Rosamond Community Services District Wastewater Treatment Plant Rehabilitation Project

Recirculated Public Review Draft
Initial Study/Mitigated Negative Declaration

April 2019 | KJC-28

Prepared for:

Rosamond Community Services District
3179 35th Street West
Rosamond, CA 93560

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

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ACRONYMS AND ABBREVIATIONS

AAQS	Ambient Air Quality Standards
AB	Assembly Bill
APE	Area of Potential Effects
AQIA	Air Quality Impact Analysis
BAU	business-as-usual
BMPs	best management practices
BTR	Biological Technical Report
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emission Estimator Model
CalFire	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CASQA	California Storm Water Quality Association
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFG Code	California Fish and Game Code
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CMP	Congestion Management Program
CNPS	California Native Plant Society
CNDDB	California Natural Diversity Database
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
County	Kern County
CRHR	California Register of Historic Resources
dB	decibel
dBA	A-weighted decibel
District	Rosamond Community Services District
DOC	California Department of Conservation
DPM	diesel particulate matter
DTSC	California Department of Toxic Substances Control
EIR	Environmental Impact Report
EKAPCD	Eastern Kern Air Pollution Control District
EO	Executive Order
ESA	Endangered Species Act

ACRONYMS AND ABBREVIATIONS (cont.)

FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GHG	greenhouse gas
HELIX	HELIX Environmental Planning, Inc.
in/sec	inches per second
IS	Initial Study
L_{EQ}	Equivalent sound level
LRA	Local Responsibility Area
MBTA	Migratory Bird Treaty Act
MDAB	Mojave Desert Air Basin
mg/L	milligrams per liter
mgd	million gallons per day
MND	Mitigated Negative Declaration
mph	miles per hour
MT	metric ton
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Communities Conservation Program
NNL	National Natural Landmarks
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSLU	noise-sensitive land use
O_3	ozone
OSHA	Occupational Safety and Health Administration
Pb	lead
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PPV	peak particle velocity
RACM	reasonably available control measure
RAQS	Regional Air Quality Strategy
RCNM	Road Construction Noise Model

ACRONYMS AND ABBREVIATIONS (cont.)

RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SIP	State Implementation Plan
SLF	Sacred Lands File
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMBMI	San Manuel Band of Mission Indians
SO_2	sulfur dioxide
SO_X	sulfur oxides
SR	State Route
SRA	State Responsibility Area
SSMP	Sewer System Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
TCR	Tribal cultural resources
TDS	total dissolved solids
TKN	Total Kjeldahl Nitrogen
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VOCs	volatile organic compounds
Water Board	Lahonton Regional Water Quality Control Board
WDR	Waste Discharge Requirement
WWTP	Wastewater Treatment Plant

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1.0 INTRODUCTION

1.1 INTRODUCTION AND REGULATORY GUIDANCE

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared in accordance with relevant provisions of the California Environmental Quality Act (CEQA) of 1970, as amended, and the CEQA Guidelines, as revised. This IS/MND evaluates the environmental effects of the Rosamond Community Services District (District) Treatment Plant Rehabilitation Project (proposed project). The project site is located within District-owned property southeast of the Rosamond urban area in Kern County, California. The District is the lead agency for the proposed project. The IS/MND includes the following components:

- A Draft MND and the formal findings made by the District that the project would not result in significant effects on the environment, as identified in the IS Checklist.
- A detailed Project Description.
- The CEQA IS Checklist, which provides standards to evaluate the potential for significant environmental impacts from the proposed project, is adapted from Appendix G of the CEQA Guidelines. The project is evaluated in 21 environmental issue categories to determine whether the project's environmental impacts would be significant in any category. Brief discussions are provided that further substantiate the project's anticipated environmental impacts in each category.

Because the proposed project fits into the definition of a "project" under Public Resources Code Section 21065 requiring discretionary approval by the District and because it could result in a significant effect on the environment, the project is subject to CEQA review. The IS Checklist was prepared to determine the appropriate environmental document to satisfy CEQA requirements: an Environmental Impact Report, an MND, or a Negative Declaration. The analysis in this IS Checklist supports the conclusion that the project would not result in significant environmental impacts with the incorporation of mitigation measures; therefore, an MND has been prepared.

This IS/MND will be circulated for 30 days for public and agency review, during which time individuals and agencies may submit comments on the adequacy of the environmental review. Following the public review period, the District will consider any comments received on the IS/MND when deciding whether to adopt the MND.

1.2 INITIAL STUDY INFORMATION SHEET

1. Project title:

Rosamond Community Services District Wastewater Treatment Plant Rehabilitation Project

2. Lead agency name and address:

Rosamond Community Services District
3179 35th Street West
Rosamond, CA 93560

3. Contact person and phone number:

Brach Smith, Director of Public Works, Rosamond Community Services District
Phone: (661) 256-3411

4. Project location:

The project site is located approximately four miles northeast of the intersection of State Route (SR) 138 and SR 14 in the community of Rosamond near the southern boundary of Kern County (Figure 1, *Regional Location*). The project site is within Sections 27 and 34 of Township 9 North, Range 12 West of the Rosamond Canyon, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 2, *USGS Topography*). Specifically, the project site is located east of the intersection of Patterson Road and 10th Street West near the western edge of Rosamond Lake, which is a natural dry lake bed (refer to Figure 1 and Figure 3, *Aerial Photograph*).

5. Project sponsor's name and address:

Rosamond Community Services District
3179 35th Street West, Rosamond, CA 93560
Phone: (661) 256-3411

6. General Plan designation:

Other Facilities (3.3) / Flood Hazard (2.5) / Intensive Agriculture – 20-acre minimum lot size (8.1)

7. Zoning designation:

Limited Agriculture (A-1)

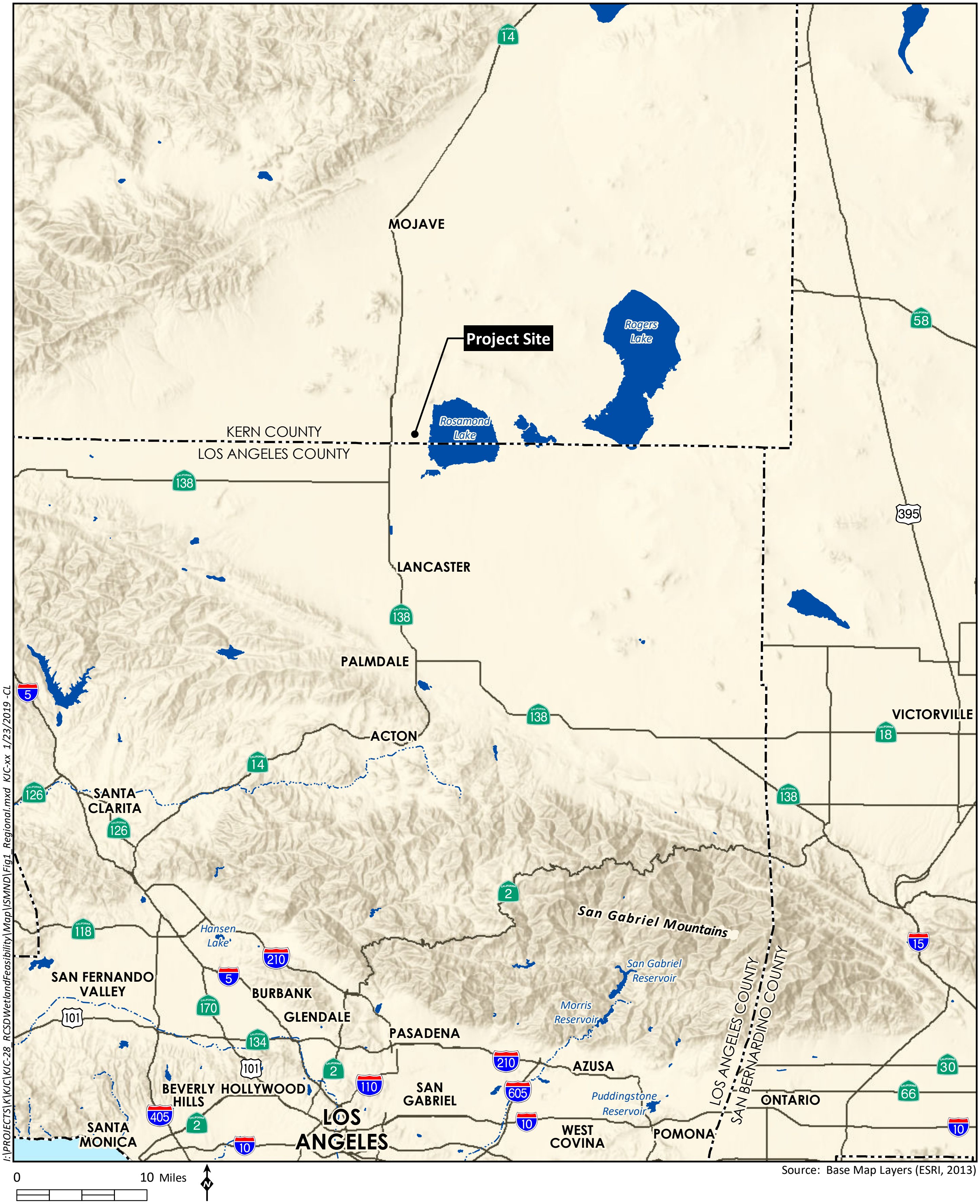
8. Description of project:

I. BACKGROUND

The Rosamond Community Services District (District) Wastewater Treatment Plant (WWTP) provides wastewater treatment to the community of Rosamond, in Kern County, California (Figure 1). The WWTP includes a 0.5-million gallon per day (mgd) tertiary treatment plant (with a peak flow treatment capacity of 2.0 mgd) for the production of recycled water. The 0.5-mgd plant includes grit removal, a Biolac® activated sludge aeration basin, secondary clarifier, sand filters, and ultra-violet (UV) disinfection.[1] Construction of the WWTP was completed in 2009, but the plant was not operated until December 2011. While in service, a portion of the WWTP effluent was used for on-site irrigation, and the remaining effluent was delivered to ponds for evaporation.

The WWTP ran continuously from December 2011 through mid-2015; however, since the District has no recycled water customers, the plant was taken out of service to reduce operating costs. Thus, the District currently operates a facultative pond treatment process with disposal of all wastewater flows to a system of 16 on-site facultative lagoons.

[1] A Biolac® system is an activated sludge process using extended retention of biological solids to create a stable, easily operated waste treatment system. Source: Parkson Corporation, 2019. Biolac Extended Aeration Treatment System. Available from: https://www.parkson.com/sites/default/files/documents/biolac.pdf. Accessed February 2019.



Source: Base Map Layers (ESRI, 2013)

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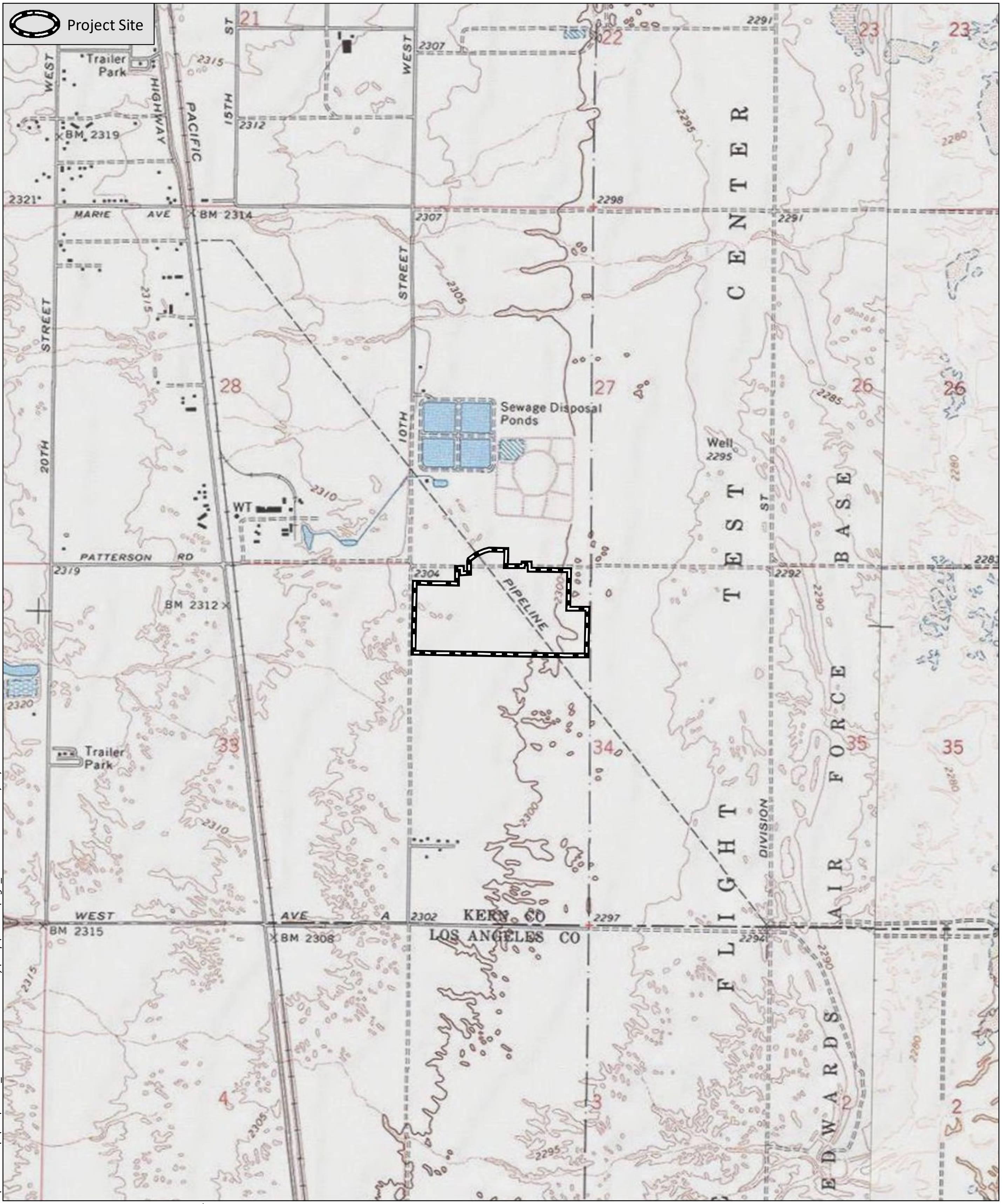
HELIX Environmental Planning

Regional Location

Figure 1



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Source: Rosamond 7.5' Quad (USGS)

0 2,000 Feet

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HELIX
Environmental Planning

USGS Topography

Figure 2

Source: Aerial (Nearmap 2014)

HELIX
Environmental Planning

Aerial Photograph

Figure 3

The District was issued a discharge permit by the Lahonton Regional Water Quality Control Board (Water Board) in 2015 (Order No. R6V-2015-0069, WDID No. 6B150112001). The District is currently in violation of its discharge permit due to pond leakage. While normal operation of the facultative lagoons is an acceptable form of discharge, the ponds have been found to leak significantly, which allows nitrates and salt to seep into the groundwater and violates receiving water quality standards established in the Water Quality Control Plan for the Lahontan Region (Basin Plan; Water Board 1995), adopted to protect groundwater quality for beneficial uses. The proposed project would allow the District to meet wastewater discharge standards required by the Water Board; however, a new discharge permit will be required.

II. PROJECT DESCRIPTION

The project proposes to expand the existing WWTP from an existing average daily treatment capacity of 0.5 to 1.27 mgd (or from an existing peak treatment capacity of 2.0 to 2.54 mgd) by duplicating the existing Biolac/clarifier system, activated sludge system, secondary clarifier, and sludge drying beds. The project is being proposed in response to the discharge permit violation issued by the Water Board regarding existing facultative lagoon leakage. Septage is currently dumped into the unlined facultative lagoons, which are leaking, thereby contributing to groundwater pollution. The new receiving facility will allow introduction of septage into a lined system at a controlled rate so that organic matter can be biologically reduced and no additional pollution would be introduced to soil and groundwater beneath the site. The expansion would provide a new, larger Biolac/clarifier system and would duplicate the existing six sludge drying beds. The improvements would improve the overall quality of effluent discharged to the proposed percolation ponds from existing septage inflows, which would preclude additional soil and groundwater contamination and meeting the Water Board’s waste discharge requirements for the facility. Once completed, the new components would receive 75 percent of the incoming wastewater flow, while 25 percent of the influent would go through the existing system. This 75/25 flow split approach would eliminate the need for major upgrades to the existing process units (i.e., Biolac and secondary clarifiers). Refer to the proposed project site plan (Figure 4, *Proposed Site Plan*). As shown in Figure 4, the proposed new facilities would be constructed within the central portion of the site among existing similar facilities. The proposed above-ground structures would be limited to one story in height, similar to existing structures, and the remaining facilities would be constructed at or below existing site grade.

The existing WWTP contains a series of facultative lagoons (see Figure 3). Two of these existing ponds on the southern end of the project site would be converted to percolation ponds to make use of existing piping and infrastructure, and de-nitrified, undisinfected secondary effluent would be discharged to these percolation ponds for disposal. An Infiltration Test Basin was conducted to address the potential for the existing ponds to leach nitrate and total dissolved solids (TDS) into the groundwater from untreated effluent that may have found its way into the soil matrix from leaking facultative lagoons during former operation. The leaching tests have indicated that infiltration is feasible, but that the infiltration rate necessitates use of additional pond area to provide adequate percolation capacity for treated effluent.

