-8 has been added to page 2-12 of the Draft EIR to clarify that the proposed project's recharge and recovery operations will be balanced within the geographic areas shown as Area A and Area B within Rosedale's service area. The following has been added to page 2-12 of the Draft EIR for clarification:

> Rosedale shall balance the proposed project's recharge and recovery operations within the geographic areas shown on Figure 2-8.

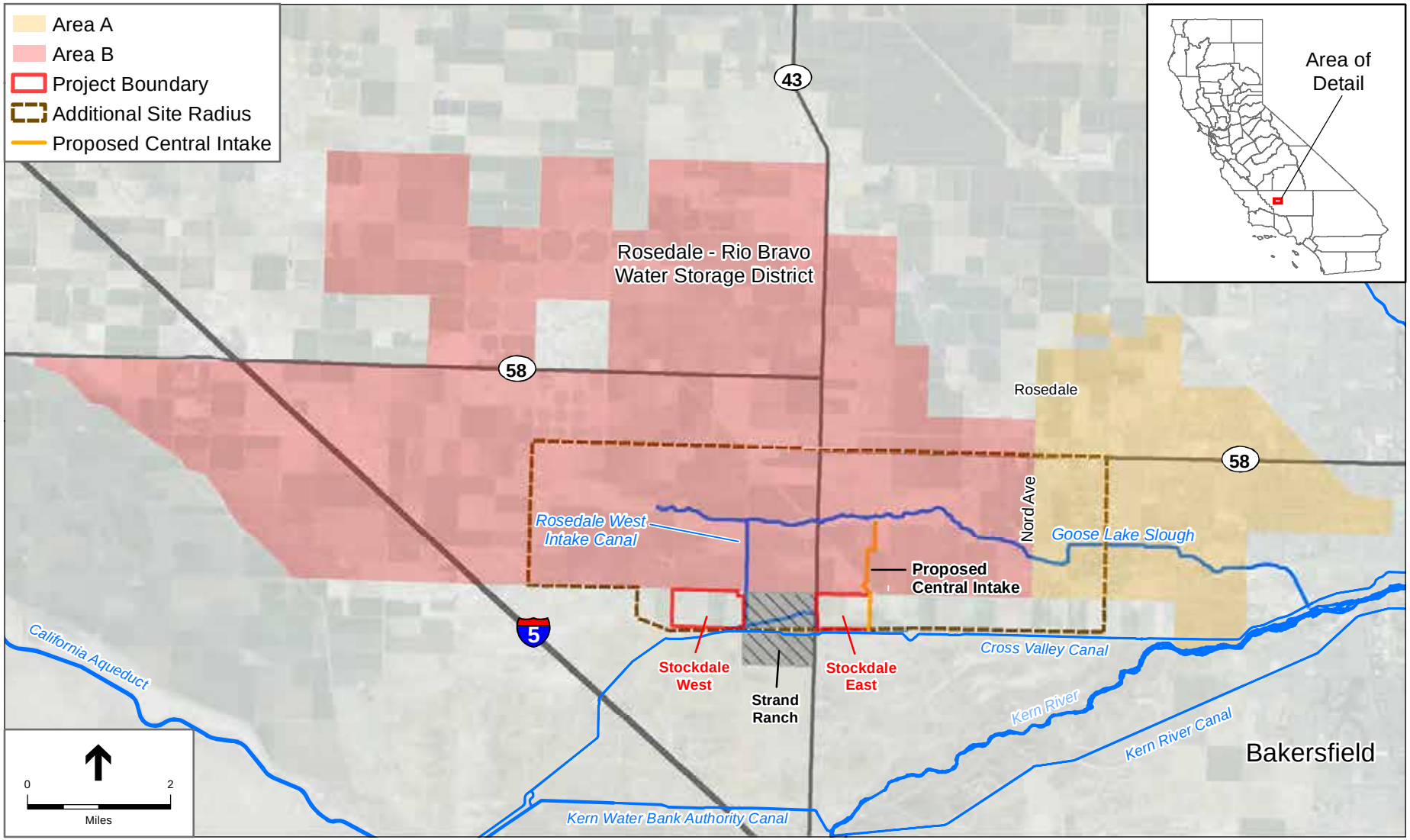
KWBA-7

The comment restates the text of the Draft EIR in Chapter 1 on page 1-2 and Chapter 2 on page 2-1 indicating that if and when a third Stockdale project site is identified, project-level review will be conducted pursuant to *CEQA Guidelines*.

The comment is correct. As identified in Chapter 1 on page 1-2 and Chapter 3 on page 3-2, if and when the third Stockdale project site is identified, subsequent project-level environmental review will be conducted pursuant to *CEQA Guidelines* Section 15168(c). The type of CEQA document that will be used for such review will be based on the environmental impacts associated with operations at the third Stockdale project site. Depending on the type of CEQA document, public review may or may not be required (e.g., public review is not required if addendum is appropriate document, *CEQA Guidelines* §15164(c)).

KWBA-8

The comment questions whether the terms and conditions of the two Memoranda of Understanding (MOUs) between Rosedale and adjoining entities in the Kern Fan area are elements of the proposed project, or whether these conditions are intended to be mitigation measures.



SOURCE: ESRI 2013

Stockdale Integrated Banking Project . 211181

Figure 2-8

Recharge and Recovery Operations Associated with Groundwater Banking

The comment correctly states that, as provided in the Draft EIR on page 1-12, the MOUs provide guidelines for operation and monitoring of Rosedale's groundwater banking programs, and the proposed project would be subject to and consistent with the conditions of these MOUs, which are provided in Appendix B to the Draft EIR. The MOUs stipulate that modifications to Rosedale's Conjunctive Use Program would be subject to an environmental review pursuant to CEQA. Since the proposed project would be coordinated with Rosedale's Conjunctive Use Program, this EIR satisfies the CEQA requirements indicated in the MOUs (Draft EIR, page 1-12). However, the terms and conditions of the MOUs do not constitute mitigation measures for the proposed project for purposes of CEQA. Mitigation measures for the proposed project that are included in the Draft EIR are separate from the MOUs and are related only to the Stockdale Integrated Banking Project. Mitigation measures for the proposed project are found in the Summary in Table S-1.

KWBA-9

The comment questions whether the Long Term Operations Plan (LTOP) will apply only to operation of the three project sites and five extraction wells included in the proposed project, or whether the LTOP applies to all Rosedale and/or IRWD recharge and recovery facilities. The comment also states that the Final EIR should state all projects (including wells and other facilities) that would be operated in accordance with the LTOP.

The LTOP, which implements the provisions of the MOU, is specific to operations associated with the proposed project for the purposes of this EIR. The LTOP does, however, state, "All Rosedale projects which are subject to an MOU with adjoining entities shall be subject to and operated consistent with this Plan." Rosedale intends to develop and enter into an LTOP, substantially similar to the one provided in the Draft EIR, to cover all of its existing and future projects and facilities, subject to agreement with adjoining water banking interests. For more information about the type of projects and facilities, refer to the Draft EIR Appendix B-1, Exhibit 2 – Project Description.

KWBA-10

The comment states that the modeling and Draft EIR analysis of groundwater is deficient because it assumes extraction will only occur for 10 months at a time. The comment states that if the 10 month period is correct, the Project Description should be updated and/or a mitigation measure added. The comment also states that the analysis neglects to consider short-term, mid-term and long-term project impacts, and cites the Smart Rail case**.**

Please see response to KWBA-4. In regard to the determination of baseline for the analysis of groundwater impacts, and for a discussion of the applicability of the *Smart Rail* decision, see response to KCWA-24.

KWBA-11

The comment states that the Draft EIR is deficient in that the modeling only considers one year or ten months of recharge operations, not multiple years as would be expected in a consecutive wet year analysis.

The analysis conducted to assess impacts of operating recharge basins associated with the proposed project modeled 10 months of recharge as an example of a typical operational scenario for Rosedale's Conjunctive Use Program, based on estimated recharge capacities (see Draft EIR, page 3.9-23). This approach is a reasonable estimation of future project operations, based upon the experience of Rosedale and other nearby banking and recovery projects.

In the event that the proposed project would result in groundwater recharge for more than 10 months, a greater relative mounding of groundwater levels may occur, as long as other projects in the area continue to recharge as well. Such mounding may have no adverse effects on underground structures, particularly if mounding results in groundwater levels below historic high levels. However, the Draft EIR includes Mitigation Measure HYDRO-2, the implementation of which would serve to avoid impacts to the CVC due to shallow groundwater. This mitigation measure would apply to the project regardless of the length of time recharge would occur.

KWBA-12

The comment states that mitigation measures should be imposed for Impact HYDRO-2 since a similar conclusion is reached for Impact CUM-1.The comment further suggests that the Draft EIR explain why mitigation should not be imposed for the HYDRO-2 analysis.

The Draft EIR concludes that project-specific impacts are less than significant under Impact HYDRO-2 and as such no mitigation is required (page 3.9-26). Please refer to response to KWBA-4. The Draft EIR concludes under Impact CUM-2 that implementation of Rosedale's LTOP, as required by **Mitigation Measure CUM-2**, would serve to mitigate the proposed project's incremental contribution to cumulative groundwater impacts and associated effects to wells serving overlying land uses (page 4-16).

KWBA-13

The comment states that the Draft EIR does not include an analysis of impacts related to project recharge activities on KWBA's nearby recharge facilities or operations. The comment states that project recharge and resulting shallower groundwater conditions could significantly affect groundwater levels in proximity to the CVC and require KWBA to curtail recharge, which has not been the case historically.

The analysis of how operation of proposed recharge facilities could affect neighboring KWBA recharge basins during historical high water levels is provided in the Draft EIR, Section 3.9 on page 3.9-27 through 3.9-30. The Draft EIR concludes on page 3.9-29 that the resulting effects of groundwater mounding on the operation of neighboring basins "would be no different than existing conditions under high water levels, whereby recharge rates decline over time as recharge occurs." Therefore impacts to neighboring basins are considered less than significant.

KWBA-14

The comment presents an overview of requirements of the analysis of cumulative impacts as required by CEQA, including *CEQA Guidelines* Section 15130 and 15355. The comment also states that the cumulative impacts analysis in the Draft EIR does not comply with CEQA with respect to the groundwater impact analysis.

The Draft EIR presents the same CEQA requirements for the cumulative impacts analysis on page 4-1. For specific responses to the groundwater cumulative impacts discussion, please see the response to KWBA-15 and KWBA-16.

KWBA-15

The comment states that the Draft EIR includes and refers to two separate "drawdown" analyses on page 4-15 and 4-16 of the Draft EIR, neither of which includes a cumulative impacts analysis. The comment also states that the assessment of whether the project's contribution to the cumulative impacts is considered "cumulatively considerable" is also deficient.

The first drawdown analysis mentioned of page 4-15 of the Draft EIR is the project-specific analysis prepared for operation of the proposed wells on Stockdale East and Stockdale West. The text of the Draft EIR on page 4-15 provides an overview of the results of the impact analysis as described in Chapter 3.9 Hydrology and Water Quality. The second drawdown analysis described on pages 4-15 and 4-16 provides a cumulative assessment of the impacts of the proposed project together with the additional wells planned for the Drought Relief Project. As mentioned in KWBA-3, the technical memorandum supporting the cumulative impacts analysis has been added to this FINAL EIR as Appendix I.

Regarding the claim that the assessment of the project's incremental contribution is deficient, the assessment is clearly presented in Chapter 4 on pages 4-16 to 4-18: the LTOP and Mitigation Measure CUM-2 would serve to mitigate the proposed project's incremental contribution to cumulative groundwater impacts and associated effects to wells serving overlying land uses to a less than significant level, which would make impacts not cumulatively considerable.

KWBA-16

The comment states that, as a result of a narrow scope of the project, the cumulative impacts analysis is deficient and understated. The comment states that use of 31 extraction wells including the 5 project wells, needs to be considered in the cumulative impact analysis. The remaining 26 wells include the 7 Strand Ranch onsite wells, 3 Enns Basin wells, 9 Drought Relief Project wells, and 7 JURP/Allen Road wells. The comment also states that the wells to be constructed on the third Stockdale project site needs to be considered as a probable future project.

As explained in response to KWBA-3, the drawdown analysis for the Drought Relief Project was used to support the analysis of cumulative impacts and is described in the Draft EIR on pages 4-13 to 4-18. All 31 wells mentioned in the comment have been accounted for in the cumulative analysis. The technical memorandum supporting the cumulative impacts analysis has been added as Appendix I.

In response to the comment the following modification has been made to the text of the Draft EIR on page 4-16:

> The cumulative analysis assumes that all 14 recovery wells are operating for eight months and approximately 44,100 AF of groundwater is extracted (THC, 2014, Appendix I).

Regarding the third site, in response to the comment, the following modification to the text of Draft EIR has been made on page 4-16:

> However, historical low groundwater levels may have recently been exceeded in 2014 due to ongoing drought conditions (Kern Fan Monitoring Committee, 2015), and development of the third Stockdale site, together with other future groundwater banking projects may ~~be developed that~~ increase cumulative recovery capacity in the project area. Therefore, implementation of Rosedale's Long Term Operations Plan, as required by **Mitigation Measure CUM-2**, would serve to mitigate the proposed project's incremental contribution to cumulative groundwater impacts and associated effects to wells serving overlying land uses.

KWBA-17

The comment states that the Draft EIR does not identify the existing projects and pumpers incorporated into the analysis, and does not explain how and where they have been incorporated.

All existing recharge and recovery operations in the Kern Fan region are included in the modeled baseline conditions as explained in the Draft EIR on page 4-15. The regional groundwater flow model used for the cumulative impacts analysis includes all past and present groundwater banking projects in the Kern Fan. See also response to KWBA-16.

KWBA-18

The comment states that without an adequate cumulative impacts analysis, it is unknown whether Mitigation Measure CUM-2 is adequate. The comment also states that it is unclear which facilities and operations will be subject to the mitigation measure.

The cumulative impact analysis is adequate as explained in responses to KWBA-14 through KWBA-17 above. Regarding facilities and operations subject to the LTOP described in Mitigation Measure CUM-2, please refer to response to KWBA-9.

Letter 4: Kern County Water Agency

KCWA-1

The comment states that it is unclear how many separate sites comprise the proposed project, whether it is three or four project sites including the Central Intake Pipeline. The comment also states it is unclear how the project is comprised of three sites given that the third Stockdale project site may be made up of multiple non-contiguous parcels. The commenter requests that the Project Description be revised to reflect the accurate number of project components and sites.

The number of sites is accurately described on page S-1 of the Summary and on page 1-1 of the Introduction as follows:

> As shown in **Figure 1-1**, the proposed project would include the Stockdale East property, which is owned by Rosedale, the Stockdale West property, which is owned by IRWD, and a potential third project site that would be located within a designated radius around both properties (collectively referred to as the "Stockdale Properties").

> The proposed project would also include a new Central Intake Pipeline conveyance system and new turnouts along the Cross Valley Canal.

Thus, the proposed project consists of the three Stockdale Properties and the Central Intake Pipeline. As explained in the Summary on page S-5 and in Chapter 2 on pages 2-1 and 2-4, the term "third Stockdale project site," which is used throughout the analysis of the Draft EIR, is defined as potentially having multiple non-contiguous parcels.

In response to the comment, the following clarification is made to page S-5 of the Draft EIR:

> The proposed project consists of ~~three sites:~~ Stockdale East, Stockdale West, ~~the Central Intake Pipeline alignment, and~~ a third project site that may be made up of non-contiguous parcels and that has yet to be specifically located, and the Central Intake Pipeline.

KCWA-2

The comment questions which components of the proposed project are analyzed at a programmatic level and states that Rosedale has an obligation to analyze programmatic components to the extent feasible.

An overview of the project-level and program-level analyses in the Draft EIR is provided on page 1-2 of Chapter 1 under Section 1.2, Project-level and Program-level Analyses in this Draft EIR. As stated on page 1-2, the third Stockdale site is the project component analyzed at the programmatic level. Program level assessment is defined by *CEQA Guidelines* for a series of actions related geographically and as logical parts in a chain of contemplated actions (Draft EIR, page 1-2), which applies to the proposed project. The Draft EIR explains that the third Stockdale site is also included in order to evaluate the "whole of the action" (Draft EIR, page 1-2) as required by CEQA. The third Stockdale site cannot be evaluated at the project level, because the exact location has not yet been identified.

Each impact statement of the Draft EIR indicates which project component is being analyzed. For example, in Section 3.10 Land Use, the analysis for Threshold 3 is combined for all project components, while the analysis for Threshold 2 is separated out by project component: Stockdale East and Stockdale West, Third Stockdale Site, and the Central Intake Pipeline. Headings are used to help the reader find the analysis for each project component.

KCWA-3

The comment states that it is unclear which programs and facilities are being referred to within the project objectives identified on page 2-3. Specifically, in the first and second objectives, the comment states that it is unclear what the term "operational/operating flexibility" refers to; what type of flexibility is needed, or the purpose for which it is needed. For the third objective, the comment states it is unclear what properties are considered to be "IRWD's and Rosedale's respective properties."

In the context of the proposed project, operational flexibility is the ability of Rosedale to operate its system to maximize the benefits of its operations and to minimize potential localized impacts

from the same. The proposed project would provide operational flexibility by augmenting the recharge, storage, and extraction capacity of Rosedale's Conjunctive Use Program to assist with fulfillment of its mission of maintaining groundwater levels within its service area and its obligations to existing participants in its Conjunctive Use Program.

In response to the comment requesting further clarification of property ownership mentioned in the third objective, please refer to page S-1 of the Draft EIR which indicates which project properties are owned by each agency: "…Stockdale East property, which is owned by Rosedale, the Stockdale West property, which is owned by IRWD."

KCWA-4

The comment requests a description of the size and radius in which the third Stockdale site is located and potential environmental effects associated with the site.

The third Stockdale project site is described in Chapter 2 on page 2-1. Please refer to the scale presented on Figure 2-1.

The potential environmental effects associated with the third Stockdale project site are included in all of the resource categories included in Chapter 3 and Chapter 4 of the Draft EIR. Headings are used throughout the analysis to help the reader find the analysis for the third Stockdale project site, such as in Section 3.1 on page 3.1-7. As identified in Chapter 1 on page 1-2 and Chapter 3 on page 3-2, if and when the third Stockdale project site is identified, subsequent project-level environmental review will be conducted pursuant to *CEQA Guidelines* Section 15168(c). See also response to KWBA-7.

KCWA-5

The comment states that the Draft EIR does not provide adequate environmental analysis associated with the third Stockdale project site because the site has yet to be located and may be more than one contiguous parcel. The comment states that the location must be disclosed to allow for informed public comment, disclosure, and informed decision making and to analyze the "whole of the action" as required by CEQA. The comment suggests that the Draft EIR should indicate the locations and conditions of the third Stockdale site in order to fully analyze all reasonably foreseeable impacts, particularly related to hydrology, agriculture, water quality, noise and sensitive receptors.

The Draft EIR evaluates the proposed project as described in Chapter 2 Project Description, which includes a radius for the potential location of the third Stockdale site (see Figures 2-1 and 2-2). As stated above in response to KCWA-2 the evaluation of environmental impacts included in the Draft EIR includes the third Stockdale site to ensure the "whole of the action" is considered as required by CEQA. Impacts related to the third Stockdale site are assessed throughout the Draft EIR, for all environmental resource at a programmatic level as described above in response to KCWA-2 and KCWA-4. As identified in Chapter 1 on page 1-2, if and when the third Stockdale project site is identified, subsequent project-level environmental review will be conducted pursuant to *CEQA Guidelines* Section 15168(c).

The analysis of impacts associated with the third Stockdale site was commensurate with the level of detail available about the project component at the time the Draft EIR was released. In particular the analyses of impacts to resources mentioned in the comment can be found in the Draft EIR as follows:

- Agricultural Resources: See Draft EIR pages 3.2-10, 3.2-11, and 3.2-13.
- Hydrology and Water Quality: See Draft EIR pages 3.9-21 through 3.9-32.
- Sensitive Receptors and air emissions: See Draft EIR page 3.3-18 and 3.3-19.
- Noise: See Draft EIR pages 3.12-6 through 3.12-12 including Mitigation Measure NOISE-1 specifically for the third Stockdale site.

In response to the comment, the text of the Draft EIR on page 3.9-26 has been modified to make the analysis of impacts to hydrology consistent with the document format for the third Stockdale project site:

> Subsequent implementation of the third Stockdale project site may contribute to lower groundwater levels in the project area. If and when the third Stockdale project site is identified, subsequent project-level environmental review will be conducted pursuant to *CEQA Guidelines* Section 15168(c) to determine site-specific effects to groundwater. However, with implementation of Rosedale's LTOP, as described below, impacts to groundwater levels and corresponding impacts to operation of neighboring wells would be considered less than significant.

KCWA-6

The comment suggests that a worst case scenario analysis be conducted for impacts to the third Stockdale project site if a specific location for the site cannot be analyzed. The comment also states that if the location of the third Stockdale project site is identified prior to project approval, Rosedale and IRWD will be required to recirculate the Draft EIR for further review and comment.

The analysis of impacts associated with the third Stockdale project site was commensurate with the level of detail available about the project component at the time the Draft EIR was released. In some cases the analysis may be the "worst-case" scenario, although such is not required in CEQA analyses.

If and when the third Stockdale project site is identified, subsequent project-level environmental review will be conducted pursuant to *CEQA Guidelines* Section 15168(c), as stated in the Draft EIR on page 3-2. See also response to KWBA-7.

KCWA-7

The comment questions whether the construction of embankments and/or additional transfer structures is considered in the Draft EIR's analysis, specifically regarding hydrology and agricultural impacts.

The embankments and transfer structures are accounted for in the assessment of impacts related to constructing the project, within the designated project area boundaries and footprint of Stockdale East, Stockdale West, and the third Stockdale project site, as described in the Summary on page ES-1; Chapter 1 on page1-18; Chapter 2 on pages 2-15 and 2-17.

KCWA-8

The comment questions how agricultural uses are compatible with recharge basins; whether water used for farming purposes will be deducted from Rosedale's share of the banked water or if water will be from the basin; states that farming could increase the risk of nitrate and other fertilizer contamination into the groundwater basin; and that if Rosedale decides to remove farming from the project then a revised analysis would be required.

As described in Section 3.2 of the Draft EIR on page 3.2-12, the Kern County *Agriculture Preserve Standard Uniform Rules* (Uniform Rules) state that groundwater recharge is compatible with agricultural land use on agricultural preserves. When the basins are not being used for recharge, they may be made available to contract farmers for agricultural uses, similar to Rosedale's management of its other existing recharge basins.

Regarding the use of groundwater for agricultural use at the Stockdale properties, the project shall be operated to be consistent with the MOU (Appendix B-2, Section 2.b(5)).

As described on page 2-24 of Chapter 2 Project Description, all agricultural users on the properties would be prohibited from using chemicals that have been designated or suspected of having the potential to pollute groundwater, as determined by the California Department of Pesticide Regulation, California Environmental Protection Agency, the United States Environmental Protection Agency, and the Kern County Agricultural Commissioners. An analysis of such impacts is provided in the Draft EIR as part of Impact HAZ-1 and Impact HAZ-2 starting on page 3.8-11. The potential impacts to groundwater quality from nitrates and other fertilizers are assessed in Section 3.9 on pages 3.9-8, 3.9-11, and 3.9-31 to 3.9-32. As stated on page 3.9-31, any residual pesticides in the surface soils of former agricultural areas would be scraped off the recharge basin floor. As such, the potential for residual pesticides to be transported to the groundwater by the recharge water would be minimal. In addition, the proposed project would reduce nitrogen loading on Stockdale East and Stockdale West relative to baseline conditions, due to reduced farming activities during periods when the properties are used for groundwater recharge. Such would be the case for the third Stockdale site as well, if the existing land use includes agricultural uses.

KCWA-9

The comment states that the Draft EIR includes no information on the ongoing drought and availability of water sources for the proposed project, and that the project may exacerbate the drought. The comment also states that the project's potential use of Kern River water is questionable as it would result in the export of native surface water, and that this should be discussed in the Draft EIR.

As described in Chapter 2 of the Draft EIR on page 2-4, the proposed project supports Governor Jerry Brown's conservation initiatives by providing water supply reliability for future conditions. The proposed project will not affect the availability of water during the current and ongoing drought because water must be recharged prior to extraction; and water for recharge is not expected to be available during dry conditions. The proposed project would not compete for limited dry-year water supplies. It is not possible for the proposed project to effect the allocation of SWP water, drought or otherwise, since allocations are based on availability of supply from the Sacramento Delta. Recharge of water would not exacerbate the drought. The project would provide benefits during future drought periods by providing additional opportunities to replenish the basin when supplies are available for recharge in project facilities.

As to the use of Kern River water for project purposes, it is only proposed when available from water right holders under banking or temporary water service agreements (Section 2.4.2 page 2-9) or when the Kern River is in high-flow conditions (Section 2.4.2 page 2-10). See also the response to the City of Bakersfield comments: City-2, City-8, City-21, and City-77.

KCWA-10

The comment states that the analysis presented in Section 3.9 and Appendix E to the Draft EIR does not include impacts associated with additional recovery from existing agricultural wells. The comment questions whether additional recovery capacity from existing wells is needed.

Recovery facilities are described in Section 2.4.3 on page 2-10, including the number of wells, size, and anticipated capacity. The agricultural wells mentioned in the comment will not be used to increase recovery capacity, but may be used for operational flexibility or water quality blending purposes (Section 2.4.3, page 2-10).

KCWA-11

The comment states that the description of recovery scenarios does not contain sufficient information to determine the project's maximum recovery operations from the Stockdale properties. The comment also states that the analysis does not cover use of existing agricultural wells.

The anticipated recovery capacity from Stockdale East and Stockdale West is stated in Chapter 2 on page 2-5 and 2-10, as is the anticipated recovery capacity from the third Stockdale site. As identified in Chapter 1 on page 1-2 and Chapter 3 on page 3-2, if and when the third Stockdale project site is identified, subsequent project-level environmental review will be conducted pursuant to *CEQA Guidelines* Section 15168(c). Please refer to response to KCWA-10 for a discussion of recovery from existing agricultural wells.

KCWA-12

The comment states that the project will operate as a "two for one" program similar to the Strand Ranch Project, and requests an explanation for why there would still be a "net benefit" to the aquifer. The comment also states that without identifying the terms and conditions of reciprocal use for the third Stockdale project site, it is impossible for the Draft EIR to determine whether the project will benefit water levels.

The Draft EIR does not state that the project will operate as a "two for one" program; it mentions "two for one" in the context of the Strand Ranch Project and/or potential water management programs, but not by way of limitation. The project benefits the aquifer because water is banked prior to extraction and not all water recharged is extracted. In addition, Rosedale banks water itself specifically for overdraft correction. In response to the comment, the following text has been added to Chapter 1 on page 1-17:

> A review of the existing Strand Ranch Project has demonstrated that the groundwater banking program between IRWD and Rosedale has a benefit to the overall water balance within the groundwater basin. Operations of the facilities during the 2011 recharge cycle enabled Rosedale to recharge approximately 45,000 acre-feet of water that would not have otherwise come into the basin. Of this amount, Rosedale retained 25,000 acre-feet. Additional benefits to the basin include the loss factors applied to water banked by IRWD, which represents water that will be retained within the basin and may not be recovered.

KCWA-13

The comment questions whether the terms and conditions of the MOU are elements of the project or whether they are intended to be mitigation measures.

As provided in the Draft EIR on page 1-12, the MOUs provide guidelines for operation and monitoring of Rosedale's groundwater banking programs. The MOUs stipulate that modifications to Rosedale's Conjunctive Use Program would be subject to an environmental review pursuant to CEQA. Since the proposed project would be coordinated with Rosedale's Conjunctive Use Program, this EIR satisfies the CEQA requirements indicated in the MOUs (Draft EIR, page 1-12). However, the terms and conditions of the MOUs do not constitute mitigation measures for the proposed project for purposes of CEQA. Mitigation measures for the proposed project that are included in the Draft EIR are separate and related only to the Stockdale Integrated Banking Project. Mitigation measures for the proposed project are found in the Summary in Table S-1.

The *Long Term Project Recovery Operations Plan Regarding Rosedale-Rio Bravo Water Storage District Projects* (Long Term Operations Plan; LTOP) implements some of the requirements of the MOU. As stated in the Draft EIR on page 1-13, the proposed project will be operated in accordance with the LTOP. The LTOP requires monitoring of groundwater conditions; annual predictions of project-related groundwater declines in the area; definition of negative project impact (NPI) to neighboring wells relative to no-project conditions; triggers for implementation of mitigation measures based on NPI that affects neighboring well operation; and mitigation measures to be implemented for different categories of wells.

To summarize, the proposed project is subject to the provisions of both the MOUs and LTOP. The MOU itself does not constitute mitigation measures for the proposed project. The LTOP is included as a mitigation measure for potential impacts to groundwater levels during recovery operations.

KCWA-14

The commenter states that potential impacts to groundwater and groundwater contamination related to use of the Stockdale properties for farming should be analyzed in the agricultural section as well as the hydrology section.

The analysis of operational project impacts to groundwater quality due to use of the Stockdale Properties for farming activities is included in the Draft EIR on pages 3.9-31 and 3.9-32. In response to the comment, the following cross reference has been added to page 3.2-13 of the Draft EIR in order to link the analysis related to groundwater contamination found in Chapter 3.9 Hydrology and Water Quality to the analysis in Chapter 3.2 for Agricultural Resources:

> Furthermore, agricultural land uses, such as annual farming, grazing, or fallowing, would be allowed within the basins at the Stockdale Properties when not operated for water recharge or water management purposes. For a discussion of water quality related to farming use, please refer to Section 3.9, Hydrology and Water Quality, from page 3.9-31 to 3.9-32.

KCWA-15

The comment questions the type and quantity of plant cover described in the Draft EIR as reducing the amount of soil erosion.

Erosion is discussed in the Draft EIR on page 3.6-15 and page 3.9-30. In response to the comment, the analysis in the Draft EIR on page 3.6-15 has been modified to be consistent with the analysis on page 3.9-30 as follows:

> During operation of the groundwater recharge basins, the recharge basins would contain water, which would inhibit erosion; during periods of non-recharge, the recharge basins would be subject to wind erosion. However, when not used for recharge, the basins would continue to be used for agricultural purposes. With the continuation of farming, grazing, or fallowing, the existing land cover would not be substantially altered from existing conditions and would not alter the conditions that affect erosion. ~~Plant cover at the project site would minimize wind erosion.~~ Operation of the Central Intake Pipeline would not contribute to wind erosion since the pipeline would be underground running along the edge of Stockdale East and then primarily beneath an existing dirt road between existing agricultural parcels. The dirt road is already denuded of vegetation and would be restored back to existing conditions, resulting in no change in erosion potential.

KCWA-16

The comment states that the Draft EIR does not discuss how the conversion of the Stockdale project sites from agricultural use to basin use will impact soil cover, loss of topsoil, and soil erosion.

The impacts related to soil erosion and the loss of topsoil is discussed in Chapter 3.6 on page 3.6-14 under Threshold 2 Soil Erosion. Potential impacts are reduced to a less than significant level

with implementation of a Storm Water Pollution Prevention Plan and Mitigation Measure HYDRO-1. Please also see response to KCWA-15 above.

KCWA-17

The comment requests further explanation about how the proposed project, specifically production wells and spreading basins, will avoid the oilfield near the Stockdale East site, and what steps will be taken to ensure that contamination will not spread to groundwater. The comment suggests adding a mitigation measure in addition to Mitigation Measure HAZ-1 to incorporate soil samples and removal to prevent future migration of contaminants when the project is operational.

The proposed project facilities on Stockdale East will be sited to avoid the oilfield facilities and provide for a buffer area between oilfield and groundwater banking facilities. Implementation of HAZ-1 will ensure that existing contaminated soils are either avoided or removed in order to ensure such contamination does not migrate beyond the boundaries of the oilfield area.

As described on page 3.8-8 of the Draft EIR, the Division of Oil, Gas, and Geothermal Resources (DOGGR) regulates statewide oil and gas activities. DOGGR supervises the drilling, operation, maintenance, and plugging and abandonment of onshore and offshore oil, gas, and geothermal wells, preventing damage to: (1) life, health, property, and natural resources; (2) underground and surface waters suitable for irrigation or domestic use; and (3) oil, gas, and geothermal reservoirs. DOGGR's programs include: well permitting and testing; safety inspections; oversight of production and injection projects; environmental lease inspections; idle-well testing; inspecting oilfield tanks, pipelines, and sumps; hazardous and orphan well plugging and abandonment contracts; and subsidence monitoring. DOGGR's regulation of the injection well near Stockdale East, in accordance with DOGGR's Underground Injection Control Program, is described in the Draft EIR on pages 3.8-12 and 3.8-13. In addition, DOGGR implements other rules and regulations that apply to oilfields and surface oil spills. For example, DOGGR's San Joaquin Valley Oil Spill Reporting Criteria (ftp://ftp.consrv.ca.gov/pub/oil/regulations/field_rule.pdf) would ensure that oilfield operators notify the State Office of Emergency Services within 24 hours of any discharge of one barrel of oil or petroleum products to land (DOGGR, 1998). The operators of the oilfield facilities on Stockdale East would be required to comply with all applicable regulations, including those pertaining to hazardous material spills and remediation.

KCWA-18

The comment states that Mitigation Measure HAZ-3 (preparation of a Phase I Environmental Site Assessment (ESA)) is deferral of analysis because the measure might not be effective at reducing potential impacts to the third Stockdale project site.

The full text of Mitigation Measure HAZ-3 is included on page 3.8-16 of the Draft EIR, and indicates that after a Phase I ESA is prepared, "the construction contractor shall be informed of potential hazards and shall develop appropriate plans to avoid or remediate hazards," which would reduce any potential impact. Also, The Phase I ESA would be used to determine whether a future site is feasible for groundwater recharge. If there are hazards and contamination identified through the Phase 1 ESA that cannot be remediated, the site would not be acquired for the

project. Further, as identified in Chapter 1 on page 1-2 and Chapter 3 on page 3-2, if and when the third Stockdale project site is identified, subsequent project-level environmental review will be conducted pursuant to *CEQA Guidelines* Section 15168(c).

KCWA-19

The comment states that there is no citation for the following statement on page 3.9-4 of the Draft EIR: "Recharge and recovery activities will generally increase the gradient during the early period of a recharge event due to the effective mounding of the groundwater table and decrease, flatten, or even reverse during a recovery period." The comment requests a citation and further explanation for this conclusion.

In response to the comment, a citation has been added to Section 3.9 on page 3.9-4 as follows:

> Recharge and recovery activities will generally increase the gradient during the early period of a recharge event due to the effective mounding of the groundwater table and decrease, flatten, or even reverse during a recovery period (THC, 2011).

KCWA-20

The comment states that there is no explanation or citation in the Draft EIR for the following statement on page 3.9-7: "Aquitards at depth can impede recharge efforts; however on the Kern Fan and in the project area, these layers impede but do not prevent recharge and recovery operations." The comment states that further explanation is needed in light of the fact that the third Stockdale project site has not been identified.

In response to the comment, the text of the Draft EIR has been modified for clarity on page 3.9-7 as follows:

> Volumetric recharge rates are controlled by the porosity and permeability of the subsurface materials and total pond area. Throughout the Kern Fan Area and including the area of the third Stockdale project site, existing borehole lithologic data shows that subsurface sediments are highly stratified (i.e. layered) with layers of permeable sand and gravel interbedded with less permeable silt and clay (THC, 2011). The less permeable layers are referred to as aquitards, which impede the vertical flow of water (recharge) but do not prevent it. ~~Aquitards at depth can impede recharge efforts; however on the Kern Fan and in the project area, these layers impede but do not prevent recharge and recovery operations.~~ The porosity of near surface soils tend to be very important to sustaining long term recharges operations. Pore spaces can eventually become clogged with finer grained material transported by the recharge water or by bio-growths found within the recharge water. Local project operators periodically scrape or treat their ponds to remove clogging deposits and encourage the growth of certain types of plants which keep the near-surface soil structure open and porous.

Successful recharge of the regional aquifer system has been demonstrated in the area of the third Stockdale project site through historical recharge and recovery operations at Rosedale's West Basins, Enns Ponds, and Superior Basins, despite the presence of aquitards in the subsurface.