Therefore, existing Ponds 15 and 17 are both proposed to be reconfigured into three ponds, shown as Percolation Ponds 1, 2, and 3 in Figure 4, and the soil from the existing pond bottoms would be excavated and removed to convert the facultative lagoons to the proposed percolation pond system. Specifically, the top 10 feet of soil would be removed from the bottom of Pond 15 and the top 5 feet of soil would be removed from the bottom of Pond 17 (as the bottom elevation of Pond 15 is approximately 5 feet higher than that of Pond 17). Access ramps would be included for operation and maintenance. The pond design includes a Distribution Box with three slide gates for 14-inch pipeline outlets to distribute the effluent to one or more of the three percolation ponds.

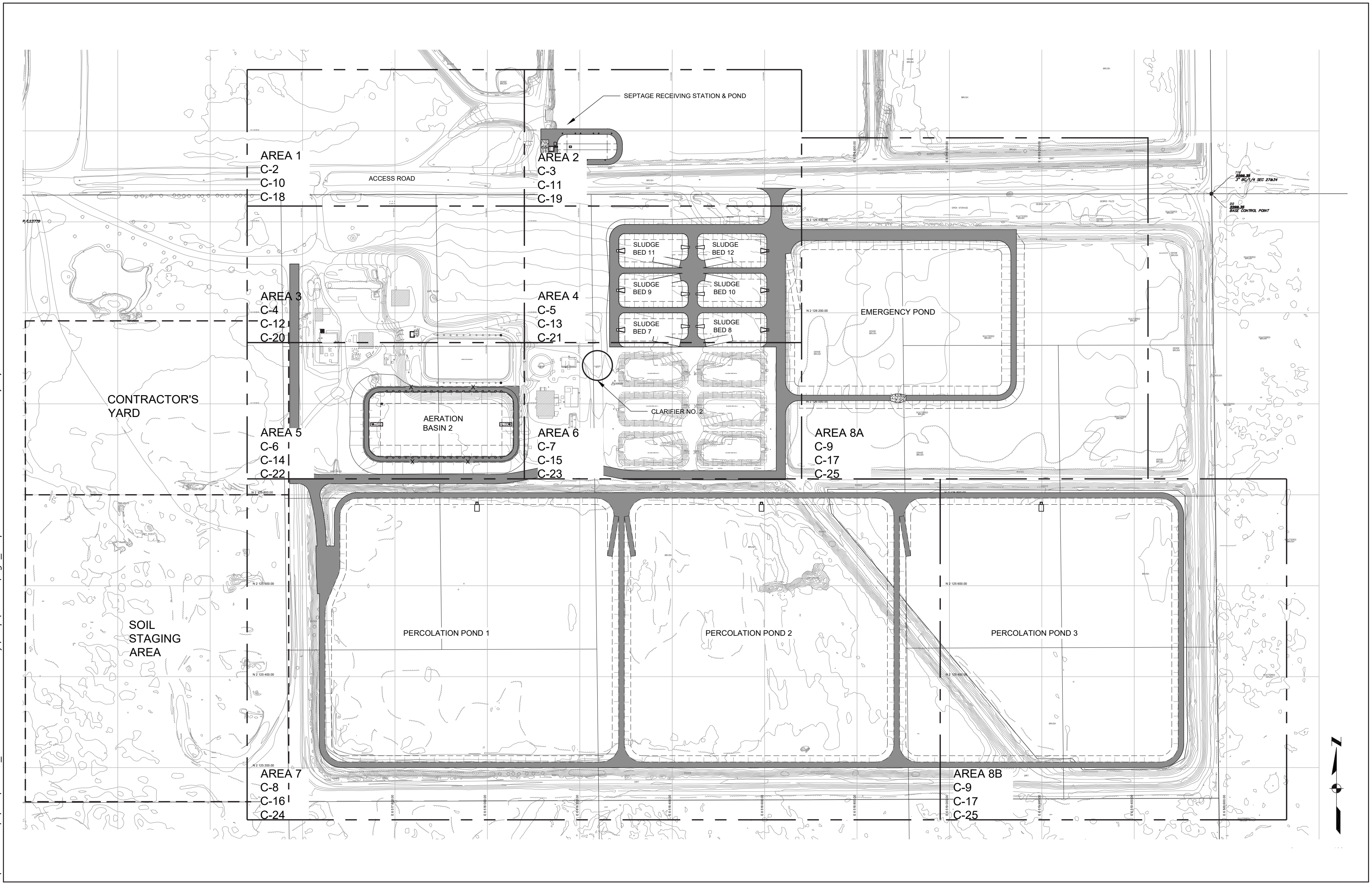
The vacant, approximately 20-acre area immediately west of Pond 17 would be utilized as a soil stockpiling or construction staging area, including soil storage for up to approximately 220,000 cubic yards of excavated soil from the existing Ponds 15 and 17 on the southern two-thirds of the area, and construction equipment staging, material storage, construction worker parking, and other temporary activities occurring within the remaining northern portion of the area (see Figure 4).

The WWTP would continue to accept and process septage (i.e., waste removed from septic tanks) from commercial septage haulers that service residential sources, small restaurants, and other domestic customers. A new septage receiving station would be installed north of the WWTP on the southwest side of existing Pond 11 (see Septage Receiving Station and Pond illustrated in Figure 4). Construction of the new septage holding pond would consist of rehabilitating the southwest corner of Pond 11. The proposed septage pond would be approximately 117-feet long by 39-feet wide with a water surface area of 4,800 square feet and an embankment slope ratio of 1 to 3 per typical septage pond design. The pond is anticipated to hold approximately 90,000 gallons of septage, allowing for 3 days of retention time, with a working depth of 5 feet and minimum freeboard of 2 feet.

Septage is anticipated to be discharged from the septage hauler truck into a septage receiving station involving a concrete tank with sloped floors leading to a channel with a manual-cleaned coarse screen to remove large solids before proceeding to a lined septage holding pond. Manual raking of the screens would be required, and materials would be disposed of in the screenings bin adjacent to the channel. Additionally, an automated refrigerated sampler would be installed at the receiving station to sample the septage influent. The septage would flow out of the channel and spill into a septage holding pond. Flows from the septage pond are anticipated to bleed into the system upstream of the pretreatment screen during low flow through a 6-inch effluent pipeline. Diurnal data for the WWTP are not currently available; however, it is assumed that low flows occur at night. An additional carbon source (associated with septage addition) during low flow periods, may also be used to assist with optimum denitrification.

In order to ensure that the proposed percolation ponds provide adequate infiltration of treated effluent, the ponds would be periodically rotated out of service (every 2 to 3 years as needed), allowed to dry, and then scraped to remove the top two inches of soil from the pond bottom, followed by light tilling if necessary. These activities would be carried out as a standard operating practice at the expanded WWTP in order to maintain proper effluent infiltration following treatment.

As noted above, construction of the proposed improvements would result in the excavation and long-term storage of up to approximately 220,000 cubic yards of soil on-site to the west of existing Pond 17. The soil stockpile area would cover approximately 11 acres with soil approximately 12 feet in height above existing grade. However, no substantial off-site soil transport, either import or export, is proposed as part of the project. The stockpiled soil would be stabilized to prevent wind and water erosion in accordance with applicable requirements including stormwater best management practices (BMPs) required by the Water Board and Eastern Kern Air Pollution Control District (EKAPCD) Rule 402, *Fugitive Dust*. Construction activities are anticipated to begin in mid-2019, with operation of the newly expanded WWTP anticipated to occur by the end of 2020.



Source: Kennedy Jenks Consultants

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Proposed Site Plan

Figure 4

Following completion of the proposed WWTP expansion project and successful operation of the expanded treatment system, the District would take the existing facultative pond system out of service, thereby eliminating the existing source of groundwater pollution. Prior to taking the facultative ponds out of service, the Water Board recommends that the District prepare and submit a work plan detailing the sludge removal process, disposal, and pond cleaning activities to remove all of the accumulated biosolids within all of the facultative ponds. The District currently has no specific plans or timeline for sludge removal and disposal activities, but any such activities would be carried out in compliance with approved sludge removal work plan and the WWTP's revised permit requirements, as applicable.

9. Surrounding Land Uses and Setting:

Immediate surrounding land uses include existing wastewater facultative lagoons to the north of the project site operated by the District, Edwards Air Force Base property along the eastern edge, and undeveloped land to the south and west (refer to Figures 1 and 3).

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement:

- State Water Resources Control Board (State Water Board)
- Lahontan Regional Water Quality Control Board (Water Board)
- California Air Resources Board (CARB)
- California Department of Fish and Wildlife (CDFW)
- California Department of Public Health (CDPH)

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

In January 2019, 13 local tribal groups and individuals were contacted based on recommendations from the Native American Heritage Commission (NAHC). A record search of the Sacred Lands file held by the NAHC returned with negative results. To date, one Tribe, the San Manuel Band of Mission Indians (SMBMI), has responded indicating that the project is located within a landscape that is considered a Tribal Cultural Resource (TCR). As decided through consultation, impacts to the TCR will be less than significant with the implementation of mitigation measures noted within the Cultural Resources and Tribal Cultural Resources sections of this Initial Study.

1.3 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that may require mitigation to reduce the impact from "Potential Impact" to "Less than Significant" as indicated by the checklist on the following pages. The potential impacts and any potential mitigation required will be addressed in the Environmental Impact Report.

An Initial Study is conducted by a Lead Agency to determine if a project may have a potentially significant effect on the environment (CEQA Guidelines Section 15063). An Environmental Impact Report (EIR) must be prepared if an Initial Study indicates that further analysis is needed to determine whether a significant impact will occur or if there is substantial evidence in the record that a project may have a significant effect on the environment (CEQA Guidelines Section 15064(f)).

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

DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

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

Brach Smith
Signature

4/23/2019
Date

Brach Smith, Director of Public Works
Printed Name:

Rosamond Community Services District
For:

2.0 ENVIRONMENTAL INITIAL STUDY CHECKLIST

This section analyzes the potential environmental impacts which may result from the proposed project. For the evaluation of potential impacts, the questions in the Initial Study Checklist are stated and answers are provided according to the analysis undertaken as part of the Initial Study. The analysis considers the project's short-term impacts (i.e., construction-related), and its operational or day-to-day impacts. For each question, there are four possible responses. They include:

A. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

B. "Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).

C. "Less Than Significant Impact" applies where the project creates no significant impacts, only less than significant impacts.

D. "No Impact" applies where a project does not create an impact in that category. "No Impact" answers do not require an explanation if they are adequately supported by the information sources cited by the lead agency which show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project specific screening analysis).

I. AESTHETICS

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

Discussion

a) Have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. The project site is located in a relatively remote location just outside and west of the Edwards Air Force Base property, with very sparse development located in proximity. The topography of the project site and surrounding area is generally flat with an overall slope toward the east and the Rosamond Lake (dry lake bed). Given the remote desert location and flat topography, long-distance views of scenic resources, including the San Gabriel Mountains to the south, Tehachapi Mountains to the west, and expansive views of the Mojave Desert to the north and east. Publicly available views of these resources are available throughout the project area, including from public roads immediately proximate to the project site, including 10th Street West and Patterson Road. Implementation of the proposed project would involve improvements and expansion of existing wastewater treatment facilities, which would occur entirely within the project site and would be similar in nature to existing facilities on-site. Such facilities would include very limited additional above-ground facilities, including minor accessory buildings associated with utilities and the new septage receiving station, none of which would be greater than existing building heights of one story or approximately 15 feet. The remainder of the proposed improvements would be buried below grade (e.g., pipelines and equipment) or constructed at or near existing site grade (e.g., percolation ponds, septage receiving pond, aeration basin No. 2, and Clarifier No. 2, as shown in Figure 4). With regard to the soil stockpile area west of existing Pond 17, the estimated 220,000 cubic yards of soil would cover approximately 11 acres of the project site with soil up to 12 feet in height. This stockpile would, therefore, partially obstruct views to the east from 10th Street West for a distance of approximately 600 feet along the project site’s western frontage. However, the soil stockpile height of ten feet above existing grade would be lower than existing on-site building heights of up to 15 feet above existing grade.

Based on the very limited number and size of above-ground improvements associated with the proposed project that could potentially obstruct or limit such views, the limited height and length of the proposed stockpile area, as well as the widespread availability of such views in the project area, it is not anticipated that implementation of the proposed WWTP expansion would notably detract from identified scenic resources in the area. As such, despite the availability of public views of scenic resources in the area, including in areas in proximity to the project site, the project would have a substantial adverse effect on a scenic vista, and impacts would be less than significant.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. There are no Officially Designated Scenic Highways in Kern County (California Department of Transportation [Caltrans] 2018). SR 58 and portions of SR 14, approximately 15 miles north of the project site, are Eligible State Scenic Highways – Not Officially Designated. The project site is not visible from any portion of these highways due to intervening topography. Furthermore, implementation of the proposed project would involve construction of new wastewater treatment facilities within the existing WWTP property, which does not contain any rock outcroppings or notable trees. As such, the project would not damage any trees, rock outcroppings, or other potential scenic resources. The proposed project would have no impact on scenic resources within a State-designated scenic highway.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less than Significant Impact. The Open Space/Conservation Element of the Rosamond Specific Plan states that open space areas are important visual resources for the community. The proposed project involves the expansion of existing wastewater treatment facilities in a topographically flat area that is not highly visible from nearby roads or other public spaces. The proposed components of the project would consist of construction of new facilities and modifications to existing facilities that would be similar to the existing visual character and quality of the project site. These modifications and new facilities would be similar to the bulk, scale, and industrial design of the existing facilities; therefore, the project would be similar to the existing visual character and quality of the area and impacts would be less than significant.

d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Less Than Significant Impact. The project does not propose components that would emit glare. Project-related lighting during construction and operation would comply with the Kern County Outdoor Lighting "Dark Skies Ordinance" (Section 19.81.040 of the Code of Ordinances), which specifies that all outdoor lighting be oriented downward and shielded to reduce light spillover onto adjacent properties. Impacts related to light or glare would therefore be less than significant.

II. AGRICULTURE AND FORESTRY RESOURCES

Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	■
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	■	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section l 2220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	■
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	■
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non- forest use?	☐	☐	☐	■

Discussion

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

No Impact. The existing sewage disposal ponds are mapped as “Urban and Built-up Land” by the California Department of Conservation, and surrounding lands are mapped as “Vacant or Disturbed Land” to the immediate west and “Nonagricultural and Natural Vegetation” in the remaining surrounding project area (California Department of Conservation [DOC] 2017). There is no identified Farmland in Rosamond, including the project area, and no related impacts would occur.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

Less Than Significant Impact. The majority of the project site is characterized by the existing Rosamond WWTP and associated facultative lagoons and infrastructure. Although the majority of the existing WWTP site is zoned Limited Agriculture (A-1), no agricultural activities currently occur on or in proximity to the project site (Kern County Department of Planning and Development Services [County PDS] 2003). The proposed project would expand the existing WWTP treatment facilities within the existing facility footprint and would not result in any off-site expansion or activities that could conflict with agricultural activities or zoning in the surrounding area. As such, while the project site is currently zoned for agricultural activities, no agricultural activities or production currently occur within the project boundaries, and further, the proposed project would not result in any changes to agricultural activities or operations, and thus impacts would be less than significant.

There are no Williamson Land contracts in Rosamond, including the project area (DOC 2013), and thus no impacts related to conflicts with any such contracts would occur.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section l 2220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. The project site is not zoned as forest land, timberland, or a Timberland Production Zone, and no related impacts would occur (County PDS 2003).

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The project site is an existing wastewater treatment facility in a desert setting. The project would not involve loss or conversion of forest land, and no related impacts would occur.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. The project site is not located in an area that contains identified Farmland or forest land. Furthermore, implementation of the proposed project would involve construction of new wastewater treatment facilities within the existing WWTP property, which does not contain any Farmland or forest land. Therefore, implementation of the project would not involve changes to the environment that could result in conversion of such lands.

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	■	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	■	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	■	☐
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?	☐	☐	■	☐

Discussion

Air Quality Setting. The project site is located in the Kern County portion of the Mojave Desert Air Basin (MDAB). Air Quality in this region is under the jurisdiction of the EKAPCD. The EKAPCD is responsible for implementing and enforcing state and federal air quality regulations. Six air pollutants have been identified by the United States Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) as being of concern both on a nationwide and statewide level: ground-level ozone; carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2); lead; and particulate matter (PM), which is subdivided into two classes based on particle size: coarse PM equal to or less than 10 micrometers in diameter (PM_{10}) and fine PM equal to or less than 2.5 micrometers in diameter ($PM_{2.5}$). These air pollutants are commonly referred to as "criteria air pollutants" because air quality standards are regulated using human health and environmentally based criteria. In accordance with Federal Clean Air Act and California Clean Air Act requirements, the USEPA developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), while CARB developed the California Ambient Air Quality Standards (CAAQS). Criteria pollutants can be emitted directly from sources, or they may be formed through chemical and photochemical reactions of precursor pollutants in the atmosphere. The principal precursor pollutants of concern are reactive organic gasses (ROGs)[2] and nitrogen oxides (NO_X).

The USEPA and CARB use ambient air quality monitoring data to designate areas according to their attainment status for meeting the NAAQS and CAAQS for each criteria pollutant. Eastern Kern County has been designated serious nonattainment for the 8-hour ozone NAAQS; and nonattainment for the 1-hour ozone, 8-hour ozone, and PM_{10} CAAQS.

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. The EKAPCD has developed the *2017 Ozone Attainment Plan* for attainment of the ozone NAAQS and CAAQS in the district (EKAPCD 2017). Future ozone emissions calculated in the attainment plan rely on information gathered through the stationary source permitting process, regional transportation plans, and growth projections provided by local governments. Long-term operation of the project would not result in an increase in influent processed by the District WWTP. Therefore, emissions of the ozone precursors ROG and NO_X associated with wastewater treatment would not increase, nor would the project result in population growth or significant increases in regional mobile emissions. As discussed in checklist question b), below, construction of the project would not result in pollutant emissions in excess of applicable thresholds. Therefore, the project would not conflict with or obstruct implementation of the applicable air quality plan and the impact would be less than significant.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?

Less Than Significant Impact. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, the potential for a project's individual emissions to contribute to existing cumulatively significant adverse air quality impacts is evaluated.

[2] CARB defines and uses the term ROG while the USEPA defines and uses the term volatile organic compounds (VOCs). The compounds included in the lists of ROGs and VOCs and the methods of calculation are slightly different. However, for the purposes of estimating criteria pollutant precursor emissions, the two terms are often used interchangeably.

Construction Emissions

Criteria pollutant emissions for project construction were estimated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. The model was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the California air districts. CalEEMod allows for the use of default data (e.g., emission factors, trip lengths, meteorology, source inventory) provided by the various California air districts to account for local requirements and conditions, and/or user-defined inputs. The calculation methodology and default data used in the model is available in the CalEEMod *User's Guide*, Appendices A, D, and E (CAPCOA 2017). Construction equipment was estimated based on CalEEMod defaults, common earth moving practices for large construction-sites, and the construction cost estimate prepared for the project in the *Rosamond Community Service District Wastewater Treatment Plant Rehabilitation Technical Report Volume 1* (Kennedy/Jenks Consultants 2018). A full list of the equipment and other assumptions are included in the CalEEMod output files in Appendix B of this Initial Study.

Project construction activities would be required to comply with The EKAPCD Rule 402, *Fugitive Dust,* which requires the use of reasonably available control measures (RACMs) to minimize fugitive dust limit visible dust emissions (VDE) to no more than 20 percent opacity. Applicable RACMs are listed in the EKACPD *Suggested Air Pollutant Mitigation Measures for Construction Sites* (EKAPCD 2012):

- All soil excavated or graded should be sufficiently watered or treated with non-toxic soil stabilizers to prevent excessive dust. Watering should occur as needed with complete coverage of disturbed soil areas. Watering should be a minimum of twice daily on unpaved/untreated roads and on disturbed soil areas with active operations.
- All clearing, grading, earth moving, and excavation activities should cease:
    - during periods of winds greater than 20 miles per hour (mph; averaged over one hour), if disturbed material is easily windblown.
    - when dust plumes of 20 percent or greater opacity impact public roads, occupied structures, or neighboring property.
- All fine material transported off-site should be sufficiently watered, treated with nontoxic soil stabilizers, or securely covered to prevent excessive dust.
- If more than 5,000 cubic yards of fill material will be imported to or exported from the site, then all haul trucks should be required to exit the site via an access point where a gravel pad or grizzly has been installed.
- Areas disturbed by clearing, earth moving, or excavation activities should be minimized at all times.
- Stockpiles of soil or other fine loose material shall be stabilized by watering or other appropriate method to prevent wind-blown fugitive dust.

- Onsite vehicle speed should be limited to 15 mph.
- All areas with vehicle traffic should be paved, treated with dust palliatives, or watered a minimum of twice daily.
- Streets adjacent to the project site should be kept clean and accumulated silt removed.
- Access to the site should be by means of an apron into the project from adjoining surfaced roadways. The apron should be surfaced or treated with dust palliatives. palliatives If operating on soils that cling to the wheels of the vehicles, a grizzly or other such device should be used on the road exiting the project, immediately prior to the pavement, in order to remove most of the soil material from the vehicle's tires.

Because CalEEMod is not designed to capture all of the dust emissions from haul trucks on on-site unpaved roads, the dust generated by off-road haul trucks and loaders used to stockpile dirt was estimated using emission factors from the USEPA AP-42 Fifth Edition, Chapter 13.2.2 Unpaved Roads (USEPA 2006). The print file for the spreadsheet used in the calculation is included along with the CalEEMod output files in Appendix B. The hours required for the haul truck and loader were estimated based on approximately 220,000 cubic yards of cut required for the facultative lagoons per the project applicant and an average of 16 yards per truckload and up to 7 truckloads per truck per hour.

Estimations of construction emissions assume the quantifiable component of the applicable RACMs, specifically the application of water on all disturbed surfaces twice per day and a 15 mph speed limit on unpaved surfaces.

The EKAPCD does not provide thresholds of significance specifically for construction emissions. However, the District has published thresholds for annual emissions from stationary sources and thresholds for maximum daily emissions from mobile sources which can indicate if the project's construction emissions would result in an exceedance of standards (EKAPCD 1999). Table 1, *Annual and Maximum Daily Construction Emissions,* summarizes construction emissions and compares them with the EKAPCD thresholds.

Table 1
ANNUAL AND MAXIMUM DAILY CONSTRUCTION EMISSIONS

Source	Pollutant Emissions					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Annual Emissions (tons per year)						
2019 CalEEmod Grading and Facility Const.	0.24	2.61	1.49	<0.1	0.24	0.14
2019 AP-42 Dust from Dirt Hauling					6.61	0.66
2019 Total	**0.24**	**2.61**	**1.49**	**<0.1**	**6.85**	**0.80**
2020 CalEEMod Facility Const.	0.15	1.42	1.13	<0.1	0.18	0.09
2020 AP-42 Dust from Dirt Hauling					2.38	0.24
2020 Total	**0.15**	**1.42**	**1.13**	**<0.1**	**2.56**	**0.33**
Maximum Annual Emissions	***0.24***	***2.61***	***1.49***	***<0.1***	***6.85***	***0.80***
EKAPCD Threshold	*25*	*25*	-	*27*	*15*	-
Significant Impact?	***No***	***No***	***No***	***No***	***No***	***No***
Maximum Daily Off-Site Mobile Emissions (pounds per day)						
2019	0.16	0.67	1.01	<0.1	0.34	<0.1
2020	0.15	0.62	0.91	<0.1	0.41	0.11
Maximum Daily Emissions	**0.16**	**0.67**	**1.01**	**<0.1**	**0.41**	**0.11**
EKAPCD Threshold	*137*	*137*	-	-	-	-
Significant Impact?	***No***	***No***	***No***	***No***	***No***	***No***

Source: CalEEMod (output data is provided in Appendix B of this Initial Study)
- indicates no thresholds have been adopted.

As shown in Table 1, short-term emissions from construction of the project would not exceed the EKAPCD thresholds. Therefore, project construction would not result in a cumulatively considerable net increase of any criteria pollutant and the impact would be less than significant.

Operational Emissions

Waste water treatment facilities can be a source of ROGs and NO_X. The project would not increase the facilities influent treatment volume (or any associated emissions of ROG and NO_X). Aside from negligible increased maintenance vehicle activity, long-term operation of the project would not result in any change in mobile emissions associated with the facility. With regard to long-term soil storage in the southwest corner of the project site, the stockpiled soil would be stabilized to prevent wind and water erosion in accordance with applicable requirements including stormwater BMPs required by the Water Board and EKAPCD Rule 402, *Fugitive Dust*. Therefore, long-term operation of the project would not result in a cumulatively considerable net increase of any criteria pollutant and the impact would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved and are referred to as sensitive receptors. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. The closest sensitive receptors to the project site are rural single-family homes approximately 2,700 feet (0.51 mile) to the south. There are no schools, daycare centers, or hospitals within one mile of the project site.

Toxic Air Contaminants

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness or that may pose a present or potential hazard to human health. Construction of the project would result in emissions of diesel particulate matter (DPM). In 1998, the CARB identified DPM as a TAC based on published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. The amount to which the receptors could be exposed, which is a function of concentration and duration of exposure, is the primary factor used to determine health risk. Due to the variable and sporadic nature of construction activity, the distance to the nearest sensitive receptors, and the anticipated short construction schedule (15 months), TAC emissions from the project's construction activity would not expose sensitive receptors to substantial pollutant concentrations. The long-term operation of the project would not substantially change any potential TAC emissions associated with operation the WWTP nor would the project result in a significant change in vehicle trips associated with the WWTP. Therefore, the project would not expose sensitive receptors to any substantial concentrations of DPM or other TACs.

Carbon Monoxide Hot Spots

A CO hot spot is an area of localized CO pollution caused by severe vehicle congestion on major roadways, typically near intersections. Because the project is being proposed to address soil and groundwater contamination by increasing effluent quality of existing wastewater flows, rather than increasing overall treatment volumes, the expanded WWTP is anticipated to operate at a similar intensity as the existing WWTP in terms of septage truck deliveries, facility maintenance, and other operational activities. Because the project would not result in a significant change, if any, in vehicle trips associated with operation of the expanded WWTP, there would be no potential for a project-related CO hot spot or exceedance of State or Federal CO ambient air quality standard.

The project would not expose sensitive receptors to substantial pollutant concentrations and the impact would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact. Construction of the project would result in diesel exhaust which can be a source of objectionable odor. However, diesel exhaust odors disperse rapidly with distance and the closest sensitive receptor would be approximately 2,700 feet (0.51 mile) away, as discussed above. The existing WWTP currently utilizes facultative lagoons to treat influent and concentrate solids in the waste water, which can be a source of objectionable odors. The project's proposed expansion of the tertiary treatment plant and relocated septage receiving station is not anticipated to increase odor generation on-site, and in fact, may reduce overall odors compared to existing conditions based on improved effluent quality produced by the expanded WWTP and the discontinued use of the existing septage ponds for evaporation. Therefore, construction or operation of the project would not result in odors or other emissions adversely affecting a substantial number of people and the impact would be less than significant.

IV. BIOLOGICAL RESOURCES

Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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, regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	■	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	■	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	■	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	■
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?	☐	☐	☐	■

Discussion

This section describes potential direct and indirect impacts associated with the proposed project, which is based upon the analysis and conclusions presented in the Biological Technical Report (BTR) prepared by HELIX for the proposed project (the BTR is included in Appendix C of this Initial Study). Direct impacts immediately alter the affected biological resources such that those resources are eliminated temporarily or permanently. Indirect impacts consist of secondary effects of a project, including noise, decreased water quality (e.g., through sedimentation, urban contaminants, or fuel release), fugitive dust, colonization of non-native plant species, animal behavioral changes, and night lighting. The magnitude of an indirect impact can be the same as a direct impact; however, the effect usually takes a longer time to become apparent.

The significance of impacts to biological resources present or those with potential to occur was determined based upon the sensitivity of the resource and the extent of the anticipated impacts. For certain highly sensitive resources (e.g., a federally listed species), any impact would be significant.

Conversely, other resources that are of low sensitivity (e.g., species with a large, locally stable population in the region but declining elsewhere) could sustain some impact with a less than significant effect.

Critical habitat does not occur on the project area. The nearest critical habitat to the project area is desert tortoise critical habitat, which is located approximately 15 miles to the southeast (USFWS 2018a).

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?

Less Than Significant With Mitigation.

<u>Impacts to Rare Plant Species:</u>

A total of 9 of the 19 rare plant species, documented in the 9 quadrangle California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) database searches, were not considered to have a potential to occur based on geographic range, elevation range, and/or lack of suitable habitat (see Appendix F of the BTR). The remaining 10 species were considered to have a potential to occur on the project area based on the presence of desert scrub habitat. Rare plant surveys are scheduled for April and May 2019.

The rare plant species with potential to occur were not observed on the project area during the habitat assessment and other surveys on-site; however, Mohave spineflower and alkali mariposa lily were both observed adjacent to the site. An unidentified spineflower was observed on-site and it is expected that the unidentified spineflower is Mohave spineflower. The alkali mariposa lily was observed immediately adjacent to the project site and has potential to occur on-site. The other eight species are presumed absent from the project area. The spineflower, expected to be Mohave spineflower, was observed within the southern and western portions of the disturbed desert scrub located on the western side of the project site. Mohave spineflower is a CNPS rank 4.2 species and does not carry a federal or state listing as threatened or endangered. Impacts to a small population of Mohave spineflower is not considered significant, however impacts to a large isolated population would be significant. A population of Mohave spineflower was observed on the previous alternative location therefore a population of this species on-site would not be considered a large isolated population. Impacts to spineflower would not be considered significant. Alkali mariposa lily is a CNPS rank 1B.2 species and does not carry a federal or state listing as threatened or endangered. Impacts to alkali mariposa lily would be significant. The area in which the species potentially occurs is proposed for use as long-term soil storage. Implementation of mitigation measure BIO-1 will result in a less than significant impact.

<u>Impacts to Sensitive Animal Species:</u>

Of the 23 animal species recorded within the 9 quadrangle search, 3 species where observed on-site. Of the remaining 20 species, 10 species are not expected to occur, 9 species have a low potential to occur, and one species has a moderate potential to occur. These 10 species with low or moderate potential to occur on-site along with the 3 species observed on-site are discussed in further detail below.

Low and Moderate Potential Species

A total of nine species were determined to have a low potential to occur on the project area based on the presence of low quality habitat, limited acreage of habitat, and amount of disturbance and development within the project area. These species include Swainson's hawk, coast horned lizard, crotch bumblebee, Mohave shoulderband, Ferruginous hawk, Le Conte's Thrasher, Townsend's big eared bat, American badger and merlin.

A single species was determined to have a moderate potential to occur based on the presence of small areas of low-quality suitable habitat and documented observations within the vicinity of the project area. The species is the loggerhead shrike a state species of concern.

These species have low potential to occur and if present would most likely only be utilizing the site for foraging. The project would result in impacts to approximately 11 acres of native habitat (disturbed desert scrub) on the site. The majority of the site is part of the constructed WWTP, and the project will result in the reconfiguration of the WWTP. The majority of the impacts will result in a reconfiguring of the disturbed habitats on the WWTP facility. The project primarily consists of the reconfiguration of existing Ponds 15 and 17 into three percolation ponds, part of Pond 14 into an emergency pond, and part of Pond 14 into a septage receiving pond. This reconfiguration of the ponds will result in the pond habitat still existing on the site for use by the animals currently using the habitat. The project and associated construction activities on-site would not result in a significant impact to these species.

Presumed Absent Species

Focused surveys for desert tortoise (federally and state threatened species) were conducted in 2018. Survey results were negative (Appendix D of the BTR), and desert tortoise is presumed absent from the project area. Therefore, no direct or indirect impacts are anticipated to this species.

A focused trapping survey was conducted in 2018 for Mohave ground squirrel (federally and state endangered species) adjacent to the south side of the site in higher quality desert scrub habitat. The results of the trapping survey were negative (Appendix C of the BTR).

Presumed Present Species

The burrowing owl is a state species of concern and focused surveys are proposed to occur in 2019. A single burrowing owl was observed migrating through the project site in October 2018, and was not observed during other site visits. The area in which the burrowing owl was observed was inspected for sign of burrowing owl use. No whitewash, feathers, prey remains, or pellets were observed.

Since the project area supports suitable habitat, both protocol and a take avoidance survey are required prior to ground disturbance in accordance with CDFW's *Staff Report on Burrowing Owl Mitigation* (2012). An avoidance and minimization measure is included as BIO-2, which requires a focused survey and a take avoidance survey and avoidance of active nests and/or relocation of BUOW (if BUOW are observed).

A single prairie falcon was observed perched on a power pole on the northside of the project area. The power poles along the site are single post wooden poles and do not present nesting habitat. This solo bird was believed to be foraging in the desert scrub that surrounds the WWTP. A single White faced ibis was observed using one of the waste water ponds. The ponds on the WWTP represent foraging habitat for the species. The project primarily consists of the reconfiguration of existing Ponds 15 and 17 into three percolation ponds, part of Pond 14 into an emergency pond, and part of Pond 14 into a septage receiving pond. This reconfiguration of the ponds will result in the pond habitat still existing on the site for use as potential foraging habitat. The project will not impact the desert scrub surrounding the site WWTP used by the prairie falcon and other raptors. The project will not have a significant impact on the prairie falcon or white faced ibis.

Mitigation Measures

BIO-1 **Sensitive Plants:** Surveys are to be conducted in the spring/summer 2019 to map Mohave spineflower and alkali mariposa lily if they occur on-site. If present, these species are anticipated to only occur on the western side of the project site within the disturbed desert scrub. This area is proposed to be used for long term soil storage.

If alkali mariposa lily or a significant population of Mohave spineflower is present the project will avoid impacts if possible. If a significant population of Mohave spineflower and/or alkali mariposa lily occur and avoidance is not feasible the project will implement one of the following options: (1) collect the topsoil to preserve the seed base for the species present. The top soil will be stored on the WWTP and covered with vis-queen or similar material to protect the seed base from wind and rain based erosion. Following the completion of the project, under the direction of the biologist, salvaged top soil is to be spread on areas of temporary impacts; or (2) place a restrictive covenant (RC) on an equal amount of land that includes the impacted species, not to exceed 10 acres. If land preserve is selected, the land from the previous alternative location that is known to include both of the aforementioned species is proposed.

BIO-2 **Burrowing Owl:** In compliance with the CDFW *Staff Report on Burrowing Owl Mitigation* (2012), a protocol 4 visit survey will occur on March 5, April 25, May 16, and June 18, 2019. In addition to conducting protocol survey, a take avoidance survey shall be conducted on the project area within 14 days prior to ground disturbance to determine presence of BUOW. If the both the protocol 4 visit survey and the take avoidance survey are negative and BUOW is confirmed absent, then ground-disturbing activities shall be allowed to commence, and no further mitigation would be required.