KCWA-21

The comment states that the Draft EIR should identify areas where Corcoran clay exists within the third Stockdale project site boundary identified on Figure 2-1. The comment states that if the third Stockdale project site is to be located in an area with Corcoran clay, stormwater runoff may be created and less recharge will be able to occur on the site.

As stated on pages 3.9-3 and 3.9-9 of the Draft EIR, Corcoran Clay is not present in the Kern Fan area west of Bakersfield and does not underlie the project area. Comparison of the third Stockdale project site boundary with the extent of the Corcoran Clay as depicted in the Regional Geologic Structure Related to Ground Water Aquifers in the Southern San Joaquin Valley Ground Water Basin (KCWA, 1991), shows that the entire site boundary is outside the limits of the Corcoran Clay.

KCWA-22

The comment states that the Draft EIR improperly assumes that water quality samples taken from two wells Stockdale East and Stockdale West adequately reflect the water quality for the third Stockdale project site. The comment states that the Draft EIR should analyze water quality at the third Stockdale project site in order to analyze the potential for groundwater contamination from an existing oil well or some other source, such as the Hondo Chemical plant. The comment states the analysis should be based on a broader range of well samples. The comment also states that the potential impacts of farming on banking lands may increase the risk of groundwater contamination and such an impact should be analyzed, or farming should not be allowed on banking lands.

A description of groundwater quality and the factors affecting regional groundwater quality in the vicinity of the Stockdale properties is included in the Draft EIR on page 3.9-8. The wells on Stockdale East and Stockdale West were sampled to provide more specific information about water quality directly beneath the project sites. As discussed in Chapter 3.9 on page 3.9-11, given the proximity of the two wells to the identified radius of the third Stockdale site, they are also assumed to be reflective of water quality constituents that would be experienced at the third site. This is reasonable given the distance between Stockdale East and Stockdale West relative to the scale of the third site radius and the similarity of existing land uses at Stockdale East and Stockdale West relative to land uses within the third site radius (i.e., primarily agriculture). Once the third Stockdale project site is identified however, additional analysis related to water quality would be required and a Phase I Environmental Site Assessment also would be required in accordance with Mitigation Measure HAZ-1. During selection of the third Stockdale site, water quality and any contamination would be a critical factor in determining feasibility of a project location, since as stated on page 3.9-21 of the Draft EIR, once extracted, any groundwater pumped from the Stockdale properties would be introduced into the CVC and the California Aqueduct and would be subject to the pump-in water quality requirements imposed by the KCWA and DWR. Proximity to the Hondo Chemical site is addressed in the Draft EIR on page 3.8-2 and 3.9-11.

Please refer to response to KCWA-8 for a discussion of potential impacts to groundwater related to farming.

KCWA-23

The comment states that water quality for wells tested for the proposed project exceed or are at the maximum containment level (MCL) for gross alpha, and expresses concern about introduction of such contaminants into the Cross Valley Canal (CVC). The comment also states that Rosedale should notify Improvement District No. 4 (ID4) of any water entering the CVC that is above MCLs, and that the EIR should analyze whether introduction of such water will require treatment or mitigation as a result of increase of gross alpha levels.

The gross alpha levels in the groundwater underlying the project area are just at or slightly above the MCL requirements; the groundwater could benefit from the high quality surface water to be used for recharge (see Draft EIR page 3.9-21). As explained on page 3.9-21, it is IRWD's and Rosedale's responsibility to ensure that the water quality introduced into the CVC is sufficient to meet KCWA and DWR requirements. Any water that does 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 canals. As such, no treatment facilities are proposed as part of the proposed project.

KCWA-24

The comment cites legal principles with reference to California case law [*Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439] which decided the issue of whether an agency may omit environmental analysis of impacts on existing conditions and instead use only a baseline of projected future conditions. This comment also questions whether the Draft EIR relies upon projected future conditions as the baseline in its analysis of project-related groundwater level impacts.

The Draft EIR does not use projected future conditions as the baseline for evaluating impacts on groundwater (or any other resource), and thus, the cited case law is not applicable. The baseline used to determine the projects impacts on groundwater levels was from 2004 through 2010. The reasons for selecting this baseline are explained in the Draft EIR (Section 1.4.2 pages 1-6 and 1-7; Section 3.9.1 pages 3.9.1, 3.9.8-3.9.9; Section 4.3 page 4-15). As is explained in the Draft EIR, groundwater levels in the project area can be highly variable (Section 3.9.1 page 3.9.9). Use of the 2004 through 2010 time period ensures that an outlier or transitory condition is not used as the baseline condition out of context and provides the public with more accurate information about potential impacts resulting from project operations. Groundwater levels in the project area experienced both historical highs and lows during the subject period. Superimposing the project's recharge and recovery operations onto the historical highs and lows ensures that the potential impacts are realistically considered.

In response to the comment the text of the Draft EIR has been modified for clarity on page 3.9-9 as follows:

> Significant changes in groundwater levels have occurred during the various recharge and recovery cycles in the project area since 1995 when the Kern Water Bank and Pioneer Project began operations. Extreme changes occurred between 2007 and 2010 when groundwater levels fluctuated as much as 246 feet between historical high levels

in 2007 and historical low levels in 2010 (THC, 2015). These conditions have been recorded at nested monitoring wells in the project area where water levels fluctuated from highs of approximately 282 to 305 feet amsl to lows of approximately 36 to 73 feet amsl (**Figure 3.9-2**); given ground surface elevations are approximately 314 to 328 amsl at the monitoring well locations, this translates into high groundwater levels of approximately 31 to 32 feet below ground surface (bgs) and low groundwater levels of approximately 253 to 273 bgs. For the purpose of identifying the potential effects of the proposed project on a range of conditions, including historical low groundwater levels, the period from 2004 through 2010 is selected as the baseline on which to superimpose proposed recharge and recovery conditions in order to determine the greatest potential impacts on water levels ~~assuming the historical groundwater record represents the range of potential groundwater level conditions that could be expected in the future~~. Use of the 2004 through 2010 time period ensures that an outlier or transitory condition is not used as the baseline condition out of context and provides the public with more accurate information about potential impacts resulting from project operations. The baseline historical groundwater conditions include recharge and recovery operations from nearby existing banking projects (e.g., Kern Water Bank, Pioneer Project, Rosedale-Rio Bravo Water Service District, etc.) including the more recently operating Strand Ranch Project.

KCWA-25

The comment states that the analysis of water quality for Impact HYDRO-5 relies on water quality samples from just two wells on Stockdale East and Stockdale West which may not reflect actual water quality beneath the third Stockdale site. The comment states that without additional water quality studies the conclusion that the introduction of surface water into the shallow zone will improve water quality is not based on substantial evidence. The comment also expresses concern about potential water quality impacts related to migration of known contaminants due to proximity to Hondo Chemical.

Please refer to response to KCWA-22 for a discussion of the use of water quality samples from Stockdale East and Stockdale West to characterize groundwater quality in the project area, including the third Stockdale site. The comment cites an impact conclusion for HYDRO-1 on page 3.9-22 rather than the impact conclusion for HYDRO-5. The discussion under Impact HYDRO-5 includes a comparison of water quality constituents in surface water supplies to be used for recharge to groundwater quality at Stockdale East and Stockdale West (Table 3.9-2, page 3.9-31). The data demonstrate that the water quality of the surface water sources for groundwater banking is in general lower in constituent concentrations than that of the local groundwater. This is the justification for the conclusion that proposed recharge with surface water supplies may improve groundwater quality.

In response to the comment, language has been added to clarify the impact conclusion for Impact HYDRO-1 as follows:

Page 3.9-22:

> The proposed recharge activities ~~would likely~~ may improve underlying groundwater quality through the blending of high quality surface water such that no adverse effect on water quality would be anticipated (see discussion under Impact HYDRO-5). In addition, the pump-in water quality requirements would ensure that water introduced into the CVC and California Aqueduct would meet KCWA and DWR requirements.

In response to the comment, language has been added to clarify the impact conclusion for Impact HYDRO-5 as follows:

Page 3.9-32:

> The surface water sources for recharge generally have constituent concentrations that are lower than the underlying groundwater or well below drinking water MCLs, and therefore with blending, recharge would not substantially degrade water quality below drinking water standards and may improve groundwater quality ~~would likely improve~~. The transport, use, and disposal of pesticides at Stockdale East, Stockdale West, and the third Stockdale project site would also be done in accordance with applicable regulatory requirements, including regulations specific to application of pesticides within recharge basins and in proximity to wellheads. Mitigation Measure HAZ-1 would require that samples of soils at the Stockdale East property are analyzed and removed appropriately if soils contain hazardous quantities of contaminants. Therefore impacts to water quality would be considered less than significant with mitigation.

Proximity to the Hondo Chemical site is addressed in Section 3.8 on page 3.8-2 and in Section 3.9 on page 3.9-11.

KCWA-26

The comment states that for Mitigation Measure HYDRO-2, the use of a geotechnical engineer to determine whether conditions might pose a risk to subsurface structures is deferral of analysis. The comment states that the mitigation measure should state how and under what circumstances subsurface structures will be determined to be at risk through use of performance standards. The comment states that the mitigation measure does not state how or who will determine that a threat no longer exists before the project may continue operations, and that the mitigation measure should include specific performance standards for resuming operations.

Mitigation Measure HYDRO-2 states that the geotechnical engineer will identify "the critical depth at which shallow groundwater would pose a threat to the stability of CVC structures." Since KCWA will approve the monitoring plan, KCWA will have ultimate approval authority over such performance standards. The mitigation measure requires specific monitoring protocols to be developed to prevent groundwater from reaching such a critical depth. The measure states that "the monitoring plan also shall identify the depth at which project operation would cease such that the critical depth would not be reached and the conditions under which project operation could resume." Since KCWA will approve the monitoring plan, KCWA will have ultimate approval authority over such performance standards.

KCWA-27

The comment states that there is no discussion of the impacts related to continuing agricultural operations and groundwater contamination at the Stockdale properties.

This potential impact is discussed in the Draft EIR on pages 3.8-11 to 3.8-13 and 3.9-31 to 3.9-32. See also response to KCWA-8 and KCWA-14.

KCWA-28

The comment references and summarizes some of the issues decided in a 2010 lawsuit initiated by Rosedale against the Kern Water Bank Authority (and others) challenging the extent and level of CEQA review for the Kern Water Bank project.

In the litigation the Court ruled that the Department of Water Resources' EIR for the Kern Water Bank project failed to adequately describe, analyze, and (as appropriate) mitigate the potential impacts of the project associated with the anticipated use and operation of the Kern Water Bank, particularly as to potential groundwater and water quality impacts. The Court also ruled that the mitigation measures in the MOU cannot, by themselves, serve to mitigate any potentially significant impacts that may be identified (emphasis added). The Draft EIR does not conclude that the mitigation measures in the MOU do, by themselves, serve to mitigate potentially significant impacts from the project. Instead, the Draft EIR reaffirms Rosedale's commitment to abide by the terms of the MOU (Section1.5.2 page 1-12). Please refer to response to KCWA-13 for discussion of the relationship of the MOUs and LTOP to the proposed project.

KCWA-29

The comment states that Rosedale should clarify how the agency intends to comply with the MOU's requirements, if the MOU is indeed a project feature and not a mitigation measure. The comment also states that if the MOU requirements are non-binding, the EIR should be clarified to identify the worst-case scenario impacts.

Please refer to response to KCWA-13.

KCWA-30

The comment states that the groundwater modeling analysis in Appendix E of the Draft EIR does not take into consideration the third Stockdale project site, and that the Draft EIR should clarify how the impacts to groundwater due to operation of the third Stockdale project site are accounted for.

Please refer to response to KCWA-4 through KCWA-6, KWBA-4, KWBA-11, and KWBA-16.

KCWA-31

The comment requests clarification regarding the proximity of the Kern River and associated floodplain to the third Stockdale project site.

The comment mentions the reference to the floodplain in Chapter 3.10 Land use and Planning. Impacts related to flood hazards are discussed in Chapter 3.9 Hydrology and Water Quality, as part of Threshold 8. 100-Year Flood Hazard Areas on page 3.9-33. The analysis concludes that

except for a small area in the northwest corner of the third Stockdale site radius the project area is not located within a 100-year flood hazard area. Mitigation Measure HYDRO-3 would ensure that any new development associated with the third Stockdale site would not impede or redirect flood flows, either by requiring the project design to avoid flood hazard areas or by designing the project in accordance with the Kern County Floodplain Management Ordinance to ensure flood hazards or flood elevations on neighboring parcels are not significantly altered.

The Draft EIR has been modified as follows on page 3.10-1 to delete reference to the Kern River floodplain from Chapter 3.10 Land Use and Planning:

> The Kern River ~~and floodplain~~, the dominant natural feature in the vicinity of the Stockdale Properties, is located approximately 2.5 miles south and east of the project sites.

KCWA-32

The comment states that little information is provided in the Draft EIR on zoning of land within the third Stockdale site radius. The comment states that the Draft EIR does not indicate whether the third Stockdale project site is actually used for agriculture, and whether the General Plan land use designation is different from zoning. The comment also states that the Draft EIR does not address how the project conforms or conflicts with any applicable habitat conservation plan, specifically the Metropolitan Bakersfield Habitat Conservation Plan.

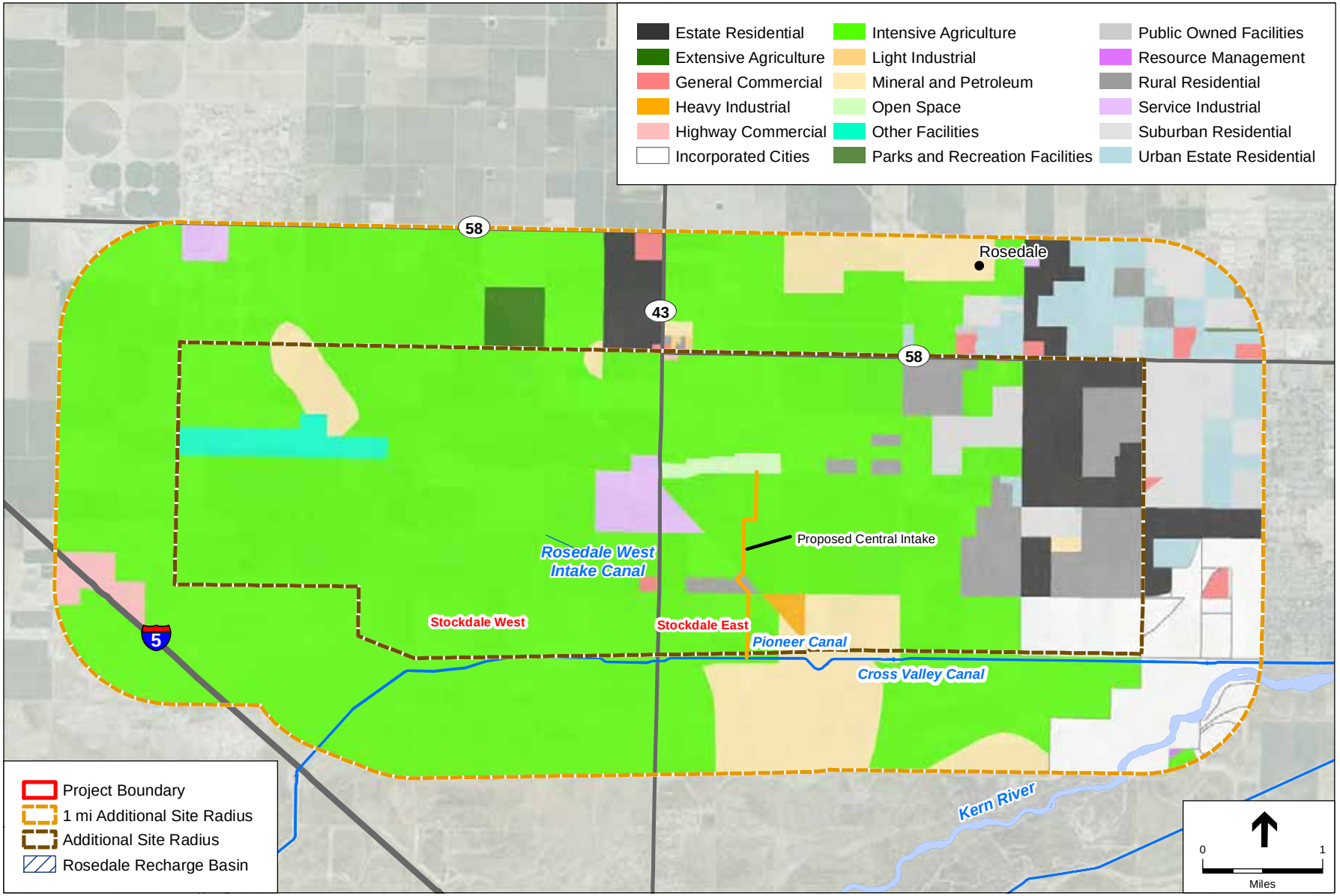
The majority of lands within the third Stockdale project site boundary are currently being used for agriculture (see aerial photo in Figure 2-1). If and when the third Stockdale project site is identified, the specific zoning for that site and General Plan land use designation will be analyzed. The General Plan land use designations and zoning designations within the third Stockdale site radius are shown in the Draft EIR in Figures 3.10-1 and 3.10-2. According to the land use and planning *CEQA Guidelines* thresholds, zoning and General Plan land use classifications are required to be consistent.

Figure 3.10-3 shows the Metropolitan Bakersfield Habitat Conservation Plan boundaries. Potential conflicts with the Metropolitan Bakersfield Habitat Conservation Plan are discussed on page 3.10-11 and 3.10-12, under Threshold 3.

KCWA-33

The comment states that Figures 3.10-1 and 3.10-2 should also include land use designations for the property directly adjacent to the outside border of the radius for the third Stockdale project site, in the event that the location of the third Stockdale project site is on the border of the radius shown. The comment also recommends including a discussion of surrounding land uses on properties adjacent to the border for the third Stockdale project site, so that impacts with applicable land use plans can be assessed in Impact LU-1.

In response to the comment, Figures 3.10-1 and 3.10-2 have been revised in Section 3.10, and a discussion of land uses extending one mile from the third Stockdale project site boundary has been added to pages 3.10-3 and 3.10-10, as follows:

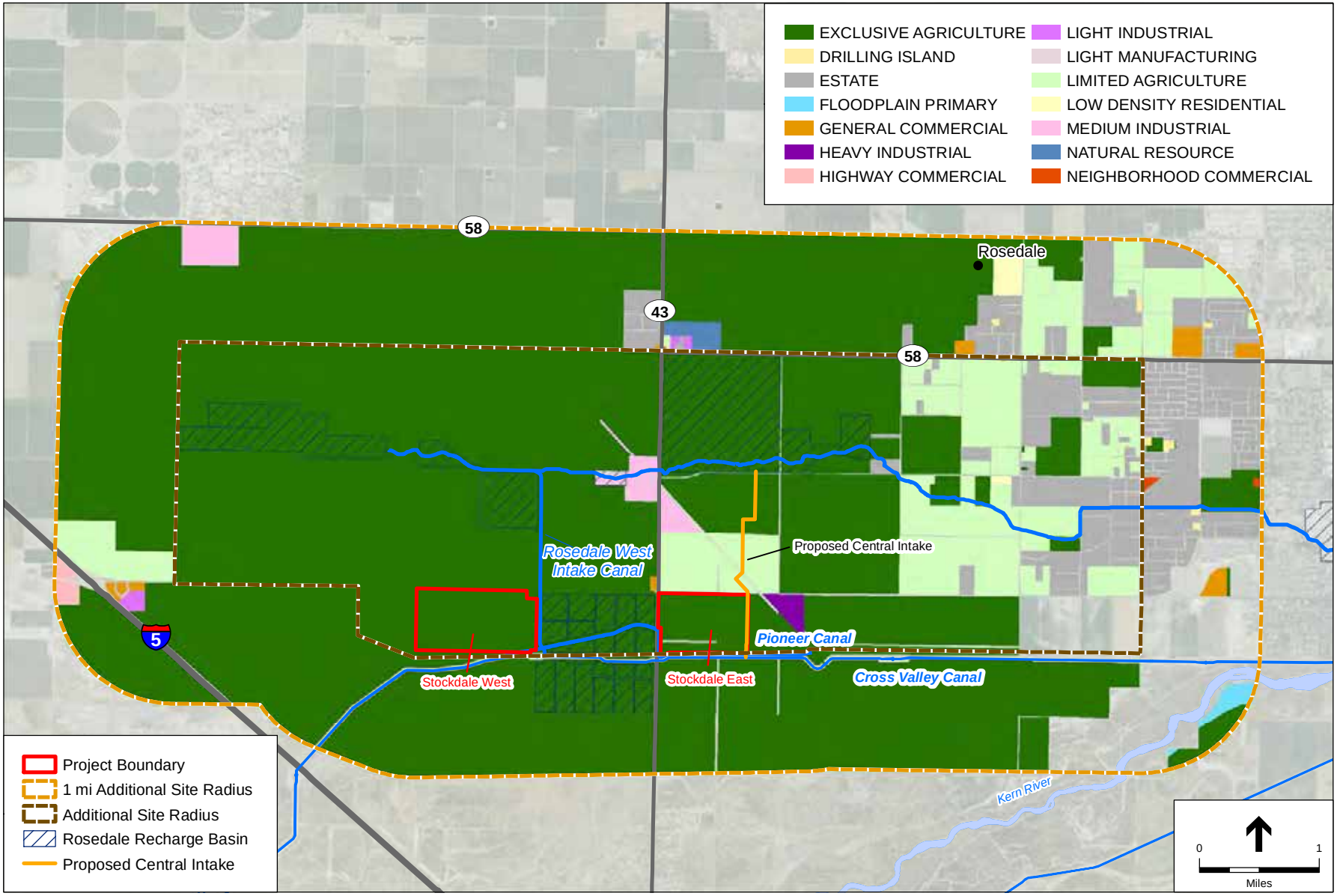


SOURCE: ESRI 2013, Kern County 2013

Stockdale Integrated Banking Project . 211181

Figure 3.10-1

General Plan Land Use Designation



SOURCE: ESRI 2013, Kern County 2013

Stockdale Integrated Banking Project . 211181

Figure 3.10-2

Kern County Zoning Designation

Third Stockdale Site

The third Stockdale project site would be located within a site radius as shown on Figure 3.10-1, and is anticipated to be primarily agricultural land. The majority of land within and adjacent to the outside border of the radius is designated Intensive Agriculture by the Kern County General Plan and is zoned Exclusive Agriculture, similar to Stockdale East and Stockdale West.

Third Stockdale Site

The location of the third Stockdale project site has not yet been determined. Land within the site radius shown on Figure 3.10-1 is primarily Intensive Agriculture, similar to both the Stockdale East and Stockdale West properties. As shown on revised Figure 3.10-1, land on the outside border of the radius for the third Stockdale project site is similar to land designated within the radius: Intensive Agriculture. As shown on Figure 3.10-2~~.~~, land within the site radius is zoned primarily Exclusive Agriculture. As shown on Figure 3.10-2, land on the outside border of the radius for the third Stockdale project site is similar to land zoned within the radius: Exclusive Agriculture. It is anticipated that the third Stockdale project site would be located on agricultural land designated as Intensive Agriculture by the Kern County General Plan, which allows for groundwater recharge facilities. Kern County Setback and mid-section line requirements would be adhered to, similar to Stockdale East and Stockdale West.

KCWA-34

The comment states that the Draft EIR indicates that light industrial, commercial use, and mineral extraction use exist in the project area. The commenter requests that these uses be identified and whether the project would interfere with them.

These land use categories and specific locations are shown in Figures 3.10-1 and 3.10-2. The figures include land use categories for industrial, commercial, and mineral and petroleum as shown in the legends. Project features would not interfere with these land uses.

KCWA-35

The comment states that the discussion under Land Use Impact 1 does not take into account the fact that the unidentified third Stockdale project site may be located in or nearby the residential areas shown on Figure 3.10-1. The commenter suggests that the Draft EIR be updated to explain whether the proposed project would divide an established community.

The analysis on page 3.10-9 of the Draft EIR states that the project features, including the third Stockdale project site, would be located in an agricultural and rural residential community, and that construction of project facilities would be consistent with existing community land use and would not serve to divide an established community per *CEQA Guidelines* Appendix G, Land Use and Planning thresholds.

KCWA-36

The comment states that the discretionary approval identified for use and modification to the CVC should be analyzed under impact UTIL-1, specifically related to whether the project would

require new or expanded water supply resources or entitlements. The comment also questions whether modifications to the CVC would impair service and use of the canal and for how long, and questions what mitigation Rosedale intends to provide to address the impacts. The comment also questions whether the CVC has sufficient capacity to accommodate the project.

The concerns presented in the comment are not environmental issues required to be addressed under the *CEQA Guidelines* Appendix G thresholds, and are not directly applicable to impact UTIL-1 related to water supply resources or entitlements. Section 2.5.3 of the Draft EIR indicates that any proposed turnout facilities associated with the CVC would be constructed within the CVC right-of-way and subject to approval by KCWA.

KCWA-37

The comment states that the alternatives analysis should be revised to explain why each alternative either meets or does not meet the project objectives. The commenter also states that the alternatives analysis should be revised after revisions to the Draft EIR are made per the comments above.

The alternatives considered but rejected are included in the Draft EIR in Section 6.2.1. According to *CEQA Guidelines* Section 15126.6(c), factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet more of the project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts. The analysis of alternatives considered but rejected in Section 6.2.1 are substantiated by at least one of these considerations.

The revisions made to the Draft EIR in response to this comment letter do not change the alternatives analysis because new significant impacts previously unknown or recorded have not been identified.

KCWA-38

The comment states that Rosedale must provide details regarding available funding sources and budget constraints, before rejecting alternatives on economic grounds.

Information about funding and budgets is not required to be presented in the alternatives analysis. The comment is noted for the record.

KCWA-39

The comment states that KCWA objects to Rosedale's approval of the project until issues indicated in the comment letter are addressed in a manner "required by CEQA."

All comments provided by KCWA have been addressed above as required by CEQA.

Letter 5: City of Bakersfield

City-1

The comment states that the City of Bakersfield (City) generally supports the goals and purposes of the proposed project.

The comment is noted for the record.

City-2

The comment expresses concern that the proposed project would involve the transfer of local water supplies out of Kern County to a large Southern California urban water district, and that the project proposes out-of-county water sales or transfers to the detriment of the local environment.

Neither characterization is accurate. As explained in the Draft EIR, the proposed project consists of the construction and operation of recharge and recovery facilities on certain lands owned by Rosedale and IRWD (Section S.4 page S-5 and Section 2.1 page 2-1). For Rosedale, the proposed project would augment the recharge, storage, and extraction capabilities of its Conjunctive Use Program and provide greater operational flexibility assisting Rosedale in fulfilling its mission of maintaining groundwater levels within its service area (Section 2.3 page 2-3). For IRWD, the proposed project would enhance water supply reliability by providing contingency storage to augment supplies during periods when other supply sources may be limited or unavailable (Section 2.3 page 2-3). The Project Description does not include any transfer of local water supplies to IRWD nor does it propose any out-of-county water sales or transfers at all. Therefore, the suggested impacts to the local environment associated with transfer or sale of local water supplies are non-existent.

Water recharged in the project for later recovery by IRWD may or may not include Kern River water. As to the use of Kern River water for project purposes, it is only proposed when available from water right holders under banking or temporary water service agreements (Section 2.4.2 page 2-9) or when the Kern River is in high-flow conditions (Section 2.4.2 page 2-10). As explained in the response to City-77, the entities with Kern River water rights are responsible for developing programs that demonstrate how Kern River water will be used, and for preparing environmental documentation that evaluates the impacts of such programs. In response to the comment, clarification has been made to the Draft EIR on page 2-8:

> ~~Should water from the sources listed below, or other sources, not suggested below be acquired for recharge, additional analysis may be required. subject to the discretion of Rosedale and IRWD.~~ Rosedale and/or IRWD will analyze the use of identified sources for project purposes to determine the need for and/or extent of future analysis under CEQA.

With regard to the comment's reference to the potential detriment to the local environment from such use of Kern River water, as mentioned above the Kern River is not the primary source, and the project is not dependent on the availability of Kern River water at any particular time or at all, to supply recharge water for the proposed project. Surface water hydrology and water quality for the Kern River are generally described in the Draft EIR on pages 3.9-2 to 3.9-3. The proposed project itself would not change patterns or practices of water diversion from the Kern River, and as such, would not affect flow in the Kern River. The proposed project may recharge Kern River water provided by agencies with existing water rights, such as the City, as described on page 2-9 to 2-10 of the Draft EIR. As stated above, agencies with rights to Kern River water are responsible for developing programs for use of Kern River water and evaluating the impacts of

such programs, which may include transfer or exchange of Kern River water with agencies such as Rosedale.

The Draft EIR discusses the potential impacts of using the water sources for groundwater recharge on pages 3.14-6 through 3.14-7. The Draft EIR states that the project does not require a new water supply and as such would not affect local water supplies. The proposed project would use water from the SWP and CVP depending on availability; such opportunistic use of water would not affect other water users or local water supplies. The proposed project would use appropriative water rights, including pre-1914 and post-1914 water rights and other Kern River water also depending on availability. As stated in the Draft EIR, pre-1914 and post-1914 water rights can be transferred to other parties as long as legal users of water are not injured ("no injury rule," per Water Code Sections 1706 and 1702). The Draft EIR explains how the State Water Resources Control Board (SWRCB) supervises transfers of appropriative water rights, and when the SWRCB is required to make a finding that the transfer will not result in unreasonable effects on fish or wildlife or other in-stream beneficial uses. As stated in the Draft EIR on page 3.14-6:

> The "no unreasonable effect" test is not the same as the evaluation of significant impacts under CEQA (SWRCB, 1999). Should the use of such post-1914 appropriative water rights require evaluation of impacts to legal users and other environmental considerations, additional analysis may be required. Otherwise, given that transfers of appropriative water rights are subject to the approval of the transferring agency, and at times the SWRCB, and that the water code requires a finding of no injury, and at times a finding of no unreasonable effect, the uses of such waters for recharge would not result in significant impacts.

The entities with Kern River water rights are responsible for developing programs that demonstrate how Kern River water will be used, and for preparing environmental documentation that evaluates the impacts of such programs. Kern River water utilized by the proposed project would occur consistent with the requirements of such environmental documentation. As such, the environment in and around the Kern River, including plant and animal life and aquifer underlying the Kern River, would not be affected by the proposed project. See also responses to City-10 and City-60.

City-3

The comment introduces the City's concerns regarding the Draft EIR, stating that the document does not comply with CEQA and is deficient for various reasons, namely: (1) the Draft EIR does not comply with the policy, purpose or specific requirements of CEQA; (2) the Draft EIR omits or obscures details of the proposed project and as such fails to disclose all potential impacts of the project; (3) the Draft EIR and fails to consider reasonable, feasible alternatives for the proposed project including the "no project" alternative.

The Draft EIR reflects a good faith effort to investigate and disclose environmental impacts of the project in full compliance with the requirements of CEQA. The Draft EIR presents background information about the proposed project in Chapter 1 and clearly presents an overview of the proposed project – the Stockdale Integrated Banking Project – in Chapter 2, including the

project's purpose and objectives on pages 2-3 and 2-4. The environmental impacts of the project are documented in Chapters 3 through 5, along with accompanying appendices. The Draft EIR includes an Alternatives Analysis in Chapter 6, including the No Project Alternative on pages 6-7 and 6-8. As documented in the Draft EIR, the proposed project would have no significant, unavoidable, or irreversible environmental impacts to the local environment or to local or regional water resources and supplies.

CEQA does not require technical perfection in an EIR, but rather adequacy, completeness, and a good-faith effort at full disclosure. [14 Cal. Code Regs. §§ 15003(i)]. A court does not pass upon the correctness of an EIR's environmental conclusions, but only determines if the EIR is sufficient as an informational document. [*Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 711]. Rosedale has complied with CEQA by providing an adequate, complete, and good-faith effort at full disclosure in the Draft EIR and supporting technical documents. [14 Cal. Code Regs. §§ 15003(i), 15151; *Browning-Ferris Industries v. City Council* (1986) 181 Cal.App.3d 852, 862: "where a general comment is made, a general response is sufficient"; see also, *Eureka Citizens for Responsible Government v. City of Eureka* (2007) 147 Cal.App.4th 357, 378: "Responses to comments need not be exhaustive; they need only demonstrate a 'good faith, reasoned analysis.' (Citations)"].

City-4

The comment states that the fundamental purpose of an EIR is to provide public agencies and general public with detailed information about the effects of a proposed project on the environment. Further, that CEQA analysis is intended to afford the fullest possible protection of the environment. The comment states that Rosedale has attempted to (i) obscure and hide the details of the proposed project; (ii) avoid addressing the actual goals and purpose of the proposed project; and (iii) avoid or minimize any real analysis of the proposed project's impact on the environment. The comment further states that the proposed project will involve the transfer of local water supplies out of the area to Southern California. The comment further states that Kern County is again faced with a potential repeat of the events that occurred in the Owens Valley in the early part of the last century regarding water removal.

To the contrary, on September 24, 2013, a Notice of Preparation (NOP) for the proposed project was mailed to interested parties, responsible and trustee agencies, and the Office of Planning and Research, as explained in Section 1.4.1 of the Draft EIR on pages 1-5 and 1-6, and in Appendix A). The NOP was published in the Bakersfield Californian and Orange County Register, and a Notice of Completion (NOC) was sent to the State Clearinghouse. The NOP was made available for public review at the Beale Memorial Library in Kern County and the Heritage Park Regional Library in Orange County, and on IRWD's internet site: www.irwd.com. The NOP provided a general description of the facilities associated with the proposed project, a summary of the probable environmental effects of the project to be addressed in the EIR, and a figure showing the project location. The NOP provided the public and interested public agencies with the opportunity to review the proposed project and to provide comments or concerns on the scope and content of the environmental review document including: the range of actions; alternatives; mitigation measures, and significant effects to be analyzed in depth in the EIR. The 30-day project scoping period, which began with the distribution of the NOP, remained open through October 24, 2013.

During the scoping period two public scoping meetings were held on October 15, 2013 at IRWD's district office and on October 16, 2013 at Rosedale's district office, to allow agency consultation and public involvement for the Draft EIR. A public notice was placed in the local newspapers of general circulation in the Rosedale and IRWD service areas, the Bakersfield Californian and Orange County Register, to inform the general public of the scoping meeting and the availability of the NOP. The purpose of the meeting was to present to the public the proposed project and its potential environmental impacts. Attendees were provided an opportunity to voice comments or concerns regarding potential effects of the proposed project. Written and oral comments received during the scoping period were addressed in and made part of the Draft EIR.

The Draft EIR was made to contain a description of the proposed project, description of the baseline environmental setting for each resource listed in the Appendices F and G of the *CEQA Guidelines*, identification of project impacts (direct, indirect, and cumulative), mitigation measures for impacts found to be significant, and an analysis of project alternatives (Section 1.3 page 1-5, and Appendices B through H). More specifically, during the public comment period and during scoping session held for the proposed project, concerns were raised regarding potential adverse impacts to the following: water quality; special status species; water supply sources for the proposed project; and adverse impacts to the City's water supply and surrounding environment. As stated in the Draft EIR, these concerns have been considered during preparation of Chapters 3 and 4 of the Draft EIR (Section S. 6 page S-7).

Regarding transfer of local water supplies, and the comment associating the proposed project with the Owens Valley, please refer to response to City-2. In fact, by increasing groundwater recharge capacity in the Kern River Fan region, it is expected that the proposed project will enhance Rosedale's ability to capture and retain Kern River water within the basin that might otherwise be lost by flowing out of the region (Section 2.4.2 pages 2-9 and 2-10).

City-5

The comment states that the City's October 23, 2013, comments to the NOP set forth the City's initial concerns with the project, that the City attaches, incorporates and refers to such comments as part of the City's comments to the Draft EIR and does so because Rosedale had not adequately addressed or responded to the concerns and questions raised by the City in those comments. Rosedale received the City's comments to the NOP and considered the comments during preparation of the Draft EIR. The comment letter from the City is included in Appendix A to the Draft EIR. CEQA does not require a lead agency to respond to comments provided during the NOP review period. CEQA only requires the lead agency to send the NOP to OPR and to responsible and trustee agencies (14 Cal. Code Regs. §15082); the City is not a responsible or trustee agency. Consultation with the City has been conducted as part of the scoping process under CEQA (14 Cal. Code Regs. §15083).

The City's NOP comments are mostly duplicative of the comments to the Draft EIR. Nonetheless, responses to the City's NOP comment letter are provided in responses to City NOP-1 through City NOP-14, which follow these responses to the City's Draft EIR comments.

City-6

The comment states that sales and transfers of local water supplies out of the county are directly contrary to the policies and interests of the City, specifically a long standing policy most recently confirmed in 2001, that Kern River water shall not be utilized outside the boundaries of the San Joaquin Valley portion of Kern County.This project is not located in the City of Bakersfield and therefore is not governed by this policy. The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record.

City-7

The comment states that one of the objectives of the project is to increase IRWD's water supply, particularly to develop IRWD's groundwater recharge, storage and recovery capacity so as to provide increased water supply reliability for IRWD's customers. The comment states that the project would allow Irvine to maintain and utilize up to 88,000 acre feet of Kern County water storage facilities for its own use. The comment urges that development of a water supply for IRWD within Kern County would involve the exportation or transfer of local water supplies out of Kern County, and that the project would therefore violate the City's policy.

The water supply mentioned in the comment will not be used to increase IRWD's normal water supply. Rather, it will be used to enhance IRWD's water supply reliability by augmenting supplies that would be available during time of shortage such as drought or catastrophic failures (Draft EIR, pages 2-3 and 2-4).

The statement, "The project would allow Irvine to maintain and utilize up to 88,000 acre feet of Kern County water storage facilities for its own use" is incorrect. The project would provide IRWD with up to 26,000 acre feet (AF) of aquifer storage capacity under IRWD's Stockdale West project site. The aquifer storage capacity was evaluated in the Draft EIR, Appendix E (Thomas Harder & Co., 2015). In addition, IRWD will have access to an additional 50,000 AF of unused aquifer storage capacity within Rosedale's Conjunctive Use Project as described in the Draft EIR on page 2-4. The reference to 88,000 AF for IRWD's own use on page 2-3 includes the existing Strand Ranch property aquifer storage capacity. To sustain a major three-year interruption in imported water supplies, IRWD has determined that it needs to develop at least 88,000 AF of water in storage in its water banking program and up to 28,000 AF per year capacity to recover water under this short term shortage scenario.

The City comments that the project will directly violate the City's policy by transferring local water supplies out of the County to Orange County and will negatively impact the residents of the City and the entire region. With respect to City's policy and the claim that the project includes the transfer of local supplies to Southern California, see response to City-2 and City-6.

City-8

The comment states that Rosedale does not have legal authority to utilize Kern River water acquired from the City and/or from Isabella Reservoir during wet years for project purposes. The comment also states that any attempt by Rosedale to transfer Kern River water to IRWD, including Kern River water recharged and banked prior to recapture, would violate contractual commitments between Rosedale and the City.

The Draft EIR identifies several potential sources of recharge water including federal, state, and local supplies which may be acquired through transfers, balanced and unbalanced exchange agreements, purchase or temporary transfers, or other means as available (emphasis added). As indicated in Section 2.4.2 page 2-8, these sources could include the Central Valley Project (CVP), the State Water Project (SWP), high-flow Kern River water depending on annual availability and appropriative (pre-1914 and post-1914) water rights (emphasis added). It is the intent of the Draft EIR to evaluate impacts of recharging water from all such sources to the extent that they are reasonably foreseeable (Section 2.4.2 page 2-8). Considering the larger project, even if some portion thereof is subject to legal challenge, avoids the pitfall of piecemeal review which is clearly prohibited. [See *California Native Plant Society v. City of Rancho Cordova* (2009) 172 Cal.App.4th 603, 619-620; *Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 165; *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 114; *Plan for Arcadia, Inc. v. City Council of Arcadia* (1974) 42 Cal.App.3d 712, 726]. Further, even if one or more legal challenge ultimately proves meritorious, such determination would not affect (i.e., increase) the environmental impacts of the proposed project. The Draft EIR examines the environmental effects of the larger project involving recharge water drawn from all known potential sources. If water from a particular source is unavailable for some reason, in whole or in part, recharge for project purposes may be reduced along with all associated environmental effects.

Regarding potential violation of contractual commitments, no such violation is contemplated or intended. As stated in response to City-2, the proposed project does not involve a transfer of Kern River water from Rosedale to IRWD. As stated in the Draft EIR, Rosedale intends to recharge such Kern River water as is or becomes available to it through banking and temporary water service agreements; and IRWD intends to recharge such Kern River water as is or becomes available to it through its arrangement with Buena Vista Water Storage District, which may be extended to include the proposed project (Section 2.4.2 pages 2-9 through 2-10). See also response to City-32.

Rosedale will attempt to respond to all comments. However, it should be noted that this comment seeks to raise issues which do not involve environmental impacts and are, therefore, beyond the scope and purpose of the Draft EIR. [*Mani Brothers Real Estate Group v. City of Los Angeles* (2007) 153 Cal.App.4th 1385, 1401: "The focus of CEQA, both procedurally and substantively, is 'solely ... the potential environmental impacts of a project"]. Such comments do not warrant or require a response. [*Browning-Ferris Industries v. City Council* (1986) 181 Cal.App.3d 852, 862: The EIR need not respond to each comment made during the review process, but it must specifically respond to the most significant environmental issues raised].

City-9

The comment states that neither Rosedale nor IRWD have a right or permit to divert and use Kern River flood flows which have been declared to be unappropriated water by the State Water Resources Control Board (SWRCB).

The Draft EIR addresses Kern River flood flows as a potential source of recharge water and recognizes that SWRCB involvement may be required (emphasis added) (Section 2.4.2 page 2-9, Section 3.14.3 page 3.14-7). See also response to City-8.

City-10

The comment states that, given the close relationship between Rosedale and the City, the proposed project will necessarily have significant impacts on the City and its water supply. The comment also states that the proposed project is located adjacent to the City's primary recharge facility, the 2800 Acre Recharge Facility "2800 Acres", and the Kern River, the City's primary water source. The comment also states that the City's water supplies are threatened by drought, increased pumping, and increased demand on local supplies, and opines that implementation of the proposed project will likely exacerbate the current adverse water conditions faced by the City, to the detriment of the City and its residents.

Impacts on the City resulting from the proposed project are expected to be less than significant. Among other things, the proposed project is consistent with the Metropolitan Bakersfield General Plan (December 2002), the Metropolitan Bakersfield Draft General Plan Update: Existing Conditions, Constraints, and Opportunities Report (April 2009), and the Metropolitan Bakersfield General Plan Update EIR (June 2002), as discussed in the Draft EIR in the following locations: Section 3.1.2 pages 3.1-4 to 3.1-5; Section 3.2.2 pages 3.2-7 to 3.2-8; Section 3.6.2 pages 3.6-11 to 3.6-12; Section 3.10.1 pages 3.10-1 to 3.10-2; Figure 3.10-1; Section 3.10.3 pages 3.10-10 to 3.10-11). Also, construction and operation of the proposed project does not conflict with the Metropolitan Bakersfield Habitat Conservation Plan to the extent applicable, as discussed in Section 3.4.3 pages 3.4-27 to 3.4-28; Figure 3.10-3; Section 3.10.3 pages 3.10-11 to 3.10-12. As stated in the Draft EIR, groundwater banking projects are designed to maintain a positive project balance such that no net water would be removed from the basin. The projects operate by recharging water in wet years and recovering water in dry years. Water banks only recover water up to the amount previously banked minus an amount to account for losses to the basin. Thus, long term trends have shown improvements in groundwater levels, when compared to a no-project condition (see Section 4.3 at page 4-14).

The proposed project facilities are neither adjacent to the 2800 Acre Recharge Facility nor the Kern River; they are nearly 2 miles from the 2800 Acre Recharge Facility and more than 3 miles from the nearest well that serves City citizens. Impacts to groundwater levels in areas in proximity to the project site that may affect City citizens were evaluated in Draft EIR Appendix E. At the closest well the impacts are expected to be less than 5 feet (Appendix E, Figures 15-18, 23-26). See also responses to City-83 and City-84.

Regarding threatening of water supplies and exacerbation of the City's adverse water conditions, the opposite is true. As stated in the Draft EIR, California has responded to the very concerns expressed by the City by enacting the Sustainable Groundwater Management Act of 2014. Prominent among the measures intended to avoid continued groundwater decline is the development and implementation of conjunctive use programs utilizing underground storage, such as the proposed project. Thus, it is specifically provided that every Groundwater Sustainability Plan shall include where appropriate "[a]ctivities implementing, opportunities for,

and removing impediments to, conjunctive use or underground storage" (CWC Section 10727.4(f)). (See also Draft EIR, Section 3.9.2, page 3.9-17). To repeat, water banks only recover water up to the amount previously banked minus an amount to account for losses to the basin. Thus, long term trends have shown improvements in groundwater levels, when compared to a no-project condition (Section 4.3 page 4-14). By augmenting the recharge, storage and future extraction capacities of Rosedale and IRWD, the proposed project supports Governor Jerry Brown's conservation initiatives by providing water supply reliability for future conditions. If the residual impacts of the California drought continue into the future, the proposed project will assist in providing a reliable water source to ameliorate effects of the 2014 drought (Section 2.3 page 2-4).

City-11

The comment states that the City is concerned that Rosedale is proposing to implement a new project that will involve further extraction at already depleted and threatened local groundwater resources. The comment includes an excerpt from Governor Jerry Brown's Executive Order from April 1, 2015, which states that California's water supplies are severely depleted due to the drought including "shrinking supplies in underground water basins."

As described in Chapter 2 of the Draft EIR on page 2-4, the proposed project supports Governor Jerry Brown's conservation initiatives in response to the State of Emergency declared in January and April of 2014, by providing water supply reliability for future conditions. The proposed project will not affect the availability of water during the current and ongoing drought because water must be recharged prior to extraction; and water for recharge is not expected to be available during dry conditions. The proposed project would not compete for limited dry-year water supplies. The project would provide benefits during future drought periods by providing additional opportunities to replenish the basin when supplies are available for recharge in project facilities.

The proposed project is a groundwater banking project and would result in a net benefit to the groundwater basin, given that any water pumped from the underlying basin would be water previously recharged and stored as part of Rosedale's Conjunctive Use Program. The proposed project serves to recharge water during average and above-average hydrologic conditions so that during future periods when water supplies are constrained, such as during the current ongoing drought, water is available to mitigate shortages.

City-12

The comment states that the State of California has recently adopted the Sustainable Groundwater Management Act (SGMA) to address and alleviate adverse groundwater conditions in the State. The comment states that the SGMA calls for sustainable management of groundwater resources and the California Department of Water Resources (DWR) has identified the Kern County sub-basin as being in a critical condition of overdraft.

The comment does not specifically address the Draft EIR. The SGMA is described in the Draft EIR on page 3.9-17 and 3.9-18. The SGMA does not preclude implementation of conjunctive use

programs such as the proposed project. For a further discussion of SGMA, please refer to response to City-10.

City-13

The comment states that the City relies on the groundwater basin as its primary source of drinking water and complains that unreasonable and unsustainable pumping of groundwater in the region threatens the quantity and quality of this supply. The comment also states that the City is concerned that a number of local water districts have reacted to recent drought conditions by pumping excessive and increasingly voluminous quantities of water from the local groundwater basin at a rapid and unsustainable rate.

The comment regarding unsustainable pumping does not specifically address the environmental analysis contained in the Draft EIR or project operations. The comment is noted for the record.

The comment expresses the view that such excessive pumping has dramatically lowered groundwater levels in the basin, negatively impacted City wells, and significantly accelerated overdraft conditions in the basin. Please refer to response to City-10.

City-14

The comment states that the City has experienced rapidly declining water levels in the 2800 acres, has had to lower well screens to keep wells operational, and has seen other wells in the vicinity of Rosedale go dry. The comment also disputes that the proposed project will only pump water that has been spread. The comment opines that banking projects (i) create demands and stresses on basins which practically have not been offset or alleviated by prior spreading; (ii) do not take into account pumping by other individuals and entities in the project area; (iii) do not take into account migration of the spread water out of the project area; and, as a result, (iv) fail to recognize that banked water is not actually available for extraction.

The comment about the City's 2800 acres wells does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record.

As stated in the Draft EIR, water banks only recover water up to the amount previously banked minus an amount to account for losses to the basin. Thus, long term trends have shown improvements in groundwater levels, when compared to a no-project condition (Section 4.3 page 4-14). It is not correct to say that the Draft EIR fails to take into account pumping by other individuals and entities in the project area since current pumping is included in the baseline upon which project impacts are evaluated (Chapter 3.9, page 3.9-22) and current and future pumping is included in the analysis of cumulative impacts (Chapter 4, Cumulative impacts, page 4-1). See also response to KWBA-3, City-63, and City-66. Neither is it correct to say that the Draft EIR ignores migration of stored water since the proposed project will be operated subject to Rosedale's MOUs which address, among other things, potential migration losses (Section 1.5.2 page 1-10; Appendix B-1 page 9; Appendix B-2 page 9).

City-15

The comment references a 2010 lawsuit initiated by Rosedale against the Kern Water Bank Authority (and others) challenging the extent and level of CEQA review for the Kern Water Bank project.

The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record.

City-16

The comment references a 2010 lawsuit initiated by Rosedale against the Kern Water Bank Authority (and others) challenging the extent and level of CEQA review for the Kern Water Bank project.

The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record.

City-17

The comment references a 2010 lawsuit initiated by Rosedale against the Kern Water Bank Authority alleging a breach of contract.

The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record.

City-18

The comment questions how Rosedale can ascribe negative environmental impacts to an "adjacent, similar banking project" and then claim that its own "nearly identical banking project" will not have the same negative environmental impacts.

The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment states that Rosedale has failed to comply with CEQA by (i) failing to disclose baseline conditions and (ii) failing to accurately or properly assess the impacts of its own banking and extraction program.

As required by *CEQA Guidelines* Sections 15125 and 15126, the Draft EIR in Chapter 3, beginning on page 3-1, provides an analysis of the environmental effects of the proposed project with respect to existing baseline conditions. Cumulative impacts of the proposed project are evaluated in Chapter 4. Regional and local baseline conditions were considered to be the time the NOP was published, with the exception of the baseline used to evaluate impacts to groundwater. The groundwater baseline is described in Section 3.9, Hydrology and Water Quality, beginning on page 3.9-1. The Draft EIR also assesses the impacts of the proposed project and includes, as Appendix E, a detailed "Analysis of Potential Groundwater Level Changes from Recharge and Recovery at the Stockdale West and Stockdale East Facilities" (Chapter 3 beginning on page 3-1; Appendix E). The additional analysis that supports the assessment of cumulative impacts as described in Chapter 4 of the Draft EIR has been added to this Final EIR for clarity (see Appendix I and response to KWBA-3).

City-19

The comment states that Rosedale has failed to disclose local groundwater conditions, now made worse by the current drought and increased groundwater pumping. The comment states that such failure calls into question the baseline conditions and impacts included within the entire Draft EIR.

Rosedale has, to the best of its ability, accurately described baseline groundwater levels based on historical hydrological conditions (Section 3.9, beginning on page 3.9-1). For its impact analysis, the baseline for groundwater levels is based on historical hydrological conditions during a study period that includes the maximum historical high and low groundwater levels in the project area (Section 3.9.1 page 3.9-1). The Draft EIR recognizes that, due to drought conditions, groundwater levels have dropped to historic lows in 2010 and again in 2014 in the project area (Section 3.9.1 page 3.9-4).

City-20

The comment states that the Draft EIR fails to provide clear and convincing justification for the proposed project, and, in the absence thereof, assumes that the proposed project is primarily a money making venture for Rosedale.

Project objectives are set forth in Section 2.2 of the Draft EIR. The purpose and need for the proposed project is delineated in Section 2.3 of the Draft EIR. As stated, Rosedale requires the proposed project primarily to augment the recharge, storage, and extraction capabilities of its existing Conjunctive Use Program as well as provide greater operational flexibility assisting Rosedale in fulfilling its mission of maintaining groundwater levels within its service area (Section 2.3 page 2-3). IRWD requires the proposed project primarily to enhance water supply reliability for IRWD by providing contingency storage to augment supplies during periods when other supply sources may be limited or unavailable as well as to restore storage capacity lost to unbalanced exchanges (Section 2.3 page 2-3). With respect to the claimed marketing and sale of local water resources to Southern California interests, see response to City-2.

City-21

The comment states that the project description is incomplete, vague and misleading in that Rosedale fails to describe necessary, essential and required details of the proposed project, notably, necessary and required details regarding the sources of water that will be utilized in the proposed project.

The comment is not supported by substantial evidence. Here, the project description is contained in Chapter 2 of the Draft EIR and includes an "Overview and Project Location" in Section 2.1; a statement of project objectives in Section 2.2; an explanation of the purpose and need for the project in Section 2.3; a description of the proposed project in Section 2.4, including its recharge facilities in Section 2.4.1, its recharge water supplies in Section 2.4.2, its recovery facilities in Section 2.4.3, and its conveyance facilities in Section 2.4.4; a description of project construction activities in Section 2.5; a description of project operations in Section 2.6, maintenance in Section 2.7, and approvals in Section 2.9. The sources of water that may be utilized in connection with the proposed project are identified as whatever is or becomes available to Rosedale or IRWD at

any time, and from time to time, from any source, potentially including federal, state, and local supplies (emphasis added; Section 2.4.2 page 2-8). The Draft EIR goes on to discuss in greater detail those sources of supply deemed reasonably foreseeable, namely Central Valley Project (CVP) water, the State Water Project (SWP) water, high-flow Kern River water depending on annual availability and appropriative (pre-1914 and post-1914) water rights (Section 2.4.2 page 2-8). Since this list is not exclusive, the Draft EIR states that Rosedale and/or IRWD will analyze the use of identified sources for project purposes to determine the need for and/or extent of future analysis under CEQA (Section 2.4.2 page 2-8 as modified in response to City-2). Finally, the Draft EIR acknowledges that these sources of water "…would be available only during certain conditions and subject to the requirements of DWR, SWRCB and the water rights' holders. Agreements would be made, as necessary, in advance of any water exchanges or transfers" (Section 3.14.3 page 3.14-7). The project description includes all the information required by CEQA to comprise an adequate description of the project without supplying extensive detail beyond that needed for evaluation and review of the environmental impacts (*CEQA Guidelines* §15124).

City-22

The comment cites legal principles with reference to California case law [*County of Inyo v. City of Los Angeles* (1977) 71Cal.App.3d185, 192 and *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 730].

The comment does not specifically address the environmental analysis in the Draft EIR. The comment is noted for the record.

City-23

The comment cites legal principles with reference to California case law [*Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 533; *County of Inyo*, 71 Cal.App.3d at 192-193; and *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d. 818, 830].

The comment does not specifically address the environmental analysis in the Draft EIR. The comment is noted for the record.

City-24

The comment cites legal principles with reference to California case law [*Laurel Heights Improvement Association of San Francisco, Inc. v. The Regents of the University of California* (1988) 47 Cal.3d 376, 399-400; *San Joaquin Raptor/Wildlife Rescue Center*, 27 Cal.App.4th at 729; *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931; and *McQueen v. Board of Directors* (1988) 202 Cal.App.3d 1136, 1143].

The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record.

City-25 and City-26

The comment restates language in the Draft EIR on page 2-8 regarding the sources for recharge water associated with the proposed project. The comment states that the Draft EIR provides little additional information regarding the potential sources of water for the project, and fails to provide

any details regarding the quantity of water available from the identified sources, present and past uses of the water sources, the circumstances under which Rosedale or Irvine would acquire the water from the sources and projected future use of water utilized in the project. The comment also states that it is unclear whether the water would be used within Rosedale or Irvine.

The potential sources of water for the project are described in the Draft EIR Section 2.4.2. The foreseeable sources of the water include the Central Valley Project, the State Water Project (SWP), and high-flow Kern River water. The quantity of water available from the identified sources would be subject to and dependent on availability, and SWP allocations and approval. The circumstances under which Rosedale or IRWD would recharge water for project purposes are described in the Draft EIR Section 2.6.1. Evidence of the variability of water availability is illustrated by the statement that in 2008 there were no water deliveries for banking in Rosedale's existing program, while in 2011, banking water deliveries totaled approximately 245,000 AF for recharge (Draft EIR, page 2-21). See also response to City-2 regarding the identified water supplies.

The Draft EIR describes that the project will be used to support uses within the respective service areas of Rosedale and IRWD (see Section 2.3, page 2-3). See response to City-48. As explained in Section 2.4 on page 2-5, the recharge capacities for the Stockdale Properties are estimated to be approximately 27,100 acre-feet per year (AFY) for Stockdale West and approximately 19,000 AFY for Stockdale East. Based on the characteristics of Stockdale East and Stockdale West, a third proximate site of up to 640 acres may have recharge capacities of approximately 52,500 AFY.

City-27

The comment requests additional information as to the definition of "fourth priority non-CVP South of Delta Contractor" and "CVP Section 215 flood water". The comment also states that the Draft EIR does not identify the quantity of CVP water that might be available for the project and the amount of CVP water delivered to Rosedale in the past.

Section 215 refers to a section in the Reclamation Reform Act of 1982 (Public Law 97-293) which defines temporary water supplies that are unusually large and not storable for project purposes and, among other measures, allows non-storable water to be applied to lands otherwise ineligible to receive federal water. As a fourth priority non-CVP South of Delta Contractor, if the Section 215 water is received by Rosedale via the Sacramento Delta it can only take if it can be made available at O'Neill Forebay and the Mendota Pool. These supplies are based on non-storable flood flows which makes speculation as to availability and ratios extremely difficult due to climate change and further environmental restrictions.

City-28

The comment requests additional information as to the definition of "Table A allocation," "Article 21 water" and "exchange State Water Contractor".

"Table A allocation" is the percentage (allocation) of the amount that the State Water Project has available to deliver to the various contact holders in a given water year according to the amounts

they originally contracted for according to exhibit "Table A" of the State Water Project long-term contracts. "Article 21 water" is a water supply program administered by the State Water Project per Article 21 of the same long-term contracts whereby contract holders may acquire additional supplies when non-storable supplies become available in the Sacramento Delta. The term "exchange State Water Contractor" is as an entity with a long-term contract with the State Water Project who wishes to do an exchange (swap) of water with another entity in order to acquire a water management benefit, usually in terms of improved water supply or scheduling to best meet demands. These supplies are often based on non-storable flood flows which makes speculation as to availability and ratios extremely difficult due to climate change and further environmental restrictions.

City-29

The comment cites legal principles with reference to California case law [*Laurel Heights Improvement Association of San Francisco, Inc. v. The Regents of the University of California* (1988) 47 Cal.3d 376, 405]. The comment states that, absent further explanation and definition of the "primary terms and concepts" used in the Draft EIR, the document fails as an informational document.

The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record.

Please refer to responses to City-27 and City-28 above and City-50 below. Other than the terms identified in those comments, the comment fails to identify specific terms and concepts which are not explained or defined in the Draft EIR and is not supported by substantial evidence. The Draft EIR makes every attempt to explain and define primary terms and concepts, including acronyms (TOC page iv – viii).

City-30

The comment cites legal principles with reference to California case law [*Planning & Conservation League v. Department of Water Resources* (2000) 83 Cal.App.4th 892, 908; *Santa Clarita Organization for Planning the Environment v. County of Los Angeles* (2003) 106 Cal.App.4th 715, 722; *California Oak Foundation v. City of Santa Clarita* (2005) 133 Cal.App.4th 1219, 1238-1239, 1244].

The comment does not specifically address the environmental analysis contained in the Draft EIR. The cases cited are not applicable because the project is not a development project that is dependent on an annual supply. The comment is noted for the record.

City-31

The comment states that the Draft EIR fails to provide necessary details about the Metropolitan Water District of Southern California (MWD) via the Municipal Water District of Orange County (MWDOC) source, past uses, current uses, quantities, or availability of the potential water supplies. The statement that water purchased from MWD would be subject to supply and conveyance capacity availability provides no helpful, relevant or useful information regarding this water supply.

Information about MWD as a source of water for IRWD to recharge under the proposed project is provided in the Draft EIR on page 2-9. Section 5.3 of the Draft EIR describes MWD's water supplies for its entire service area through the year 2035 (see Table 5-4, MWD's single dry year supply capability and total water demand). Section 5.3 further indicates that MWD has identified local projects and conservation measures to meet demand in its service area and maintain reliability in light of increased pressure on MWD's primary supplies from the Colorado River and the Sacramento-San Joaquin Delta.

City-32

The comment states that the description of appropriative water rights potentially available for project purposes is (i) incomplete, vague and deficient and (ii) contains significant omissions and errors. The comment states that such Kern River water rights will apparently be the primary water source for the proposed project and, therefore, the lack of details is particularly problematic. The comment also states that the Draft EIR provides few details regarding water service agreements under which Kern River water would become available for project purposes. The comment states that there is no information regarding the duration, or term, of the agreements, current or alternate uses of the water, place and method of delivery, and priority and pricing information. The comment further states that there is also no information regarding the circumstances under which Kern River water would be available pursuant to the referenced agreements, the quantity of water available, when water would be available, how it would be available, and why it would be available.

The comment fails to identify any omissions and errors, significant or otherwise, and is not supported by substantial evidence. For IRWD, the Draft EIR specifically identifies pre-1914 appropriative water made available through an Exchange Program with Buena Vista Water Storage District (BVWSD) as a potential source of water if the agreement is extended to include the project lands (Section 1.5.3 page 1-17; Section 2.4.2 page 2-9). It is noted that this source of supply was used by IRWD to recharge up to 10,000 acre feet on the Stockdale West property in connection with its 2011 Pilot Project (Section 1.5.3 page 1-18). For Rosedale, the Draft EIR specifically identifies Kern River water made available to Rosedale through water service agreements with the City and from BVWSD and other Kern River interests through banking and temporary water service agreements (Section 2.4.2 page 2-9). For both it is clearly stated that the actual availability of Kern River water for project purposes may depend on appropriate arrangements with the holders of these appropriative water rights as well as entities having jurisdiction over them (Section 2.8 page 2-25; Section 3.14.3 page 3.14-7). Given these limitations, there is no reason to assume that Kern River water rights will be the primary water source for the proposed project. In addition, the Draft EIR lists multiple potential sources of water for the project in Section 2.4.2, including the Central Valley Project and the State Water Project. Please also refer to response to City-2.

Details as to how, where, when and in what quantities specific amounts of Kern River water will be or become available for project purposes depend on many variables, are speculative and cannot be provided. Neither is this information required for a project that is not dependent on the availability of Kern River water at any particular time or at all (14 Cal. Code Regs. §15124). The proposed project does not require the availability of Kern River water to function but clearly

contemplates that Rosedale and IRWD will work with, not against, the Kern River water right holders and the Kern River Watermaster to minimize any loss of local water supplies that might occur in the absence of the proposed project (Section 2.4.2 page 2-9, 2-10; Section 3.14.3 page 3.14-7).

City-33

The comment requests additional information regarding historical deliveries of Kern River water to Rosedale. The comment also requests additional information regarding the present and projected uses of the project water supplies.

As explained in the Draft EIR, Kern River water is only one potential source of water for project recharge (Draft EIR Section 3.14.3 page 3.14-7). The proposed project is not dependent on the availability of Kern River water in any particular amount, at any particular time, or at all. Thus, information regarding historical deliveries of Kern River water to Rosedale would not add any meaningful information to the environmental review that is required by CEQA. See also response to City-21.

Notwithstanding the foregoing response, Rosedale receives Kern River water from Buena Vista Water Storage District via a long-term banking arrangement whereby it provides recharge capacity for high-flows and returns water on an annual basis either via exchange of its available State Water Project supplies or recovery capacity. Rosedale also acquires Kern River water from Buena Vista Water Storage District via short-term water acquisition programs to offset in-district demands by either groundwater recharge or direct irrigation deliveries. It is expected that these practices will continue. Rosedale also receives Kern River water from the City via a water supply contract (Agreement 76-80) to offset in-district demands. It is expected that these deliveries will also continue.

City-34

The comment refers to the Kern River Water Service Agreement between Rosedale and the City, dated August 31, 1961, as amended by Agreement 76-80, dated June 30, 1976, saying that such agreement restricts the place of use of Kern River water received by Rosedale. The comment suggests that implementation of the proposed project would violate the agreement. The comment concludes that the failure of the Draft EIR to identify and discuss such restrictions and limitation violates CEQA disclosure requirements, and fails to provide an accurate, complete and proper description of the project.

With respect to the implication that the proposed project violates Rosedale's contractual obligations, the comment does not involve environmental impacts and is, therefore, beyond the scope of the Draft EIR. See response to City-8.

With respect to CEQA disclosure requirements and the adequacy of the project description, the Draft EIR specifically states that "[s]ources of water to serve as recharge waters would be available only during certain conditions and subject to the requirements of DWR, SWRCB and the water rights' holders. Agreements would be made, as necessary, in advance of any water exchanges or transfers" (Section 3.14.3 page 3.14-7).

City-35

The comment requests additional information regarding information of deliveries of Kern River flood release water to Rosedale.

As stated above in response to City-33, the proposed project is not dependent on the availability of Kern River water in any particular amount, at any particular time, or at all. Nevertheless, from the period of 2004 to present, Rosedale received 20,688 acre-feet in 2006 and 16,180 acre-feet in 2011. Flood release water becomes available, typically in the late spring and summer months, when available Isabella Reservoir storage is, or is expected to be exceeded absent additional releases.

City-36

The comment states that the Draft EIR fails to disclose that the SWRCB has determined that the Kern River is no longer fully appropriated and that the water released from Lake Isabella for flood control purposes or under mandatory release conditions is unappropriated water. The comment further complains that the Draft EIR fails to disclose that Rosedale has filed an application with the SWRCB to appropriate these Kern River flood flows. The comment also states that the water released from Isabella Reservoir, as described in the Draft EIR, is the same unappropriated water that is the subject of Rosedale's application to appropriate and states that Rosedale's failure to disclose that fact violates the intent and specific requirements of CEQA.

With respect to any interpretation of SWRCB rulings, the comment does not involve environmental impacts and is, therefore, beyond the scope of the Draft EIR. See response to City-8. As to disclosure, the Draft EIR acknowledges that the SWRCB has determined that the Kern River is no longer fully appropriated (Section 4.2.4 page 4-7, 4-8, 4-9) and that Rosedale has filed an application to appropriate Kern River water (Section 4.2.4 page 4-9).

The assumption regarding unappropriated water released from Lake Isabella is incorrect and the failure to disclose is non-existent. Water released from Lake Isabella is only considered by the SWRCB to be unappropriated water when the Kern River – California Aqueduct Intertie is open, which allows Kern River water to flow into the California Aqueduct and out of Kern County.

City-37

The comment suggests that Rosedale's failure to disclose its application to appropriate Kern River water, by itself, establishes that the project description is incomplete and inaccurate. The comment contends that the Draft EIR should have indicated that SWRCB approval of Rosedale's application to appropriate is a necessary component of, or prerequisite for, the proposed project. The comment also states that the Draft EIR fails to disclose that several other parties, including the City, have filed applications with the SWRCB to appropriate any unappropriated Kern River water, including water released from Isabella Reservoir. The comment suggests that, if one of the other parties obtains rights to unappropriated Kern River water, including "mandatory release" water from Isabella reservoir, the water will not be available for use in the proposed project.

Regarding disclosure of Rosedale's application, see response to City-36. As to the project description, it would be inaccurate to state that the proposed project is, in any way, dependent on

SWRCB approval of Rosedale's application to appropriate Kern River water. As explained in the Draft EIR, Kern River water (flood flow or otherwise) is only one potential source of water for project recharge (emphasis added; Section 3.14.3 page 3.14-7). It is also clearly stated in the Draft EIR that "[t]he proposed project does not require a new water supply" (Section 3.14.3 page 3.14-6).

As to disclosure of other parties' applications, the Draft EIR states that the "…entities filing petitions [to appropriate Kern River water] include Rosedale, KCWA, KWBA, Buena Vista Water Storage District, the City, and North Kern Water Storage District/City of Shafter" (Section 4.2.4 page 4-9). As stated above, from a project perspective, it is immaterial which entity, if any, obtains rights to unappropriated Kern River water.

City-38

The comment states that Rosedale has failed to comply with CEQA by failing to address potential impacts and uncertainties with regard to the water supply for the proposed project. The comment also cites legal principles with reference to California case law [*Friends of the Eel River v. Sonoma County Water Agency* (2003) 108 Cal.App.4th 859, 864, 88].

Such potential impacts and uncertainties do not exist with regard to water supply. See responses to City-41 and City-42. Impacts associated with recharge of potential water supplies included in the Draft EIR in Section 2.4.2 are evaluated in Chapter 3.9, including impacts to water levels (pages 3.9-21 to 3.9-30) and impacts to water quality (3.9-31 to 3.9-32). As previously discussed in response to City-2, additional environmental analysis may be required for the use of specific water sources for project purposes.

The comment citing legal principals and reference to case law does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record.

City-39

The comment cites legal principles with reference to California case law [*California Oak Foundation*, 133 Cal.App.4th at 1226].

The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record.

City-40

The comment states that, in contravention of CEQA, the Draft EIR provides insufficient information regarding Kern River water supplies potentially available or intended for use in the proposed project, especially when the same is assumed to be the primary water source for the proposed project.

Please see response to City-32 through City-37.

City-41

The comment suggests that the water supply description in the Draft EIR violates the requirements of CEQA based on the holding in *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 432.

With respect to the adequacy of the water supply description for the proposed project, see response to City-21 and City-32 through City-37.

The comment cites *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 432 for the proposition that future water supplies must bear a likelihood of actually proving available, i.e., speculative sources and unrealistic allocations are insufficient bases for decision-making under CEQA. *Vineyard* involved construction of a large development tract. The principal disputed issue was how firmly future water supplies for the proposed project must be identified or, to put the question in reverse, what level of uncertainty regarding the availability of water supplies can be tolerated in an EIR for a land use plan. The proposed project is not a development project, and water supplies for the project are different from water supplies for a development project. As discussed in the Draft EIR Section 5.4, the proposed project would not be capable of providing water every year and therefore cannot support continuous demands associated with population growth. As also discussed in the Draft EIR Section 3.9, Threshold 2, extraction would be limited to the amount previously recharged less losses. Unlike a development project which will represent a continuous firm demand, the proposed project would not support a firm demand but an enhancement of IRWD's ability to respond to drought conditions and potential water supply interruptions, and operational flexibility for implementation of Rosedale's Conjunctive Use Program. Clearly, *Vineyard* has no application to the proposed project but, even if it did, the Draft EIR would not be deficient even if the Kern River water supply fails to materialize. The Draft EIR examines the environmental effects of the larger project, i.e., recharge and recovery of various sources of water foreseeably available. The project potentially provides IRWD with supplemental supplies that can be used under scenarios such as MWD shortage due to drought, catastrophic failures of water conveyance infrastructure, a shut-down of Delta water supply, or water quality issues in the SWP, and then only if and to the extent water has been banked in the project. It would also provide Rosedale with operational flexibility by augmenting the recharge, storage, and extraction capacity of Rosedale's Conjunctive Use Program to assist with fulfillment of its mission of maintaining groundwater levels within its service area and its obligations to existing participants in its Conjunctive Use Program. *Availability* of supplies for the project is evaluated, not as to availability to provide a part of the normal supply as they would need to be for a development project, but as opportunities for exchanges or transfers that may be available on a short term or long term basis for recharge and banking. Replenishment of the bank can be timed by Rosedale and IRWD according to these opportunities. If access to a particular source is ultimately determined to be legally impermissible for some reason, in whole or in part, project operations may be reduced along with potential environmental effects. Considering the larger project, even if the same is subject to legal challenges, avoids the pitfall of piecemeal review.

City-42

The comment suggests that the water supply description in the Draft EIR violates the requirements of CEQA based on the holding in *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412 as further explained in *Habitat & Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal.App.4th 1277 .

Please refer to response to City-41 regarding how water supply was addressed in the Draft EIR.