If BUOW are observed during the four-visit survey and/or take avoidance survey, active burrows shall be avoided by the project in accordance with the CDFW's Staff Report (2012). The CDFW shall be immediately informed of any BUOW observations. A Burrowing Owl Protection and Relocation Plan (plan) shall be prepared by a qualified biologist, which must be sent for approval by CDFW prior to initiating ground disturbance. The plan shall detail avoidance measures that shall be implemented during construction and passive or active relocation methodology. Relocation shall only occur outside of the nesting season for BUOW (February 1 through August 31).

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less Than Significant With Mitigation.

Impacts to California Department of Fish and Wildlife Sensitive Vegetation Communities/Habitats

The project area supports disturbed native vegetation totaling 11.2 acres, comprised of disturbed desert scrub. The remainder of the project site is comprised of developed land and disturbed habitats that are part of the WWTP. No permanent impacts are proposed to native vegetation. The disturbed desert scrub on-site is proposed for temporary impacts. The west side of the project on which the disturbed desert scrub occurs will be utilized for staging area, construction parking, or similar purposes. Implementation of mitigation measure BIO-1 will result in a less than significant impact.

Impacts to California Department of Fish and Wildlife Riparian Habitat and Streambed

The project area supports a single drainage that is considered a jurisdictional streambed pursuant to Section 1602 of the California Fish and Game Code, as regulated by CDFW. This drainage was created by the initial construction of the WWTP and is not naturally occurring. The project will result in 0.13 acre of temporary and 0.02 acre permanent impacts to the drainage from the installation of pipes and grading occurring adjacent to the drainage. Generally, CDFW will require restoration of drainages that have minor temporary impacts to artificially created ephemeral drainages.

Permanent impacts to the drainage area associated with grading of the slopes and access ramp for the sludge beds. Temporary disturbance to CDFW jurisdiction is anticipated to occur associated with trenching, vehicle crossing, and installation of pipes, along with potential impacts from grading of pond slopes in proximity of the drainage. The drainage would be recreated on-site at or as close to its original position as feasible. The project would offset impacts to CDFW jurisdiction through compensatory mitigation if determine necessary in the permitting process. Compensatory mitigation for temporal loss of CDFW jurisdiction is outlined in mitigation measure BIO-3, while the avoidance and minimization measures are included in mitigation measure BIO-4. With implementation of applicable mitigation measures, impacts would be less than significant.

Mitigation Measures

BIO-3 **Jurisdictional Resources**: Prior to impacts to jurisdictional resources, the District shall obtain regulatory permits from the RWQCB and CDFW. Jurisdictional resources impacted shall be replaced on-site at the original location or as close as is feasible once the project has been completed. The drainage will enter and exit the project site at the same location as prior to construction. Compensatory mitigation for temporary impacts to jurisdictional waters is proposed to include enhancement/restoration of the unvegetated streambed on-site. If additional mitigation is required by the resource agencies, preservation of land with appropriate resources or purchase of off-site mitigation enhancement credits may be included.

The following minimization measures will be implemented during construction:

- Use of standard BMPs to minimize the impacts during construction.
- Construction-related equipment will be stored in developed areas, outside of drainages.
- Source control and treatment control BMPs will be implemented to minimize the potential contaminants that are generated during and after construction. Water quality BMPs will be implemented throughout the project to capture and treat potential contaminants.

- To avoid attracting predators during construction, the project shall be kept clean of debris to the extent possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from site.
- Employees shall strictly limit their activities, vehicles, equipment and construction material to the proposed project footprint, staging areas, and designated routes of travel.
- The drainage will be clearly marked to aid in avoidance of impacts.
- Designated crossings location shall be implemented to minimize impacts to the drainage from construction vehicles.

BIO-4 **Nesting Birds**: Construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) shall occur outside of the general bird nesting season for migratory birds, which is February 15 through August 31 for songbirds and January 15 to August 31 for raptors.

If construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) must occur during the general bird nesting season for migratory birds and raptors (January 15 through August 31), the District shall retain a qualified biologist to perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds and raptors afforded protection under the MBTA and CFG Code. The pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities. The results of the pre-construction survey shall be documented by the qualified biologist and submitted to the District.

If the qualified biologist determines that no active migratory bird or raptor nests are present, the activities shall be allowed to proceed without any further requirements. If the qualified biologist determines that an active migratory bird or raptor nest is present, no impacts within 300 feet (500 feet for raptors) of the active nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, or as determined by the qualified biologist. The biological monitor may modify the buffer or propose other recommendations in order to minimize disturbance to nesting birds.

c) Have a substantial adverse effect on state or federally protected wetlands, (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

Less Than Significant With Mitigation. The project area supports a drainage that is considered a jurisdictional streambed pursuant to the Porter Cologne Act as Water Board. However, the project was designed to avoid permanent impacts to Water Board jurisdiction. The project will result in 0.05-acre temporary and 0.005-acre permanent impacts to the Water Board drainage. This drainage was created by the initial construction of the WWTP and is not naturally occurring. The impacts to the drainage are from the installation of pipes and grading occurring adjacent to the drainage. Generally, the Water Board will require restoration of drainages that have minor temporary impacts to artificially created ephemeral drainages. In addition, the Water Board will require measures to insure water quality of the drainage and related resources.

The impacts would be to non-wetland waters that were artificially created. Impacts to Water Board jurisdiction associated with pipe installation along with grading of sludge ponds. The drainage would be restored on-site as close to its original location as possible following completion of the project. Additional compensatory mitigation beyond restoration of temporary impacts is not proposed.

The avoidance and minimization measure BIO-3, provided below, includes measures that would prevent any inadvertent impacts to Water Board jurisdictional areas during construction activities. As such, impacts in this regard would be less than significant.

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?

Less Than Significant With Mitigation.

Impacts to Wildlife Movement

The project area is not part of a regional corridor and does not serve as a nursery site. The project area is not identified as being part of a local or regional corridor or linkage by the Desert Renewable Energy Conservation Plan. The project area is comprised of the existing WWTP and includes limited native habitat. Native habitat that is present is disturbed from activities related to the operation of the WWTP. The project area does support treatment ponds, which provide habitat for local and migratory birds passing through the project area. Birds may fly over existing development to access the project area for foraging and/or nesting. The project would not permanently impact local wildlife movement since only temporary disturbance to native vegetation would occur, which would be allowed to return to pre-project conditions and the treatment ponds will continue to exist during the post construction. Although implementation of the project may result in some temporary disturbance to local wildlife movement from construction noise, the project would have a less than significant impact to wildlife movement. As such, no mitigation measures would be required.

Impacts to Migratory Species

The project area has the potential to support songbird and raptor nests due to the presence of shrubs, and ground cover, along with ornamental trees along the west border and just adjacent to the northwest corner. Project activities could disturb or destroy active migratory bird nests including eggs and young. Disturbance to or destruction of migratory bird eggs, young, or adults is in violation of the MBTA and CFG code and is considered a potentially significant impact. The nesting season is generally defined as February 15 through August 31 for songbirds and January 15 to August 31 for raptors. Some suitable nesting habitat occurs within the vegetation within the ponds and in the disturbed desert scrub, along with in the aforementioned ornamental trees. These areas offer nesting habitat for protected nesting bird species. An avoidance and minimization measure is provided as BIO-4, which would ensure the project is in compliance with MBTA regulations and CFG code. With implementation of applicable mitigation, impacts would be less than significant.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The project would not involve the removal of any notable trees or other activities that could adversely affect biological resources protected by a local policy or ordinance. As such, the project would not conflict with any local policies or ordinances protecting biological resources, such as tree preservations or local ordinances. No impact would occur.

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?

No Impact. The project site is not within an adopted habitat conservation plan area. Additionally, the project site occurs within the existing WWTP and the project will result in continued operation of the WWTP resulting in the same habitats to persist that are currently on-site. No impact to an adopted habitat conservation plan is proposed.

V. CULTURAL RESOURCES

Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	■
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	■	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	■	☐	☐

Discussion

a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

No Impact. A study was undertaken to identify cultural resources that are present in the area proposed for direct impacts as a result of the proposed project and to determine the effects of the project on significant cultural resources and historic properties. The Cultural Resources Survey Report, included in Appendix C of this Initial Study, identified four resources within the project area; these include two prehistoric lithic scatters, a historic refuse scatter, and a prehistoric isolate. A program of archaeological testing and surface collection was performed at the two prehistoric lithic scatters, CA-KER-5558 and CA-KER-5731, to determine their eligibility for listing in the National Register of Historic Places (NRHP) and the California Register of Historic Resources (CRHR). The remaining two cultural resources, CA-KER-5732H and P-15-009403, were not reidentified in the field and are presumed to have been destroyed. Based on the evaluation presented in the Cultural Resources Survey Report, the cultural resources within the Area of Potential Effects (APE) area do not meet the criteria for listing on the CRHR or the NRHP and thus are not considered significant cultural resources under CEQA or historic properties under the National Historic Preservation Act. As such, given the lack of any identified historic resources on-site that could be affected by project implementation, no impact would occur.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less Than Significant With Mitigation. Based on the analysis presented in the Cultural Resources Survey Report, the identified resources also do not meet the criteria for significant cultural resources as defined by CEQA. Further, the resources are all disturbed by modern activities, and this lack of integrity detracts from any potential research value the resources might have once had. However, based on the presence of numerous sites located near the project and the fact that blowing sand and/or previous site disturbance may have obscured surface manifestations of additional resources within the APE, the potential exists to identify previously unknown cultural resources during construction. In addition, the APE is situated in an area considered to be culturally sensitive to SMBMI. Any impacts to such previously undiscovered resources would be considered a potentially significant impact. As such, mitigation measure CUL-1 and TCR-1 would require that full-time archaeological and Native American monitoring, respectively, be carried out during ground disturbance within undeveloped and previously undisturbed areas within the APE. Likewise, in order to address impacts to any discovered resources during construction, mitigation measures CUL-1 and TCR-2 would require that a treatment plan for the resource(s) be prepared utilizing the process outlined in TCR-3 and then implemented in accordance with state and federal guidelines. With implementation of mitigation measure CUL-1, in conjunction with mitigation provided below in Section XVIII, Tribal Cultural Resources, of this Initial Study, impacts to archaeological resources would be reduced to less than significant.

Mitigation Measures

CUL-1 Due to the heightened cultural sensitivity of the proposed project area, an archaeological monitor with at least three (3) years of regional experience in archaeology shall be present for all ground-disturbing activities that occur within the proposed project area (which include, but are not limited to, vegetation removal and planting, clearing/grubbing, grading, excavation, trenching, compaction, fence/gate removal and installation, drainage and irrigation removal and installation, other ground disturbances, and archaeological work). A sufficient number of archaeological monitors shall be present each work day to ensure that simultaneously occurring ground disturbing activities receive thorough levels of monitoring coverage. A Monitoring and Treatment Plan that is reflective of the project mitigation ("Cultural Resources" and "Tribal Cultural Resources") shall be completed by the archaeologist and submitted to the District for dissemination to the SMBMI Cultural Resources Department and other interested TCA tribes. Once all parties review and approve the plan, it shall be adopted by the District; the plan must be adopted prior to permitting for the project. Any and all findings will be subject to the protocol detailed within the Monitoring and Treatment Plan.

CUL-2 If, in consultation with the District, a discovery of significant cultural resources not associated with Native Americans is made during monitoring, a mitigation plan shall be prepared and carried out in accordance with state and federal guidelines. If the resources cannot be avoided, a data recovery plan shall be developed to ensure collection of sufficient information to address archaeological and historical research questions, with results presented in a technical report describing field methods, materials collected, and conclusions. Any cultural material collected as part of an assessment or data recovery effort shall be curated at a qualified facility. Field notes and other pertinent materials shall also be curated along with the archaeological collection.

c) Disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant With Mitigation. No known burial sites or cemeteries are located within the APE for the project; however, should human remains be discovered during project-related grading and construction activities, potentially significant impacts could result if such remains are disturbed. However, implementation of mitigation measure CUL-3 would ensure proper treatment of human remains, whether of Native American decent or otherwise. With implementation of mitigation measure CUL-3, impacts to human remains would be less than significant.

Mitigation Measures

CUL-3 If human remains are discovered during any construction activities, all ground-disturbing activity within 100 feet of the remains shall be halted immediately, and the County coroner shall be notified immediately, according to Section 5097.98 of the State Public Resources Code and Section 7050.5 of California's Health and Safety Code. If the remains are determined by the County coroner to be Native American, the NAHC shall be notified within 24 hours. The NAHC shall identify a Most Likely Descendant, who will be designated to cooperate with the owner of the land on which the remains were discovered to arrange for the proper disposition of the remains, according to the NAHC guidelines for the treatment and disposition of human remains. Additional information is outlined in Mitigation Measure TCR-4.

VI. ENERGY

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

Discussion

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction of operation?

Less Than Significant Impact. The proposed project would involve the construction of new wastewater treatment facilities, which would be located adjacent to and expand the capacity of existing facilities. While construction activities would result in the temporary consumption of energy resources in the form of vehicle and equipment fuels (gasoline and diesel fuel) and electricity/natural gas (directly or indirectly), such consumption would be incidental and temporary and would thus not have the potential to result in wasteful, inefficient, or unnecessary consumption of energy resources. With regard to long-term operations, although the project would expand the treatment capacity of the existing WWTP by adding a new, larger Biolac/clarifier system and six sludge drying beds, which would improve effluent quality while utilizing existing WWTP pumps and other facilities and necessitating only very limited new equipment that would create additional energy demands (e.g., new pump(s), blower/motor, or other incidental electrical equipment). Thus, although the project would improve WWTP efficiency through provision of expanded treatment facilities, it would not involve notable new energy demand sources in the long-term. Overall, the project would not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources. A less than significant impact would occur.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. See Item VI.a, above. The proposed project would not result in a substantial new demand for energy resources nor have any direct or indirect effect on any state or local plan for renewable energy or energy efficiency. No impact would occur.

VII. GEOLOGY AND SOILS

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

Discussion

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

   i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?

Less Than Significant Impact. Rupture can occur over a fault during an earthquake when movement on the fault breaks through to the surface of the earth. The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 which requires the California State Geologist to identify areas in the state that are at risk for surface fault rupture with the goal of ensuring public safety by preventing development of buildings meant for human occupancy across traces of active faults. Faults are considered to be active if there is evidence of movement or seismic activity during the last 10,000 years.

The closest known active faults to the project site are associated with the Garlock Fault Zone, approximately 20 miles to the northwest, and San Andreas Fault Zone, approximately 18 miles to the south (California Geological Survey [CGS] 2010). Additionally, the Willow Springs fault is mapped approximately 10 miles northwest of the project site, with associated inferred faults approximately three miles north of the project site (CGS 2010). Since the proposed project would not be located near a known active earthquake fault and does not include structures meant for habitation, impacts associated with the exposure of people or structures to potentially substantial adverse effects involving fault rupture would be less than significant.

   ii. Strong seismic ground shaking?

Less Than Significant Impact. The project site is within a seismically active region and is potentially subject to strong seismic ground shaking from earthquake events, which could result in damage to improperly designed structures. The proposed project would, however, conform with the California Building Code (California Code of Regulations [CCR] Title 24) and the Kern County Building Code (Code of Ordinances, Chapter 17.08), which include requirements for seismic design such as: (1) completion of a geotechnical investigation; (2) appropriate site preparation (e.g., clearing/grubbing and removal of significant root material); (3) implementation of geotechnical recommendations, including observation/testing and remedial grading, as applicable; (4) appropriate excavation parameters, such as removal/replacement of unsuitable materials and/or recompaction of fill; (5) proper engineered fill composition/placement methodology; and (6) appropriate design and construction of manufactured slopes. Based on conformance with related regulatory standards as part of the project design and construction requirements, potential impacts related to seismic ground shaking from implementation of the proposed project would be less than significant.

   iii. Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. Liquefaction occurs when pore-water pressure increases rapidly, usually due to seismic shaking. The corresponding loss of shear strength results in affected soils behaving as a viscous liquid, which can cause loss of support for structures/foundations and lead to excessive settlement and lateral displacement, or spreading, on sloped surfaces. Loose (cohesionless), saturated, and granular (low clay/silt content) soils with relative densities of less than approximately 70 percent are the most susceptible to these effects. There are areas within the project site that are mapped as Liquefaction Zones where historical occurrence of liquefaction or local geological, geotechnical, and groundwater conditions indicate a potential for permanent ground displacements. These areas include land containing Ponds 1 through 8, land to the east of Ponds 6 and 8, and land around Amargosa Creek (CGS 2005). The project does not propose structures for these areas, however, and related impacts would be less than significant.

iv. Landslides?

Less Than Significant Impact. The project site is located in a topographically flat valley and is not within an area identified as susceptible to landslides (USGS 2018). The potential for the proposed project to expose people or structures to landslides is negligible, and related impacts would be less than significant.

b) Result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. Earthwork activities during construction of the proposed project could displace soils and temporarily increase the potential for soils to be subject to wind and water erosion. As required by the Clean Water Act, the District would obtain permit coverage under the National Pollutant Discharge Elimination System (NPDES) and State Water Resources Control Board (SWRCB) with implementation of an approved Stormwater Pollution Prevention Plan (SWPPP) for project construction, since the project's area of ground disturbance would be greater than one acre. With implementation of a SWPPP that incorporates sediment control and erosion control measures, impacts from soil erosion and topsoil loss would be less than significant.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less Than Significant Impact. Potential liquefaction (and related effects such as lateral spreading) and landslide impacts are discussed above in Items VII.a.iii and VII.a.iv of this section. Potential impacts related to subsidence are typically associated with conditions such as groundwater withdrawal, and such activities are not proposed as part of the project.