In the *Vineyard* case, since houses require a firm water supply, and since the proposed water supply was not firm, discussion of alternatives was considered necessary. Ultimately, the court found that in the *Vineyard* case, the FEIR's long-term water supply discussion suffered from lack of substantial evidence to support its key factual conclusion. The court stated: "On the factual question of how future surface water supplies will serve this project as well as other projected demand in the area, the project FEIR presents a jumble of seemingly inconsistent figures for future total area demand and surface water supply, with no plainly stated, coherent analysis of how the supply is to meet the demand….In this respect, the FEIR water supply discussion fails to disclose 'the 'analytic route the ... agency traveled from evidence to action' and is thus not 'sufficient to allow informed decision making.'" [*Vineyard*, 40 Cal.4th at pp. 444-445]. Here, the proposed project does not demand a firm water supply and, even if it did, the analytic route from evidence to action is clearly provided.

City-43

The comment states that the Draft EIR fails to describe the intended use of water extracted through the proposed project, including where the water will be used, how it will be used, and how much of the water will be used by different entities for various purposes.

As part of the project objectives and statement of purpose and need for the project (on page 2-3 of the Draft EIR), it is stated that the proposed project would provide additional recovery capacity for Rosedale's Conjunctive Use Program. Rosedale operates it Conjunctive Use Program for the benefit of landowners within its service area as well as its Conjunctive Use Program partners (Draft EIR page 1-9). Water recovered by Rosedale under the proposed project would be used by landowners within its service area or by Rosedale's Conjunctive Use Program partners.

For IRWD, the objectives state that the project would provide recovery capacity to provide IRWD customers with increased water supply reliability. Water recovered by IRWD under the proposed project would be used by IRWD customers within its service area or by IRWD's exchange partners (Draft EIR page 2-22).

City-44

The comment states that the Draft EIR indicates in Figure 2-2 that the proposed well locations on the Stockdale Properties are approximate and subject to change during final design.

The comment is noted for the record.

City-45

The comment suggests that the Draft EIR does not provide specific, detailed information regarding the recovery of banking water in the proposed project. The comment states that the Draft EIR does not identify Irvine's "program partners," or explain how or why they might receive water from the Program, and that the omission of such important details regarding the project does not comply with CEQA requirements, and prevents the Draft EIR from properly reviewing the impacts of the project on the environment.

Figure 2-2 on page 2-7 shows where the recovery wells are expected to be located. Section 2.4.3 on page 2-10 describes the design and anticipated recovery capacity. Section 1.5.3 on pages 1-15 through 1-19 includes a description of the IRWD water management program including partners. Section 1.5.1 on page 1-9 to 1-10 includes a description of the Rosedale Conjunctive Use Program and the "assessment of integrated operation" completed in 2011, which includes a summary of Rosedale projects, commitments, and partners.

It is not known what entities might become program partners with IRWD, which depends on available opportunities that are identified by IRWD from time to time as they arise for water supplies for banking. Historic IRWD program partner activity is described in the Draft EIR Section 1.5.3 – "Strand Ranch Integrated Banking Project." Currently, BVWSD is IRWD's only Strand Ranch program partner, and impacts associated with the BVWSD/IRWD Exchange Program have been evaluated pursuant to CEQA as cited in the Draft EIR on page 1-17 (i.e., Krieger & Stewart, 2009, State Clearinghouse No. 2009011008). The Draft EIR specifically identifies pre-1914 appropriative water made available through an Exchange Program with BVWSD as a potential source of water if the agreement is extended to include the project lands (Section 1.5.3 page 1-17; Section 2.4.2 page 2-9).

City-46

The comment states that the Draft EIR does not indicate how much water would be produced by the proposed project.

As the comment itself quotes, the anticipated recovery capacity of the proposed project's recovery facilities is found on page 2-10 of the Draft EIR: approximately 11,250 AFY at Stockdale West, approximately 7,500 AFY at Stockdale East, and approximately 22,500 AFY at the third site.

City-47

The comment states that the Draft EIR does not explain how much water would be extracted on an annual basis, when the water would be extracted, and under what circumstances. The comment states that the Draft EIR does not explain how much water would be put in storage prior to extraction; how Rosedale will determine how much water to extract each year; or what factors affect that decision.

Water would be recovered through the proposed project as explained in Section 2.6.3 of the Draft EIR. Additional detail is provided in response to City-43 through City-46. As discussed in the Draft EIR Section 5.4, the proposed project would not be capable of providing water on an annual

basis (every year) and therefore cannot support continuous demands. There would be no firm annual recovery of groundwater through the proposed project.

Regarding how much water needs to be put into storage prior to extraction, on page 2-22 of the Draft EIR, it is stated that "[e]xtraction would be limited to the amount previously recharged less losses and will be specified in agreements between IRWD and Rosedale."

City-48

The comment states that the Draft EIR does not provide information about how the water recovered through the proposed project would be used, by both Rosedale and IRWD, including types of uses, location of use, and the impact of such use on the environment.

As stated in response to City-43, water recovered by Rosedale under the proposed project would be used by landowners within its service area or by Rosedale's Conjunctive Use Program partners.

As stated in response to City-43, water recovered by IRWD under the proposed project would be used by IRWD customers within its service area or by IRWD's exchange partners (Draft EIR page 2-3). IRWD's normal potable supplies are a combination of local groundwater and imported water. IRWD feeds these supplies to its single, integrated distribution system, divided into pressure zones by elevation. IRWD aggregates its demands and supplies throughout its service area and does not allocate specific supplies to cities or other distinct portions of the service area. In a supply shortage scenario in which recovery from the project would be used for supply enhancement, the recovered water or water exchanged for the recovered water would reach IRWD's distribution system through its imported water service connections and could be delivered anywhere in the service area. An operational outage within the MWD supply or delivery system is not predictable as to what areas may be affected. However, as explained in Sections 2.4.2 – "Metropolitan Water District of Southern California" and 2.6.4 of the Draft EIR, MWD, as the State Water Contractor that imports water to IRWD's service area, would access water from the California Aqueduct at Lake Perris where it would then be conveyed to IRWD's delivery system through a turnout approved by MWD using either the Allen-McColloch Pipeline or the East Orange County Feeder No. 2, or delivery could occur by exchange, or by wheeling under MWD's Administrative Code. As also discussed in the Draft EIR at Section 2.6.4 and Section 3.9, Threshold 1, water recovered from the proposed bank would be subject to the pump-in water quality requirements imposed by the KCWA and DWR for introduction in the California Aqueduct, just as all other imported water transmitted through the delivery system to Southern California, and the water would travel into and through the MWD system and be mixed with other imported water. Thus the water recovered from the project bank will be in the same delivery system with other imported water, and there would be no impact on the environment in IRWD's service area as a result of delivery to and use of the recovered water in IRWD.

City-49

The comment suggests that the Draft EIR does not describe the "entire project" and, therefore, Rosedale has engaged in improper piecemealing in violation of CEQA. The comment cites legal principles based on California case law [*City of Santee v. County of San Diego* (1989) 214

Cal.App.3d 1438, 1450; *County of Inyo*, 71 Cal.App.3d at 193; *Orinda Association v. Board of Supervisors* (1986) 182 Cal.App.3d 1145, 1171; *Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428].

This comment does not connect the cited authority to the Draft EIR or otherwise raise any specific environmental issues. Thus, no response is required. See response to City-8. The comment is noted for the record.

City-50

The comment states that the Draft EIR's discussion of project objectives does not comply with CEQA requirements in that (i) the project objectives are vague, general, and redundant, and (ii) contain undefined terms. Vagueness is said to result from use of the term "operational flexibility" in the first two objectives. Undefined terms are identified as (1) "capacities," (2) "redundancy" and (3) "diversification." The comment complains that Rosedale does not "...define or explain those terms anywhere in the Draft EIR." The comment also cites California case law for the proposition that an EIR should provide sufficient information and analysis to allow the public to discern the basis for the agency's action. [*Californians for Alternatives to Toxics v. Department of Food & Agriculture* (2005) 136 Cal.App.4th 1, 13].

CEQA Guidelines §15124(b) provides that the project description should include a statement of the objectives sought by the proposed project. The Guidelines do not specify a particular form, format or content for the statement of objectives. However, it is suggested that the statement should be clearly written, should include the underlying purpose of the project, and should not supply extensive detail beyond that necessary for the review and evaluation of environmental impacts. For the proposed project, four specific objectives are identified and oft repeated (Section S.3 page S-5; Section 2.2 page 2-3; Section 6.1.1 page 6-1, 6-2; Appendix A]. These stated objectives are amplified by further discussion of the need for and purpose of the proposed project throughout the Draft EIR.

For example Objective 1 is to integrate the proposed project facilities and coordinate the proposed project operations with Rosedale's Conjunctive Use Program, including the Strand Ranch Project, to provide for maximum "operational flexibility" between the various programs and facilities. It is elsewhere explained that such integration is expected to optimize operational flexibility by allowing Rosedale to recover groundwater on behalf of itself and/or IRWD, at any facility available to Rosedale within its Conjunctive Use Program (Section 2.3 page 2-12; Section 2.6.2 page 2-22; Appendix A page A-5).

Objective 2 is to provide additional groundwater recharge, storage, and recovery capacity in the Kern River Fan region to augment and provide "operating flexibility" for Rosedale's existing and future programs. It is elsewhere explained that increased operating flexibility results from the mere availability of more recharge and recovery facilities which are provided by the proposed project (Section 2.3 page 2-3). Such augmentation also provides greater opportunities for water quality blending (Section 2.3 page 2-4).

Objective 3 is to develop recharge and recovery "capacities" for each of IRWD's and Rosedale's respective properties to be available for its priority use and for the other agency's use to the extent unused capacity may be available. Both recharge capacities and recovery capacities associated with the proposed project are specifically defined in and referenced throughout the Draft EIR (Section S.4 page S-5; Section 2.4 page 2-5; Section 2.4.3 page 2-10).

Objective 4 is to develop additional groundwater recharge, storage, and recovery capacity to provide IRWD customers with increased water supply reliability through "redundancy" and "diversification" during periods when other supply sources may be reduced or interrupted. It is elsewhere explained that IRWD's participation in the proposed project recognizes IRWD's need, in the event of an interruptible or short-term water shortage, for additional storage and recovery capacity to provide for improved reliability and redundancy in its supplies (Section 2.6.3 page 2-22). Additionally it is stated that:

> "IRWD's UWMP evaluates multiple dry-year drought supplies and identifies sources of supply to meet actual demands. Generally, during periods of drought, should MWD's sources be stressed through multiple dry years, or suffer catastrophic failure, IRWD could augment water supplies through increased local groundwater pumping on a short-term basis, as well as reduce demands through increased conservation measures as described in IRWD's UWMP. The proposed project would help to augment IRWD's dry-year supply portfolio to enhance water supply reliability and redundancy. Redundant water sources also enhance the system's overall reliability for potential scenarios such as catastrophic failures of water conveyance infrastructure, a shut-down of Delta water supplies, or water quality issues in the SWP. To plan for these contingencies, a diverse water supply portfolio provides the highest degree of reliability (Section 5.3 page 5-5, 5-6)."

City-51

The comment states that the Draft EIR does not indicate there are unmet demands for water in Rosedale or in Irvine. The comment also states that the project objectives are confusing with respect to whether each objective applies to Rosedale, IRWD, or both districts.

The purpose and need for the project is described in the Draft EIR starting on page 2-3. The proposed project would allow Rosedale to further its mission of maintaining sustainable groundwater levels within its service area and meeting the demand for replenishment of the basin underlying its service area to support pumping by overlying land owners.

IRWD has sufficient supplies to meet its projected demands. See Draft EIR Section 5.3, Table 5-3. IRWD does not have unmet demands. As described in Section 5.4, for IRWD, the project will provide a means of offsetting existing supplies during periods when existing sources may be reduced or interrupted and provides a cost effective means of managing contingency and drought planning needs. The proposed project provides a future drought supply to augment the district's drought planning requirements. Drought planning provides for supply reliability but does not accommodate additional demand. As cited in the Draft EIR, according to IRWD's 2014 Policy Position on Water Banking Transfers and Wheeling, IRWD desires to maintain a groundwater

storage capacity of approximately 88,000 AF for its own use. Currently IRWD only has 25,000 AF of storage available, and thus the proposed project would assist with meeting the remaining unmet demand for storage of 63,000 AF. See response to City-7.

With regard to the project objectives as listed on page 2-3 of the Draft EIR, the first and third objective apply to both Rosedale and IRWD; the second objective applies to Rosedale; and the fourth objective applies to IRWD.

City-52

The comment states that the project description fails to provide important details about the components, operation and purpose of the project. The comment also states that the project description does not provide sufficient information about IRWD's intended use of water stored in the proposed project or IRWD's role and responsibilities in connection with the proposed project.

In the Draft EIR, Chapter 2 Project Description, the components of the proposed project are described generally in Section 2.4 starting on page 2-4, followed by specific details for each component on pages 2-5 through page 2-16. The components are also shown in Figure 2-2, Proposed Project Facilities. Details regarding Rosedale's and IRWD's roles in the operation of the proposed project are provided in Section 2.6 Project Operation. The purpose of the project is explained in Section 2.3 Purpose and Need for the Project. Section 2.4.4 describes Rosedale's integrated operation.

For details regarding IRWD's intended use of water stored in the proposed project and IRWD's role and responsibilities, please refer to responses to City-43, City-48 and City-51.

City-53

The comment states that the Draft EIR does not sufficiently describe the project area or all areas impacted by the project. The comment states that the Draft EIR does not contain sufficient details regarding IRWD's use of water from the proposed project, specific cities within IRWD's service area that will be impacted by the project, or other regions in southern California that will be impacted by the project. The comment states that the Draft EIR indicates that Metropolitan will be impacted by or involved in the project yet the Draft EIR provides no useful information regarding Metropolitan.

In the Draft EIR, Figure2-1 shows the project location and the area potentially to be impacted by the proposed project. The area to be impacted by the proposed project is described for each resource evaluated in the Draft EIR in Chapter 3. For each resource, the analysis begins with a description of Environmental Setting for the area of potential effect.

For details regarding IRWD's intended use of water stored in the proposed project, please refer to responses to City-48 and City-51. Water recovered from the proposed project by IRWD would be used in cities throughout its service area, which are shown in Figure 1-3 of the Draft EIR. See also response to City-43.

Regarding Metropolitan, as stated on page 1-15 and 2-9 of the Draft EIR, currently 22 percent of IRWD's water supply is imported by Metropolitan, purchased through Municipal Water District

of Orange County (MWDOC). Section 5.3 of the Draft EIR describes MWD's water supplies through the year 2035 (see Table 5-4, MWD's single dry year supply capability and total water demand. The Draft EIR states that Metropolitan has also entered into a variety of cooperative delivery and storage conjunctive use arrangements with many of its member agencies who have groundwater storage assets, including the coordinated operating agreement with IRWD and MWDOC described in the Draft EIR Section 2.6.4, relating to the Strand Ranch. For the proposed project, the Draft EIR states the following on page 2-9:

> With MWD approval, IRWD could take delivery of water purchased from MWD through MWDOC for storage and later conveyance to IRWD. Delivery would be made from the California Aqueduct via the CVC to Stockdale West, Stockdale East, the third Stockdale site, the Strand Ranch Project, or other Rosedale facilities and could be delivered through exchange. The delivery would be subject to supply and conveyance capacity availability and approval by MWD and KCWA. IRWD could also purchase surplus water supplies when approved and available from MWD through MWDOC for delivery to the proposed project.

Metropolitan would not otherwise be affected by the proposed project. Recovered water would be delivered to IRWD using existing water conveyance infrastructure, including infrastructure owned by Metropolitan. See responses to City-31 and City-48.

City-54

The comment states that the project description focuses on construction and operation of project facilities at the expense of actual details of the project banking operations from a water supply standpoint.

The Draft EIR evaluates the construction and operation of the proposed project, which is a groundwater banking project. Thus, all component facilities support operation of the banking project. Groundwater banking projects provide storage for water supply. The proposed project would also be operated as part of Rosedale's Conjunctive Use Program. Both groundwater banking and conjunctive use are defined in Chapter 1 of the Draft EIR on pages 1-9 and 1-10 of the Draft EIR:

> "Conjunctive use" refers to coordinating the management of surface water and groundwater to improve the overall reliability of water supply (Pacific Institute, 2011). "Groundwater banking" is the practice of recharging specific amounts of water in a groundwater basin that can later be withdrawn and used by the entity that deposited the water (Pacific Institute, 2011). Groundwater banking uses underground aquifers for percolation and storage purposes, as an alternative to building aboveground storage, and offers water users both within and outside of the groundwater basin the opportunity to store water there. It allows flexibility to respond to seasonal and inter-annual variability, as water can be stored in wet periods, when water is abundant, for use in dry periods, when water may be in short supply. Groundwater banking programs may benefit water levels in the local aquifer because

> the amount of water available for recovery is less than the amount recharged; this difference can mitigate for overdraft conditions and raise groundwater levels.

This explains how groundwater banking and conjunctive use projects, such as the proposed project, are used to manage water supply. Please also see responses to City-47 and City-52.

City-55

The comment states that the Project Approvals section of the project description is incomplete because it does not include the State Water Resources Control Board (SWRCB) approval of Rosedale's application to appropriate Kern River water. The comment states that the Draft EIR should have disclosed and discussed this specific SWRCB approval required for full implementation of the proposed project.

The approval of Rosedale's application was not included in the Draft EIR because it is not required for implementation of the proposed project. Kern River water is part of the portfolio of potential water supply sources for the project. An explanation of how Rosedale currently receives, and would continue to receive, Kern River water when available can be found on pages 2-9 and 2-10 of the Draft EIR. See responses to City-8 and City-32.

City-56

The comment cites legal principles with reference to California case law [*Cadiz Land Co. v. Rail Cycle, L.P.* (2000) 83 Cal.App.4th 74, 92; *Santiago County Water District*, 118 Cal.App.3d at 829].

The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record.

City-57

The comment cites legal principles with reference to California case law [*San Joaquin Raptor/Wildlife Rescue Center*, 27 Cal.App.4th at 729].

The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record.

City-58

The comment states the Project Description in the Draft EIR is deficient because Rosedale does not provide required information regarding the potential third Stockdale project site, specifically details regarding the reasons or triggers for future development of the third Stockdale project site. The comment suggests that Rosedale should confirm that it will not develop the third Stockdale project site without first undertaking additional detailed, proper CEQA review.

The third project site is included in the Project Description (See Section 2.4). The trigger for future development of a third site would be identifying a project location with suitable characteristics for recharge, storage and recovery. The third Stockdale project site would be located within the additional site radius as shown in Figure 2-1 of the Draft EIR. See also responses for KCWA-5 and KCWA-6.

City-59

The comment states that the Draft EIR fails to comply with CEQA because it fails to provide any information on certain baseline conditions in the project area, or only provides a brief, general and incomplete description of baseline conditions. The comment cites legal principles from California case law and State Guidelines [14 Cal. Code Regs.§ 15125(a); *Save Our Peninsula Committee v. Monterey County Board of Supervisors* (2001) 87 Cal.App.4th 99, 119; 14 Cal. Code Regs. § 15125(c); *San Joaquin Raptor/Wildlife Rescue Center*, 27 Cal.App.4th at 722].

For information concerning baseline conditions, see response to City-18 and City-19.and KCWA-24.

City-60

The comment states that the Kern River is the primary water source for groundwater recharge for the proposed project. The comment states that the Draft EIR does not describe baseline conditions in and around the Kern River, including current flow conditions, the environment in and around the river, and the timing and frequency of diversions from the river. The comment states that the Draft EIR cannot assess the impact of the project on environment without such information.

As already mentioned in response to City-32, the Kern River is not the primary source of recharge water for the proposed project. As described in Section 2.4.2 of Chapter 2 of the Draft EIR starting on page 2-8, there are many potential water sources for the project, including the Central Valley Project, the State Water Project, and other appropriative water rights. Kern River water is not necessary for implementation of the proposed project.

Surface water hydrology and water quality for the Kern River are generally described in the Draft EIR on pages 3.9-2 to 3.9-3. The proposed project itself would not change patterns or practices of water diversion from the Kern River, and as such, would not affect flow in the Kern River. The proposed project may recharge Kern River water provided by agencies with existing water rights, such as the City, as described on page 2-9 to 2-10 of the Draft EIR. Agencies with rights to Kern River water are responsible for developing programs for use of Kern River water and evaluating the impacts of such programs, which may include transfer or exchange of Kern River water with agencies such as Rosedale.

City-61

The comment states that the Draft EIR does not provide information about the amount of Kern River water potentially available for use in the proposed project. The comment states that the Draft EIR does not include a discussion of Kern River water rights held by the City and Buena Vista or the amount of water diverted from the Kern River by the City and Buena Vista, and how that water might be transferred to Rosedale.

Please refer to response to City-32, City-33, and City-34.

City-62

The comment states that the Draft EIR does not provide a description of baseline condition within Rosedale or IRWD, such as water rights held, quantities of water historically and currently used,

overall water demands, including municipal demands, and available sources of water for both districts.

General information about Rosedale and IRWD, including the size of the both districts and water sources available to both districts is included in Chapter 1 of the Draft EIR on pages 1-9 to 1-10, 1-16, and 1-18.

For Rosedale, the historic and current water use within the district can be found in Table 5-7 of the Draft EIR, including water used for irrigation and urban use. On page 5-6 of the Draft EIR it is stated that:

> Water used for irrigation within Rosedale's service area is primarily obtained from groundwater pumping, although about 10,000 to 15,000 AFY of surface water is delivered by Rosedale to landowners for use during wet years. Consumptive use within the District is currently estimated to be about 93,000 AFY, including the consumptive use of precipitation (Rosedale, 2013). For the period from 1993 through 2011, the average annual consumptive use has been estimated to be about 92,000 AFY.

For IRWD, detailed descriptions of water supply and demand can be found in the Draft EIR in Section 5.3 on pages 5-3 through 5-5.

City-63

The comment states that the Draft EIR does not disclose the number of wells within Rosedale, including private wells, or the amount of water produced by those wells. The comment states that absent such information it is not possible to determine the impact of the project on the local environment.

Figure 2-2 in the Draft EIR shows Rosedale's existing wells in the project area. Figure 3 of Appendix E of the Draft EIR shows all wells in the project vicinity, including private wells. Rosedale does not maintain records of water produced by private wells. As stated on page 5-6 of the Draft EIR, the total amount of consumptive water use for irrigation in 2012 was approximately 84,500 AFY, which was primarily obtained from groundwater pumping. The amount of water pumped from all wells is reflected in groundwater levels. Historic groundwater levels in the project area are shown in Figure 3.9-2 for both the shallow/intermediate aquifer and deep aquifer. This historic record of groundwater fluctuations is the baseline upon which project impacts to groundwater levels are measured. See response to KCWA-24.

City-64

The comment states that the Draft EIR does not provide information about quantity and type of water used within IRWD, overall water demand within IRWD, and any rights associated with water utilized by IRWD. The comment states that this information is necessary to properly determine the impacts of the proposed project, which provides a supplemental water supply for IRWD.

Detailed descriptions of water supply and demand for IRWD can be found in the Draft EIR on pages 5-3 through 5-5. Additional information about IRWD's water supply, reliability planning, and water rights can be found in the Draft EIR on pages 1-15 through 1-18. Also please see response to City-62.

City-65

The comment states that the Draft EIR does not identify current and historic groundwater conditions in the project area, in and around Rosedale, including groundwater levels, quantities of water spread, and quantities of water pumped, by Rosedale and other entities within Rosedale. The comment states that the information in the Draft EIR is general and does not identify locations of various water level readings and variances among such readings.

Current and historic groundwater levels are a reflection of water spread and recharged and water pumped. Historic groundwater levels in the project area are shown in Figure 3.9-2 in the Draft EIR for both the shallow/intermediate aquifer and deep aquifer at the closest monitoring well to the proposed project, 30S/25E-04J. This well has continuous time-series data on groundwater elevations and illustrates historical high, low, and historical low groundwater conditions in the project area.

See response to KCWA-24. In addition, in Appendix E to the Draft EIR, Figures 13 and 14 show baseline groundwater elevation contours during historical high groundwater conditions (December 2005) and effects of project recharge on groundwater levels; Figures 21 and 22 show baseline groundwater elevation contours during low groundwater conditions (November 2004) and effects of project pumping on groundwater levels; and Figures 29 and 30 show baseline groundwater elevation contours during historical low groundwater conditions (June 2010) and effects of project pumping on groundwater levels.

City-66

The comment states that the Draft EIR does not identify quantities of water pumped, groundwater levels, quantities of water spread, and water quality conditions for other banking programs in the project area. The comment also states that the Draft EIR does not provide information about baseline conditions in areas that will be directly impacted by the project.

The other groundwater banking programs in Kern County are listed in the Draft EIR in Table 4-2 in Chapter 4, Cumulative Impacts. According to the analysis of groundwater impacts in Chapter 3.9 of the Draft EIR (pages 3.9-21 through 3.9-33), the only groundwater banking program that may be directly impacted by the proposed project is the Kern Water Bank. As such, baseline conditions for groundwater in the areas that will be directly impacted by the project are described in Chapter 3.9 and Appendix E of the Draft EIR, as explained above in responses to KCWA-24 and City-65. In addition, details about the Kern Water Bank are provided in the Draft EIR on page 4-7 of the Draft EIR, including recharge, recovery and storage.

City-67

The comment states that the Draft EIR does not contain information about the groundwater aquifer, including the nature and extent of basin overdraft condition. The comment states that this lack of information is contrary to the holding in Cadiz Land Co (83 Cal. App 4th at 92).

Information about the groundwater aquifer, including the estimated storage capacities of the San Joaquin Valley subbasin (see page 3.9.7), the Kern County portion of the San Joaquin Valley's groundwater basin (see page 3.9.7), and the Project sites (see page 3.9.9), is provided in the Draft EIR on pages 3.9-3 through 3.9-11, including both regional and project-site specific information about hydrogeology and groundwater levels; groundwater banking, recharge, recovery, and storage; and groundwater quality.

As stated in the Draft EIR, groundwater banking projects are designed to maintain a positive project balance such that no net water would be removed from the basin. The projects operate by recharging water in wet years and recovering water in dry years. Water banks only recover water up to the amount previously banked minus an amount to account for losses to the basin. Thus, long term trends have shown improvements in groundwater levels, when compared to a no-project condition (see Section 4.3 at page 4-14).

City-68

The comment states that the Draft EIR does not provide information about urban land uses or population within Rosedale, or information about quantity and source of water used to meet demands associated with urban uses.

As explained in the Draft EIR in Chapter 5, Growth Inducement Potential, Rosedale's service area is predominantly rural agricultural land uses. However, portions of the service area are within the Metropolitan Bakersfield Planning Area. Population projections for Metropolitan Bakersfield and Kern County overall are provided in the Draft EIR in Table 5-2. In addition, the Draft EIR states on page 5-6 that average urban use has doubled since 1990 within Rosedale's service area, as crop use has decreased slightly, and this trend is expected to continue. Historic consumptive use for both agricultural and urban land uses within Rosedale is shown in the Draft EIR in Table 5-7. The quantity and source of water used to meet demands associated with urban uses will not be affected by project operations.

City-69

The comment states that the claim that the No Project Alternative would forego environmental benefits to the groundwater basin such as overdraft correction, including those due to groundwater pumping to support irrigated agriculture at the Stockdale East property, is not supported or explained in the Draft EIR. The comment states the Draft EIR does not discuss the referenced overdraft conditions.

The Draft EIR includes the following statement on page 2-4: "Stockdale East and West are currently not within the boundaries of a public water agency, and thus water extracted historically for agricultural irrigation has not been replenished." As such, historic pumping without replenishment at these properties has contributed to overdraft conditions in the basin.

Accordingly, the impact analysis for the No Project Alternative concludes as follows on page 6-7 of the Draft EIR:

> Under the No Project Alternative, Rosedale would not have access to the recharge and recovery facilities proposed for the Stockdale Properties. Rosedale would be limited to the recharge capacity of its existing recharge basins and forego any potential benefits to groundwater storage and overdraft correction associated with the proposed project. This includes foregoing correction of overdraft caused by groundwater pumping at Stockdale East to support existing farming practices.

City-70

The comment states that Draft EIR is deficient for failing to accurately describe baseline conditions involving the legal status of the Kern River. More particularly, the comment contends that the Draft EIR fails to disclose that the Kern River is no longer fully appropriated; that Rosedale has filed an application to appropriate the "Kern River floodwaters" and "high-flow Kern River water" generally referred to and described in the Draft EIR; that until the SWRCB acts on and approves Rosedale's application to appropriate it has no right to such water; and that other entities, including the City, have submitted competing applications to appropriate to the SWRCB, which seek all or some of the same Kern River water Rosedale proposes to utilize in the project.

Please see response to City-9, City-36 and City-37. The issues described do not involve environmental impacts and are, therefore, beyond the scope and purpose of the Draft EIR. See response to City-8.

City-71

The comment states that the Draft EIR description and characterization of the City is misleading because in several places it is stated that Rosedale is located six miles west of the City, when the City boundary overlaps with Rosedale's boundary.

On pages 1-1, 2-1, 3.9-8, and 3.10-1, the Draft EIR states that the Stockdale Properties, rather than Rosedale's entire service area, would be approximately six miles west of the City. This is accurate when considering the City's incorporated boundary, exclusive of its sphere of influence.

City-72

The comment states that several maps in the Draft EIR do not show actual geographic boundaries of the City, such as Figure 1-1.

Figure 1-1 has been revised to show the City's boundaries.

City-73

The comment cites legal principles from California case law and State Guidelines [14 Cal. Code Regs.§ 15362; 14 Cal. Code Regs.§§ 15126.2(a), 15130; Pub. Res. Code§§ 21060.5, 21061; *Environmental Planning and Information Council v. County of El Dorado* (1982) 131 Cal.App.3d 350, 354; 14 Cal. Code Regs. §15151; *Napa Citizens for Honest Government. v. Napa County Board of Supervisors* (2001) 91Cal.App.4th342, 356; *Laurel Heights Improvement Assn.*, 47 Cal.3d at 392]. The comment concludes with the assertion that Rosedale has not made a good faith effort at full disclosure and discussion of the impacts of the project; instead, Rosedale has apparently attempted to obscure and hide the details of various elements and components of the project, so as to avoid or minimize the discussion and disclosure of various impacts from the project.

The comment is argumentative, not supported by substantial evidence, and grossly inaccurate. Please refer to response to City-3 regarding good faith effort to disclose environmental impacts. See also response to City-20 and City-21.

The comment does not specifically connect the cited authority to the Draft EIR or otherwise involve environmental impacts and thus, no response is required. See response to City-8.

City-74

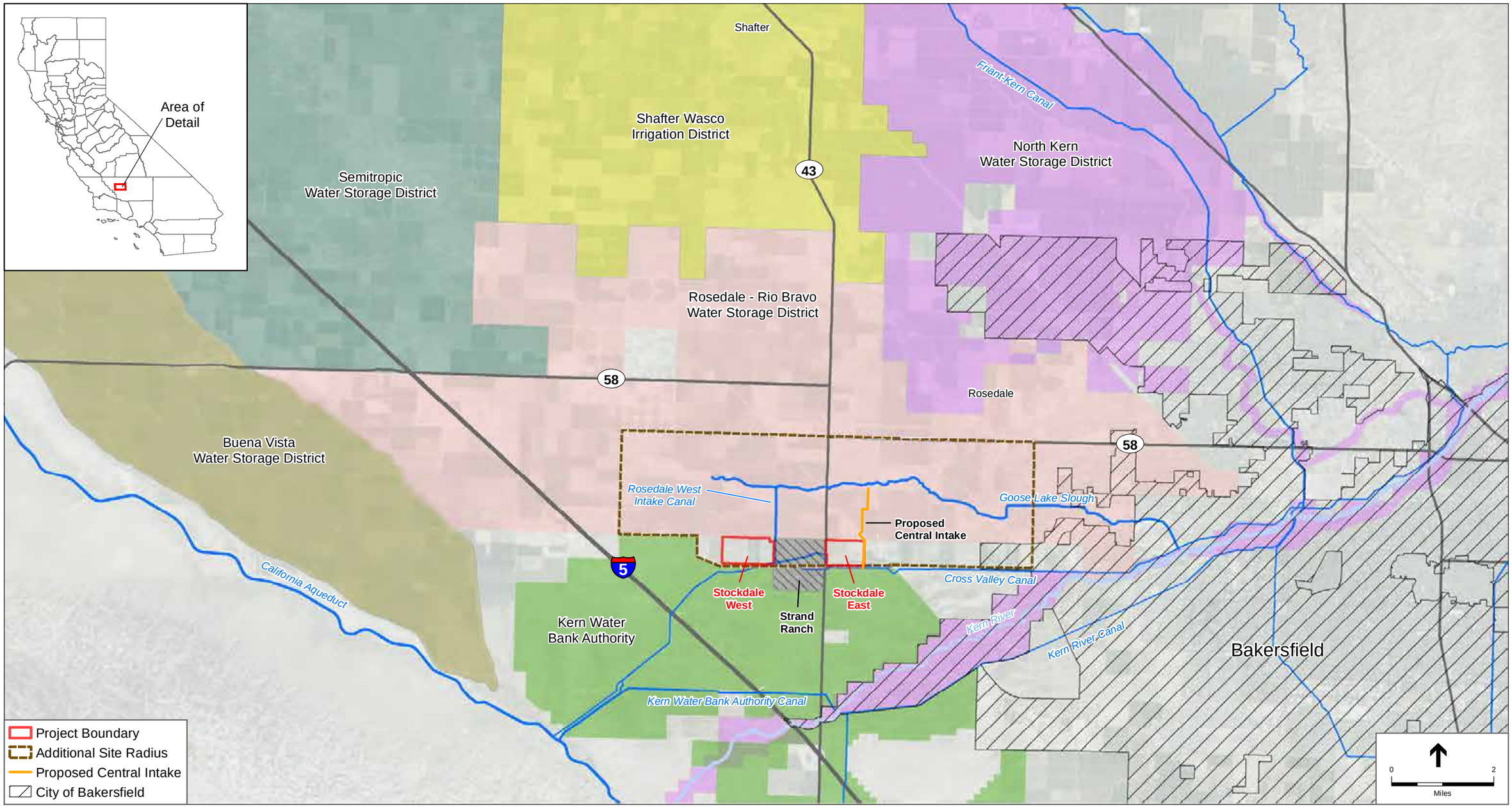
The comment states that the Draft EIR does not include required information about the proposed project and baseline conditions, and as such prevents meaningful complete analysis of impacts on the local environment, Kern River, the City, and local groundwater basin.

The comment does not specify what information the Draft EIR does not include with respect to the proposed project. The details of the proposed project are included in Chapters 1 and 2 of the Draft EIR. These chapters include all the information required by CEQA, including the location and boundaries of the project on a regional map and detailed map; statement of objectives that support the underlying purpose of the project; description of the project's technical, economic, and environmental characteristics; statement of intended uses of the EIR including responsible agencies, permits and approvals (*CEQA Guidelines*, Section 15124).

The comment does not specify what information the Draft EIR does not include with respect to baseline conditions. For each environmental resource evaluated in the Draft EIR in Chapters 3 and 4, the baseline conditions are explained as part of the Environmental Setting. See responses to City-65 and City-66. The Environmental Setting includes both regional and local environmental conditions. This format is explained on page 3-2 of the Draft EIR.

City-75

The comment states that the Draft EIR does not analyze the impact of using the potential water sources on the environment, other water users, and local water supplies. The comment states that the Draft EIR does not satisfy CEQA requirements for a large water supply and storage project as articulated in *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007).



SOURCE: ESRI 2013

Stockdale Integrated Banking Project . 211181

Figure 1-1

Regional Location

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The Draft EIR discusses the potential impacts of using the water sources for groundwater recharge on pages 3.14-6 through 3.14-7. The Draft EIR states that the project does not require a new water supply and as such would not affect local water supplies. The proposed project would use water from the SWP and CVP depending on availability; such opportunistic use of water would not affect other water users or local water supplies. The proposed project would use appropriative water rights, including pre-1914 and post-1914 water rights and other Kern River water also depending on availability. As stated in the Draft EIR, pre-1914 and post-1914 water rights can be transferred to other parties as long as legal users of water are not injured ("no injury rule," per Water Code Sections 1706 and 1702). The Draft EIR explains how the State Water Resources Control Board (SWRCB) supervises transfers of appropriative water rights, and when the SWRCB is required to make a finding that the transfer will not result in unreasonable effects on fish or wildlife or other in-stream beneficial uses. As stated in the Draft EIR on page 3.14-6:

> The "no unreasonable effect" test is not the same as the evaluation of significant impacts under CEQA (SWRCB, 1999). Should the use of such post-1914 appropriative water rights require evaluation of impacts to legal users and other environmental considerations, additional analysis may be required. Otherwise, given that transfers of appropriative water rights are subject to the approval of the transferring agency, and at times the SWRCB, and that the water code requires a finding of no injury, and at times a finding of no unreasonable effect, the uses of such waters for recharge would not result in significant impacts.

With regard to evaluation of supplies and the application of the *Vineyard* decision, please see responses to City-41 and City-42.

City-76

The comment states that the Draft EIR is deficient because it dismisses or minimizes a number of potential impacts to the environment without explanation and based on unsupported or unexplained conclusions. The comment cites legal principles from California case law [*Laurel Heights Improvement Assn.*, 47 Cal.3d at 404; *Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383].

No potential impacts are identified which were dismissed or minimized without explanation or otherwise. Given the lack of specificity, a detailed response is not possible or required. See response to City-8. The comment is noted for the record.

City-77

The comment states that the Draft EIR reveals that the proposed project will use substantial quantities of Kern River water and that the Draft EIR does not analyze the impacts on the Kern River, including impacts on the quantity and timing of flows in the Kern River, the environment in and around the Kern River including plant and animal life, the aquifer underlying the Kern River, and the patterns of diversion and use of water from the River.

As discussed in response to City-60, the proposed project will have no impact on baseline Kern River flow and as such was not evaluated in the Draft EIR. The proposed project would use Kern River water, if and when available, through transfers or other agreements with entities that hold

existing rights to Kern River water. The entities with Kern River water rights are responsible for developing programs that demonstrate how Kern River water will be used, and for preparing environmental documentation that evaluates the impacts of such programs. Kern River water utilized by the proposed project would occur consistent with the requirements of such environmental documentation. The proposed project itself would not change patterns or practices of water diversion from the Kern River, and as such, would not affect flow in the Kern River. Therefore, the environment in and around the Kern River, including plant and animal life and aquifer underlying the Kern River, would not be affected by the proposed project

As explained in response to City-33, the proposed project is not dependent on the availability of Kern River water in any particular amount, at any particular time, or at all.

City-78

The comment states that the plan to use substantial quantities of Kern River water for a new water banking project will necessarily result in changes, and impacts, in the diversion and use of water from the Kern River, which changes will necessarily have an impact on the Kern River.

As explained in response to City-33, the proposed project is not dependent on the availability of Kern River water in any particular amount, at any particular time, or at all. Thus, implementation of the proposed project will not "necessarily result" in the changes and impacts described. Please also see response to City-77 above.

City-79

The comment cites legal principles with reference to California case law [*Napa Citizens for Honest Government*, 91 Cal.App.4th at 386; *County of Amador*, 76 Cal.App.4th at 948; *Friends of the Santa Clara River v. Castaic Lake Water Agency* (2002) 95 Cal.App.4th 1373; *Santiago County Water District*, 118 Cal.App.3d at 831].

The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record.

City-80

The comment cites legal principles with reference to California case law [*Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099]. The comment states that the analysis of impacts of the project on Kern River flow is incomplete for the same reasons as found in cited case law.

Unlike the facts of the cited authority, the proposed project will not cause a reduction in the surface flows of a stream. Please see response to City-77.

City-81

The comment suggests that the Draft EIR is "fatally flawed and defective" because it fails to assess or discuss the impacts of transfers of water, including valuable, necessary high quality Kern River surface water, out of Rosedale, and out of the County, to IRWD.

Please see response to City-2 and City-8.

City-82

The comment assumes that the proposed project involves out-of-area transfers and criticizes the Draft EIR for failing to disclose or discuss impacts associated therewith.

Please see response to City-2 and City-8.

City-83 and City-84

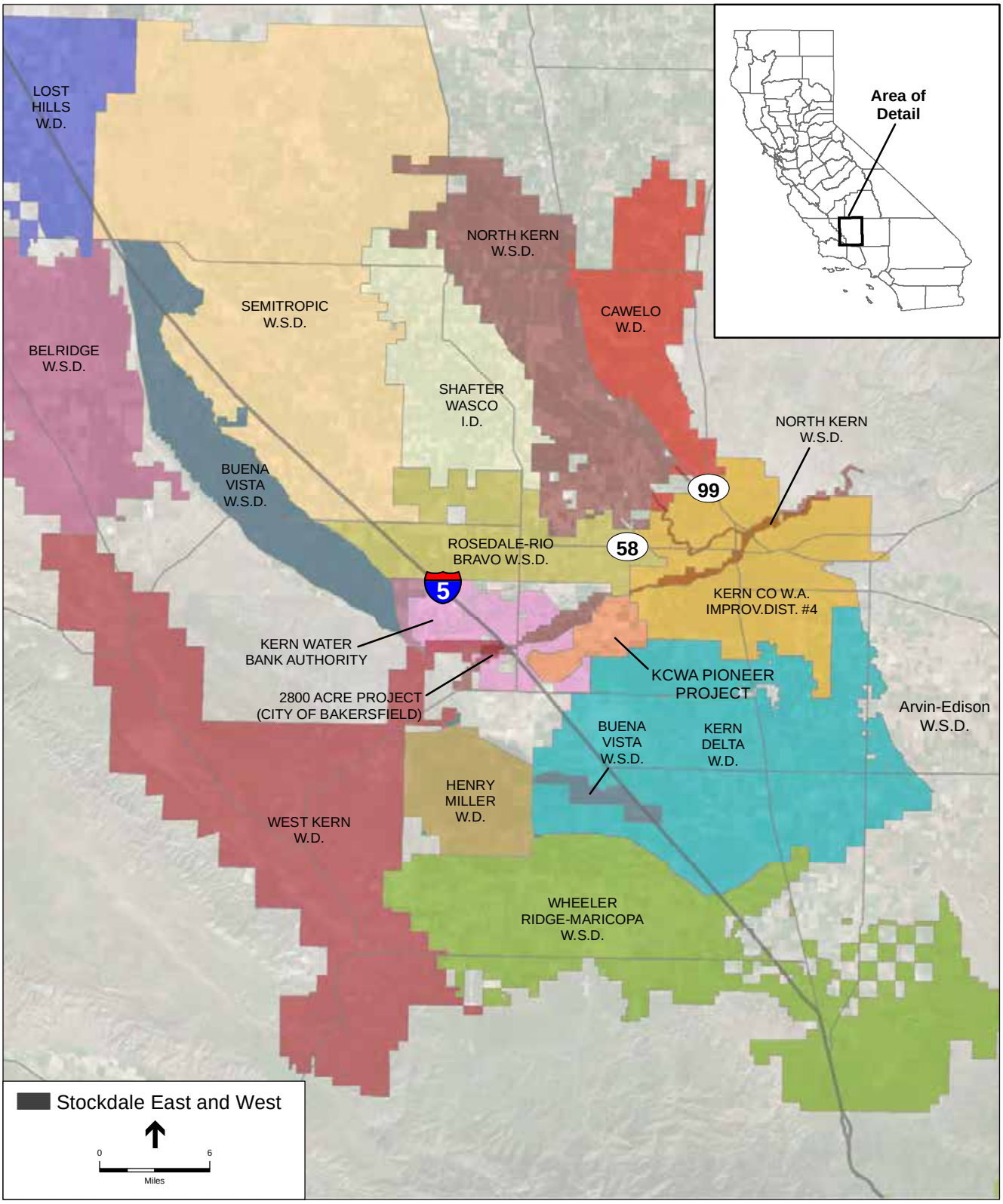
The comment states that the Draft EIR does not discuss the impacts of the proposed project on the City and does not include information about baseline conditions within the City including the City's baseline water rights. The comment states that the City will provide one of the primary water sources to the proposed project through its transfer of Kern River water to Rosedale pursuant to the 1961 agreement and as such the City's water supply would be affected. The comment states that the boundaries of the City overlap with the boundaries of Rosedale and as such the extraction of groundwater associated with the proposed project would impact the City's operation of the nearby 2800 Acre recharge and water banking facility.

The proposed project would have no impact to the City or its water supplies. The 1961 agreement with Rosedale for the transfer of Kern River is an existing agreement that would not be altered by the proposed project and as such would not affect the City's water supply.

The Draft EIR describes regional groundwater banking projects in Kern County, including the City's 2800 Acres project, on pages 3.9-4 and 3.9-5 and Figure 3.9-1. In response to the comment, Figure 3.9-1 has been revised to include a label for the City's project, which is located south of the proposed project sites and south of the Kern Water Bank Authority (KWBA) along the Kern River.

Impacts associated with groundwater pumping are described in the Draft EIR on pages 3.9-22 through 3.9-26 and in Appendix E. In general, as a groundwater banking project that requires recharge prior to extraction, the proposed project would not affect the City's water supplies as a result of groundwater pumping. However, groundwater pumping would result in localized impacts to groundwater levels at wells surrounding the proposed project sites. The impact would be greatest directly adjacent to the project sites and at the closest neighboring wells and would decrease with distance from the project sites. The closest wells to the project sites belong to the KWBA and the impact analysis and determination are based on impacts to KWB Well 6D03. Impacts were determined to be less than significant without mitigation. As shown in the groundwater elevation maps in Appendix E (see Figures 23 and 24) during historic low groundwater levels pumping at Stockdale East and Stockdale West could affect water levels as far south as the Kern River in the vicinity of the City's 2800 Acres project. However, the effect would be approximately 0 to 5 feet in the shallow/intermediate aquifer (Appendix E, Figure 23) and 5 to 10 feet in the deep aquifer (Appendix E, Figure 24), substantially less than the 17 to 27 feet of drawdown potentially at the KWB Well 6D03 (see Draft EIR, Table 3.9-1). Therefore impacts of groundwater pumping to the City's 2800 Acres project also would be less than significant.

See also responses to City-10, City-60, and City 77.



SOURCE: ESRI 2013, California Department of Water Resources

Stockdale Integrated Banking Project . 211181

Figure 3.9-1

Kern County Water Districts

City-85

The comment suggests that the Draft EIR fails to review the impacts of the proposed project on the City in direction violation of CEQA requirements.

Impacts on the City are discussed in Chapters 3 and 4 of the Draft EIR (Section S.6 page 3-7). See also response to City-10, City-83 and City-84.

City-86

The comment assumes that the City will provide water to Rosedale for project purposes and opines (with reference to California case law (*Friends of the Santa Clara River v. Castaic Lake Water Agency* (2002) 95 Cal.App.4th 1373)) that the Draft EIR must describe and assess the impacts of the alleged transfer.

The assumption is incorrect; the proposed project is not dependent on a transfer of water from the City to Rosedale at any particular time, in any particular amount, or at all. Also as stated above, any actual transfers as may occur will be subject to consent of the water right holders and entities having jurisdiction. See also responses to City-32, and City-34.

City-87

The comment states that the Draft EIR evaluates impacts of the proposed project on the local groundwater basin but does not discuss the impact to groundwater supplies and the groundwater basin underlying Rosedale and the City. The comment states that the Draft EIR does not identify the impact of the proposed project on other banking projects and programs in the area, groundwater levels in the vicinity of the project, related impacts on the basin and local water supplies as a result of the extraction of water, and the transfer of water from the proposed project out of the region.

Regarding the impact of the project to groundwater supplies, local water supplies, other groundwater banking projects and programs in the area, and groundwater levels in the vicinity of the project, please refer to responses to City-83 and City-84. Regarding the transfer of water from the proposed project out of the region, please refer to response to City-2 and City -66.

City-88

The comment states that the Draft EIR does not include information related to the claims of reductions in future overdraft conditions in the underlying groundwater basin on page 3.2-13; as such the effect of the project on overdraft conditions cannot be determined.

The Draft EIR includes the following statement on page 2-4: “Stockdale East and West are currently not within the boundaries of a public water agency, and thus water extracted historically for agricultural irrigation has not been replenished.” As such, historic pumping without replenishment at these properties has contributed to overdraft conditions in the basins.

In addition, it is general knowledge that the local groundwater basin is, and has historically been, experiencing overdraft conditions. As stated in on page 1-9 of Chapter 1 of the Draft EIR:

> Rosedale's service area overlies the Kern County Subbasin of the San Joaquin Valley Groundwater Basin. Rosedale was established in 1959 to develop a groundwater recharge program to offset overdraft conditions in the underlying basin. Prior to the groundwater recharge efforts initiated by Rosedale, groundwater levels in the District were declining at a rate of eight to ten feet per year. Through implementation of groundwater recharge programs and participation in the State Water Project (SWP), Rosedale slowed the decline in groundwater levels dramatically. In the mid-1990s, groundwater levels again were declining, and Rosedale initiated the Conjunctive Use Program.

In addition, the City itself makes reference to the overdrafted basin in its comment letter on page 4 (City-12), citing the California Department of Water Resources' identification of the Kern County sub-basin as being in "a critical condition of overdraft," as well as on page 5 (City-14), page 25 (City-97), and page 28 (City-108). The Draft EIR references the DWR determination of the overdrafted basin on page 3.9-17.

In addition, as stated in the Draft EIR, groundwater banking projects are designed to maintain a positive project balance such that no net water would be removed from the basin. The projects operate by recharging water in wet years and recovering water in dry years. Water banks only recover water up to the amount previously banked minus an amount to account for losses to the basin. Thus, long term trends have shown improvements in groundwater levels, when compared to a no-project condition (see Section 4.3 at page 4-14).

City-89

The comment states that the claim that the proposed project does not require a new water supply is contradicted by the repeated reference to and discussion of water supplies that will be used by the project.

As described in the Draft EIR, the proposed project does not require new water supply entitlements. The project will opportunistically use water supplies as available, primarily during wet hydrologic periods, as described on page 2-8 and 2-9 of the Draft EIR. During wet periods, when water is plentiful and State reservoirs are full to capacity, agencies like the Bureau of Reclamation and DWR make excess water available to water purveyors with storage capacity as long as conveyance capacity is available as well. For example, the Bureau of Reclamation makes excess, non-storable flood water available during wet years through the CVP. DWR also makes uncontrolled excess water that cannot be stored in state reservoirs available through the SWP during wet years. In addition, the U.S. Army Corp of Engineers mandates the release of Kern River water from Isabella Reservoir during wet years for flood control purposes. During such periods, Kern River water may be available for diversion to the project, allowing for recharge of Kern River water that would have otherwise flowed out of the County.

See also response to City-2 and City-8.

City-90

The comment states that the Draft EIR only evaluates localized impacts on groundwater resources within Rosedale and the project area and adjacent wells and does not evaluate longer term impacts on the groundwater basin or groundwater levels and quantities farther removed from the project areas.

The Draft EIR evaluates the extent to which operating the proposed project would affect groundwater levels on pages 3.9-22 through 3.9-30. As discussed above under responses to City-83 and City-84, the localized impacts would be greatest directly adjacent to the project sites and would decrease with distance from the project sites. The longer-term impacts to the Kern County sub-basin due to operating the project in conjunction with other groundwater banking programs are discussed as part of the analysis of cumulative impacts in Chapter 4 of the Draft EIR, on pages 4-13 through 4-15. The analysis lists the other groundwater banking programs in the Kern Fan area on page 4-14 and goes on to explain how groundwater banking projects are designed to maintain a positive project balance such that no net water is removed from the basin, since water banks only recover water up to the amount previously banked minus an amount to account for losses to the basin. The analysis goes on to document how long-term trends have shown improvements in groundwater levels, although periods of groundwater recovery can temporarily lower groundwater levels. These fluctuations are illustrated by the historical record of groundwater levels shown in Figure 3.9-2, for a monitoring well close to the project area.

City-91

The comment states that the Draft EIR does not sufficiently describe the local groundwater basin or consider other uses of or burdens on the basin. The comment states that the Draft EIR does not identify other entities that pump water from the basin, describe the quantities and timing of groundwater extractions from the basin, or discuss the impact of pumping of other parties on the basin in connection with the proposed project.

The local groundwater basin, namely the Kern County Subbasin of the San Joaquin Valley Groundwater Basin, is described in the Draft EIR on page 3.9-3 through 3.9-11, including both regional and project-site specific information about hydrogeology and groundwater levels; groundwater banking, recharge, recovery, and storage; and groundwater quality. The other entities that pump from the basin are included on page 3.9-4 and 3.9-5. Groundwater recovery operations in the Kern Fan area is discussed on page 3.9-7. The impact of pumping associated with the proposed project together with pumping associated with other entities and groundwater banking programs are discussed as part of the cumulative impacts analysis in the Draft EIR on pages 4-13 through 4-15.

City-92

The comment states that the Draft EIR does not assess the actual impact of increased groundwater banking and pumping in the area by other entities. The comment states that the Draft EIR provides general, vague statements and information about the groundwater basin, other spreading projects and the extraction of water from the basin.

Please refer to response to City-91 above. The impact of pumping associated with the proposed project together with pumping associated with other entities and groundwater banking programs are discussed as part of the cumulative impacts analysis in the Draft EIR on pages 4-13 through 4-15. The comment does not specify what the claimed increase in groundwater banking and pumping would be and does not specify what statements and information in the Draft EIR are general and vague.

City-93

The comment states that the Draft EIR relies on historical groundwater pumping data that is not reasonable in the present situation due to the long-term drought, which is increasing pumping and leading to new banking projects and facilities. The comment states that the reliance on past historical data does not accurately assess the impacts of the proposed project.

The Draft EIR includes a description of the justification for using the range of historical groundwater conditions as its baseline on pages 3.9-22 and 3.9-23. The period chosen includes historical low and historical high groundwater conditions. The Draft EIR states on page 3.9-23 that the historic lows "may have been met or exceeded, given the current and ongoing drought conditions (Kern Fan Monitoring Committee, 2015)." The Draft EIR states on page 3.9-23 that the period was chosen "for the purpose of identifying the potential effects on a representative range of groundwater conditions, particularly the maximum potential effects." See also response to KCWA-24.

City-94

The comment states that the limited information about groundwater conditions does not adequately support the conclusion that the project will have a less than significant impact on the environment.

Please refer to responses City-87 through City-93 above. The comment does not clarify which less-than-significant impact determination it claims is not adequately supported.

City-95

The comment states that the Draft EIR should have disclosed information and potential impacts regarding critical habitat for the Buena Vista Lake Shrew. The comment states that the City's 2800 Acre Recharge Area has been "designated or proposed for designation as 'critical habitat' for the Buena Vista Lake Shrew." The comment further states that the Draft EIR should have determined and discussed whether the species could be found on the project site.

The Buena Vista Lake shrew was disclosed in the Biological Resources Technical Report, included as Appendix D1 to the Draft EIR. As explained therein on page 24, the Buena Vista Lake shrew occupies the marshlands of the San Joaquin Valley and the Tulare Basin and is unlikely to occur in the project area. The Biological Resources section of the Draft EIR states on page 3.4-8 that only the species with a medium or high potential to occur in the project area and associated vicinity are explained in detail in Section 3.4, and directs the reader to Appendix D-1 Biological Resources Technical Report for a full listing of all species considered.

City-96

The comment states that the Draft EIR does not consider the impacts associated with pumping of new project recovery wells with respect to the generation of GHG at electric-power generating plants due to increased energy demands. The comment states that the Draft EIR does not assess the impacts of increased GHG emissions from municipal use of water from the project within Irvine.

The analysis of GHG emissions specifically calculates the annual metric tons of CO2e associated with energy use from project recovery operations (see Draft EIR, Table 3.7-2). The Draft EIR states that electricity use can result in GHG production if the electricity is generated by combustion of fossil fuel (page 3.7-16).

The proposed project would use existing conveyance facilities to move water from the proposed project to IRWD's service area. The water would be used during times of water shortages when supplies typically available during normal years or operating conditions are unavailable. Given there would be no new facilities to convey water to IRWD's service area and the water would offset normal supplies, there would be no effect to GHG production.

City-97

The comment states that the Draft EIR does not evaluate increased energy consumption and generation and related increases in GHG emissions caused by pumping from lower groundwater levels at nearby wells and increased demand on an already overdrafted basin as a result of the proposed project.

The proposed project would not increase demands on an already overdrafted basin. There would be no project recovery unless and until water is recharged first, as required by the project description. The project would result in long-term increases in water levels within the basin; potential decreases in water levels will be localized and short in duration and are thus not expected to result in net increases in energy consumption or net increases in generation of GHG emissions.

City-98

The comment states that the Draft EIR discussion of cumulative impacts related to other similar projects in the region is inadequate and incomplete. The comment states that the Draft EIR does not provide information about other banking projects in the area, does not identify the source of water for other banking projects, quantities of water recharged and pumped, the extent and rate of pumping, quantities of water pumped, and planned changes in operation.

The analysis of cumulative impacts is required to evaluate the project's contribution to cumulative impacts when considered together with the effects of past, current, and probably future projects (Draft EIR, page 4-1). As stated in the Draft EIR, an EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable", and an EIR should not discuss impacts that do not result in part from the project evaluated in the EIR (Draft EIR, page 4-1).

The impacts of the proposed project to groundwater are described in Chapter 3.9 of the Draft EIR. The proposed project would not affect groundwater levels at other water banks within the Kern Fan area with the possible exception of the KWBA. Therefore, it follows that no cumulative impacts to groundwater levels at other water banks would be associated with operation of the proposed project.

Information about other water banking projects that were included in the analysis of the cumulative impacts, including a description of those projects' respective water supply sources, is included in section 4.2.4 of the Draft EIR.

City-99

The comment states that the cumulative impact analysis does not disclose whether other banking projects are using the same water supplies to be used by the proposed project, and therefore the Draft EIR does not properly determine cumulative impacts of the proposed project on local water supplies.

Section 4.2.4 of the Draft EIR discloses other water banking projects and the sources of supply used in their respective operations. For a further discussion of the proposed project's water supplies, see response to City-2 and City-8.

City-100

The comment states that without information about operation of other banking projects, the Draft EIR cannot accurately assess the cumulative impact of substantial increased pumping in the region as a result of the project. The comment states that if other banking projects were planning to drill more wells or increase pumping, the cumulative impacts of the proposed project would be different than described in the Draft EIR.

The cumulative impact analysis on pages 4-13 through 4-18 of the Draft EIR considers the effects of recovery operations associated with the proposed project together with the Kern Water Bank operation and other recovery projects in the vicinity. There are no other known recovery projects that could contribute to the cumulative groundwater condition; the analysis of cumulative impacts in the Draft EIR is therefore sufficient.

City-101

The comment states that the Draft EIR does not discuss cumulative impacts of the proposed project on the Kern River and other local water supplies and sources. The comment states that the Draft EIR does not provide information about baseline conditions in the Kern River and the impact of the proposed project on the Kern River.

Surface water hydrology and water quality for the Kern River are generally described in the Draft EIR on pages 3.9-2 to 3.9-3. The proposed project would not affect diversions from the Kern River, and as such, would not affect flow in the Kern River. Please see responses to City-60 and City-77.

City-102

The comment cites legal principles with reference to California case law [*Citizens to Preserve the Ojai v. County of Ventura* (1985) I 76 Cal.App.3d 421, 431; *Whitman v. Board of Supervisors*, (1979) 88 Cal.App.3d 397, 408].

The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record.

City-103 and City-104

The comment states that an EIR must identify areas of known controversy and that the Introduction chapter of the Draft EIR indicates that various "concerns" raised during the public comment period and scoping session for the proposed project have been addressed in Chapters 3 and 4 of the Draft EIR. The comment states that the Draft EIR does not sufficiently identify or summarize all areas of controversy including the issues and concerns raised by the City in its comments to the NOP.

As required by 14 Cal. Code Regs. § 15123(b)(2), the Executive Summary of the Draft EIR includes areas of known controversy, including the "adverse impacts to the City's water supply and surrounding environment" (Draft EIR, page S-7). Issues and concerns raised during the public comment period for the NOP are not necessarily considered to be an area of known controversy. Rosedale as the Lead Agency is not required to respond to comments submitted during the public scoping period or in response to the NOP. As required by CEQA, Rosedale has considered all comments submitted in response to the NOP when determining the scope of the analysis in the EIR, including the City's NOP comment letter. Nonetheless, given the City's incorporation of its NOP letter with its comments on the Draft EIR, responses to the City's NOP comment letter are also included herein. Issues raised by the City that Rosedale has determined would not be affected by the proposed project may not be included in the Draft EIR, nor would non-environmental concerns and objections about the project. However such concerns and objections may be considered by Rosedale before making a final decision on the proposed project.

In response to the comment the text of the Executive Summary has been modified on page S-7 as follows:

> During the public comment period and during scoping sessions held for the proposed project, concerns were raised regarding potential adverse impacts to the following: water quality; special status species; water supply sources for the proposed project; and adverse impacts to the City of Bakersfield's water supply and surrounding environment. These concerns have been considered in the development of the scope of the environmental analysis included ~~addressed~~ in Chapters 3 and 4 of this Draft EIR.

City-105

The comment suggests that Rosedale has violated CEQA by failing to adequately summarize the main points of disagreement between the City and Rosedale as required by *CEQA Guidelines* Section 15151.

That *CEQA Guidelines* Section provides, in pertinent part, that an EIR "…should summarize the main points of disagreement among the experts." Rosedale is not aware of any disagreement among experts with respect to the proposed project. As to areas of controversy between the City and Rosedale, the EIR states (as modified in response to City-104 above) the following: "During the public comment period and during scoping session held for the proposed project, concerns were raised regarding potential adverse impacts to the following: water quality; special status species; water supply sources for the proposed project; and adverse impacts to the City's water supply and surrounding environment. These concerns have been considered in the development of the scope of the environmental analysis included ~~addressed~~ in Chapters 3 and 4 of this Draft EIR. (Section S.6 page S-7).

City-106

The comment states that the Draft EIR fails to identify and discuss a significant area of controversy involving competing claims to, and disputes over, rights to the "floodwaters" historically released from Isabella Reservoir, based on competing applications to appropriate such water filed with the SWRCB.

No such controversy exists. Please see responses to City-8, City-32, City-34, City-36 and City-37.

City-107

The comment states that an EIR must identify and describe mitigation measures that minimize significant effects on the environment. The comment states that the Draft EIR does not identify potential measures to mitigate "a number of significant environmental effects that would result from the Project." The comment states that the Draft EIR does not identify measures to mitigate reduced flows in the Kern River or the transfer of local water supplies to Irvine.

The comment does not specify any significant environmental effects are not mitigated except for impacts to flow in the Kern River. As stated in response to City-2, the proposed project would not result in the transfer of local Kern River water to IRWD's service area. In the event Kern River Water is used as a source of recharge water for the project, as stated in responses to City-60 and City-77, the proposed project would not affect flow in the Kern River, and as such no mitigation measures are required.

City-108

The comment states that the Long Term Operation Plan (LTOP) is not sufficient mitigation for impacts to groundwater resources and neighboring wells. The comment states that the LTOP "lacks necessary details, or will not actually address or alleviate adverse groundwater impacts and conditions resulting from the Project." The comment states that the primary mitigation measure in the LTOP involves "providing compensation to lower the 'well pump' in wells negatively

impacted by the Project." The comment states that such a measure would "allow a neighboring well owner to further deplete an already overdrafted, basin and would exacerbate, not mitigate, adverse impacts. The comment states that Rosedale has not proposed mitigation to address and alleviate negative impacts, such as a reduction in pumping, temporary interruption in pumping, reduction in the number of wells used to extract water, reduced pumping rates, and increased recharge or conjunctive use measures.

As explained in the Draft EIR on page 3.9-19, the proposed project would have a significant impact if it would: *"[s]ubstantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)."* As a groundwater banking project that requires recharge prior to extraction, the proposed project would not deplete groundwater supplies or result in a net deficit in aquifer volume. The proposed project may have temporary, localized impacts during operation of project recovery wells, as described in the Draft EIR on page 3.9-22 through 3.9-26 and page 4-13 through 4-18. As such, pumping at project wells could lower groundwater levels at neighboring wells and affect their production rates or ability to operate. The LTOP (see Draft EIR, Appendix B-3) provides multiple measures to mitigate such effects to agricultural and domestic wells. These measures would in fact mitigate the impact of lower groundwater levels, ensuring the operation of existing wells in order to support existing or planned land uses. These measures will provide neighboring landowners with the ability to continue overlying uses and, therefore, will not further deplete an already overdrafted basin or exacerbate adverse impacts.

For agricultural wells, Rosedale would provide compensation to lower the well pump if possible, if groundwater levels are within the operating range of the well. If groundwater levels are outside the operating range of the well, then Rosedale would either:

- Supply equivalent water supply to the affected landowner from an alternate source at no greater cost to the affected landowner; or
- With the consent of the affected landowner, provide other acceptable mitigation; or
- Reduce or adjust pumping as necessary to prevent, avoid or eliminate the impact.

Similarly for domestic wells, if production ceases then Rosedale would 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.
- Drill and equip a new domestic well, the cost of which may be subject to offset by the landowner based on betterment.
- If necessary, provide interim in-home water supplies until any action mentioned above is completed.

The comment suggests mitigation may also include "increased recharge or conjunctive use measures." Recovery operations typically occur during dry hydrologic periods when water supply shortages occur and water is not available for recharge. The comment does not clarify what other conjunctive use measures could serve to mitigate localized impacts to groundwater levels and neighboring wells.

City-109

The comment states that the LTOP only provides compensation as a mitigation measure for impacts to agricultural wells. The comment also states that the LTOP only proposes to mitigate adverse impacts to domestic wells if production ceases or is likely to cease. The comment states that Rosedale fails to provide mitigation for "negative impacts on domestic wells that fall short of complete inability to use the pump" and thus mitigation for domestic wells is insufficient.

Under the LTOP, compensation would be available from Rosedale to implement mitigation measures for impacts to either agricultural or domestic wells.

Regarding mitigation for domestic wells, the LTOP states that the trigger for evaluating impacts to domestic wells is when production ceases or is likely to cease as a result of pumping by Rosedale's project. The clause "is likely to cease" covers impacts to domestic wells when production of such wells is compromised but not completely inoperable. If this trigger is not reached then the proposed project would not adversely affect domestic wells, and no other mitigation is required.

City-110

The comment states that it is not reasonable for Rosedale to propose providing a connection to the nearest water service provider as mitigation for complete cessation of production from an existing domestic well. The comment states that such an action would further exacerbate negative impacts on water supplies by increasing domestic water service to a new customer. The comment states that Rosedale does not explain how a nearby water service provider would have sufficient supply to serve a new customer or could legally or practically serve a new customer. The comment states that the City would be a potential nearby water service provider but City ordinances prevent the City from serving customers outside of City limits.

The comment also states drilling of a new well following complete cessation of production from a domestic well would further burden the groundwater basin.

Regarding a connection to the nearest water service provider, in most instances the connection would be to Vaughn Water Company's supply and distribution system. As with all connections to Vaughn Water Company, the Company determines whether it is legally and practically able to supply a proposed connection at the time an application is made.

Regarding drilling of new wells, such mitigation would allow for existing well owners to continue to serve existing or planning land uses. Additionally, as mentioned above in response to City-108, drilling of a new well is one of a menu of options available to Rosedale and the landowner to mitigate the impact.

Neither form of mitigation will "further exacerbate negative impacts on water supplies by increasing domestic water service to a new customer" because either form will only serve to replace existing uses and will therefore not increase demands on the groundwater basin.

City-111

The comment states that the discussion of alternatives in the Draft EIR is "highly flawed and inadequate" primarily because the stated project objectives are vague, incomplete and self-serving.

Please see response to City-50. The stated project objectives are neither vague nor incomplete. Thus it follows that the analysis of alternatives is adequate.

City-112

The comment states that the Draft EIR only considers "slightly alternative variations" on different versions of a water banking project, including the same project at a different location and the use of injection wells. The comment states that the Draft EIR does not consider alternatives for Rosedale that might improve its operational flexibility, and thus the Draft EIR is deficient. The comment goes on to list other potential alternatives for Rosedale.

The Draft EIR explains the CEQA requirements for the analysis of alternatives on page 6-1. *CEQA Guidelines* state that an EIR shall describe a range of reasonable alternatives to the project, or to the location of a project that 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 (14 Cal. Code Regs. § 15126.6). As stated in the Draft EIR, an EIR need not consider every conceivable alternative, but must consider a reasonable range of alternatives that fosters informed decision-making and public participation. The "rule of reason" governs the selection and consideration of EIR alternatives, requiring that an EIR set forth only those alternatives necessary to permit a reasoned choice (14 Cal. Code Regs. § 15126.6). Alternatives may be eliminated from detailed consideration in the EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid any significant environmental effects (14 Cal. Code Regs. § 15126.6(c)). Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the lead agency can reasonably acquire, control or otherwise have access to the alternative site.

According to *CEQA Guidelines*, an EIR must identify ways to mitigate or avoid significant effects of a project, and thus "the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project" (14 Cal. Code Regs. § 15126.6(b)). As summarized in Table ES-1 in the Draft EIR, the proposed project would not result in any significant and unavoidable environmental impacts. Nonetheless, Chapter 6 of the Draft EIR provides an assessment of five project alternatives that were considered but rejected, along with the No Project Alternative as required by CEQA (14 Cal. Code Regs. § 15126.6(e)). Table 6-2 on page 6-9 of the Draft EIR provides a matrix that summarizes the comparison of alternatives (14 Cal. Code Regs. § 15126.6(d)).

The Draft EIR does not need to evaluate the additional alternatives suggested in the comment because none of them would serve to mitigate a significant and unavoidable environmental impact.

City-113

The comment states that the alternatives analysis is deficient because Rosedale does not consider an alternative to out-of-County sales of local water to IRWD. The comment states that Rosedale should consider alternatives involving local districts.

The proposed project would not result in the sale of local Kern River water to IRWD, and the project recharge is not dependent on the availability of Kern River water at any particular time or at all. See response to City-2. Alternatives involving local districts instead of IRWD would not satisfy the objectives for IRWD's portion of the proposed project involving its Stockdale West property, effectively eliminating the Stockdale West part of the project and being the same as the No Project Alternative, examined in Section 6.2.2, for IRWD.

City-114

The comment states that the discussion of alternatives for IRWD is incomplete, and the Draft EIR does not provide sufficient explanation for rejection of these alternatives. The comment states that the Draft EIR fails to consider reasonable, feasible alternatives for IRWD.

The Draft EIR provides the following explanations for rejection of the three alternatives mentioned in the comment (Draft EIR, pages 6-6 and 6-7):

- Orange County Storage: Orange County Water District is not partnering with individual retail water agencies to develop groundwater banking programs at this time; therefore, a groundwater banking program within Orange County is not feasible. Constructing surface water storage (e.g., reservoirs, tanks) in Orange County would have significant environmental impacts and would be cost prohibitive due to the land acquisition costs associated with a site big enough to store a volume of water equivalent to the proposed project.

- Conservation: IRWD already manages extensive water conservation programs. Conservation does not achieve the objective of the proposed project, however, to provide IRWD customers with increased water supply reliability through redundancy and diversification during periods when existing imported supplies are reduced or interrupted.

- Recycled Water: IRWD already implements an extensive water recycling program. When imported water supplies may be cutback due to drought or interrupted, IRWD cannot use recycled water to meet potable water demands and therefore would need to augment potable water supply. Therefore, recycled water was not considered as a feasible project alternative.

As described above in the response to City-112, the proposed project would not result in any significant and unavoidable environmental impacts and as such alternatives are not required.

Nonetheless, the Draft EIR discusses alternatives considered for IRWD's portion of the project. See also response to City-118.

City-115

The comment states that the Draft EIR improperly rejects the "alternative storage and supply options" because on page 6-5 of the Draft EIR it is does not explain why IRWD is not partnering with other agencies at this time, or why that would not be a viable alternative, or why IRWD cannot change its position or policy. The comment also states that the Draft EIR does not explain why IRWD chose to develop a groundwater banking program with Rosedale, as opposed to another agency. The comment also states that the Draft EIR does not provide justification for rejection of alternatives involving storage or supply projects with MWD.

Alternatives involving IRWD's development of a banking program with an agency other than Rosedale would not satisfy the objectives for Rosedale's portion of the proposed project involving its Stockdale East property or integration of IRWD's Stockdale West with Rosedale's Conjunctive Use Program, effectively being the same as the No Project Alternative, examined in in Section 6.2.2.