Temporary excavations associated with proposed project construction may involve vertical or near-vertical walls, which could exhibit instability and result in potential collapse related to loose or unstable soil and geologic materials. Such instability can be exacerbated through effects such as the potential occurrence of jointing and fracturing in local bedrock. Conformance with applicable Occupational Safety and Health Administration (OSHA) requirements, such as slope limitations and shoring requirements, as a matter of project design, would avoid or reduce potential impacts related to temporary excavation stability below a level of significance.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less Than Significant with Mitigation. Expansive (i.e., shrink-swell) behavior in surface or near-surface materials is attributable to the water holding capacity of clay materials. Such behavior can adversely affect structural integrity through shifting of foundations or supporting materials during the shrink-swell process. If shrink-swell potential of a soil type is rated moderate to very high, special design is often needed to ensure that structures on the site will not be damaged by volume changes in the soil associated with soil moisture losses or gains (USDA 1970).

Soils on the project site are mapped as Pond-Oban complex (Px), which are moderately well drained fine sandy/clay loams associated with basin floors, and generally consist of 30 percent Pond fine sandy loam, 20 percent Pond silty clay loam, and 30 percent Oban fine sandy loam, with tracts of Tray loam that make up about 20 percent of each area. These soils exhibit a moderate potential for shrink-swell behavior, and related impacts would be potentially significant. Mitigation measure GEO-1 would require completion of a site-specific geotechnical investigation and the incorporation of applicable results and recommendations into final project design and construction documents. Implementation of mitigation measure GEO-1 would reduce potential impacts to a less-than-significant level.

Mitigation Measures

GEO-1 Conduct Site-specific Geotechnical Investigation. A site-specific geotechnical investigation shall be completed to identify site-specific criteria related to considerations such as grading, excavation, fill, and structure/facility design. All applicable results and recommendations from the geotechnical investigations shall be incorporated into final project design and construction documents to address identified potential geologic and soil hazards, including but not necessarily limited to expansive soils. The final project design and construction documents will also encompass applicable standard design and construction practices from established regulatory/industry sources including the CBC, IBC, CGS, Greenbook and District standards, as well as the results/recommendations of geotechnical review and field observations/testing to be conducted during project excavation, grading and construction activities (with all related requirements to be included in applicable engineering/design drawings and construction contract specifications).

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

Less Than Significant Impact. The proposed project includes improvements to an existing WWTP to accept and treat septage from commercial septage haulers that service residential sources, small restaurants, and other domestic customers. The proposed septage receiving would be a concrete tank leading to a channel with a manual-cleaned coarse screen to remove large solids before proceeding to a lined septage holding pond. The septage would then be routed to the WWTP for additional treatment. Once treated, the effluent would be discharged to the proposed percolation ponds where it would percolate into the soil layers beneath the project site. As noted above in Item VII.d., the soils beneath the project site consist of Pond-Oban complex (Px) soils that are moderately well drained, and therefore it is not anticipated that soils beneath the project site would preclude the use of the proposed percolation ponds for treated effluent infiltration. As such, the project would not result in adverse impacts related to the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater. Impacts would be less than significant.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact. As indicated in previous responses, the soils beneath the project site consist of alluvial soils, which have been disturbed due to previous grading and construction activities on-site, including excavation and grading to create the existing septage ponds. Based on the very low potential for the presence of fossils or other paleontological resources due to the site's geology, the past disturbance of site soils, and the relatively limited depth of proposed excavation and grading activities, the potential for the project to directly or indirectly destroy a unique paleontological resource is considered minimal. No impacts to paleontological resources would occur.

Unique geological features generally are defined to include geologic structures, formations, or other features that exhibit unusual or important characteristics in the context of scientific information (e.g., rare geologic/mineral assemblages or structural features), or cultural perception (e.g., prominent, unusual, and/or aesthetically pleasing rock outcrops, exposures or landmarks). The U.S. Park Service maintains a listing of National Natural Landmarks (NNLs), with such designations in California including sites such as major faults, large parks/preserves, and diverse fossil assemblages. While there are two NNLs located in Kern County, neither are located within or in proximity to the proposed project area. Therefore, impacts to unique geological features would be less than significant.

VIII. GREENHOUSE GAS EMISSIONS

Would the project:	**Potential Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	■	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	■	☐

Discussion

Greenhouse Gas Setting. Global climate change refers to changes in average climatic conditions on Earth including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by atmospheric gases. These gases are commonly referred to as greenhouse gasses (GHGs) because they function like a greenhouse by letting sunlight in but preventing heat from escaping, thus warming the Earth's atmosphere. Two California Legislative acts mandate the reduction of GHG emissions in the state:

- Assembly Bill 32: The California Global Warming Solutions Act of 2006, widely known as AB 32, requires that CARB develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed to set a GHG emission limit, based on 1990 levels, to be achieved by 2020.

- Senate Bill 32: As a follow-up to AB 32 and in response to executive order EO-B-30-15, SB 32 was passed by the California legislature in August 2016 to codify the EO's California GHG emission reduction target of 40 percent below 1990 levels by 2030.

The GHGs defined under AB 32 include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Estimates of GHG emissions are often presented in carbon dioxide equivalents (CO_2e), which weigh each gas by its global warming potential. Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. Emissions of CO_2e are commonly presented in metric tons (MT; 1 MT equals approximately 2,205 pounds), all GHG emissions in this analysis are in expressed in MT of CO_2e per year.

Discussion

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. The EKAPCD provides a tiered approach in assessing significance of project specific GHG emission increases. Projects implementing Best Performance Standards would be determined to have a less than cumulatively significant impact. Otherwise, demonstration of a 20 percent reduction in GHG emissions, from business-as-usual (BAU), is required to determine that a project would have a less than cumulatively significant impact. The BAU approach was developed consistent with the GHG emission reduction targets. However, the BAU portion of the tiered approach is problematic based on the California Supreme Court decision in *Center for Biological Diversity v. California Department of Fish and Wildlife* (referred to as the Newhall Ranch decision hereafter). This California Supreme Court ruling confirmed that when an "agency chooses to rely completely on a single quantitative method to justify a no-significance finding, CEQA demands the agency research and document the quantitative parameters essential to that method." A 20 percent reduction in GHG emissions from BAU (known as the BAU Threshold) is not supported by quantitative parameters. The issue of setting a GHG threshold is complex and dynamic, especially in light of the Newhall Ranch decision. But the California Supreme Court ruling highlighted the need for the threshold to be tailored to the specific proposed development type, its location, and the surrounding setting. Therefore, the threshold used to analyze the project is specific to the analysis herein and the lead agency retains the ability to develop and/or use different thresholds of significance for other projects in its capacity as lead agency and recognizing the need for the individual threshold to be tailored and specific to individual projects. It is recommended that mass emission thresholds of significance developed by Sacramento Metropolitan Air Quality Management District (SMAQMD) be used for evaluating construction- and operation-related GHG emissions. These thresholds, as described in the SMAQMD CEQA Guide (SMAQMD 2018), are provided below:

- For the evaluation of construction-related emissions, if the mass emissions associated with construction of the project would exceed 1,100 MT CO_2e per year then they would be cumulatively considerable.

- For the evaluation of operational emissions, such would not have a significant impact on the environment if they are less than 1,100 MT CO_2e per year.

Construction Emissions

Project construction emissions of GHGs were estimated using CalEEMod as described in Section III, Air Quality. The CalEEMod output files are included in Appendix B. The results of the analysis are provided in Table 2, *Estimated Construction GHG Emissions*. As shown in Table 2, the construction GHG emissions would not exceed the SMAQMD threshold. Therefore, construction of the project would not result in a significant change in GHG emissions.

Table 2
ESTIMATED CONSTRUCTION GHG EMISSIONS

Construction Year	Emissions (MT CO_2e/year)
2019	342
2020	228
Maximum Annual Construction Emissions	**342**
SMAQMD Threshold	1,100
Exceed Threshold?	**No**

Source: CalEEMod (output data is provided in Appendix B of this Initial Study)
Notes:
1. Construction emissions are amortized over 30 years in accordance with SCAQMD guidance.
2. Totals may not sum due to rounding.

Operational Emissions

Waste water treatment facilities can be a source of GHGs during decomposition of solids in waste water (primarily CH_4 and CO_2) and following nitrogen removal processes (primarily N_2O). Despite the expanded treatment capacity proposed as part of the project, the proposed improvements would not increase the facility's influent treatment volume or any associated emissions of GHGs, as the project is being undertaken to improve effluent quality and associated impacts to soil and groundwater resources beneath the WWTP site. Aside from a negligible increase in maintenance vehicle activity, if any, long-term operation of the project would not result in any measurable change in mobile emissions associated with the facility. Therefore, long-term operation of the project would not result in a significant change in GHG emissions for the Rosamond WWTP.

Therefore, the project would not generate greenhouse gas emissions that may have a significant impact on the environment and the impact would be less than significant.

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

Less than Significant Impact. As discussed in question a) above, the project would generate a maximum of 342 MT per year of GHGs during a 15-month construction period, which would not exceed the SMAQMD threshold. Long-term operation of the project would not be a significant source of new GHG emissions. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases and the impact would be less than significant.

IX. HAZARDS AND HAZARDOUS MATERIALS

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

Discussion

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact. Numerous federal, state, and local regulations require strict adherence to specific guidelines regarding the use, transportation, disposal and accidental release of hazardous materials. These include the Resources Conservation and Recovery Act, Comprehensive Environmental Response, Compensation, and Liability Act, Emergency Planning and Community Right-to-Know Act, the Hazardous Materials Transportation Act, California Health and Safety Code, California Code or Regulations Title 22, SB 81 and 1916 (fire protection), and Kern County regulations (Public Health Services Department/Hazardous Materials Area Plan).

Construction activities associated with the proposed project would have the potential to generate small amounts of hazardous materials and wastes. The main hazardous wastes produced by construction activity would be waste oil and oil-saturated materials from construction equipment. Hazardous materials and waste would be managed and used in accordance with all applicable federal, state, and local laws and regulations. There would be no routine transport, storage, use, or disposal of significant amounts of hazardous materials. Minimal amounts of hazardous materials may be transported to and from a site during construction, but the transport of such materials would be temporary and subject to applicable regulations. Therefore, impacts associated with hazardous wastes generated from construction activities would be less than significant.

Following construction, the proposed facilities would require the occasional transport and use of hazardous materials as part of routine operation and maintenance. Typical hazardous materials include fuels, lubricants, oils, paints, solvents, and septage, and potentially other chemicals such as chlorine that may be used in on-site treatment or disinfection processes. Any spills or other releases of any such materials are regulated by the conditions of the facility's waste discharge permit, which requires notification of the Water Board in the event of any such a release, which may require corrective actions to be taken in order to ensure that significant adverse impacts do not occur. Further, in order to ensure that adverse water quality impacts do not occur associated with the use, transport, or storage of hazardous materials at the proposed expanded WWTP, the District would be required to prepare and implement an Industrial SWPPP, which would preclude significant adverse effects associated with releases of hazardous materials into stormwater flows generated on-site. Project compliance with applicable regulations would be implemented to reduce foreseeable risks of an accident that could create a hazard to the public or environment, and impacts would be less than significant.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact. Aside from the use and handling of hazardous materials and/or wastes as part of normal operations at the WWTP, which would be used, stored, handled, and transported as discussed above, there are no other sources of such materials or wastes that could pose a significant hazard to the public or the environment. With regard to introduction of pollutants to groundwater, the proposed project is intended to address existing groundwater pollution beneath the project site that have resulted from previous and current operation of unlined facultative lagoons as a wastewater disposal method. However, the proposed project would address these groundwater quality issues through expanded treatment capacity and the use of percolation ponds for disposal of treated effluent that has better quality than the effluent percolating from the unlined facultative lagoons. The improve effluent quality disposed through percolation would reduce pollutant loads to underlying groundwater units and improve overall groundwater quality. As such, based on the lack of substantial amounts of hazardous materials or wastes that could potentially be released into the environment, as well as the improved water quality effects of the proposed WWTP rehabilitation, the project would not 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. Impacts would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. The nearest schools to the project site are Westpark Elementary School, located at 3600 Imperial Avenue, and Rosamond High School, located at 2925 Rosamond Boulevard. Both schools are approximately 3 miles northwest of the project site.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less Than Significant with Mitigation. Since the project site is an existing wastewater treatment facility with associated Waste Discharge Requirements (WDRs), the project site is listed in the Geotracker database as a WDR site (SWRCB 2018). The project proposes to redesign the existing WWTP to meet WDRs; however, if soils below the proposed percolation ponds are contaminated with previous leakage then operation of the proposed project could result in continued violation of water quality standards, and impacts would be potentially significant. Implementation of mitigation measures HYD-1 and HYD-2 (listed below in Section X, *Hydrology and Water Quality*) would reduce potential impacts to a less than significant level.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The nearest airport to the project site is the Rosamond Skypark, a residential airpark and public-use airport located approximately four miles northeast of the project site at 4205 Knox Avenue. The project is not located within two miles of an airport, and no related impacts would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. The project site is located on the outskirts of the community of Rosamond with a dry lakebed and Edwards Air Force Base located to the east. There are no planned evacuation routes in proximity to the project site, as the nearest major thoroughfares in the area, Sierra Highway and SR 14 are located approximately 0.5 mile and over one mile to the west of the project site, respectively. The proposed activities would involve construction within the boundaries of the project site, and construction activities would have a minimal impact on traffic in the project area based on an assumed 30 daily construction worker vehicle trips and 10 daily vendor/delivery truck trips on average during peak construction activities, or an average of only four trips per hour in a given 10-hour work day. Similarly, once constructed and operational, the project would not result in notable increases in traffic levels in the area such that emergency vehicle or evacuation activities would be impeded in an emergency. Furthermore, the project would not have the potential to conflict with or obstruct implementation of the County of Kern Emergency Operations Plan or Hazard Mitigation Plan, which were adopted to address potential risks associated with natural or man-made disasters and emergency conditions. Therefore, the project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and impacts would be less than significant.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Less Than Significant Impact. The California Department of Forestry and Fire Protection (CalFire) maps fire hazard areas based on factors such as development patterns, potential fuels over a 30- to 50-year time horizon, expected fire behavior, and expected burn probabilities. The project site and surrounding areas are mapped as a Moderate Fire Hazard Severity Zone, which is the lowest hazard category for zoned areas (CalFire 2007). Since the project site is located in a desert area with sparse vegetation and scattered development, the risk of loss, injury, or death due to wildfires is considered low, and associated impacts would be less than significant.

X. HYDROLOGY AND WATER QUALITY

Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	■	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	■	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. result in substantial erosion or siltation on- or off-site;	☐	☐	■	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	■	☐
iii. create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	■	☐
iv. impede or redirect flood flows?	☐	☐	■	☐
d) In flood hazard, tsunami, or seiche zones, risk or release of pollutants due to project inundation?	☐	☐	■	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	■	☐	☐

Discussion

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant with Mitigation. As noted previously, the purpose of the proposed project is to address existing groundwater contamination associated with past and current operation of the existing facultative lagoons for septage treatment, which have leaked into the underlying soil and groundwater. The Water Quality Control Plan for the Lahontan Region (Basin Plan) sets forth water quality standards for the surface and ground waters of the Region, which include both designated beneficial uses of water and the narrative and numerical objectives which must be maintained or attained to protect those uses (Water Board 1995). Per the adopted Basin Plan, the receiving waters at the project site are the groundwater of the Antelope Valley (CA Department of Water Resources Basin No. 6-44). The beneficial uses for this groundwater listed in the Basin Plan are the following:

- Municipal and domestic supply (MUN),
- Agricultural supply (AGR),
- Industrial supply (IND), and
- Freshwater replenishment (FRSH).

The water quality objectives for groundwater with a "Municipal" beneficial use are defined in the Basin Plan, and include both the primary and secondary drinking water standards (maximum contaminant levels, or MCLs), which are set by the Division of Drinking Water. For nitrate as nitrogen, the limit is 10 milligrams per liter (mg/L). For TDS, there is a three-part standard: 500 mg/L (Recommended), 1,000 mg/L (Upper), and 1,500 mg/L (Short-Term). These are used as a target for improving groundwater conditions within the Basin, and the proposed project intended to bring the existing WWTP into compliance with these objectives.

Potential water quality impacts related to project construction include erosion/sedimentation and the use and storage of construction-related hazardous materials (e.g., fuels, etc.), as described further below.

Construction of the project could result in erosion/sedimentation from activities such as clearing and grading, excavation, and stockpiling of construction-related soils and materials. Sediment that is washed off site into surface waters can smother aquatic organisms, alter the substrate and habitat, and alter the drainage course. Additionally, increased turbidity associated with erosion and sedimentation can degrade water quality by transporting pollutants that adhere to sediment particles, such as hydrocarbons. These potential impacts would be addressed through conformance with District requirements, as well as requirements under the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. Contractors would be required to comply with specific storm water pollution prevention requirements for all projects involving earthwork, trenching, clearing, and grubbing operations. These requirements involve implementation of appropriate dry-season and rainy-season BMPs; routine evaluation, maintenance, and documentation of the effectiveness of implemented BMPs; and development of a "weather triggered" action plan and standby materials to deploy additional BMPs within 48 hours of a predicted storm event.

Additionally, for projects with soil disturbances of one acre or more, implementation of one or more authorized SWPPPs for proposed project construction would be required. Minimum BMPs would be determined during the NPDES/SWPPP process based on regulatory criteria and site characteristics (soils, slopes, etc.), and they would likely include standard industry measures and guidelines from the NPDES Construction General Permit. Based on the implementation of appropriate erosion and sediment control BMPs as part of (and in conformance with) the project SWPPP and related regulatory requirements, associated potential erosion/sedimentation impacts from project development would be less than significant.