On page 6-5 of the Draft EIR, it states that Orange County Water District (OCWD) is not partnering with retail water agencies (such as IRWD) to develop groundwater banking programs at this time. OCWD manages the local Orange County Groundwater Basin. IRWD has no control over OCWD's positions or policies. The Draft EIR concludes that a groundwater banking program in Orange County is not feasible.

The Draft EIR does not provide justification for rejection of an alternative storage project with MWD because no such alternative was proposed or described.

City-116

The comment states that the Draft EIR fails to explain the rejection of alternatives involving conservation and recycled water. The comment states the Draft EIR does not explain how much water these alternatives could produce, and that there is no explanation of the amount of supplemental water IRWD needs.

The reasons for rejecting the conservation and recycled water alternatives are provided on page 6-6 and 6-7 of the Draft EIR and summarized above in response to City-114. In the project description, it is stated that IRWD desires a storage capacity of approximately 88,000 AF for its contingency storage (Draft EIR, page 2-3). There is no explanation of how much water the alternatives could produce, relative to the 88,000 AF that IRWD desires, because such is not the foundation for rejecting these alternatives. Recycled water cannot be used to meet potable water demands during a water shortage and thus is not an appropriate project alternative. Conservation does not achieve the objective of providing increased water supply reliability through redundancy and diversification during periods when existing imported supplies are reduced or interrupted; thus conservation is not an appropriate project alternative either. See also responses to City-7, City-118 and City-119.

City-117

The comment states that IRWD's claim that conservation cannot produce enough water to meet the objectives of the Program lacks credibility in light of the recent declaration by the Governor of the State of California calling for all water users in the state to reduce water consumption by 25 percent.

In the Alternatives Analysis on page 6-5, IRWD's water conservation program to reduce water demand in its service area is described. IRWD has implemented programs that comply with or exceed prescribed urban water conservation Best Management Practices requirements under the California Urban Water Conservation Council. Conservation alone was not considered feasible to achieve the project objectives (page 6-6). The proposed project supports the Governor's 2014 conservation initiatives by providing water supply reliability for future conditions (page 2-4). The 2015 Emergency Regulation mandated a 25% aggregate demand reduction statewide (a temporary measure that will expire in February 2016). Agencies with higher potential for reductions are assigned higher targets, and those that are already efficient are assigned lower targets. IRWD's target is lower than 25% in recognition of the significant conservation already achieved by IRWD, and resultant demand hardening. The 2015 Emergency Regulation is targeted solely at temporary demand reductions, and does not address enhanced supply reliability.

The Draft EIR states on page 6-6:

Under extreme shortage scenarios, IRWD can temporarily implement further demand reduction efforts as described in IRWD's Water Shortage Contingency Plan. Conservation efforts combined with supplemental supplies provided by the proposed project to augment IRWD's supply portfolio provide the most effective and reliable water supply alternative. Therefore, conservation by itself was not considered feasible to achieve the project objectives.

City-118

The comment states that the Draft EIR fails to mention or consider a number of other potential, viable alternatives for IRWD including exchanges and transfers, acquisition of additional supplies from MWD or other member agencies, transfers and exchanges with other entities outside of MWD, desalination, increased groundwater pumping, and other operational changes.

Section 5.3 of the Draft EIR provides information on IRWD's water supplies and demands and includes reference to IRWD's most recent Urban Water Management Plan. The proposed project is developed to enhance IRWD's supply reliability under potential scenarios such as MWD shortage due to drought, catastrophic failures of water conveyance infrastructure, a shut-down of Delta water supply, or water quality issues in the SWP. The project includes exchanges and transfers as a way that IRWD can acquire water supplies such as unbalanced exchanges. IRWD evaluates other opportunities for exchanges or transfers that may be available on a short term or long term basis. Exchanges and transfers can be unreliable due to constraints related to conveyance or infrastructure capacity, regulatory approvals, or water quality which make exchanges or transfers unpredictable and do not meet the project objectives. The project is designed to address short term dry year shortages or other catastrophic shortages; as this project is not part of IRWD's normal supply it would be cost prohibitive or infeasible to construct a

seawater desalination facility for this purpose. As stated on page 5-5 of the Draft EIR, IRWD could augment water supplies through increased local Orange County Basin groundwater pumping on a short-term basis. This may be only allowed temporarily, as it is anticipated that other water suppliers who produce water from the Orange County Basin will also experience cutbacks of imported supplies and will increase groundwater production and that imported replenishment supplies would also be cut.

City-119

The comment contends that the discussion of alternatives is inadequate for failure to consider a combination of additional recycled water supplies, water conservation, more efficient irrigation methods, operational changes, and additional alternate water supplies as a complete, viable and environmentally superior alternative to the proposed project.

CEQA Guidelines Section 15126.6 states that an EIR shall describe a range of reasonable alternatives to the project, or to the location of a project that 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 (emphasis added). As stated in the Draft EIR, the proposed project would not result in any significant impacts as documented in the analyses provided in Chapters 3, 4, and 5 of the Draft EIR (Section 6.3 page 6-8). Nonetheless, CEQA requires that an EIR shall assess the No Project Alternative and this was done (Section 6.2.2 page 6-7 and 6-8). Although not required, the Draft EIR did consider conservation and additional recycled water as possible alternatives to the proposed project, in whole or in part, and both were found wanting. While IRWD manages a water conservation program to reduce demand in its service area, such programs do not achieve the objective of the proposed project to provide IRWD customers with increased water supply reliability through redundancy and diversification during periods when existing imported supplies are reduced or interrupted (Section 6.2.1 page 6-6). Similarly, even though IRWD operates an extensive recycled water program meeting 95 percent of all irrigation demand and over 23 percent of that district's total water resource demand, additional recycled water use expansion could not be implemented as an alternative to the proposed project because IRWD needs to augment its potable water supply (emphasis added; Section 6.2.1 page 6-6). Please see also responses to City-114, City-116, and City-117.

City-120

The comment cites legal principles with reference to California case law [*Vineyard Area Citizens for Responsible Growth*, 40 Cal.4th at 432; *Napa Citizens for Honest Government*, 91 Cal.App.4th 342]. The comment states that in *Vineyard*, the court stated that when "it is impossible to confidently determine that anticipated future water sources will be available, CEQA requires some discussion of possible replacement sources or alternatives to use of the anticipated water, and of the environmental consequences of those contingencies"; the comment also references the *Napa Citizens* holding that an EIR cannot label sources speculative and decline to address them.

The comment does not specifically address the environmental analysis contained in the Draft EIR. The comment is noted for the record. See responses to City-41 and City-42.

City-121

The comment states that Rosedale fails to properly consider the no project alternative, which should have demonstrated that without the proposed project, IRWD would not have a supplemental water supply and Rosedale would not have operational flexibility. The comment states that "[n]either of those results appears too problematic" in comparison to the adverse impacts that would result from the project, namely "significant adverse impacts on the Kern River, the groundwater basin, the City and local water supplies.

On page 6-8 of the Draft EIR, the alternatives analysis does in fact state that under the no project alternative, Rosedale would not achieve the objective of operational flexibility and IRWD would not achieve the objective of water supply reliability and redundancy. Given that these are the project objectives, the Draft EIR properly states that the No Project alternative would not achieve the project objectives. As explained in response to City-2, City-3, City-8, City-10, City-13, and City-112, the proposed project would not have an adverse impact on the Kern River, the groundwater basin, the City or local water supplies. In fact there are no significant adverse and unavoidable impacts associated with the proposed project (see response to City-3 and City-12) and as such no alternatives are required to minimize impacts of the project.

City-122

The comment urges Rosedale and IRWD to either not implement the proposed project or prepare a "new, more comprehensive and complete EIR which complies with CEQA requirements."

This comment is not specific as to the claimed noncompliance with California law and, thus, a detailed response is not possible. Per Section 15088.5 of 14 CCR, no significant new information has been presented that would result in a new significant environmental impact or a new mitigation measure; no significant new information has been presented that would result in a substantial increase in the severity of an environmental impact; no new feasible project alternatives have been presented that would lessen the environmental impacts of the proposed project; and the project has no significant and unavoidable impacts that require consideration of alternatives to lessen such impacts. The Draft EIR provided an opportunity for meaningful public review and comment. The EIR complies with applicable California law. Rosedale and IRWD need not prepare a new, more comprehensive and/or more complete EIR. See also response to City-3.

City of Bakersfield Exhibit A: Comments on the Notice of Preparation

City NOP-1

The comment states that the City of Bakersfield (City) generally supports the goals and purposes of the proposed project related to Rosedale's efforts to increase its "operational flexibility;" however the comment expresses concern over the scope and content of the EIR.

Please refer to response to City-1 and City-2.

City NOP-2

The comment expresses concern that the project involves transfer or sale of local water supplies from the Kern River out of Kern County to IRWD, and reiterates project details and project

objectives related to IRWD's increased water supply and contingency storage. The comment also states that sales or transfers of local water supplies outside of Kern County are directly contrary to policies of the City, and that development of a water supply for IRWD would logically involve such importation or transfer.

Please refer to response to City-2, City-6, and City-7.

City NOP-3

The comment questions the project's transfer of local Kern County supplies, namely Kern River water, outside of the county, especially in a time of such critical drought. The comment states that "out-of-county" water sales or transfers could cause substantial impacts to groundwater and water supplies.

Please refer to response to City-2.

City NOP-4

The comment states that because of the overlapping boundaries between the City and Rosedale, the EIR should accurately, honestly, and completely review impacts to the City, and review the transfer of local water out of Kern County.

Please refer to response to City-10.

City NOP-5

The comment states that NOP project description is incomplete, vague, and lacking in critical details about the proposed project. The comment also states that the project description lacks information about IRWD's use of water stored or banked in connection with the project.

Please refer to response to City-21, City-43, City-48, and City-52.

City NOP-6

The comment states that the terms "integrate," "coordinate," and "operational flexibility" used to represent the goals and objectives of the project are vague and general, and as such, states that the project description does not indicate how the proposed project will achieve these goals and objectives.

Please refer to response to City-50 and KCWA-3.

City NOP-7

The comment states that without a more detailed description of the proposed project's objectives and goals specified under *CEQA Guidelines* Section 15082(a)(1), the City cannot make a meaningful response to the NOP.

Please refer to response to City-50 for a discussion of project objectives. Contrary to the comment, the NOP was prepared according to *CEQA Guidelines* Section 15082(a)(1), which requires lead agencies to provide sufficient information describing the proposed project and

potential environmental effects, specifically: "(A) Description of the project; (B) Location of the project…; (C) probable environmental effects of the project." The NOP included this information.

City NOP-8

The comment questions why IRWD is not the lead agency for the proposed project, since the agency would benefit from water supply and IRWD appears to have "principal responsibility" for the project. The comment states that Rosedale does not appear to obtain or utilize a new increased water supply in connection with the project.

As explained in the Draft EIR on page 1-2, the proposed project is a joint project of both Rosedale and IRWD. *CEQA Guidelines* specify that if more than one agency carries out a project, only one can be the CEQA lead agency (*CEQA Guidelines* §15050(a)).

Various aspects of the proposed project will be implemented by Rosedale, IRWD, and some by both agencies in coordination with one another. Rosedale will construct and operate the project. The project is to be operated on an integrated basis with Rosedale's other banking facilities, and Rosedale, rather than IRWD, would manage the integration of the project with all of Rosedale's other banking facilities. IRWD will secure supplies for only for a portion of the project, the Stockdale West property and potentially a portion of a third site, if developed, and will schedule its recharge and recovery requests through Rosedale. For the Stockdale East property, Rosedale will have priority use of recharge and recovery facilities. For these reasons Rosedale is considered to be an appropriate lead agency. This is discussed in Section 2.8 of the Draft EIR.

City NOP-9

The comment states that information regarding the source of water to be used for the project is not detailed enough, and that the vagueness for water supplies does not provide sufficient information for agencies to make a meaningful response to the NOP, as detailed in *CEQA Guidelines* Section 15082(a)(1).

Please refer to response to City-25 and City-26 about the sources of recharge water supplies. Contrary to the comment, the NOP was prepared according to *CEQA Guidelines* Section 15082(a)(1), which requires lead agencies to provide sufficient information describing the proposed project and potential environmental effects, specifically: "(A) Description of the project; (B) Location of the project…; (C) probable environmental effects of the project." The NOP included this information. The Draft EIR includes additional detail on potential water sources, which is included in the Project Description on pages 2-9 to 2-11.

City NOP-10

The comment states that the NOP does not examine the impacts of the project on the City, specifically potential impacts from using the same water as that which is proposed for the project. The comment also states that the NOP does not describe the current use of water to be utilized by the project, and does not identify how and to what extent water would be available for use in the project.

Please refer to response to City25, City-26, City-83 and City-84.

City NOP-11

The comment states that the EIR should review impacts of the proposed project on other water supply and banking projects in the area, including those operated by the City (Kern River channel and the 2800 Acre recharge facility).

The Draft EIR includes both projects in the cumulative impacts analysis. The 2800 Acres project is featured as a select related water banking and infrastructure project on page 4-8 and the Kern River channel project is introduced in Table 4-1 on page 4-5. Impacts associated with water supply and banking are discussed on page 4-13 through 4-18.

City NOP-12

The comment states that the NOP does not provide sufficient or detailed information regarding the potential "conveyance facilities" included as part of the proposed project.

Page A-5 of the NOP includes four paragraphs on the conveyance facilities proposed as part of the project. Additional project description-level detail was made available in the Draft EIR in Sections 2.4.4 and 2.5.3 and details regarding operation of the conveyance facilities are provided in Section 2.6.4.

City NOP-13

The comment states that the NOP does not mention consideration of project alternatives including the "no project alternative."

To the contrary, the NOP on page A-6 mentions the fact that the EIR will discuss alternatives to the proposed project, including the no project alternative.

City NOP-14

The comment states that the City reserves the right to comment further and raise objections on the project.

The comment is noted for the record.

References – Final EIR Responses to Comments

Division of Oil, Gas, and Geothermal Resources (DOGGR), 1998. FIELD RULE: San Joaquin Valley Oil Spill Reporting Criteria. August.

Kern County Water Agency (KCWA), 1991. *Regional Geologic Structure Related to Ground Water Aquifers in the Southern San Joaquin Valley Ground Water Basin.* Plate IX.

Thomas Harder & Co. (THC), 2011. *Hydrogeological Impact Evaluation Related to Operation of the Kern Water Bank and Pioneer Projects.* Prepared for Rosedale-Rio Bravo Water Storage District. December 5, 2011.

CHAPTER 11
Corrections and Additions to the Draft EIR

This chapter contains a compilation of revisions made to the text of the Draft EIR by the Lead Agency, in response to the comments received during the 45-day public review period. All revisions are previously introduced in Chapter 10 of this Final EIR but are summarized here for convenience of the reader. Where the responses indicate additions or deletions to the text of the Draft EIR, additions are indicated in underline and deletions in ~~strikeout.~~

Chapter S: Summary

Page S-5:

The proposed project consists of ~~three sites:~~ Stockdale East, Stockdale West, ~~the Central Intake Pipeline alignment, and~~ a third project site that may be made up of non-contiguous parcels and that has yet to be specifically located, and the Central Intake Pipeline.

Page S-7:

During the public comment period and during scoping sessions held for the proposed project, concerns were raised regarding potential adverse impacts to the following: water quality; special status species; water supply sources for the proposed project; and adverse impacts to the City of Bakersfield's water supply and surrounding environment. These concerns have been considered in the development of the scope of the environmental analysis included ~~addressed~~ in Chapters 3 and 4 of this Draft EIR.

Chapter 1: Introduction

Page 1-3:

Figure 1-1 has been revised to show the City of Bakersfield's boundaries.

Page 1-17:

A review of the existing Strand Ranch Project has demonstrated that the groundwater banking program between IRWD and Rosedale has a benefit to the overall water balance within the groundwater basin. Operations of the facilities during the 2011 recharge cycle enabled Rosedale to recharge approximately 45,000 acre-feet of water that would not have otherwise come into the basin. Of this amount, Rosedale retained 25,000 acre-feet. Additional benefits to the basin include the loss factors applied to water banked by IRWD, which represents water that will be retained within the basin and may not be recovered.

Chapter 2: Project Description

Page 2-8:

~~Should water from the sources listed below, or other sources, not suggested below be acquired for recharge, additional analysis may be required. subject to the discretion of Rosedale and IRWD.~~ Rosedale and/or IRWD will analyze the use of identified sources for project purposes to determine the need for and/or extent of future analysis under CEQA.

Page 2-12:

Rosedale shall balance the proposed project's recharge and recovery operations within the geographic areas shown on Figure 2-8.

Page 2-12:

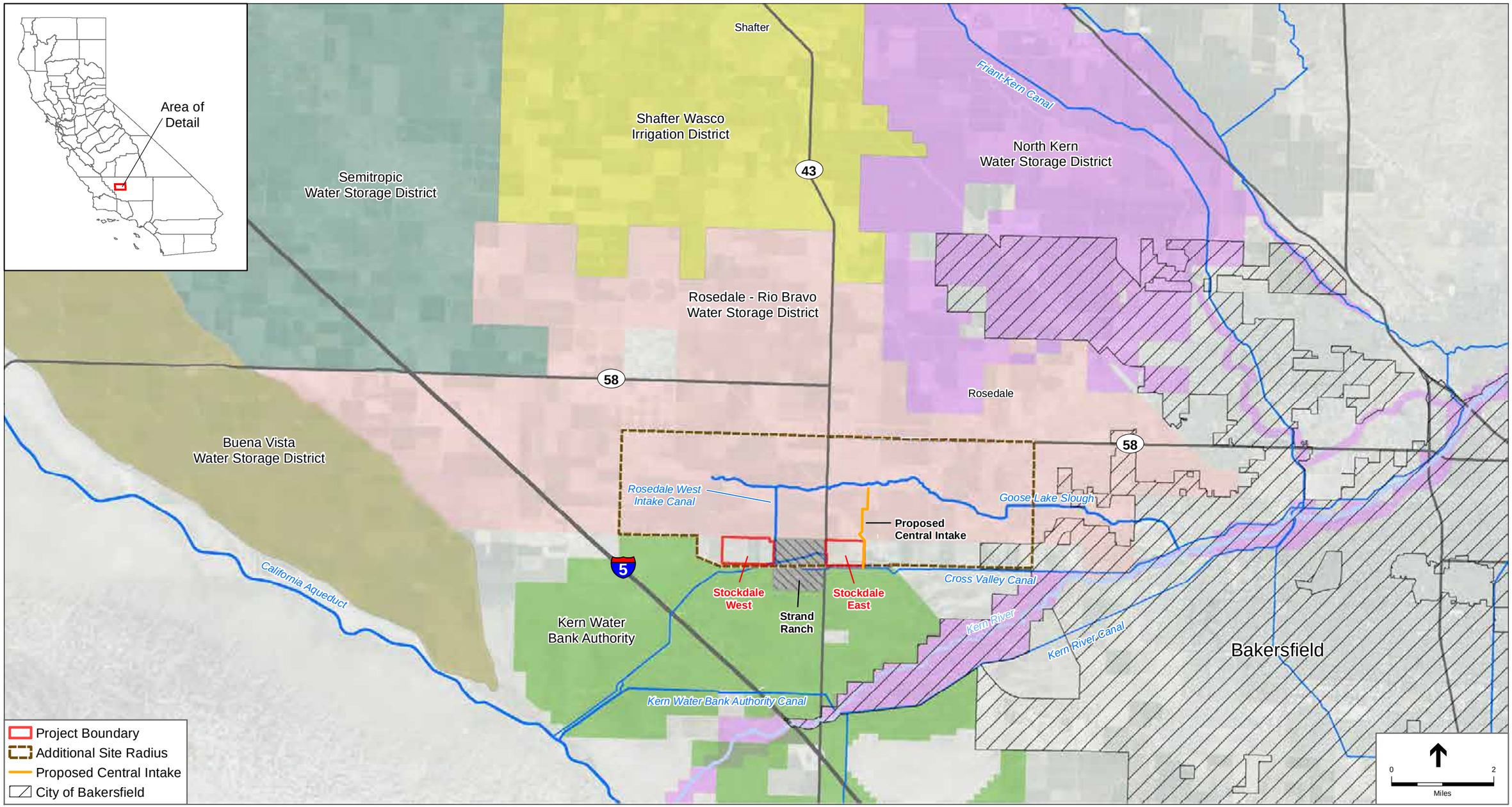
A new Figure 2-8 has been added to the Draft EIR to clarify that recharge and recovery operations associated with groundwater banking will be balanced within the geographic areas shown as Area A and Area B within Rosedale's service area.

Chapter 3: Environmental Settling, Impacts, and Mitigation Measures

Section 3.2: Agricultural and Forestry Resources

Page 3.2-13:

Furthermore, agricultural land uses, such as annual farming, grazing, or fallowing, would be allowed within the basins at the Stockdale Properties when not operated for water recharge or water management purposes. For a discussion of water quality related to farming use, please refer to Section 3.9, Hydrology and Water Quality, from page 3.9-31 to 3.9-32.



SOURCE: ESRI 2013

Stockdale Integrated Banking Project . 211181

Figure 1-1

Regional Location

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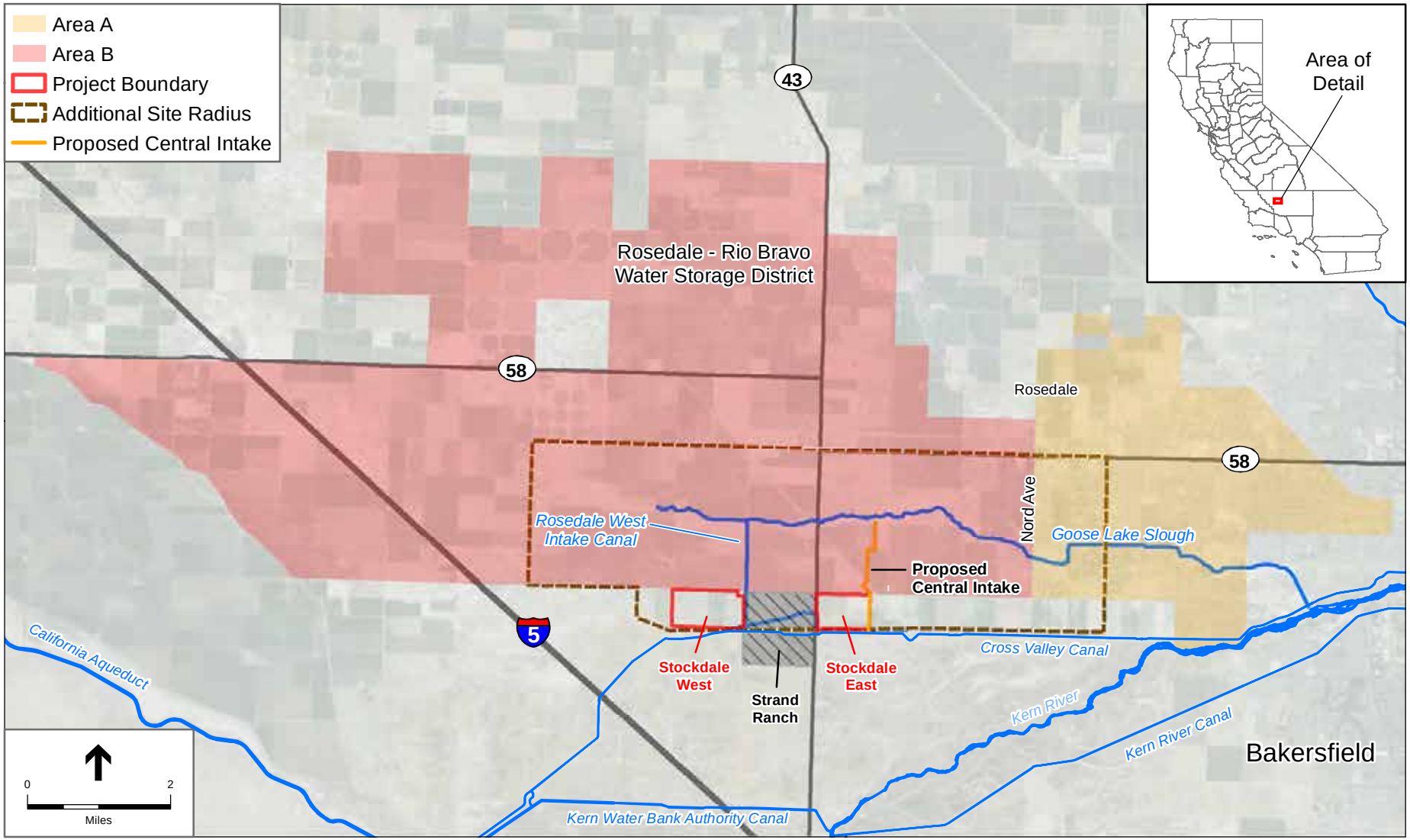


SOURCE: ESRI 2013

Stockdale Integrated Banking Project . 211181

Figure 2-8

Recharge and Recovery Operations Associated with Groundwater Banking

Section 3.6: Geology, Soils, and Seismicity

Page 3.6-15:

During operation of the groundwater recharge basins, the recharge basins would contain water, which would inhibit erosion; during periods of non-recharge, the recharge basins would be subject to wind erosion. However, when not used for recharge, the basins would continue to be used for agricultural purposes. With the continuation of farming, grazing, or fallowing, the existing land cover would not be substantially altered from existing conditions and would not alter the conditions that affect erosion. ~~Plant cover at the project site would minimize wind erosion.~~ Operation of the Central Intake Pipeline would not contribute to wind erosion since the pipeline would be underground running along the edge of Stockdale East and then primarily beneath an existing dirt road between existing agricultural parcels. The dirt road is already denuded of vegetation and would be restored back to existing conditions, resulting in no change in erosion potential.

Section 3.9: Hydrology and Water Quality

Page 3.9-4:

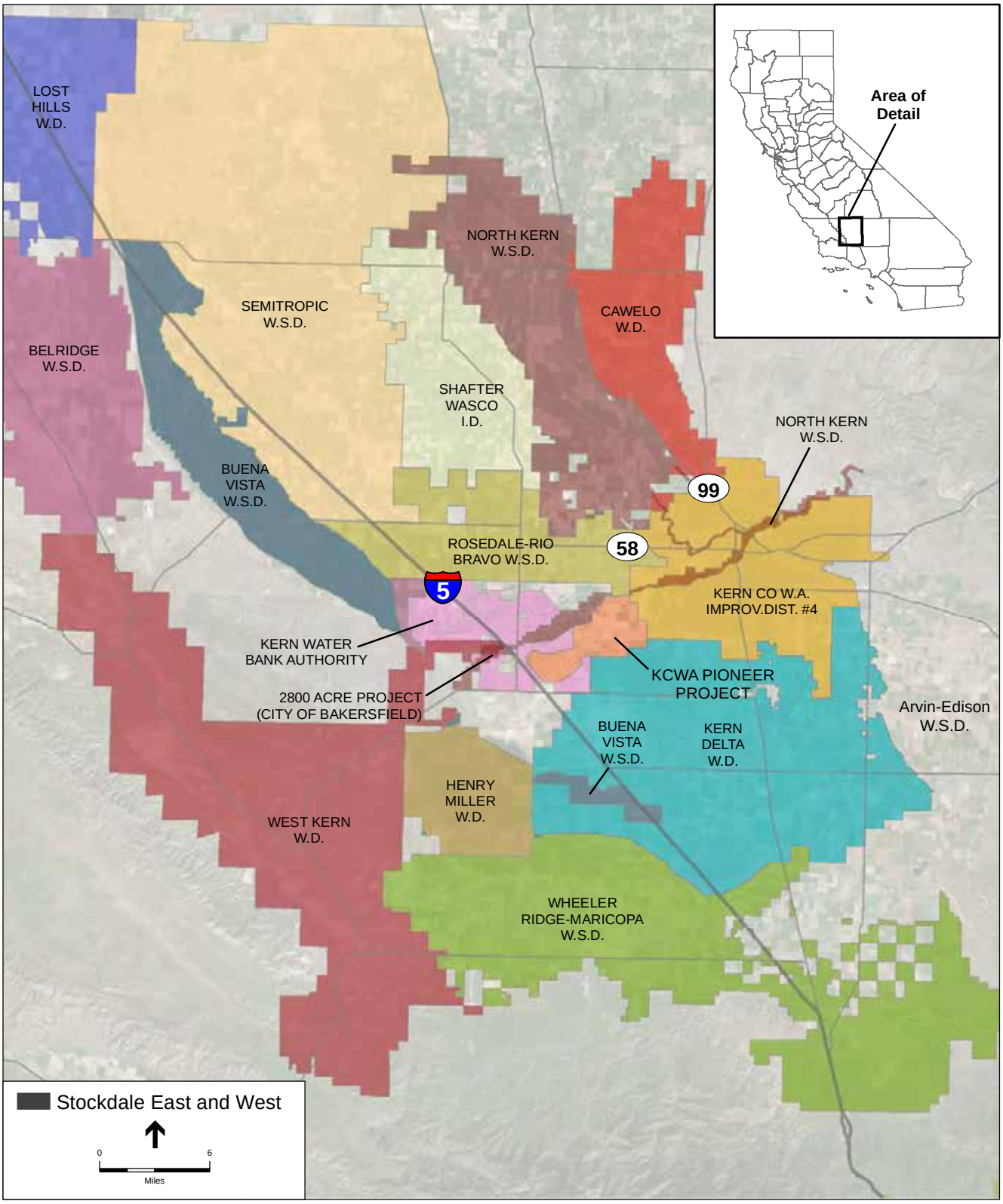
Recharge and recovery activities will generally increase the gradient during the early period of a recharge event due to the effective mounding of the groundwater table and decrease, flatten, or even reverse during a recovery period (THC, 2011).

Page 3.9-6:

Figure 3.9-1 has been revised to include a label for the City of Bakersfield's 2800 Acre recharge and water banking facility project.

Page 3.9-7:

Volumetric recharge rates are controlled by the porosity and permeability of the subsurface materials and total pond area. Throughout the Kern Fan Area and including the area of the third Stockdale project site, existing borehole lithologic data shows that subsurface sediments are highly stratified (i.e. layered) with layers of permeable sand and gravel interbedded with less permeable silt and clay (THC, 2011). The less permeable layers are referred to as aquitards, which impede the vertical flow of water (recharge) but do not prevent it. ~~Aquitards at depth can impede recharge efforts; however on the Kern Fan and in the project area, these layers impede but do not prevent recharge and recovery operations.~~ The porosity of near surface soils tend to be very important to sustaining long term recharges operations. Pore spaces can eventually become clogged with finer grained material transported by the recharge water or by bio-growths found within the recharge water. Local project operators periodically scrape or treat their ponds to remove clogging deposits and encourage the growth of certain types of plants which keep the near-surface soil structure open and porous.



SOURCE: ESRI 2013, California Department of Water Resources

Stockdale Integrated Banking Project . 211181

Figure 3.9-1

Kern County Water Districts

Page 3.9-9:

Significant changes in groundwater levels have occurred during the various recharge and recovery cycles in the project area since 1995 when the Kern Water Bank and Pioneer Project began operations. Extreme changes occurred between 2007 and 2010 when groundwater levels fluctuated as much as 246 feet between historical high levels in 2007 and historical low levels in 2010 (THC, 2015). These conditions have been recorded at nested monitoring wells in the project area where water levels fluctuated from highs of approximately 282 to 305 feet amsl to lows of approximately 36 to 73 feet amsl (**Figure 3.9-2**); given ground surface elevations are approximately 314 to 328 amsl at the monitoring well locations, this translates into high groundwater levels of approximately 31 to 32 feet below ground surface (bgs) and low groundwater levels of approximately 253 to 273 bgs. For the purpose of identifying the potential effects of the proposed project on a range of conditions, including historical low groundwater levels, the period from 2004 through 2010 is selected as the baseline on which to superimpose proposed recharge and recovery conditions in order to determine the greatest potential impacts on water levels ~~assuming the historical groundwater record represents the range of potential groundwater level conditions that could be expected in the future~~.

Use of the 2004 through 2010 time period ensures that an outlier or transitory condition is not used as the baseline condition out of context and provides the public with more accurate information about potential impacts resulting from project operations. The baseline historical groundwater conditions include recharge and recovery operations from nearby existing banking projects (e.g., Kern Water Bank, Pioneer Project, Rosedale-Rio Bravo Water Service District, etc.) including the more recently operating Strand Ranch Project.

Page 3.9-22:

The proposed recharge activities ~~would likely~~ may improve underlying groundwater quality through the blending of high quality surface water such that no adverse effect on water quality would be anticipated (see discussion under Impact HYDRO-5). In addition, the pump-in water quality requirements would ensure that water introduced into the CVC and California Aqueduct would meet KCWA and DWR requirements.

Page 3.9-26:

Subsequent implementation of the third Stockdale project site similarly: may contribute to lower groundwater levels in the project area. If and when the third Stockdale project site is identified, subsequent project-level environmental review will be conducted pursuant to *CEQA Guidelines* Section 15168(c) to determine site-specific effects to groundwater. However, with implementation of Rosedale's LTOP, as described below, impacts to groundwater levels and corresponding impacts to operation of neighboring wells would be considered less than significant.

Page 3.9-32:

The surface water sources for recharge generally have constituent concentrations that are lower than the underlying groundwater or well below drinking water MCLs, and therefore with blending, recharge would not substantially degrade water quality below drinking water standards and may improve groundwater quality ~~would likely improve~~. The transport, use, and disposal of pesticides at Stockdale East, Stockdale West, and the third Stockdale project site would also be done in accordance with applicable regulatory requirements, including regulations specific to application of pesticides within recharge basins and in proximity to wellheads. Mitigation Measure HAZ-1 would require that samples of soils at the Stockdale East property are analyzed and removed appropriately if soils contain hazardous quantities of contaminants. Therefore impacts to water quality would be considered less than significant with mitigation.

Section 3.10: Land Use and Planning

Page 3.10-1:

The Kern River ~~and floodplain~~, the dominant natural feature in the vicinity of the Stockdale Properties, is located approximately 2.5 miles south and east of the project sites.

Page 3.10-2:

Figure 3.10-1 has been revised to include land use designations for the property directly adjacent to the outside border of the radius for the third Stockdale project site.