Project construction would involve the on-site use and/or storage of hazardous materials such as fuels, lubricants, solvents, concrete, paint, and portable septic system wastes. The accidental discharge of such materials during project construction could potentially result in significant impacts if such materials reach downstream receiving waters, particularly materials such as petroleum compounds that can be toxic to aquatic species in low concentrations. The District's minimum requirements for storm water pollution prevention and any required SWPPPs under NPDES guidelines would prescribe detailed measures to avoid or mitigate potential impacts related to the use and potential discharge of construction-related hazardous materials. While specific BMPs would be determined on a project-specific basis, they would likely include standard measures listed in the Construction General Permit. Based on the implementation of these and/or other appropriate BMPs as part of (and in conformance with) the project SWPPPs and related regulatory requirements, potential impacts from construction-related hazardous materials under the proposed project would be less than significant.

With regard to long-term operations at the WWTP, as noted previously, the WWTP handles, stores, or otherwise utilizes limited quantities of hazardous materials during normal plant operations including fuels, lubricants, oils, paints, solvents, and septage, and potentially other chemicals such as chlorine that may be used in on-site treatment or disinfection processes. Any spills or other releases of any such materials are regulated by the conditions of the facility's waste discharge permit, which requires notification of the Water Board in the event of any such a release, which may require corrective actions to be taken in order to ensure that significant adverse impacts do not occur. Similarly, the stockpiling of soil excavated from existing Ponds 15 and 17 would be stored on-site (to the west of existing Pond 17) on a long-term basis, which would require that such stockpiled soils be stabilized in order to prevent potential erosion and associated air and water quality effects. Implementation of applicable stormwater BMPs and EKAPCD Rule 402 (Fugitive Dust) would preclude adverse effects to water quality associated with the on-site storage of excavated soil.

In addition, the District operates the WWTP under Water Board Order R6V-2015-0069 (Order) and is currently in violation of this waste discharge permit due to contributions to groundwater pollution from leaking facultative lagoons. Specifically, according to the Order, groundwater samples taken in 2014 indicate that the groundwater beneath the WWTP property current has Nitrate (as Nitrogen) levels ranging between 1.3 and 13.0 mg/L, thereby exceeding the 10 mg/L objective, and TDS levels ranging between 1,000 and 2,200 mg/L, thereby exceeding the 500 mg/L (recommended), 1,000 mg/L (Upper), and 1,500 mg/L (Short-term) standards for this constituent. The proposed project is intended to allow the District to meet wastewater discharge requirements by redesigning the WWTP to discharge de-nitrified, undisinfected secondary effluent to percolation ponds for disposal. Specifically, the existing 0.5-mgd treatment system, which would be expanded under the proposed project to achieve comparable effluent standards but with a higher flow capacity, would produce effluent (per sampling conducted in 2015) with a concentration of Total Kjeldahl Nitrogen (TKN) of 0.88 mg/L and TDS concentration of 480 mg/L, which are both well below the respective objectives in the Basin Plan. As such, the proposed project would significantly improve the quality of groundwater beneath the site compared to the existing facultative pond system. It should be noted that soils below the proposed percolation ponds are anticipated to be contaminated with previous leakage, and therefore operation of the proposed project could result in continued violation of water quality standards despite the increase in effluent quality being introduced to the soil and groundwater beneath the site, and impacts would be potentially significant. Implementation of mitigation measures HYD-1 and HYD-2 would ensure that operation of the proposed percolation ponds would not exacerbate potential existing groundwater quality conditions, if any, and therefore would reduce potential operational impacts to a less than significant level.

Mitigation Measures

HYD-1 Infiltration Testing. The District shall perform infiltration tests to estimate the infiltration rate and evaluate potential soil contamination from prior plant operations, which shall include the following activities:

Plant Startup and Operation – the District shall operate the plant and test the existing equipment, provide additional operational data, and provide 0.5 mgd of de-nitrified, un-disinfected secondary effluent to run an Infiltration Test (described below).

Infiltration Test – The District shall (1) estimate the infiltration rate as the basis of designing the proposed percolation ponds, and (2) evaluate if past evaporation pond leakage has contaminated the vadose zone with nitrate, ammonia, or TDS that could leach into the groundwater under future percolation of de-nitrified, un-disinfected secondary effluent and cause elevated nitrate levels.

HYD-2 Wastewater Discharge Permit. Within one year, the District shall submit a Form 200 permit application to the Water Board for the new WWTP design and shall obtain a new wastewater discharge permit for operation of the percolation ponds. The District shall comply with all water quality requirements and goals (i.e., effluent limits), including but not limited to ensuring that effluent meets discharge requirements; installing and maintaining impermeable liners within all process liquid storage areas including septage receiving pond, Biolac clarifiers, sludge drying beds, and emergency storage pond; and any other effective measures deemed necessary by the District to prevent untreated septage from percolating into underlying soils and groundwater.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant with Mitigation. The proposed project is anticipated to incrementally increase recharge rates on the project site due to the creation of percolation ponds, which would replace existing leaking facultative lagoons. The introduction of a consistent source of surface water percolation associated with the proposed project could interfere with management of the affected groundwater basins beneath and near the project site if the discharged effluent is not adequately treated prior to percolation or if the increased infiltration from the WWTP interferes with groundwater recharge from other sources, which would be considered a potentially significant impact. However, mitigation measure HYD-3, below, would reduce such impacts to less than significant through evaluation of groundwater flows. The combination of the two model components resulting from implementation of HYD-3 would allow an informed estimate of the proportion of the plant discharge that recharges groundwater within the Antelope Valley. Particle tracking would be employed to ascertain the portion of the plant discharge, if any, that would be expected to move into Fremont Valley. Currently, the regional model employs a time-varying head boundary condition at the boundary between the Antelope and Fremont valleys; the model does not extend into the Fremont Valley proper. Consequently, the impact of any new pumping in Fremont Valley on the water balance would be addressed using a simplified approach, such as an analytical groundwater pumping model, to adjust the head along the boundary. It should also be noted that In order to ensure that the proposed percolation ponds provide adequate infiltration of treated effluent, the ponds would be periodically rotated out of service (every 2 to 3 years as needed), allowed to dry, and then scraped to remove the top two inches of soil from the pond bottom, followed by light tilling if necessary. These activities would be carried out as a standard operating practice at the expanded WWTP in order to maintain proper effluent infiltration following treatment.

Mitigation Measures

HYD-3 Groundwater Modeling. A two-component model shall be developed to properly account for the water balance associated with project-related discharge and its long-term impact on local groundwater flow. To the extent they are necessary to provide adequate characterization of the nature and extent of groundwater pollution, the District shall install additional groundwater monitoring wells in the surrounding area to supplement existing well data. The specific depth and location of additional monitoring wells shall be determined by the District in consultation with the Water Board. The District's proposed well construction process shall be established in time schedule milestones set by the Water Board, with one milestone being preparation and submittal of a work plan proposing the specific construction details and locations for the new monitoring wells. The model components shall include:

1. A spreadsheet-based effluent discharge model that tracks evaporative losses from the facultative lagoons. The model shall include monthly discharge volumes, pond use history, wetted pond(s) surface area, and monthly pan evaporation data (measured or calculated). The output from this model will be used to inform a recharge source term for a subregional groundwater flow model (i.e., the second model component, below).

2. A subregional model for groundwater flow beneath the WWTP and encompassing the adjacent Fremont Valley. This model shall be derived from the regional MODFLOW model developed for the Antelope Valley by the USGS at a 1-km grid resolution. A portion of the model will be delineated as a submodel, with appropriate boundary conditions and grid refinement, to enable groundwater modeling at a local scale near the WWTP, with the plant discharge treated as a time-varying recharge condition.

The results of the modeling assessment shall be summarized in a technical memorandum.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

   i. result in substantial erosion or siltation on- or off-site;

   ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

   iii. create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

   iv. impede or redirect flood flows?

The following response addresses Items X.c.i through X.c.iv:

Less Than Significant Impact. The proposed project is generally not expected to substantially increase the rate or amount of surface runoff within or from proposed project site. This conclusion is based on the nature of proposed facilities (e.g., improvements to existing facilities, underground pipelines), and the fact that proposed new above-ground project components would generally not result in substantial areas of new impervious surfaces, such as pavement and large structures. Accordingly, associated increases in runoff rates and amounts would be minor, and related potential impacts are expected to be less than significant.

The failure of the proposed project components, such as pumping equipment, structures, or pipelines, could occur as a result of structural damage caused by a natural event, such as earthquakes or flooding, or equipment failure from age or material defect. Facility failure could result in flooding caused by the release of impounded wastewater. The failure could be hazardous, as it would occur quickly and without warning. Flooding from facility failure could discharge raw sewage, inundate and cause water damage to structures, bury structures, knock structures off their foundations, or destroy structures by the impact of high velocity water and debris. Impacts resulting from flooding could include the loss of life and/or property; health and safety hazards; disruption of commerce, water, power, and telecommunications services; and infrastructure damage. District facilities, including the proposed project, would be monitored by Supervisory Control and Data Acquisition(SCADA), which is a system for remote monitoring and control that provides real-time information on how facilities are functioning and alerts operators of potential facility failures. The District routinely performs inspection and maintenance on all facilities, and the proposed project facilities would be incorporated into the maintenance schedules. Additionally, the District maintains a Sewer System Management Plan (SSMP) in compliance with statewide general waste discharge requirements for sanitary sewer systems. The SSMP aims to prevent facility failures from occurring and prescribes overflow response programs to respond to potential facility failures. The SSMP also includes plans for system evaluation; monitoring; and control of fats, oils, and grease that can damage the sewer system. Continued implementation of the SSMP and associated District monitoring and maintenance protocols would reduce the risks associated with project failure to less than significant.

d) In flood hazard, tsunami, or seiche zones, risk or release of pollutants due to project inundation?

Less Than Significant Impact. According to the Federal Emergency Management Agency (FEMA)’s Flood Insurance Rate Map (FIRM) for the project area (FIRM No. 06029C4025E) the entire project site is located within Zone X (FEMA 2008). Zone X is defined as areas of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level, or an area determined to be outside the 500-year flood and protected by levee from 100-year flood. As such, the project site is not considered to be located in a designated flood zone as defined by FEMA. With regard to tsunami risks, the project site is located in the high desert approximately 60 miles from the Pacific Ocean at an elevation more than 2,300 feet above mean sea level and, therefore, there would be no potential for a tsunami event to affect the project area. Seiche effects could occur within the on-site facultative lagoons, proposed percolation ponds, or aeration basins in the event of an earthquake. If such an event were to occur, it could release raw sewage, treated effluent, or other materials into adjacent off-site areas, which would generally drain eastward based on the existing topography and drainage patterns in the area. However, a release of pollutants associated with the WWTP would be addressed via implementation of spill response protocols provided by the adopted SSMP, as noted above. As such, with implementation of the SSMP response protocols and procedures, impacts would be less than significant.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant With Mitigation. Construction and operation of the proposed project would be required to comply with state and local storm water regulations, including construction and post-construction BMPs, which would minimize the potential for construction or operation of the proposed project to discharge substantial pollutants to nearby receiving surface water bodies such that a conflict with or obstruction of the Water Quality Control Plan for the Lahontan Region (Water Board, 1995) would occur.

In addition, with regard to groundwater quality and impacts to sustainable groundwater management plans, the construction and operation of the proposed project is expected to improve overall groundwater quality in the area. Based on the groundwater technical memorandum found in Appendix A-1: Amendment 1 of the Rosamond WWTP Technical Report Volume 2 (included in Appendix A of this Initial Study), current operations of the facultative lagoons can significantly concentrate TDS from an effluent value of 500 mg/L to a pond TDS value of 2,500-3,000 mg/L. These high TDS values, therefore, are currently negatively impacting groundwater through the leaky facultative lagoon bottoms. In addition, existing wastewater treatment processes do not consistently convert influent ammonia to nitrogen gas through nitrification/denitrification, which can then result in higher nitrogen concentrations that also percolate to groundwater. The treatment and disposal processes proposed as part of the project will address both of these constituents that currently are polluting groundwater. By designing and operating percolation ponds rather than facultative lagoons, treated wastewater will percolate rather than evaporate. More rapid percolation will significantly reduce the evaporation-related concentration of TDS which results in lower groundwater TDS over time. Similarly, the effluent TKN is expected to be significantly reduced with the proposed project, which is expected to result in improvements to groundwater quality over time.

As such, overall, with implementation of mitigation measures HYD-1, HYD-2, and HYD-3, the project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, and impacts would be less than significant.

XI. LAND USE AND PLANNING

Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	■
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	■

Discussion

a) Physically divide an established community?

No Impact. The project is not located within a residential area. Additionally, proposed construction and modifications to existing structures would be located in an area that is not currently developed aside from the existing WWTP facilities. Therefore, the proposed project would not physically divide an established community, and no impact would occur.

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

No Impact. The project site is zoned as "Limited Agriculture" under the County of Kern Zoning Ordinance and the land use is designated as "Public Facilities and Services, Other Facilities/Flood Hazard" in the County of Kern General Plan. When a local agency is directly and immediately engaged in "the production, generation, storage, treatment, or transmission of water," the agency has an absolute exemption from complying with local building and zoning ordinances for the location or construction of facilities (Government Code, §53091, subds. (d), (e)). The project involved facilities directly and immediately engaged in the production, generation, treatment, and transmission of water. Therefore, the project is exempt from the County of Kern's zoning ordinance. Nonetheless, the project would not result in a significant land use impact because the project involves the expansion of treatment capacity within the boundaries of an existing WWTP using the same type of treatment technologies with similar facilities. Further, the project would not result in a change of use at the project site, but rather would improve environmental conditions related to soil and groundwater contamination while continuing to provide necessary wastewater treatment services. The proposed expansion would result in overall improvements in effluent quality and would reduce potential adverse impacts to soil contamination and groundwater quality. Therefore, the project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. No impact would occur.

XII. MINERAL RESOURCES

Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	■
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	■

Discussion

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

The following response addresses Items XII.a. and XII.b:

No Impact. The project site is characterized by the existing WWTP and existing facultative lagoons, and all project-related activities would occur on-site. No mineral resources are known to exist within the project site and no mineral resource recovery activities currently occur on or near the property. The project site is also not designated for mineral resource recovery or mining activities in the Kern County General Plan or the Rosamond Specific Plan. Therefore, implementation of the proposed project would not have the potential to 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 or a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. No impact would occur.

XIII. NOISE

Would the project result in:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	■	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	■	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	■

Discussion

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact.

Construction Noise

The project would include the construction of new wastewater treatment facilities, including pipelines, percolation basins, and associated appurtenances and equipment. Pipeline construction activities would be trenching, installation of pipes, and backfilling. The loudest activity associated with pipeline construction would be the excavator digging the trench. Percolation basin construction activities would include the excavation and movement of soils. The loudest activity associated with construction of the recharge basins would be the bulldozer work.

The Federal Roadway Construction Noise model provides a L_{MAX} noise level at 50-feet of 81.7 dBA for a bulldozer and 80.7 dBA for an excavator, both with an assumed hourly operations period of 40 percent.

The Kern County Code does not limit construction noise levels during normal daytime hours on weekdays, but provides the following limits for all others: To create noise from construction, between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and 9:00 p.m. and 8:00 a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of 150 feet from the construction-site, if the construction-site is within 1,000 feet of an occupied residential dwelling except as provided below:

1. The development services agency 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.

The closest residential property line is over one-half mile (or over 2,700 feet) from the edge of construction, with a calculated noise impact for the heaviest construction equipment of 42.1 dBA for a large bulldozer and 41.2 dBA for an excavator. It should be noted that at distances greater than 500 feet the normal reduction calculation for noise due to distance will normally yield higher than actual (operating measured) noise impact levels. Nonetheless, the predicted noise levels resulting from on-site construction activities would be well below the established noise standards (i.e., 55 dBA for Sensitive Uses including residential areas per the Rosamond Specific Plan Noise Element), and therefore would be less than significant.

With regard to construction-related traffic noise, the proposed project would generate minimal traffic during construction. Because the soil cut/fill would be balanced on the project site (i.e., all of the soil excavated during construction would be placed on the project site in the area immediately west of existing Pond 17), no substantial soil haul trips would be necessary and thus construction traffic would be limited. It conservatively assumed that up to 30 construction worker vehicles would access the site during both the morning peak period (7:00 a.m. to 9:00 a.m.) and the afternoon/evening peak period (4:00 p.m. to 6:00 p.m.), with negligible vehicle traffic during the rest of the day. Vehicle trips associated with the delivery of construction material and equipment would likewise be negligible because such trips would occur only a few times throughout the duration of the construction period.

Accordingly, this analysis conservatively assumes a speed limit of 40 miles per hour near the project site. The highest traffic noise levels at residences located near the site could reach up to 48 dBA L_{EQ} during the morning and afternoon/evening peak traffic periods. Conservatively allowing for the possibility that the morning peak period traffic could occur during the “nighttime” hours (i.e., before 7:00 a.m.), a noise level of up to 45 CNEL could occur at the closest residence.

Compared to the most restrictive 60-CNEL limit for Highly Sensitive Uses (including low-density residential land uses) per the Rosamond Specific Plan, traffic noise impacts from the construction personnel vehicle traffic would be less than significant.