Page 3.10-3:

Third Stockdale Site

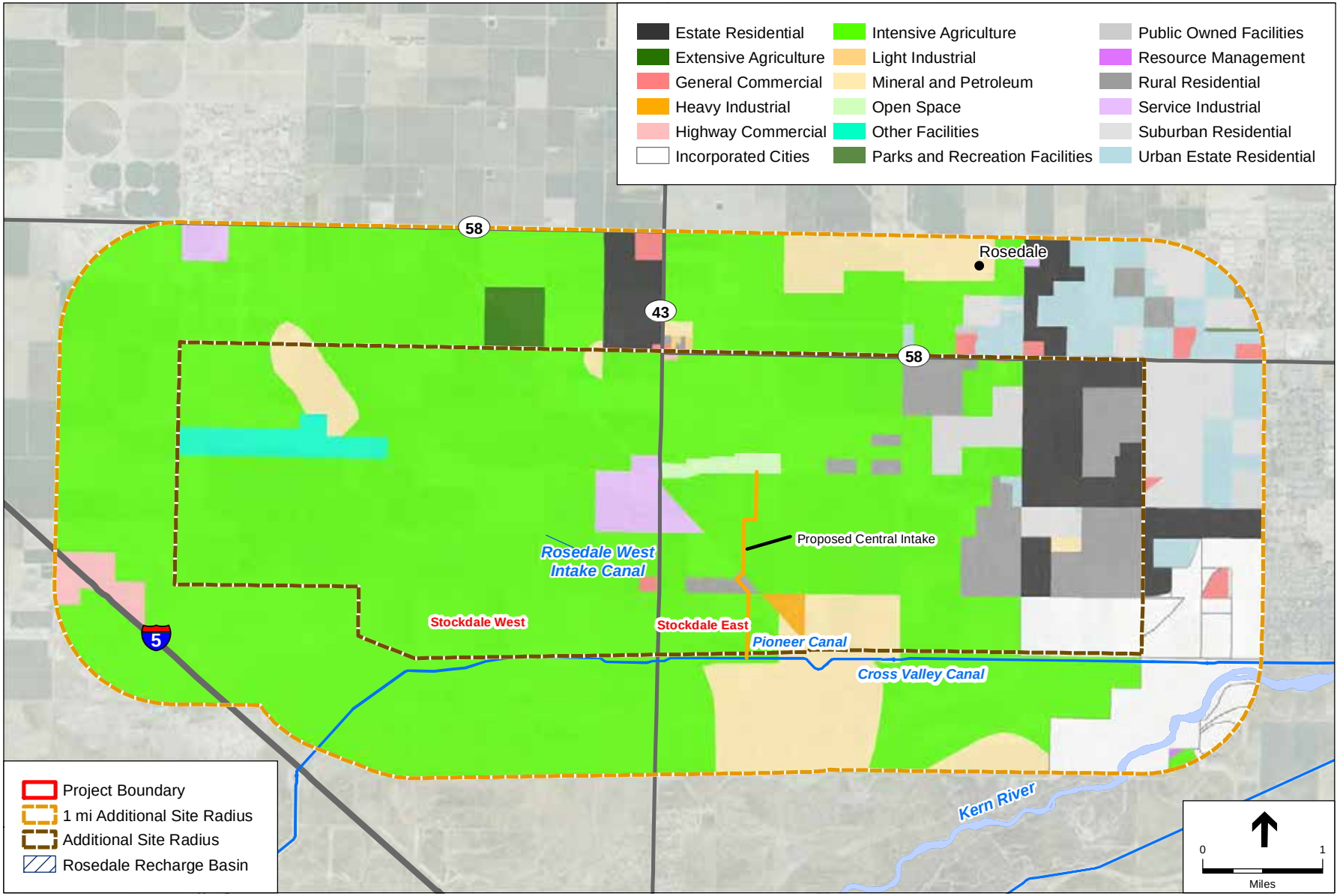
The third Stockdale project site would be located within a site radius as shown on Figure 3.10-1, and is anticipated to be primarily agricultural land. The majority of land within and adjacent to the outside border of the radius is designated Intensive Agriculture by the Kern County General Plan and is zoned Exclusive Agriculture, similar to Stockdale East and Stockdale West.

Page 3.10-4:

Figure 3.10-2 has been revised to include land use designations for the property directly adjacent to the outside border of the radius for the third Stockdale project site.

Page 3.10-11 to 3.10-12:

Given that the proposed project would not result in the conversion of land to urban uses, and that mitigation measures have been included to reduce project impacts to threatened and endangered species to less than significant levels (see Mitigation Measures BIO-1 though ~~BIO-10~~ BIO-7 in Chapter 3.4 Biological Resources), the proposed project would not conflict with the MBHCP. Impacts would be less than significant, and no additional mitigation is required

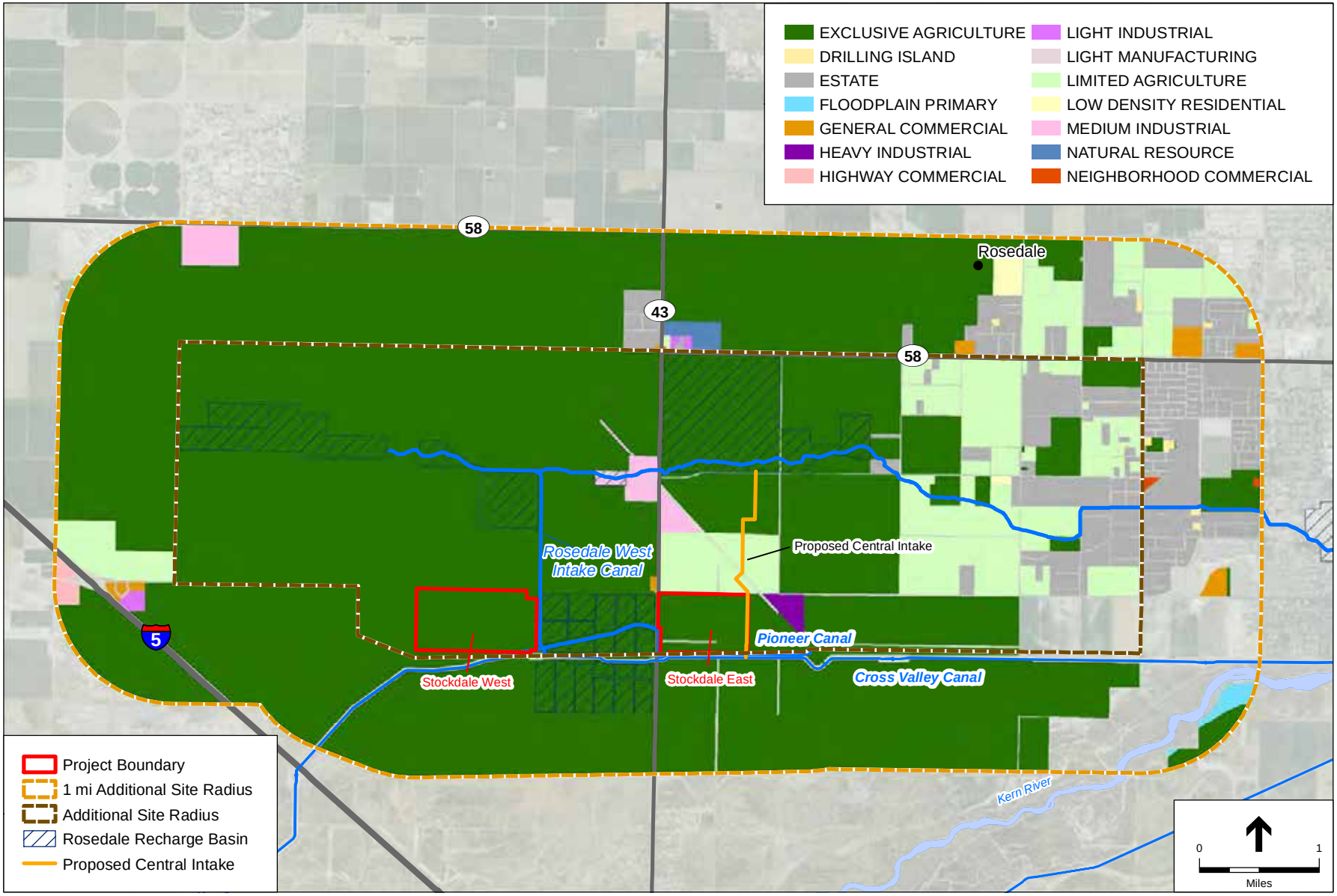


SOURCE: ESRI 2013, Kern County 2013

Stockdale Integrated Banking Project . 211181

Figure 3.10-1

General Plan Land Use Designation



SOURCE: ESRI 2013, Kern County 2013

Stockdale Integrated Banking Project . 211181

Figure 3.10-2

Kern County Zoning Designation

Page 3.10-10:

Third Stockdale Site

The location of the third Stockdale project site has not yet been determined. Land within the site radius shown on Figure 3.10-1 is primarily Intensive Agriculture, similar to both the Stockdale East and Stockdale West properties. As shown on revised Figure 3.10-1, land on the outside border of the radius for the third Stockdale project site is similar to land designated within the radius: Intensive Agriculture. As shown on Figure 3.10-2~~.~~, land within the site radius is zoned primarily Exclusive Agriculture. As shown on Figure 3.10-2, land on the outside border of the radius for the third Stockdale project site is similar to land zoned within the radius: Exclusive Agriculture. It is anticipated that the third Stockdale project site would be located on agricultural land designated as Intensive Agriculture by the Kern County General Plan, which allows for groundwater recharge facilities. Kern County Setback and mid-section line requirements would be adhered to, similar to Stockdale East and Stockdale West.

Chapter 4: Cumulative Impacts

Page 4-16:

The cumulative analysis assumes that all 14 recovery wells are operating for eight months and approximately 44,100 AF of groundwater is extracted (THC, 2014, Appendix I).

Page 4-16

However, historical low groundwater levels may have recently been exceeded in 2014 due to ongoing drought conditions (Kern Fan Monitoring Committee, 2015), and development of the third Stockdale site, together with other future groundwater banking projects may ~~be developed~~ that increase cumulative recovery capacity in the project area. Therefore, implementation of Rosedale's Long Term Operations Plan, as required by **Mitigation Measure CUM-2**, would serve to mitigate the proposed project's incremental contribution to cumulative groundwater impacts and associated effects to wells serving overlying land uses.

CHAPTER 12
Mitigation Monitoring and Reporting Program

CEQA Requirements

Section 15091(d) and Section 15097 of the CEQA Guidelines require a public agency to adopt a program for monitoring or reporting on the changes it has required in the project or conditions of approval to substantially lessen significant environmental effects. This MMRP summarizes the mitigation commitments identified in the Stockdale Integrated Banking Project Final EIR (State Clearinghouse No. 2013091076). Mitigation measures are presented in the same order as they occur in the Final EIR.

The columns in the MMRP table provide the following information:

- **Mitigation Measure(s):** The action(s) that will be taken to reduce the impact to a less-than-significant level.
- **Implementation, Monitoring, and Reporting Action:** The appropriate steps to implement and document compliance with the mitigation measures.
- **Responsibility:** The agency or private entity responsible for ensuring implementation of the mitigation measure. However, until the mitigation measures are completed, Rosedale, as the CEQA Lead Agency, remains responsible for ensuring that implementation of the mitigation measures occur in accordance with the MMRP (CEQA Guidelines, Section 15097(a)).
- **Monitoring Schedule:** The general schedule for conducting each task, either prior to construction, during construction and/or after construction.

TABLE 12-1 – MITIGATION MONITORING AND REPORTING PROGRAM FOR THE STOCKDALE INTEGRATED BANKING PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
Aesthetics			
AES-1: All nighttime construction lighting and security lighting installed on new facilities shall be shielded and directed downward to avoid light spill onto neighboring properties.	• Include mitigation measure in construction contractor specifications. • Perform site inspections to ensure mitigation is being implemented during construction.	Rosedale/IRWD; Construction Contractor	During Construction
Agriculture and Forestry Resources			
AGR-1: If the third Stockdale project site is under a Williamson Act contract, then the use of the property would be managed as applicable in accordance with Kern County's *Agricultural Preserve Standard Uniform Rules*, which identify land uses that are compatible within agricultural preserves established under the Williamson Act.	• Include mitigation measure in project design specifications. • Perform site inspections as appropriate based on the Uniform Rules to ensure property is being managed as defined.	Rosedale/IRWD	Before Construction
Biological Resources			
BIO-1: The following measures would reduce potential impacts to nesting and migratory birds and raptors to less than significant levels: • Within 15 days of site clearing, a qualified biologist shall conduct a preconstruction, migratory bird and raptor nesting survey. The biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. This survey shall include species protected under the Migratory Bird Treaty Act including the tricolored blackbird. The survey shall cover all reasonably potential nesting locations for the relevant species on or closely adjacent to the proposed project site. • Nesting habitat should be removed prior to the bird breeding season (February 1 – September 30). • If an active nest is confirmed by the biologist, no construction activities shall occur within 250 feet of the nesting site for migratory birds and within 500 feet of the nesting site for raptors. The buffer zones around any nest within which project-related construction activities would be avoided can be reduced as determined acceptable by a qualified biologist. Construction activities may resume once the breeding season ends (February 1 – September 30), or the nest has either failed or the birds have fledged.	• Include mitigation measure in construction contractor specifications. • A qualified biologist will conduct pre-construction nesting survey as defined. • Prepare documentation to record results of the pre-construction survey. • If an active nest is detected, then implement measures as appropriate. Perform construction site inspections to ensure measures are implemented properly. An inspection log will be maintained to document results of site inspections. • Retain copies of pre-construction survey documentation and construction site inspection logs in the project file.	Rosedale/IRWD; Construction Contractor	Before and During Construction

TABLE 12-1 – MITIGATION MONITORING AND REPORTING PROGRAM FOR THE STOCKDALE INTEGRATED BANKING PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
BIO-2: If construction activities are scheduled to take place outside of the Swainson's hawk nesting season (which runs from March 1 – September 15), then no preconstruction clearance surveys or subsequent avoidance buffers are required. If construction activities are initiated within the nesting season then preconstruction nesting surveys shall be conducted by a qualified biologist prior to ground disturbance, in accordance with the guidance provided in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee, 2000). The required windshield surveys shall cover a one-half mile radius around the project sites. If a nest site is found, the qualified biologist shall determine the appropriate buffer zone around the nest within which project-related construction activities would be avoided. In addition, the qualified biologist shall consult with Rosedale and/or IRWD to determine whether consultation with CDFW is necessary.	• Include mitigation measure in construction contractor specifications. • A qualified biologist will conduct pre-construction surveys for Swainson's hawk as defined. • Prepare documentation to record results of the pre-construction survey. • If a Swainson 's hawk nest is detected, then implement measures as appropriate. Perform construction site inspections to ensure measures are implemented properly. An inspection log will be maintained to document results of site inspections. • Retain copies of pre-construction survey documentation and construction site inspection logs in the project file.	Rosedale/IRWD; Construction Contractor	Before and During Construction
BIO-3: A pre-construction survey shall be conducted for burrowing owls 14 to 30 days prior to clearing of the site by a qualified biologist in accordance with the most recent CDFW protocol, currently the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Surveys shall cover suitable burrowing owl habitat disturbed by construction including a 500-foot buffer. The survey would identify adult and juvenile burrowing owls and signs of burrowing owl occupation. This survey shall include two early morning surveys and two evening surveys to ensure that all owl pairs have been located. If occupied burrowing owl habitat is detected on the proposed project site, measures to avoid, minimize, or mitigate impacts shall be incorporated into the proposed project and shall include, but not be limited to, the following: • If owls are identified on or adjacent to the site, a qualified biologist shall provide a pre-construction Worker's Environmental Awareness Program to contractors and their employees that describes the life history and species protection measures that are in effect to avoid impacts to burrowing owls. Construction monitoring will also occur throughout the duration of ground-disturbing construction activities to ensure no impacts occur to burrowing owl. • Construction exclusion areas shall be established around the occupied burrows in which no disturbance shall be allowed to occur while the burrows are occupied. Buffer areas shall be determined by a qualified biologist based on the recommendations outlined in the most recent *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). • If occupied burrows cannot be avoided, a qualified biologist shall develop and implement a Burrowing Owl Management Plan. The biologist shall develop the Plan in consultation with Rosedale and/or IRWD and shall coordinate with CDFW as necessary.	• Include mitigation measure in construction contractor specifications. • A qualified biologist will conduct preconstruction surveys as defined, covering suitable burrowing owl habitat. • Prepare documentation to record results of the pre-construction survey. • If occupied burrowing owl habitat is found, then implement construction limitations and programs as defined. Perform construction site inspections to ensure measures are implemented properly and the construction contractor is complying with construction limitations. An inspection log will be maintained to document results of site inspections. • Retain copies of pre-construction survey documentation and construction site inspection logs in the project file.	Rosedale; Construction Contractor	Before and During Construction

TABLE 12-1 – MITIGATION MONITORING AND REPORTING PROGRAM FOR THE STOCKDALE INTEGRATED BANKING PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
BIO-4: IRWD and Rosedale shall conduct a USFWS-approved "early evaluation" of the project area to determine if the project sites represent San Joaquin kit fox habitat. If the evaluation shows that the San Joaquin kit fox does not utilize the project sites, and the project will not result in take, then no further mitigation shall be required for this endangered species. If the "early evaluation" finds potential for the presence of kit fox, USFWS may require a San Joaquin kit fox survey to be conducted by a qualified biologist, in accordance with the most recent USFWS *San Joaquin Kit Fox Survey Protocol*. If it is determined that the San Joaquin kit fox has the potential to utilize the property then the following measures are required to avoid potential adverse effects to this species: • Rosedale and/or IRWD shall initiate discussions with the USFWS to determine appropriate project modifications to protect kit fox, including avoidance, minimization, restoration, preservation, or compensation. • If evidence of active or potentially active San Joaquin kit fox dens is found within the area to be impacted by the proposed project, compensation for the habitat loss shall be determined and provided in consultation with USFWS and CDFW.	• Conduct evaluation of project area for San Joaquin kit fox habitat prior to construction. If kit fox are determined to use project property, then implement measures as defined. • Perform construction site inspections to ensure any measures decided upon are implemented properly. • Retain copies of survey documentation and construction site inspection logs in the project file.	Rosedale/IRWD;	Before and During Construction
BIO-5: Prior to ground disturbing activities at the Goose Lake Slough and third Stockdale site, a qualified biologist shall conduct a pre-construction floristic survey and, if deemed necessary, focused rare plant survey of project areas to determine and map the location and extent of special-status plant species populations and natural communities of special concern within disturbance areas. Focused rare plant surveys shall occur during the typical blooming periods of special-status plants with the potential to occur. The plant surveys shall follow the CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (November 24, 2009). If a special-status plant species is found to be present, and avoidance of the species and/or habitat is not feasible, the implementing agency shall retain a qualified botanist to prepare and implement a Revegetation/Restoration Mitigation Plan.	• Include mitigation measure in construction contractor specifications. • A qualified biologist will conduct pre-construction surveys for special status plants as defined. • Prepare documentation to record results of the pre-construction survey. • If special-status plant species are detected, then implement measures as appropriate. Perform construction site inspections to ensure measures are implemented properly. An inspection log will be maintained to document results of site inspections. • Retain copies of pre-construction survey documentation and construction site inspection logs in the project file.	Rosedale/IRWD; Construction Contractor	Before and During Construction

TABLE 12-1 – MITIGATION MONITORING AND REPORTING PROGRAM FOR THE STOCKDALE INTEGRATED BANKING PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
BIO-6: Prior to ground disturbing activities at the third Stockdale site, a habitat assessment shall be conducted by a qualified biologist to determine the potential for special-status wildlife species to occur within affected areas. If the habitat assessment determines that a special-status species has the potential to be present within a minimum of 500 feet of the construction zone, a qualified biologist shall determine whether subsequent focused surveys are required prior to project implementation to determine presence or absence. If a special-status wildlife species is found to be present, and avoidance of the species and/or habitat is not feasible, then Mitigation Measures BIO-1 through BIO-4 shall be implemented as appropriate, or Rosedale and/or IRWD shall consult with a qualified biologist to prepare a species-specific mitigation plan and determine whether consultation with wildlife agencies are recommended.	• Include mitigation measure in construction contractor specifications. • A qualified biologist will conduct pre-construction surveys for special-status wildlife species as defined. • Prepare documentation to record results of the pre-construction survey. • If special-status wildlife species are detected, then implement measures as appropriate. Perform construction site inspections to ensure measures are implemented properly and the construction contractor is complying with construction limitations. An inspection log will be maintained to document results of site inspections. • Retain copies of preconstruction survey documentation and construction site inspection logs in the project file.	Rosedale/IRWD; Construction Contractor	Before and During Construction
BIO-7: For project components that have potential to impact jurisdictional features, prior to ground disturbing activities, a qualified biologist shall be retained to conduct a jurisdictional delineation in areas that may be affected by the project. If jurisdictional resources are identified, the qualified biologist shall prepare a jurisdictional delineation report outlining the potential acreage of jurisdictional features that may be impacted. The jurisdictional delineation report will be submitted to USACE for a jurisdictional determination. If the delineation report determines that jurisdictional waters and/or wetlands are present within the project site, regulatory permits may be required prior to project impacts which include mitigation and/or compensation to reduce impacts to jurisdictional features to a less than significant level. Based on the results of the delineation report, permits required may include a 404 or Nationwide Permit from USACE, a 401 Certification from RWQCB and/or a Streambed Alteration Agreement from CDFW. Project impacts under 0.10 acre may not require a permit from USACE but only a notification of impact. The appropriate permits required to reduce impacts to jurisdictional features will be determined through initial consultation with the resource agencies.	• Include mitigation measure in construction contractor specifications. • A qualified biologist shall conduct a jurisdictional delineation as defined, if necessary. • A jurisdictional delineation report shall be prepared, if necessary. This report shall be submitted to USACE and kept in the project file on-site.	Rosedale/IRWD	Before and During construction

TABLE 12-1 – MITIGATION MONITORING AND REPORTING PROGRAM FOR THE STOCKDALE INTEGRATED BANKING PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
Cultural Resources			
CUL-1: In the event that prehistoric or historic subsurface cultural resources are discovered during ground-disturbing activities, all work within 50 feet of the resources will be halted and Rosedale or IRWD (as applicable) will consult with a qualified archaeologist to assess the significance of the find according to *CEQA Guidelines* Section 15064.5. If any find is determined to be significant, then Rosedale or IRWD and the archaeologist will meet to determine the appropriate avoidance measures or other appropriate mitigation. Rosedale or IRWD (as applicable) will make the final determination. All significant cultural materials recovered will be, as necessary and at the discretion of the consulting archaeologist, subject to scientific analysis, professional museum curation, and documentation according to current professional standards. In considering any suggested mitigation proposed by the consulting archaeologist in order to mitigate impacts to historical resources or unique archaeological resources, Rosedale or IRWD will determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is infeasible, other appropriate measures (e.g., data recovery) will be instituted. Work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is being carried out.	• Include mitigation measure in construction contractor specifications. • In the event that subsurface cultural resources are discovered, documentation of the assessment of the significance of the find will be prepared and retained in the project file. • Perform site inspections to ensure compliance with cultural sensitivity requirements. Retain inspection forms in the project file.	Rosedale/IRWD; Construction Contractor	During Construction
CUL-2: For any project components not previously subject to archaeological survey (e.g., the third Stockdale site), prior to the initiation of ground disturbance, a qualified archaeologist shall be retained to carry out a Phase I Cultural Resources Survey of the project component. The Phase I Survey shall identify and evaluate the significance of any resources that may be directly or indirectly impacted by the proposed project. The Phase I Survey effort shall be documented in a Phase I Report. If as a result of the additional Phase I Survey any resource is found to be a historical or unique archaeological resource as defined in PRC Section 21084.1 and 21083.2(g), respectively, then **Mitigation Measure CUL-1** shall be implemented.	• Include mitigation measure in construction contractor specifications. • A Phase I Cultural Resources Survey shall be completed when the third Stockdale site is identified. • Perform site inspections to ensure construction contractor is in compliance with any avoidance measures or other mitigation requirements. • Retain copies of construction site inspection logs in the project file.	Rosedale/IRWD; construction contractor	Before and During Construction
CUL-3: In the event that paleontological resources are discovered, Rosedale or IRWD (depending upon the project component) will notify a qualified paleontologist. The paleontologist will document the discovery as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in *CEQA Guidelines* Section 15064.5. If fossil or fossil bearing deposits are discovered during construction, excavations within 50 feet of the find will be temporarily halted or diverted until the discovery is examined by a qualified paleontologist. The paleontologist will notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If Rosedale or IRWD determines that avoidance is not feasible, the paleontologist will prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important. The plan will be submitted to Rosedale or IRWD for review and approval prior to implementation.	• Include mitigation measure in construction contractor specifications. • In the event that paleontological resources are discovered, documentation of the assessment of the significance of the find will be prepared and retained in the project file • Paleontological monitoring reports and logs will be retained in project file.	Rosedale/IRWD; Construction Contractor	Before and During Construction

TABLE 12-1 – MITIGATION MONITORING AND REPORTING PROGRAM FOR THE STOCKDALE INTEGRATED BANKING PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
CUL-4: Once the location of the third Stockdale site is determined (or any additional project components), prior to the initiation of ground disturbance, a paleontological literature, map, and museum locality review shall be conducted in order to assess the paleontological sensitivity of the project component. If the literature, map, and museum locality review identifies potentially sensitive paleontological resources, then a qualified paleontologist shall be retained to conduct a pedestrian survey and assessment of the project component. A report shall be prepared which summarizes the results of the survey and assessment and provides recommendations regarding implementation of mitigation, such as **Mitigation Measure CUL-3**.	• Include mitigation measure in construction contractor specifications. • Perform evaluation of paleontological sensitivity of the third Stockdale site, as described. • Retain copies of the paleontological report and recommendations in the project file.	Rosedale/IRWD	Before Construction
CUL-5: If human remains are uncovered during project construction, Rosedale or IRWD (as applicable) shall immediately halt work, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.4 (e)(1) of the *California Environmental Quality Act Guidelines*. If the Coroner determines the remains are Native American in origin, the Coroner shall contact the Native American Heritage Commission (NAHC). As provided in Public Resources Code Section 5097.98, the NAHC shall identify the person or persons believed to be most likely descended from the deceased Native American. The most likely descendent shall be afforded the opportunity to provide recommendations concerning the future disposition of the remains and any associated grave goods as provided in PRC 5097.98.	• Include mitigation measure in construction contractor specifications. • Perform site inspections to ensure contractor is following procedures outlined in this measure.	Rosedale/IRWD; Construction Contractor	During Construction
Hazards and Hazardous Materials			
HAZ-1: Prior to construction at Stockdale East, Rosedale shall collect representative samples of soils remaining in place near the oilfield as identified in the Phase 1 Environmental Site Assessment. The samples shall be analyzed for total petroleum hydrocarbons and pesticides. Rosedale shall avoid if feasible or otherwise remove from the site soils identified as containing hazardous quantities of contaminants and dispose of such soils in accordance with applicable hazardous waste regulations.	• Include mitigation measure in construction contractor specifications. • In the event of identification of hazardous site soils, documentation of the assessment and removal or avoidance shall be prepared and retained in the project file.	Rosedale; Construction Contractor	Before and During Construction
HAZ-2: In the event that asbestos-containing materials are uncovered during project construction, work at the project sites shall immediately halt and a qualified hazardous materials professional shall be contacted and brought to the project sites to make a proper assessment of the suspect materials. All potentially friable asbestos-containing materials shall be removed in accordance with Federal, State, and local laws and the National Emissions Standards for Hazardous Air Pollutants guidelines prior to ground disturbance that may disturb such materials. All demolition activities shall be undertaken in accordance with California Occupational Safety and Health Administration standards, as contained in Title 8 of the CCR, Section 1529, to protect workers from exposure to asbestos. Materials containing more than one percent asbestos shall also be subject to San Joaquin Valley Air Pollution Control District regulations. Demolition shall be performed in conformance with Federal, state, and local laws and regulations so that construction workers and/or the public avoid significant exposure to asbestos-containing materials.	• Include mitigation measure in construction contractor specifications. • In the event of identification of asbestos-containing materials on site, documentation of the assessment and removal shall be prepared and retained in the project file.	Rosedale/IRWD; Construction Contractor	During Construction

TABLE 12-1 – MITIGATION MONITORING AND REPORTING PROGRAM FOR THE STOCKDALE INTEGRATED BANKING PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
HAZ-3: A Phase I Environmental Site Assessment shall be prepared for the Central Intake Pipeline and third Stockdale project site to identify potential hazards and hazardous materials located within a one-mile radius. The construction contractor shall be informed of potential hazards and shall develop appropriate plans to avoid or remediate hazards.	• Include mitigation measure in construction contractor specifications. • Results of the assessment shall be documented and retained in the project file. • Construction site inspections shall be performed to ensure contractor compliance with identified plans to avoid or remediate hazards.	Rosedale/IRWD; Construction Contractor	Before and During Construction
HAZ-4: In the event the third Stockdale project site is located within a quarter mile of any school facilities, prior to construction, the contractors shall coordinate the proposed project construction route with the impacted school district and school facility to avoid school safety routes.	• Include mitigation measure in construction contractor specifications. • Documentation of the agreed upon construction route shall be retained in the project file. • Construction site inspections shall be performed to ensure contractor compliance with identified construction route.	Rosedale/IRWD; Construction Contractor	Before and During Construction
HAZ-5: IRWD and Rosedale shall coordinate with the Kern County Department of Public Health Services and the Kern Mosquito and Vector Control District prior to project operations to develop and implement, if necessary, appropriate insect abatement methods. Such methods shall not utilize any substances that may contaminate groundwater.	• Include mitigation measure in project design specifications. • Coordinate with appropriate Kern County agencies and retain documentation of correspondence with such agencies in the project file. • Implementation of appropriate insect abatement methods shall be documented and retained in the project file.	Rosedale/IRWD	Before and After Construction
Hydrology and Water Quality			
HYDRO-1: The SWPPP for the proposed project shall include the following BMPs: • Establish an erosion control perimeter around active construction and contractor layout areas, using methods such as silt fencing, jute netting, straw waddles, or other appropriate measures to control sediment from leaving the construction area. • Stockpiled soils shall be watered, covered, or otherwise managed to prevent loss due to water and wind erosion. • Install containment measures at fueling stations and at fuel and chemical storage sites. • Employ good house-keeping measures including clearing construction debris and waste materials at the end of each day.	• Prepare the SWPPP prior to project implementation. • Retain copies of the SWPPP in the project file. • Retain copies of sampling and analyses conducted in accordance with the SWPPP in the project file. • Conduct construction site inspections in accordance with the SWPPP to ensure proper implementation of BMPs.	Rosedale/IRWD; Construction Contractor	Before and During Construction

TABLE 12-1 – MITIGATION MONITORING AND REPORTING PROGRAM FOR THE STOCKDALE INTEGRATED BANKING PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
HYDRO-2: Prior to operation of the project, Rosedale shall develop and implement a shallow groundwater monitoring plan for purposes of protecting subsurface structures of the Cross Valley Canal (CVC). Piezometers shall be installed adjacent to the CVC at Stockdale East and the third Stockdale project site if applicable. Piezometers have already been installed at Stockdale West. The location and design of the new piezometers shall be approved by the Kern County Water Agency (KCWA). Piezometers at the Stockdale Properties shall be used to monitor groundwater levels beneath the CVC. Prior to initiating the project, a California state licensed geotechnical engineer shall conduct an analysis to determine the critical depth at which shallow groundwater would pose a threat to the stability of CVC structures. Based on this analysis, the monitoring plan shall identify depths at which monitoring frequency shall change, such as from monthly to weekly to daily, as shallow groundwater levels approach the critical depth. The monitoring plan also shall identify the depth at which project operation would cease such that the critical depth would not be reached and the conditions under which project operation could resume. The monitoring plan shall be approved by KCWA.	• Retain a licensed geotechnical engineer to conduct the analysis as described and prepare the shallow groundwater monitoring plan. • Initiate consultation with KCWA regarding the plan. Retain copies of correspondence with KCWA in the project file. • Retain copies of the plan and KCWA approvals in the project file. • During plan implementation, retain copies of the monitoring reports in the project file.	Rosedale/IRWD	Before and During Construction
HYDRO-3: If the third Stockdale project site includes a flood hazard area, then associated project facilities would be designed either: (1) to avoid development within the flood hazard area, or (2) to ensure that flood hazards or flood elevations on neighboring parcels are not significantly altered.	• Include mitigation measure in project design specifications. • Retain specifications related to flood hazards in the project file.	Rosedale/IRWD	Before Construction
Land Use and Planning			
LU-1: A General Plan Amendment may be requested from Kern County to eliminate the mid-section line setback requirements from the Stockdale properties.	• Documentation of any necessary amendments shall be retained in the project file.	Rosedale	Before Construction
Noise			
NOISE-1: To reduce temporary construction related noise impacts at the third Stockdale site, the following shall be implemented by the construction contractor: a. Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site. b. Locate equipment staging in areas that will create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction. c. Ensure proper maintenance and working order of equipment and vehicles, and that all construction equipment is equipped with manufacturers approved mufflers and baffles. d. Install sound-control devices in all construction and impact equipment, no less effective than those provided on the original equipment.	• Include mitigation measure in construction contractor specifications. • Perform site inspections to ensure contractor is in compliance with noise mitigation measures. • Retain copies of inspection logs in the project file.	Rosedale/IRWD; Construction Contractor	During Construction

TABLE 12-1 – MITIGATION MONITORING AND REPORTING PROGRAM FOR THE STOCKDALE INTEGRATED BANKING PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
Traffic and Transportation			
TR-1: For project features that require open-trench construction across roadways, the Construction Traffic Control Plan for the proposed project shall include measures that ensure Rosedale provides signage and flagging to alert motorists of pending and actual lane or road closures and detours. Such measures shall conform to the requirements of the Kern County Roads Department and any requirements of related encroachments permits.	• Include mitigation measure in construction contractor specifications. • Verify that the Construction Traffic Control Plan has been prepared and approved by the applicable local jurisdiction(s). • Perform site inspections to routinely verify proper implementation of the approved Plan. • Retain copies of the Plan and inspection records in the project file.	Rosedale/IRWD; Construction Contractor	Before and During Construction
TR-2: IRWD and Rosedale shall require the construction contractor to prepare and implement a Construction Traffic Control Plan that conforms to requirements of the Kern County Roads Department, California Department of Transportation District 6, and the California Department of Transportation Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook. The construction contractor shall obtain all necessary permits for the work within the road right-of-way or use of oversized/overweight vehicles that will utilize county maintained roads, which may require California Highway Patrol or a pilot car escort.	• Include mitigation measure in construction contractor specifications. • Verify that the Construction Traffic Control Plan has been prepared and approved by the applicable local jurisdiction(s). • Perform site inspections to ensure contractor is in compliance with plan. • Retain copies of inspection logs in the project file. • Retain copies of necessary permits obtained for the work within the road right-of-way.	Rosedale/IRWD; Construction Contractor	Before and During Construction
Utilities and Energy			
UTIL: IRWD and Rosedale shall install energy efficient equipment, including pumps and motors, for operation of the proposed project.	• Include mitigation measure in project design specifications and construction contractor specifications.	Rosedale/IRWD; Construction Contractor	During Construction
Cumulative Impacts			
CUM-1: The construction contractor shall consult with appropriate local agencies and jurisdictions prior to initiating ground-disturbing activities, to determine if other construction projects will occur coincidentally at the same time and in the vicinity of the proposed project, depending on project schedule. Coordination of construction activities for coincident projects shall occur to ensure impacts to noise and traffic do not compound to be cumulatively significant and to ensure compatibility of activities within construction zones. Adjustments to construction schedules and plans shall be made accordingly as necessary.	• Include mitigation measure in construction contractor specifications. • Retain copies of correspondence and coordination with other agencies and jurisdictions in the project file.	Construction Contractor	Before Construction

TABLE 12-1 – MITIGATION MONITORING AND REPORTING PROGRAM FOR THE STOCKDALE INTEGRATED BANKING PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
CUM-2: Operation of the proposed project shall be conducted in accordance with the *Long Term Project Recovery Operations Plan Regarding Rosedale-Rio Bravo Water Storage District Projects* (Long Term Operations Plan). The Long Term Operations Plan requires monitoring of groundwater conditions; annual predictions of project-related groundwater declines in the area; definition of negative project impact (NPI) to neighboring wells relative to no-project conditions; triggers for implementation of mitigation measures based on NPI that affects neighboring well operation; and mitigation measures to be implemented for different categories of wells. Mitigation measures include, but are not limited to, providing compensation to lower well pumps; reducing or adjusting pumping to prevent, avoid, or eliminate the NPI; or drilling a new well.	• Copies of monitoring reports and annual groundwater modeling runs shall be maintained in the project file. • Document implementation of mitigation measures and retain in the project file.	Rosedale	After Construction

APPENDIX I

Drought Relief Technical Memorandum

Technical Memorandum

To: Mr. Dan Bartel
Rosedale-Rio Bravo Water Storage District

From: Thomas Harder, P.G., CH.G.
Thomas Harder & Co.

Date: 3-Nov-14

Re: 2014 Drought Relief Project

1. Introduction

This Technical Memorandum (TM) summarizes an analysis of potential groundwater level changes associated with the proposed 2014 Drought Relief Project (the Project). The Project is located within and adjacent to Rosedale-Rio Bravo Water Storage District's (RRBWSD's) service area at the existing Superior, West, and proposed Stockdale East facilities (Project Area, see Figure 1). The Project includes construction of eleven groundwater production wells to recover stored water.

This TM presents the results of a hydrogeological analysis to assess potential groundwater level impacts associated with Project pumping from the eleven proposed wells. The analysis was conducted using a calibrated numerical groundwater flow model previously developed to assess groundwater level changes in the area of banking projects along the lower Kern River. The scope of work for the analysis included:

1. Developing Project pumping scenarios for analysis using the groundwater flow model.
2. Identifying alternative screened interval depths for Project wells for analysis using the groundwater flow model.
3. Analyzing the Project scenarios using the calibrated groundwater flow model.
4. Preparing this TM summarizing the results.