Operational Noise

Operation of the expanded WWTP following construction activities would generate noise levels comparable to the existing WWTP facilities based on the fact that the expanded facilities would duplicate those already existing on-site. Assuming an incremental increase in the number of pumps and other equipment operating at any given time on the project site, the noise levels associated with operation of the expanded WWTP would also incrementally increase. However, this increase in noise would not be expected to be perceptible from any location off-site, and would be well below exterior noise standards for the closest sensitive uses (residential uses) located over one-half mile (i.e., over 2,700 feet) from the project site. As such, operational noise impacts would be less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact. Ground-borne vibration is a concern for projects that require heavy construction activity such as blasting, pile-driving, and operating heavy earth-moving equipment. Ground-borne vibration can result in a range of impacts, from minor annoyances to people to major shaking that damages buildings. Typically, ground-borne vibration generated by man-made sources attenuates rapidly with distance from the source of vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly and sick), and vibration-sensitive equipment.

The main on-site source of vibration during project construction would be a vibratory roller (primarily used to achieve soil compaction as part of building foundation construction and paving), which may be used within 60 feet of the nearest off-site commercial use. A vibratory roller creates approximately 0.210 inches per second (in/sec) peak particle velocity (PPV) at a distance of 25 feet. A 0.210 in/sec PPV vibration level would equal 0.08 in/sec PPV at a distance of 60 feet.[3] This would be lower than the 0.1 in/sec PPV vibration annoyance potential criteria for human receptors and the 2.0 in/sec PPV potential criteria for damage to industrial structures. Furthermore, the vibratory roller would be short-term and temporary, and no notable vibration from operation of the project is anticipated. Therefore, temporary impacts associated with the vibratory roller (and other potential equipment) would be less than significant.

Operation of proposed new WWTP facilities would not be expected to generate measurably greater vibration than the existing WWTP facilities and would not be expected to be perceptible from off-site locations given the rapid attenuation of vibration with distance from the source and the distance from the project site to the nearest sensitive receptor location of over one-half mile. As such, operational vibration impacts would also be less than significant.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The nearest airport or private airstrip to the project site is the Rosamond Skypark, a residential airpark and public-use airport located approximately four miles northeast of the project site at 4205 Knox Avenue. The project is not located within two miles of an airport or private airstrip, and

[3] Equipment PPV = Reference PPV * (25/D)n (in/sec), where Reference PPV is PPV at 25 feet, D is distance from equipment to the receiver in feet, and n = 1.1 (the value related to the attenuation rate through the ground); formula from Caltrans 2013.

thus implementation of the project would have no potential to expose people residing or working in the project area to excessive noise levels. No aircraft noise-related impacts would occur.

XIV. POPULATION AND HOUSING

Would the project:	Potential Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	■
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	■

Discussion

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. The following analysis applies to Items XV.a and XV.b. The proposed project consists of improvements to an existing WWTP in order to address existing soil and groundwater contamination and would not induce substantial population growth. The proposed project would provide wastewater services to meet existing demand while achieving the prescribed water quality requirements of the Water Board, and therefore would not increase the capacity of or otherwise expand the wastewater treatment system in direct support of new population or economic expansion. The project would also not displace or otherwise adversely affect existing housing or people residing in the area. Therefore, no impacts are expected, and no mitigation measures are required.

XV. PUBLIC SERVICES

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

Discussion

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

a) Fire protection?
b) Police protection?
c) Schools?
d) Parks?
e) Other public facilities?

No Impact. The following analysis addresses Items XV.a through XV.e. Construction activities on-site could result in a temporary increase in police or fire/emergency medical services associated with site intrusion or vandalism calls or construction worker injuries or illness. However, such temporary increases would not trigger the need for additional facilities or services in order to meet the demands of the project. Operation of the proposed WWTP rehabilitation project would not require additional employees on-site or increase the intensity of activities such that an increased demand for public services would result. In addition, the project does not include new homes or businesses that would require any additional services or extended response times for fire or police protection services. Furthermore, the proposed project would not change existing demand for schools, parks, or other public facilities because population growth would not result from implementation of the project. Impacts to public services would not occur due to the proposed project.

XVI. RECREATION

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

Discussion

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. The project consists of the construction of wastewater treatment facilities and would not increase the use of existing parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; therefore, no related impacts would occur.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The proposed project would not include the construction or expansion of recreational facilities. Accordingly, no impacts would occur.

XVII. TRANSPORTATION

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

Discussion

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less Than Significant Impact. The proposed project would not include components that would result in operational traffic generation, except for occasional routine maintenance trips (consistent with maintenance of the existing WWTP). While construction activities would generate a small number of trips associated with construction equipment and worker vehicles, these trips would be limited to the construction period, and would not be considered substantial in relation to the existing traffic load in the project vicinity. The new WWTP treatment facilities would be constructed and operated entirely within the boundaries of the existing WWTP site and thus the project would not limit accessibility to the facility or surrounding area. No public transit routes, bicycle lanes/routes, or sidewalks are located along the project site frontage along 10th Street and therefore no public transit, bicycle, or pedestrian routes or facilities would be affected by project construction or operation. Therefore, the project would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities, and impacts would be less than significant.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less Than Significant Impact. CEQA Guidelines Section 15064.3(b) provides criteria for analyzing transportation impacts, and states "…Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact." The project site is not located within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor. However, the project would not result in any intensification of land uses in the project area that generate additional traffic. Specifically, construction activities are estimated to generate up to 30 worker vehicle trips per day and up to 10 vendor/delivery truck trips per day on average during peak construction activities. Operation of the expanded WWTP would not generate notable traffic once constructed, as the proposed facilities would operate in a similar fashion and in conjunction with existing facilities and would not require additional employees for plant maintenance and upkeep activities. As such, the project would not measurably increase vehicle miles traveled that could potentially exceed thresholds. Therefore, impacts would be less than significant.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact. Construction activity would occur within the existing WWTP property. The on-site work areas, however, would be clearly demarcated for safety and closed to public access. No changes to the WWTP access roads would occur. No off-site road improvements are proposed, and no off-site traffic hazards would be created. Therefore, the impacts from hazards associated with the work areas would be temporary and less than significant.

d) Result in inadequate emergency access?

No Impact. Traffic patterns in the project area would not be measurably affected during project construction or operation, as access to roadways in the project area would be maintained. Emergency access to the area would not be limited. Therefore, no impact would occur.

XVIII. TRIBAL CULTURAL RESOURCES

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

Discussion

a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Less Than Significant with Mitigation. The following analysis addresses Items XVIII.a.i and XVIII.a.ii. Tribal cultural resources (TCRs) are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources, as defined in subdivision (k) of Public Resources Code Section 5020.1, or determined to be significant pursuant to criteria set forth in Public Resources Code Section 5024.1.

As discussed in further detail in the project Cultural Resources Assessment Report (included in Appendix D of this Initial Study) an email response was received from SMBMI on June 6, 2018, in response to initial tribal outreach regarding the project, stating that the proposed project area exists within Serrano ancestral territory and, therefore, is of interest to the Tribe.

In addition, the District invited interested tribes to consult under AB 52; letters were sent to 13 tribal groups in January 2019. To date, SMBMI tribal representatives have responded with a request for formal consultation. Copies of the NAHC response, mapping and photos of the project, and information about the land use history of the project parcel were provided by HELIX to SMBMI via email on June 8, 2018, per their request. Upon receipt of a formal consultation notice on February 4, 2019, SMBMI responded on February 5, 2019 outlining concerns they had with the project and the impact to both known and unknown archaeological resources within the project footprint. During consultation, SMBMI further outlined that these resources contribute to a culturally significant landscape that is treated as a Tribal Cultural Resource (TCR) by SMBMI. As a result, mitigation measures TCR-1 through TCR-4 are required to reduce potentially significant impacts to TCRs to a less than significant level.

Mitigation Measures

TCR-1 Tribal Monitoring. Due to the heightened cultural sensitivity of the proposed project area, Tribal monitors representing SMBMI and other potentially interested TCA tribes shall be present for all ground-disturbing activities that occur within the proposed project area (which includes, but is not limited to, vegetation removal and planting, clearing/grubbing, grading, excavation, trenching, compaction, fence/gate removal and installation, drainage and irrigation removal and installation, other ground disturbances, and archaeological work). A sufficient number of Tribal monitors shall be present each work day to ensure that simultaneously occurring ground disturbing activities receive thorough levels of monitoring coverage. A Monitoring and Treatment Plan that is reflective of the project mitigation ("Cultural Resources" and "Tribal Cultural Resources") shall be completed by the archaeologist, as detailed within CUL-1, and submitted to the District for dissemination to the monitoring tribe(s). Once all parties review and agree to the plan, it shall be adopted by the District; the plan must be adopted prior to permitting for the project. Any and all findings will be subject to the protocol detailed within the Monitoring and Treatment Plan.

TCR-2 Treatment of CA-KER-5558 and CA-KER-5731. Archaeological resources CA-KER-5558 and CA-KER-5731 are contributing resources to a landscape Tribal Cultural Resource (TCR) that overlaps the project area. As it was determined by the District that avoidance of these resources was not feasible, the sites were subjected to archaeological significance evaluation in order to determine their eligibility for listing on the CRHR and NRHP. Artifacts recovered during testing were temporarily housed off-site. Per consultation efforts between SMBMI and the District, the material shall be reburied in a conservation area owned and managed by the District, as subject to the process outlined in TCR-3.

TCR-3 Treatment of Cultural Resources. If additional pre-contact cultural resources are discovered during project implementation, ground disturbing activities shall be suspended within 100 feet of the resource(s) and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. Representatives from the monitoring tribe(s), the Archaeological Monitor, and the District shall confer regarding treatment of the discovered resource, as detailed within the Monitoring and Treatment Plan. A research design shall be developed and will include a plan to evaluate the resource for significance under CEQA criteria. The research design shall also acknowledge that, regardless of archaeological significance under CEQA, all finds are subject, if feasible, to avoidance/preservation in place as treatment due to the presence of a TCR landscape.

Should any resource not be a candidate for avoidance or preservation in place, and the removal of the resource is necessary to mitigate impacts, the research design shall include a comprehensive discussion of sampling strategies, resource processing, analysis, and reporting protocols/obligations. Removal of any cultural resource(s) shall be conducted in the presence of a Tribal monitor, unless otherwise decided by the monitoring tribe(s). All plans for analysis shall be reviewed and approved by the District, SMBMI, and other interested TCA tribes prior to implementation, and all removed material shall be temporarily curated in a secure facility on-site. Cultural material shall be reburied within the conservation area owned and managed by the District, as agreed upon during consultation. Reburial shall not occur until all ground-disturbing activities associated with the project have been completed, all monitoring has ceased, cataloguing and basic recordation of cultural resources have been completed, and a final monitoring report has been issued to District, the regional CHRIS Information Center (the Southern San Joaquin Valley Archaeological Information Center), and monitoring tribes. Reburials are subject to a reburial agreement that shall be developed between the District and monitoring tribes outlining the determined reburial process and location, and shall include measures and provisions to protect the reburial area from any future impacts (vis a vis project plans, conservation/preservation easements, etc.).

All draft records/reports containing the significance and treatment findings and data recovery results shall be prepared by the archaeologist and submitted to the District, SMBMI, and other interested TCA tribes for their review and comment. After approval from all parties, the final reports and site/isolate records will be submitted to the local CHRIS Information Center, the District, SMBMI, and other interested TCA tribes.

TCR-4 Inadvertent Discoveries of Human Remains/Funerary Objects. In the event that any human remains are discovered within the project area, ground disturbing activities shall be suspended within 100 feet of the resource(s) and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. The on-site lead/foreman shall then immediately notify the District, who will be responsible for notifying monitoring tribes. The District shall then immediately contact the County Coroner regarding the discovery. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the NAHC within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c). The NAHC-identified Most Likely Descendant (MLD), shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and funerary objects shall be treated and disposed of with appropriate dignity. The MLD and District agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes. The MLD shall complete its inspection and make recommendations within forty-eight (48) hours of the site visit, as required by California Public Resources Code § 5097.98.

Reburial of human remains and/or funerary objects (those artifacts associated with any human remains or funerary rites) shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The MLD, in consultation with the District, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains and funerary objects. All parties are aware that the MLD may wish to rebury the human remains and associated funerary objects on or near the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The District should accommodate on-site reburial in a location mutually agreed upon by the Parties.

It is understood by all Parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and District, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r).

XIX. UTILITIES AND SERVICE SYSTEMS

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

Discussion

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

No Impact. The proposed project would expand the treatment capacity of the existing WWTP in order to address current contamination issues associated with the prior use of on-site facultative lagoons. It would not require or result in the construction of new water or wastewater treatment facilities or the expansion of existing treatment facilities beyond what is proposed as part of the project. All environmental impacts associated with the proposed project's construction and operation have been addressed in this Initial Study and have been determined to be less than significant. Therefore, no impact would occur and no mitigation is required.

b) Have sufficient water supplies available to serve the project and responsibly foreseeable future development during normal, dry and multiple dry years?

No Impact. The project proposes the expansion of the existing WWTP with similar treatment facilities and equipment to meet existing treatment demands within the District's service area. Because the improvements are being proposed to address existing soil and groundwater contamination issues while providing adequate treatment of existing wastewater flows, the project would not require additional water supplies or new or expanded entitlements for water supplies. Therefore, no impact would occur.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. The proposed project would expand the existing WWTP in order to adequately accommodate and treat existing wastewater flows to 100-percent secondary denitrified effluent and allowing the District to take the existing facultative pond system out of service. The expanded WWTP, therefore, would compensate for the loss of treatment capacity provided by the facultative lagoon system being taken out of service, and would eliminate existing pollution sources while maintaining treatment services for its existing customers. The project would not increase the amount of wastewater generated and therefore would not require increased wastewater treatment capacity beyond what is already proposed as part of the project. Therefore, no impact would occur.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. Solid waste generation during construction would be short-term and minimal. Construction debris (e.g., asphalt, concrete) would be recycled, as feasible. Excess soil would be stored on-site until such time as the District or another entity proposes to utilize the soil for fill materials or another appropriate purpose. Operation of the expanded WWTP would not generate substantially more solid waste or measurably affect landfill capacities. The existing facultative lagoon system treats influent septage with a system that contains all biosolids (sludge) within the pond system where it settles and is not regularly removed, while the existing 0.5-mgd WWTP processes remove biosolids from effluent flows for drying and off-site disposal. The expanded 1.27-mgd WWTP would utilize the same system as the existing system and therefore would be expected to generate additional amounts of biosolids requiring off-site disposal. Although the project would expand treatment capacity to improve effluent quality, and would generate incrementally more biosolids due to the increase in treatment volume, it would not result in a substantial increase in wastewater influent or associated sludge production or other activities that could increase solid waste generation on-site in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. Therefore, impacts would be less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact. The proposed project would comply with all applicable, federal, state, and local management and reduction statutes and regulations related to solid waste, including requirements related to the handling, transport, and disposal of sludge materials, which would continue to occur as under existing conditions. Therefore, no impact would occur.

XX. WILDFIRE

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

Discussion

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. Refer to Item IX.f., above. The project would not substantially impair an adopted emergency response plan or emergency evacuation plan, and thus impacts would be less than significant.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less Than Significant Impact. As discussed previously under Item IX.g., the California Department of Forestry and Fire Protection (CalFire) maps fire hazard areas based on factors such as development patterns, potential fuels over a 30- to 50-year time horizon, expected fire behavior, and expected burn probabilities. The project site and surrounding areas are mapped as a Moderate Fire Hazard Severity Zone, which is the lowest hazard category for zoned areas (CalFire 2007). Since the project site is located in a desert area with sparse vegetation and scattered development, the potential for the project to exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire is considered low, and associated impacts would be less than significant.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact. The proposed project would involve construction of new wastewater treatment facilities entirely within a site that already contains the existing WWTP and associated infrastructure and is served by existing water, electrical, and other utilities. Because the project would not require the installation or maintenance of substantial new infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk, no adverse impacts would occur.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slop instability, or drainage changes?

No Impact. The project site is located in a topographically flat valley and is not within an area identified as susceptible to landslides (USGS 2018). Furthermore, the project site is not located a designated flood zone or an area susceptible to flooding (FEMA 2018). The proposed project would involve the construction of wastewater treatment facilities within an existing WWTP that would operate passively once constructed. As such, the project would have no potential to expose people or structured to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. No impact would occur.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	■	☐	☐
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of current projects, and the effects of probable future projects)?	☐	☐	■	☐
c) Have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	■	☐

Discussion

a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, threaten to eliminate a plant or animal community, reduce the number, or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant with Mitigation. The project may result in potentially significant impacts to sensitive animal species (including migratory birds), sensitive riparian habitat, and jurisdictional waters. The project may also result in potentially significant impacts to unknown archaeological and TCRs. However, potential degradation of the quality of the environment would be reduced to below a level of significance through implementation of mitigation measures BIO-1 through BIO-4, as identified in Section IV, and mitigation measures CUL-1 through CUL-3, as identified in Section V.

b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of current projects, and the effects of probable future projects)?

Less Than Significant Impact. As documented in this Initial Study, the majority of impacts associated with the project would be localized and short-term. Additionally, the project would be consistent with regional and local plans, including the Air Quality Management Plan, and the project's air pollutant and GHG emissions would be well below the thresholds of significance. The project would adhere to applicable land use plans and policies. The location of the project in an area that is very sparsely developed (and adjacent to the Edwards Air Force Base property to the east) also reduces the likelihood that other projects would be under construction at the same time as the proposed project and result in cumulative impacts. Although no other notable construction projects are currently anticipated to occur in proximity to the proposed project, other future projects within the surrounding area, if any were to be proposed, would also be required to comply with applicable local, state, and federal regulations to reduce potential impacts to less than significant, or to the extent feasible. Therefore, the project is not anticipated to contribute to cumulatively considerable environmental impacts.

c) Have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact. As documented in this Initial Study, the project is not expected to result in substantial adverse effects on human beings. Construction-related aesthetics, air quality, hazardous materials, hydrology and water quality, noise, and traffic impacts would be temporary and minimal. Operation of the expanded WWTP would not result in substantial adverse effects to humans, but rather would improve effluent water quality and minimize adverse effects associated with soil and groundwater contamination in the project area. Therefore, impacts would be less than significant.