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1.1. Analysis Methodology – Groundwater Flow Model

Potential changes in groundwater levels predicted for Project recovery scenarios were analyzed using a calibrated numerical groundwater flow model. The groundwater model used for the analysis was previously developed to evaluate groundwater level changes in the vicinity of banking projects along the Kern River west of Bakersfield, California. The model was developed using MODFLOW, a block centered, finite difference groundwater flow modeling code developed by the United States Geological Survey (USGS) for simulating groundwater flow (McDonald and Harbaugh, 1988)[1]. MODFLOW is one of the most widely used and critically accepted model codes available (Anderson and Woessner, 2002)[2].

The original documentation for the model is presented in TH&Co (2011)[3]. Since that time, the model has been updated, refined, and recalibrated. The version used for this analysis is calibrated through December 2013 and incorporates projected 2014 groundwater pumping and recharge for all other banking projects and pumpers in the model area.

1.2. Types and Sources of Data

The calibrated groundwater flow model used in the analysis of groundwater level changes incorporates a comprehensive hydrogeological database of the Project Area, as summarized in TH&Co (2011). The types of data used to develop the model included geology, soils/lithology, groundwater levels, hydrogeology, surface water hydrology, and groundwater recharge and pumping. Information regarding the Project Area was provided by RRBWSD and Zeiders Consulting.

[1] McDonald, M.G., and Harbaugh, A.W., 1988. A Modular Three-Dimensional Finite-Difference Ground-Water Flow Model: in Techniques of Water-Resources Investigations of the United States Geological Survey; Book 6 Modeling Techniques.
[2] Anderson, M.P., and Woessner, W.W., 2002. Applied Groundwater Modeling, Simulation of Flow and Advective Transport. Academic Press.
[3] TH&Co., 2011. Hydrogeological Impact Evaluation Related to Operation of the Kern Water Bank and Pioneer Projects. Prepared for McMurtrey, Hartsock, & Worth and Rosedale-Rio Bravo Water Storage District, December 5, 2011.

2. Project Pumping Scenarios for Analysis Using the Groundwater Flow Model

The 2014 Drought Relief Project is located near the Kern Water Bank and Pioneer Project where existing recharge and recovery operations are already occurring. In addition, there is ongoing groundwater production in the area to supply agriculture and municipal demands. In order to evaluate potential impacts of the Project on existing projects and production wells, Project pumping (simulated as an 8-month Project pumping period) was superimposed on groundwater conditions that reflect predicted groundwater recharge and recovery operations for 2014. Year 2014 projected pumping and recharge for the baseline was obtained from each of the area banking entities and incorporated into the groundwater flow model. Municipal production (e.g. Vaughn Water Company and City of Bakersfield) for 2014 was assumed to be the same as 2013.

It is noted that the three Stockdale West wells that are part of the Stockdale Integrated Banking Project (see Figure 1) were included in the Project pumping simulation though they are not a part of the 2014 Drought Relief Project.

2.1. Baseline Groundwater Level Conditions

Potential changes in groundwater levels specific to Project operations were evaluated relative to baseline groundwater level conditions for an 8-month Project pumping period between April 2014 and November 2014. The baseline condition is represented by the model-generated ground water levels for the calibrated groundwater flow model (through 2013) and the model-generated groundwater levels resulting from the 2014 projected recharge and recovery for the model area. All groundwater level changes associated with Project scenarios are relative to this Baseline condition.

2.2. Project Operational Scenarios

The purpose of the scenarios was to evaluate potential Project-related groundwater level changes under two different well design scenarios:

1. The first scenario incorporates a production well screened interval from 300 to 700 feet below ground surface (ft bgs) for all Project wells. This perforation interval is across both the intermediate and deep aquifers in the Project area. Most of the private land owner wells are constructed in the intermediate aquifer.
2. The second scenario incorporates a production well screened interval from 400 to 700 ft bgs for all project wells, which is only in the deep aquifer.

Stockdale West wells were perforated in both the intermediate and deep aquifers for both scenarios.

2.3. Pumping Rates for Project Wells

The potential pumping rate for individual Project wells was determined based on pumping rates for existing wells in the Project area. Individual well production rates in the Project area typically range from approximately 1,600 gallons per minute (gpm) to approximately 5,000 gpm. However, wells with both intermediate and deep perforated intervals (250 to 700 ft bgs) typically produce more than 3,000 gpm. The individual well pumping rate for Project wells in the vicinity of the West and Superior basins was established at approximately 3,000 gpm. Project wells in Stockdale East and well pumping for Stockdale West was incorporated at an individual well pumping rate of 2,800 gpm. The total combined production (Project and Stockdale West) for the 8-month extraction period (April 2014 through November 2014) was approximately 44,100 acre-ft.

No recharge in the Stockdale Integrated Banking Projects or RRBWSD basins was simulated for the scenarios.

3. Findings

3.1. Scenario 1 - Wells Perforated from 300 - 700 ft bgs (Intermediate and Deep Aquifers)

Maximum Scenario 1 change in intermediate aquifer groundwater levels, relative to the baseline condition, is predicted to be approximately 30 ft at the Superior ponds (see Figure 3). Maximum change in deep aquifer groundwater level is predicted to be approximately 50 ft at the Stockdale East and West ponds (see Figure 4). Maximum pumping interference at the nearest existing monitoring wells is in the deep aquifer where it is predicted to range from approximately 17 to 29 ft (see Figure 4).

3.2. Scenario 2 - Wells Perforated from 400 - 700 ft bgs (Deep Aquifer Only)

Maximum Scenario 2 change in intermediate aquifer groundwater levels, relative to the baseline condition, is predicted to be approximately 30 ft at the Stockdale West ponds (see Figure 5). Maximum change in deep aquifer groundwater level is predicted to be approximately 80 ft at the Superior ponds (see Figure 6). Maximum pumping interference at the nearest existing monitoring wells is in the deep aquifer where it is predicted to range from approximately 29 to 56 ft (see Figure 6).

4. Conclusions

The following summarizes the findings and conclusions that have been developed based on the analysis of Project recovery scenarios:

1. Model simulations for Scenario 1 (wells perforated in both the intermediate and deep aquifers) show that recovering approximately 44,100 acre-ft of water over an eight month period within the Project Area during current groundwater level conditions will result in a maximum groundwater level change of approximately 30 ft in the intermediate aquifer. The greatest groundwater level changes are predicted to occur at the Superior basins and Stockdale West basins (see Figure 3).
2. In the deep aquifer, Scenario 1 groundwater pumping is predicted to result in a maximum groundwater level change of approximately 50 ft. The greatest groundwater level change in the deep aquifer is observed in the vicinity of the Stockdale West and Stockdale East basins (see Figure 4).
3. Model simulations for Scenario 2 (wells perforated in the deep aquifer only) show that groundwater level changes in the intermediate aquifer in the vicinity of the Superior ponds is less than in Scenario 1 (10 to 15 ft of change; see Figure 5). The greatest groundwater level changes are predicted to occur at the Stockdale West basins, where the wells were simulated to be perforated in the intermediate aquifer (see Figure 5).
4. In the deep aquifer, Scenario 2 groundwater pumping is predicted to result in a maximum groundwater level change of approximately 80 ft. The greatest groundwater level change in the deep aquifer is observed in the vicinity of the Superior basins (see Figure 6).

Based on the findings from the analyses of Scenarios 1 and 2, it is concluded that constructing the 2014 Drought Relief wells in the deep aquifer (below approximately 400 ft bgs) will have a lesser impact on private wells in the area than perforating the wells in both the intermediate and deep aquifers. This is because most of the private wells are believed to be perforated in the upper 400 ft bgs. However, final design of the Project wells will have to take into account other design criteria, including:

Potential Well Yield - The intermediate aquifer beneath the site (see Figure 3) is more permeable and less confined than the deep aquifer. Perforating a well partially in the intermediate aquifer would result in higher well yields, particularly during periods of high groundwater levels. It is also noted that the hydraulic head (groundwater level) in the intermediate aquifer is higher than that of the deep aquifer during low groundwater conditions, which would assist in maintaining higher well yields during these times.

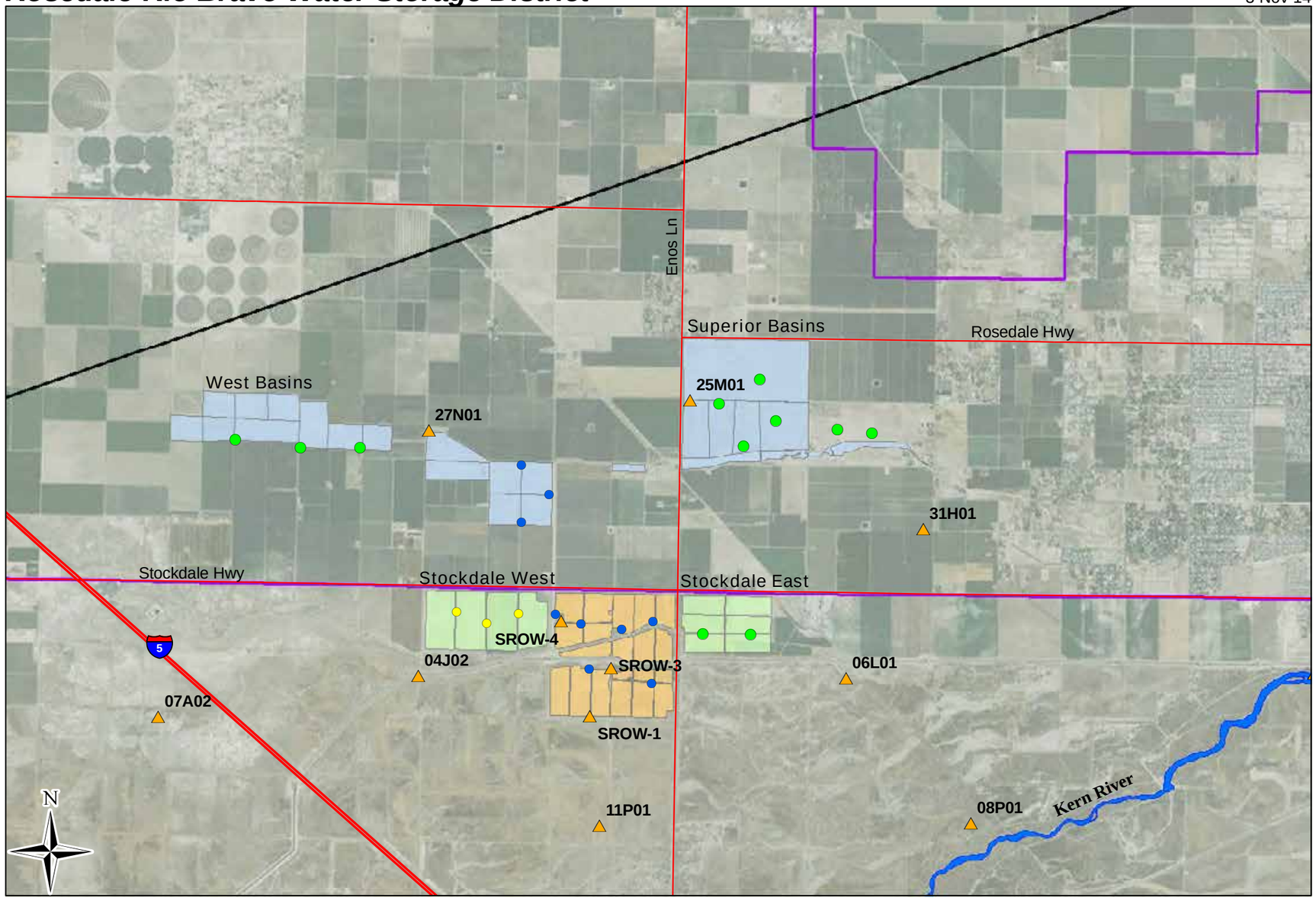
Groundwater Quality - Arsenic concentrations in the groundwater typically increase with increasing depth in the aquifer system. Including shallower perforations in the intermediate

aquifer, which has lower arsenic concentrations, may provide more blending potential for the wells and result in lower arsenic concentrations in the discharge.

It is anticipated that the final design of the Project wells will take into account site-specific data to be collected during the drilling and testing of the pilot boreholes for each well.

Rosedale-Rio Bravo Water Storage District

3-Nov-14



NAD 83 State Plane Zone 5 (feet)
Central Meridian: -118

Thomas Harder & Co.
Groundwater Consulting

2014 Drought Relief Project

Map Features

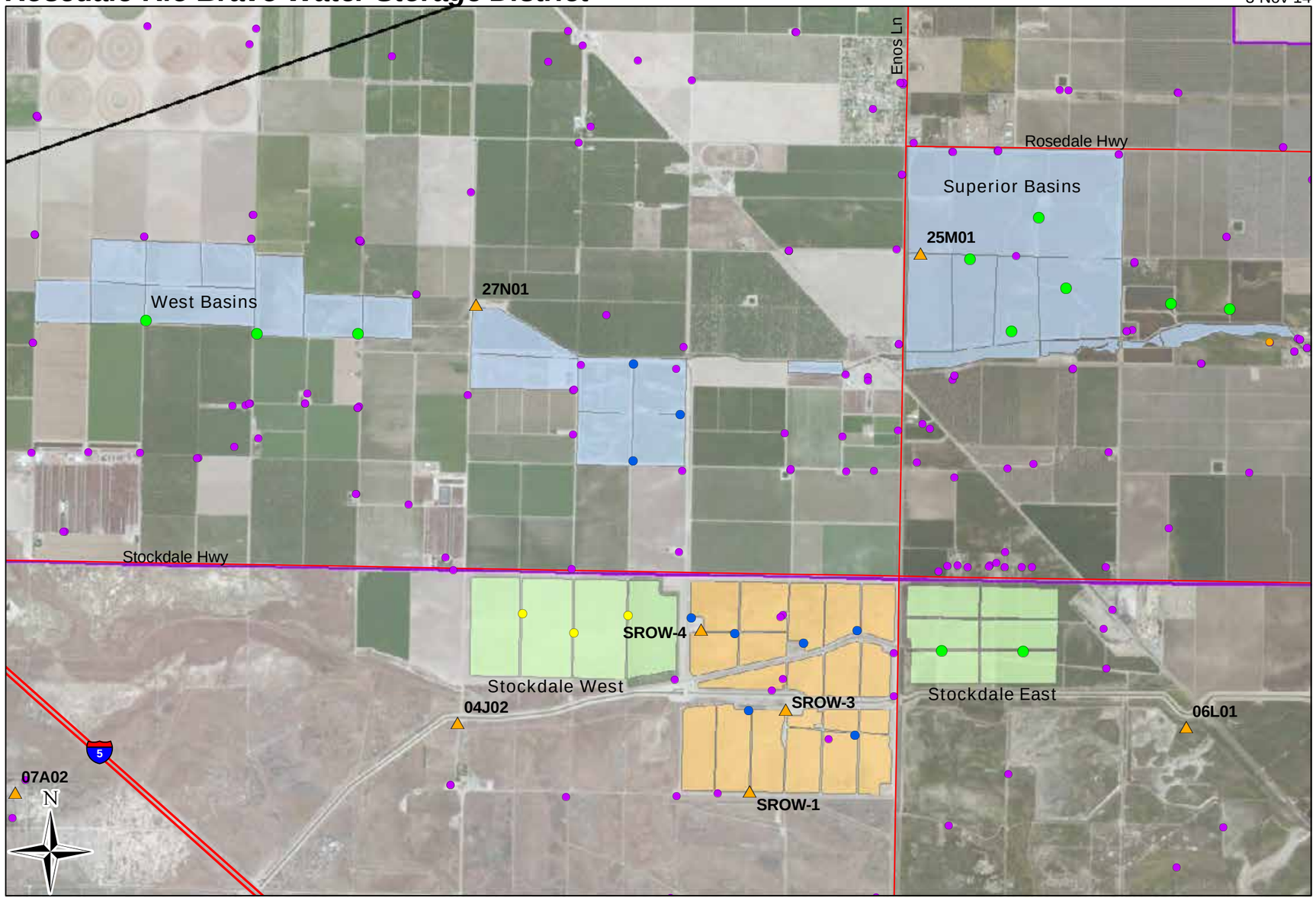
- Proposed Project Well
- Proposed Stockdale West Well
- Nested Observation Well
- Existing Extraction Well
- RRBWSD Recharge Basin
- Stockdale Recharge Basin
- Strand Ranch Recharge Basin
- Rosedale-Rio Bravo Water Storage District
- Model Domain
- Kern River
- Highway/Road

Project Area

Figure 1

Rosedale-Rio Bravo Water Storage District

3-Nov-14



0 0.25 0.5 1 Miles

NAD 83 State Plane Zone 5 (feet)
Central Meridian: -118

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2014 Drought Relief Project

Map Features

- Proposed Project Well
- Proposed Stockdale West Well
- Nested Observation Well
- Existing Extraction Well
- Landowner Well of Concern
- Inactive Landowner Well
- RRBWSD Recharge Basin
- Stockdale Recharge Basin
- Strand Ranch Recharge Basin
- Rosedale-Rio Bravo Water Storage District
- Model Domain
- Highway/Road

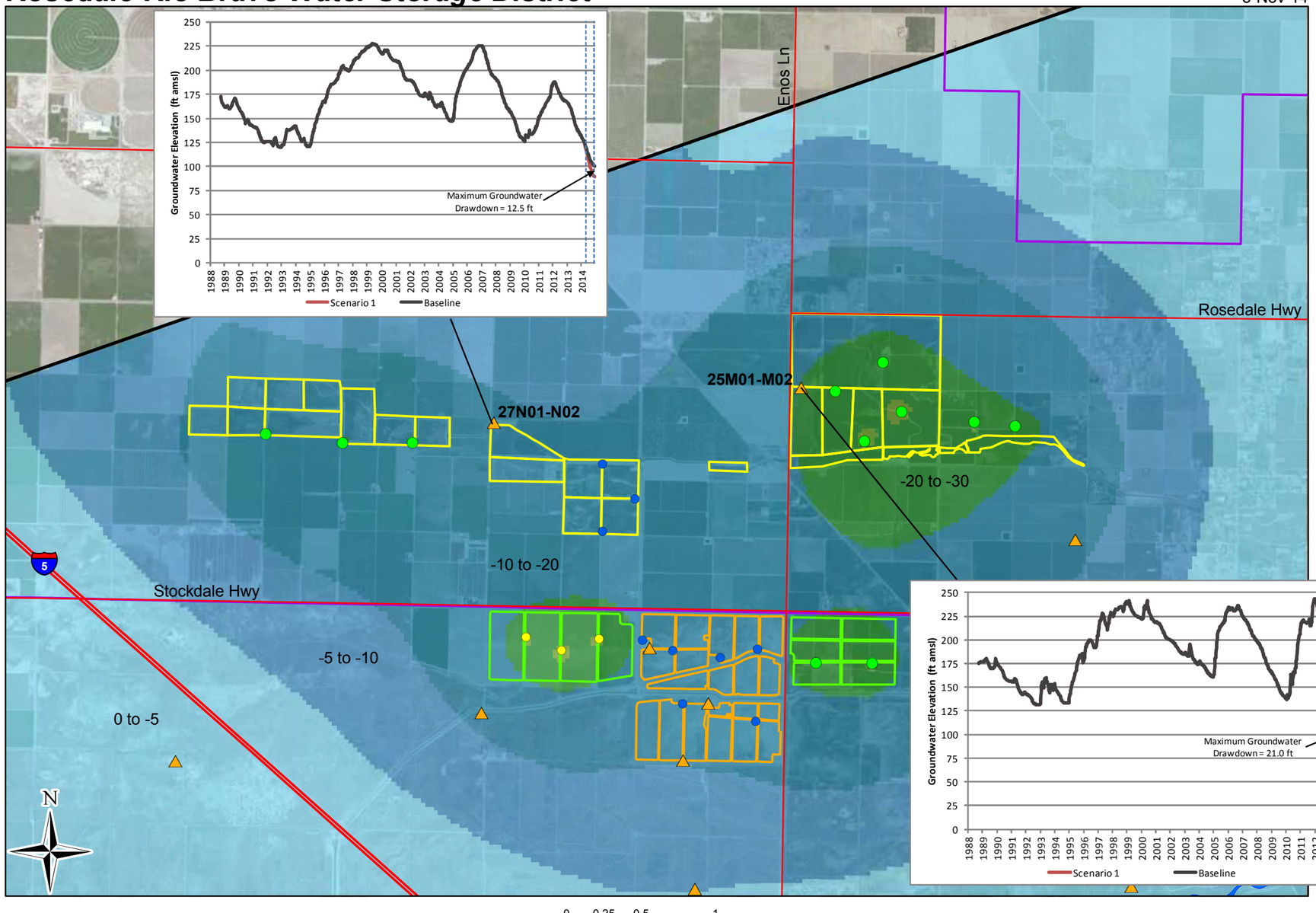
Private Landowner Wells Location Map

Figure 2

Rosedale-Rio Bravo Water Storage District

3-Nov-14

2014 Drought Relief Project



NAD 83 State Plane Zone 5 (feet)
Central Meridian: -118

Map Features

Groundwater Level Change (ft)

- 0 to -5
- -5 to -10
- -10 to -20
- -20 to -30
- -30 to -40
- Proposed Project Well
- Proposed Stockdale West Well
- Nested Observation Well
- Existing Extraction Well
- RRBWSD Recharge Basin
- Stockdale Recharge Basin
- Strand Ranch Recharge Basin
- Rosedale-Rio Bravo Water Storage District
- Model Domain
- Highway/Road

***All Proposed Project Wells are Perforated in both the Intermediate and Deep Aquifers.**

This figure shows the model-predicted difference in groundwater levels in November 2014 between a "with" drought relief scenario and a "without" drought relief scenario. The maximum difference is estimated for the area around the Superior Ponds where groundwater levels are predicted to be as much as 30 feet lower in November 2014 than they would have been absent the project.

Scenario 1 Head Difference Map Intermediate Aquifer*

Figure 3

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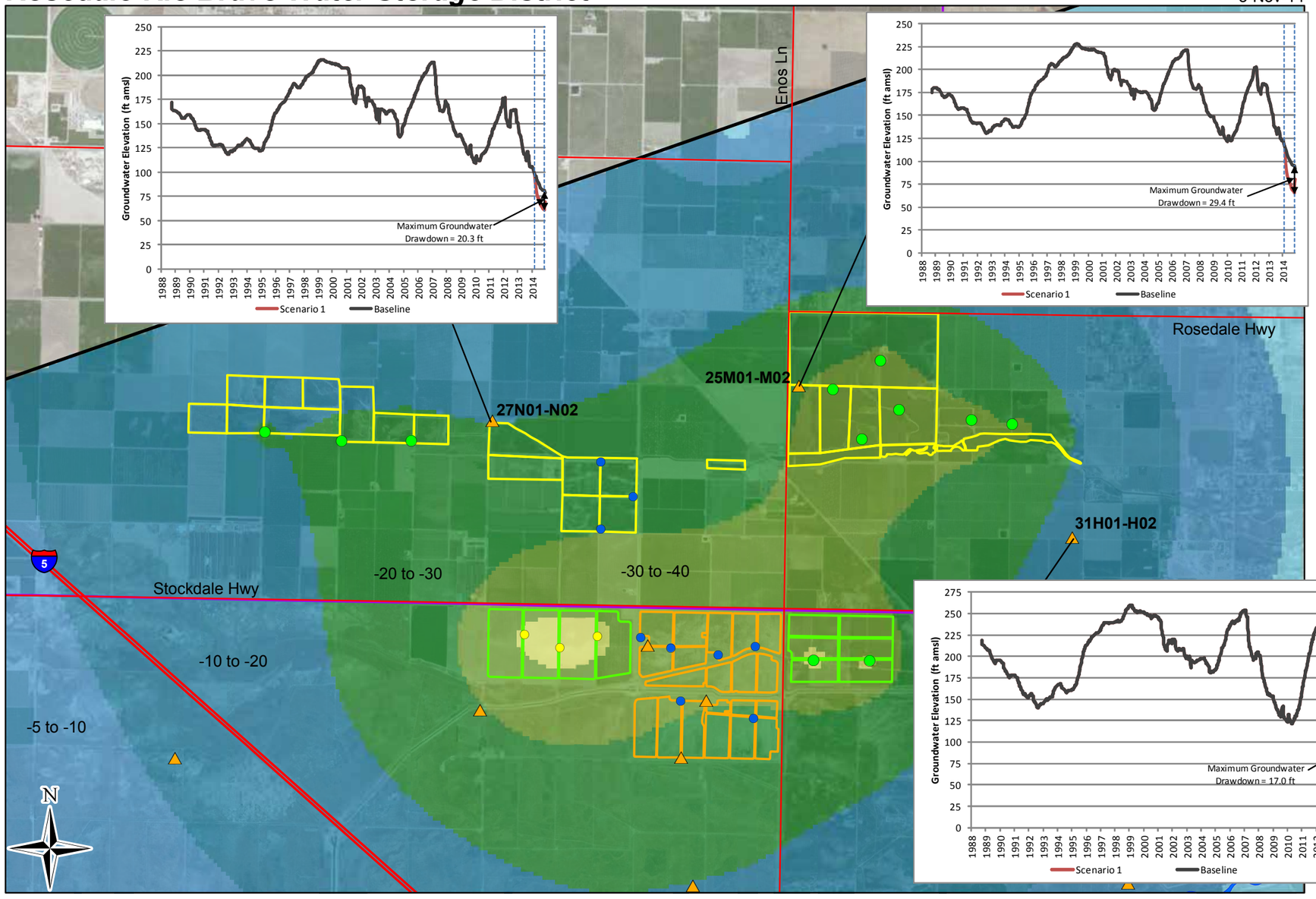
2014 Drought Relief Project



NAD 83 State Plane Zone 5 (feet)
Central Meridian: -118

Map Features

Groundwater Level Change (ft)

- 0 to -5
- -5 to -10
- -10 to -20
- -20 to -30
- -30 to -40
- -40 to -60
- Proposed Project Well
- Proposed Stockdale West Well
- Nested Observation Well
- Existing Extraction Well
- RRBWSD Recharge Basin
- Stockdale Recharge Basin
- Strand Ranch Recharge Basin
- Rosedale-Rio Bravo Water Storage District
- Model Domain
- Highway/Road

***All Proposed Project Wells are Perforated in both the Intermediate and Deep Aquifers.**

This figure shows the model-predicted difference in groundwater levels in November 2014 between a "with" drought relief scenario and a "without" drought relief scenario. The maximum difference is estimated for the area around the Stockdale West ponds where groundwater levels are predicted to be as much as 50 feet lower in November 2014 than they would have been absent the project.

Scenario 1 Head Difference Map Deep Aquifer*

Figure 4

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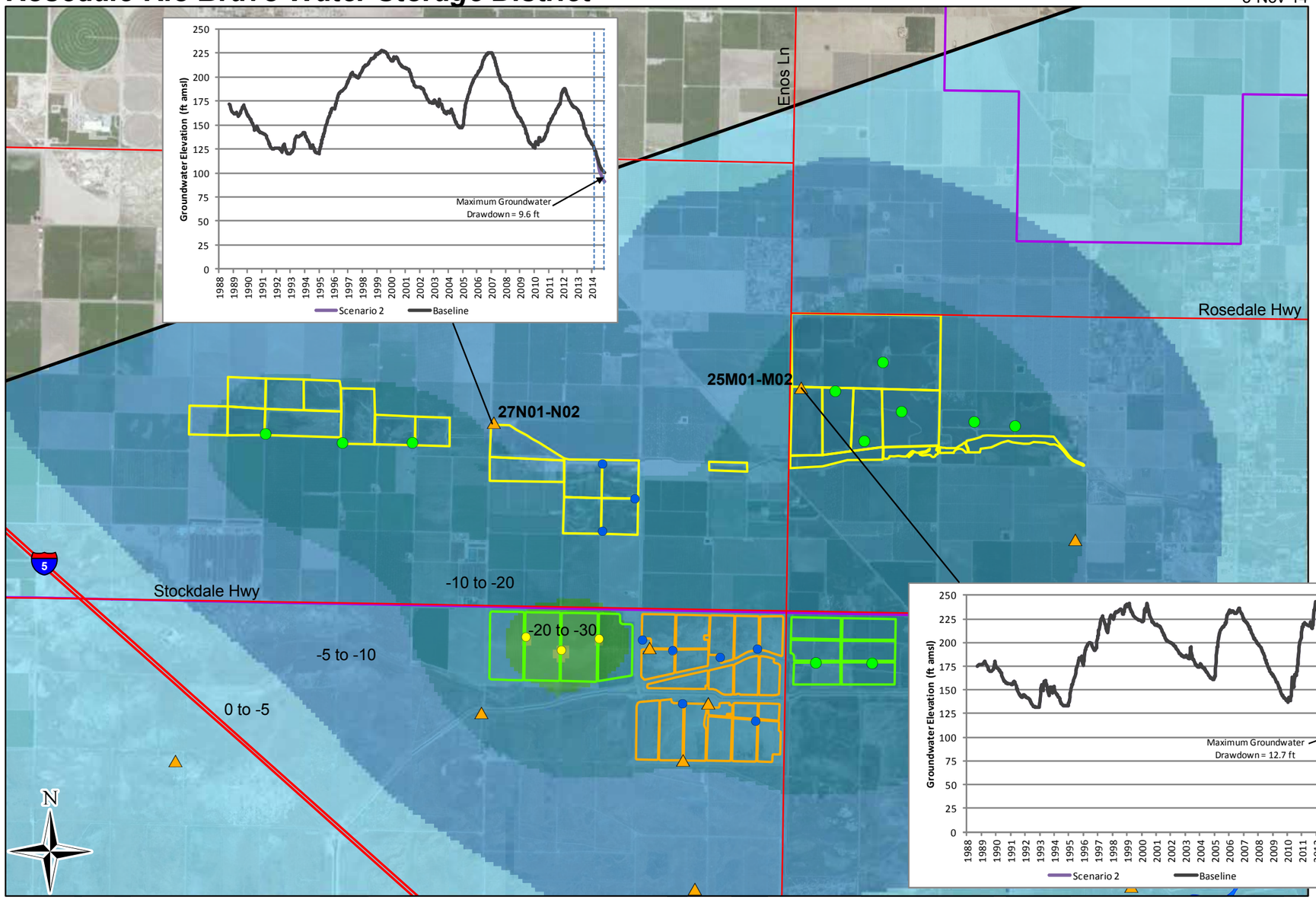

NAD 83 State Plane Zone 5 (feet)
Central Meridian: -118

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2014 Drought Relief Project

Map Features

- Groundwater Level Change (ft)
  - 0 to -5
  - -5 to -10
  - -10 to -20
  - -20 to -30
  - -30 to -40
- Proposed Project Well
- Proposed Stockdale West Well
- Nested Observation Well
- Existing Extraction Well
- RRBWSD Recharge Basin
- Stockdale Recharge Basin
- Strand Ranch Recharge Basin
- Rosedale-Rio Bravo Water Storage District
- Model Domain
- Highway/Road

***All Proposed Project Wells are Perforated in the Deep Aquifer Only.**

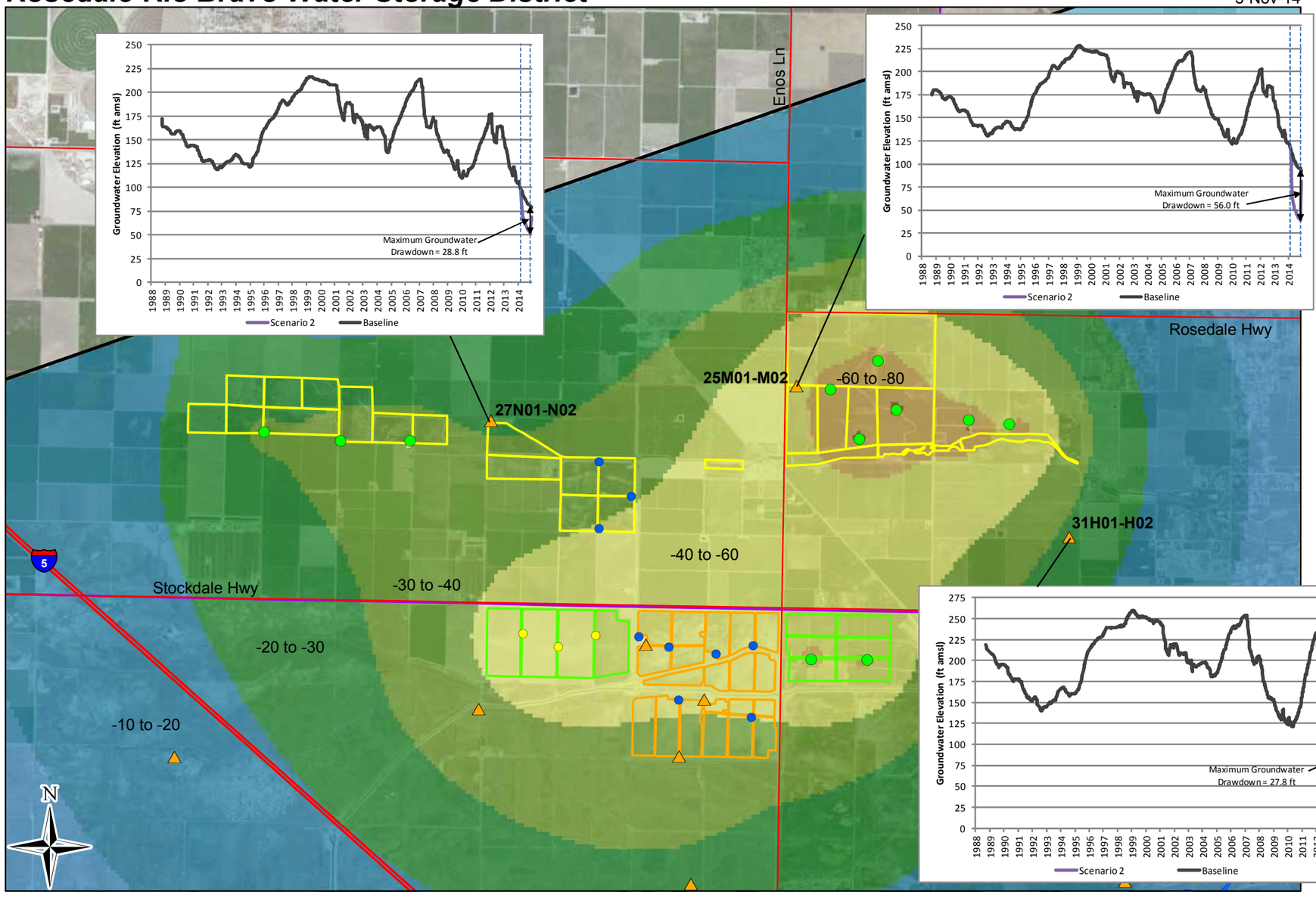
This figure shows the model-predicted difference in groundwater levels in November 2014 between a "with" drought relief scenario and a "without" drought relief scenario. The maximum difference is estimated for the area around the Stockdale West ponds where groundwater levels are predicted to be as much as 30 feet lower in November 2014 than they would have been absent the project.

Scenario 2 Head Difference Map Intermediate Aquifer*

Figure 5

Rosedale-Rio Bravo Water Storage District

3-Nov-14



NAD 83 State Plane Zone 5 (feet)
Central Meridian: -118

This figure shows the model-predicted difference in groundwater levels in November 2014 between a "with" drought relief scenario and a "without" drought relief scenario. The maximum difference is estimated for the area around the Superior Ponds where groundwater levels are predicted to be as much as 80 feet lower in Novermber 2014 than they would have been absent the project.

2014 Drought Relief Project

Map Features

Groundwater Level Change (ft)

- 0 to -5
- -5 to -10
- -10 to -20
- -20 to -30
- -30 to -40
- -40 to -60
- -60 to -80
- -80 to -90
- Proposed Project Well
- Proposed Stockdale West Well
- Nested Observation Well
- Existing Extraction Well
- RRBWSD Recharge Basin
- Stockdale Recharge Basin
- Strand Ranch Recharge Basin
- Rosedale-Rio Bravo Water Storage District
- Model Domain
- Highway/Road

***All Proposed Project Wells are Perforated in the Deep Aquifer Only.**

Scenario 2 Head Difference Map Deep Aquifer*

Figure 6

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