3.0 REFERENCES

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Appendix A

RCSD Wastewater Treatment Plant Rehabilitation Final Concept Design Report

Kennedy/Jenks Consultants

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Rosamond Community Service District Wastewater Treatment Plant Rehabilitation

Technical Report
Volume 1

Final Concept Design Report

(Previously Submitted on September 6, 2018)

5 November 2018

Prepared for

Rosamond Community Services District
3179 35th Street West
Rosamond, CA 93560

K/J Project No. 1844514.01

Volume 1

Rosamond Community Services District Wastewater Treatment Plant
Rehabilitation Final Concept Design Report

Kennedy/Jenks Consultants

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Rosamond Community Service District Wastewater Treatment Plant Rehabilitation Concept Design Report - FINAL

31 August 2018

Prepared for

Rosamond Community Services District
3179 35th Street West
Rosamond, CA 93560

K/J Project No. 1844514.00

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List of Acronyms

A	Ampere
AACE	Association for the Advancement of Cost Engineering
AF	Acre-Foot
AFY	Acre-Feet per Year
Biolac™	Proprietary Biological Treatment Process from Parkson
BOD_5	5-day Biological Oxygen Demand
BODR	Basis of Design Report
$CaCO_3$	Limestone Contactors
CalOSHA	California Department of Industrial Relations Division of Occupational Safety and Health
$CBOD_5$	Carbonaceous BOD_5
$CBOD_5/BOD_5$	Ratio of 0.8 applied based upon limited plant monitoring data in 2015
CEQA	California Environmental Quality Act
COD	Chemical Oxygen Demand
EPA	Environmental Protection Agency
f_{bs}	Biodegradable Soluble COD
f_{na}	Ammonia Fraction of N
f_{us}	Un-biodegradable Soluble COD
gal	Gallons
gpd	Gallons per Day
gpm	Gallons per Minute
HDPE	High Density Polyethlene
HP	Horsepower
I&C	Instrumentation and Control
LLDPE	Linear Low Density Polyethlene
MCC	Motor Control Centers
MGD	Million Gallons per Day
mg/L	Milligrams per Liter
MH	Manhole
NPDES	National Pollutant Discharge Elimination System
OPCC	Opinion of Probable Construction Cost
OSHA	CAL-OSHA
O&M	Operations and Maintenance
RAS	Return Activated Sludge
RCSD	Rosamond Community Services District
RWQCB	Regional Water Quality Control Board
SRT	Sludge Retention Time
TKN	Total Kjedahl Nitrogen
TM	Technical Memo
TP	Total Phosphorus
TSS	Total Suspended Solids

UV	Ultraviolet
VFD	Variable Frequency Drive
WAS	Waste Activated Sludge
WWTP	Wastewater Treatment Plant

Section 1: Introduction

This Section describes the project background and the chosen preferred design Alternative, as well as the structure of the report.

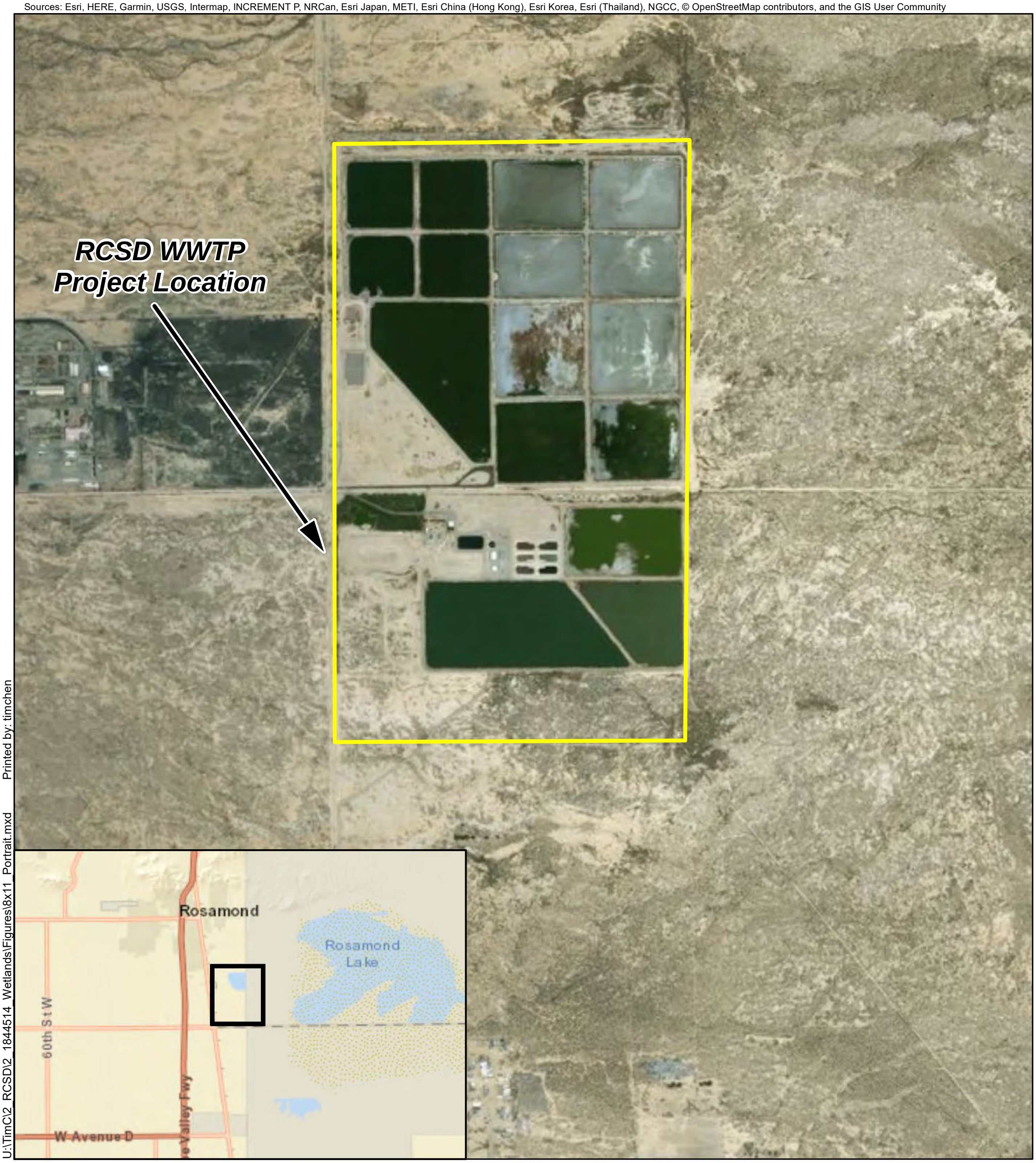
1.1 Project Background

The Rosamond Community Services District (RCSD; District) Wastewater Treatment Plant (WWTP) is currently in violation of its wastewater discharge permit for the operation of leaking evaporation ponds. The District currently operates a facultative pond treatment process with disposal in a system of 16 lined evaporation ponds. The 13 North Ponds (approximately 120 acres) are decades old and are leaking as evidenced by: (1) less than half of the pond area in service the past two to three years for essentially the same flow which previously required 80 to 100% of the ponds, (2) water levels in the monitoring wells mounding roughly 4-feet higher than surrounding water levels, and (3) elevated total dissolved solids (TDS) and nitrate in four of the 11 monitoring wells. The three South Ponds (approximately 40 acres) are newer (approximately 15 years old). The location of the ponds in relation to the WWTP can be seen in Figure 1-1.

The WWTP includes a 0.5 MGD tertiary treatment plant for production of disinfected tertiary recycled water. The 0.5 MGD plant includes grit removal, a Biolac activated sludge aeration basin, secondary clarifier, sand filters, and UV disinfection. Construction of the plant was completed in 2009, but the plant was not operated until December 2011. The plant ran continuously from December 2011 through mid-2015. However, since the District has no recycled water customers, the plant was taken out of service to reduce operating costs. While in service, a portion of the effluent was used for on-site irrigation with the balance delivered to the South Ponds for evaporation. Thus, currently all of the wastewater flow is receiving facultative treatment and is distributed to multiple evaporation ponds for disposal.

An initial evaluation of alternatives for a WWTP rehabilitation was prepared by GEI Consultants, Inc. (GEI) with three reports prepared between mid-2017 and early 2018. The first report, Feasibility Report – Wastewater Evaporation Ponds, dated June 5, 2017, evaluated three alternative re-lining alternatives including their estimated capital cost. The second report, Working Draft Feasibility Report Supplement Wastewater Evaporation Ponds, dated August 18, 2017, evaluated two alternatives for the disposal of the wastewater: construction of a wetlands and irrigation for non-human consumption agriculture. The third report, Treatment Wetland Feasibility Study, dated February 28, 2018, evaluated several wetland options with a 52-acre and 61-acre wetlands on an 80-acre parcel south of the WWTP. These reports were submitted to the Lahonton Regional Water Quality Control Board (Regional Board) for review, and Regional Board staff had numerous comments and questions regarding the proposed wetlands.

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



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Legend

Project Site Location

N

0 500 1,000

Scale: Feet

Kennedy/Jenks Consultants

Rosamond Community Services District
Rosamond, California

RCSD WWTP Upgrade
Project Location

K/J 1844514*00
August 2018

Figure1-1

Kennedy/Jenks was retained in March 2018 to review the GEI work to date, perform an evaluation, and prepare a WWTP Rehabilitation Concept Design Report (Concept Design Report). The scope of work included time-critical CEQA biological surveys, most of which are required between March and July, to allow the design and bid of a WWTP Rehab Project to proceed with construction to begin in the summer of 2019. Beginning in March 2018, Helix Environmental, as a sub to Kennedy/Jenks, began the biological and cultural surveys of the 80 acres south of the WWTP initially identified as a potential wetlands, but now remaining as optional future percolation ponds.

The Kennedy/Jenks team performed WWTP site visits and staff interviews on April 3 and 4, 2018. In addition, Kennedy/Jenks facilitated a workshop, led by Dr. George Tchobanoglous (as an outside expert) on April 4, 2018 with Kennedy/Jenks wastewater experts, project staff, and District management. As a result of the workshop, two new alternatives were developed for comparison to the base alternative of re-lining all of the evaporation ponds:

- Alternative 1 – Expand the 0.5 mgd plant to 1.27 mgd (See Section 1.1 for development of capacity target) by duplicating the existing Biolac activated sludge system, secondary clarifier, and sludge drying beds; with the de-nitrified, undisinfected secondary effluent discharged to percolation ponds. for disposal. The existing Pond 17 will be converted to percolation ponds to make use of exiting piping and infrastructure.

- Alternative 2 – Expand the 0.5 mgd plant to 1.27 mgd in the same manner as Alternative 1, but utilize the de-nitrified, undisinfected secondary effluent as irrigation water for farming on 80 to 160 acres of adjacent property south of the WWTP, with discharge to percolation ponds for disposal during periods of low irrigation demand.

On April 18, District management and Kennedy/Jenks staff met with the Regional Board to discuss these two alternatives. The Regional Board response was favorable, but with several key questions. For Alternative 1, a question was raised about the potential for the existing South Ponds (modified for percolation) to leach nitrate and TDS (from past untreated evaporation pond leakage adsorbed on the soil matrix) into the groundwater. An Infiltration Test Basin is proposed to address this issue. Existing Pond 17 will be used to conduct these tests. Should tests indicate that leaching occurs, alternate percolation ponds sites would be found.

For Alternative 2, it was determined that the folder crops would be used as feed for milk cows (with the milk for human consumption). Further correspondence within the Region Board and between the Regional Board and the District has indicated that undisinfected secondary effluent would not be suitable for this application without additional treatment. Preferred Alternative

Alternative 1 offers the substantial benefit of generating groundwater recharge credit in the form of groundwater pumping rights equal to roughly 80 to 90% of the water applied to the proposed percolation ponds. In addition, as a new supply, once pumped as groundwater and delivered to District customers, the supply generates a 39 percent return flow credit. With an influent flow range (<5% exceedance) of 0.90 to 1.27 MGD, and an average of approximately 1.10 MGD, the increase in groundwater pumping rights from recharge and 5-year return flow credit should be in the range of 1,400 to 1,500 AFY.

Alternative 2 would generate a 32% return flow credit from the irrigation water applied (as a new supply source) plus roughly 80 to 90% of the amount percolated (not used for irrigation) as well as the 5-year return flow credit.

Since the groundwater pumping rights are substantially less (⅓ to ½) under Alternative 2, and since Alternative 1 does not require the level of additional treatment required by Alternative 2, the District's preferred alternative is Alternative 1.

The purpose of this report is to document the new preferred alternative, provide a concept design, identify improved septage disposal, provide an opinion of probable capital costs, and present the next steps including an implementation schedule.

1.2 Report Organization

This Concept Design Report is organized into 7 sections as follows:

Section 1 – Introduction

Section 2 – Influent Water Quantity and Quality

Section 3 – Treatment Objectives

Section 4 – Septage Receiving Station

Section 5 – Wastewater Treatment Plant Upgrade – Concept Design

Section 6 – Opinion of Probable Construction Cost

Section 7 – Next Steps/Implementation Plan

Section 2: Influent Water Quantity and Quality

The existing WWTP influent water quantity and water quality data was obtained from the District. This section discussed the flow analysis results and design basis for influent water quantity and quality.

2.1 Influent Water Quantity

2.1.1 Raw Wastewater Flow Rate

Figure 2-1 shows the daily raw wastewater flows to the WWTP from January 1, 2013 through March 31, 2018. The orange trend line indicates a slight decrease in the WWTP influent over the 5-year period. Using a typical design approach, the design influent quantity from raw wastewater was calculated based on 95% confidence of existing flow conditions as shown in Figure 2-2.

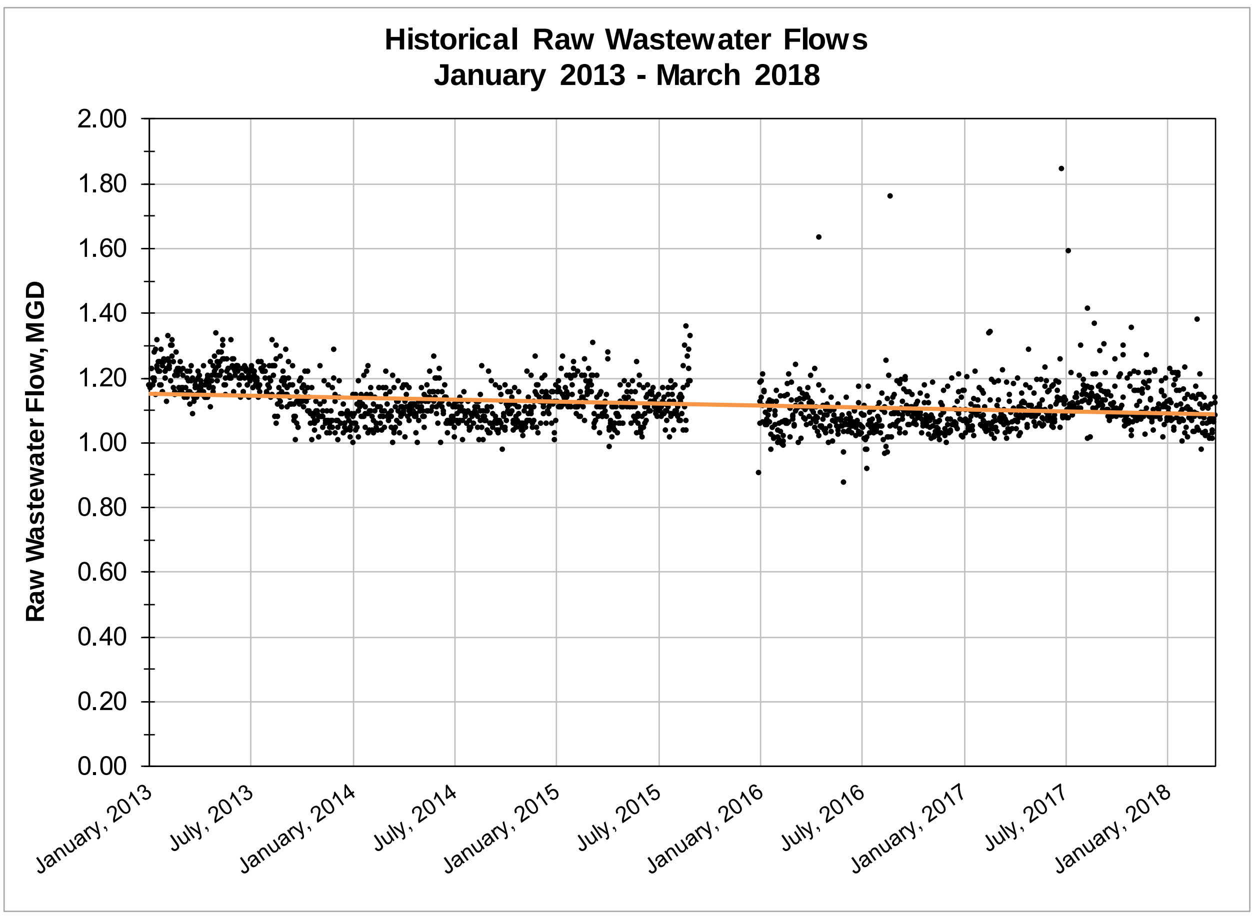


Figure 2-1: Historical Raw Wastewater Daily Influent

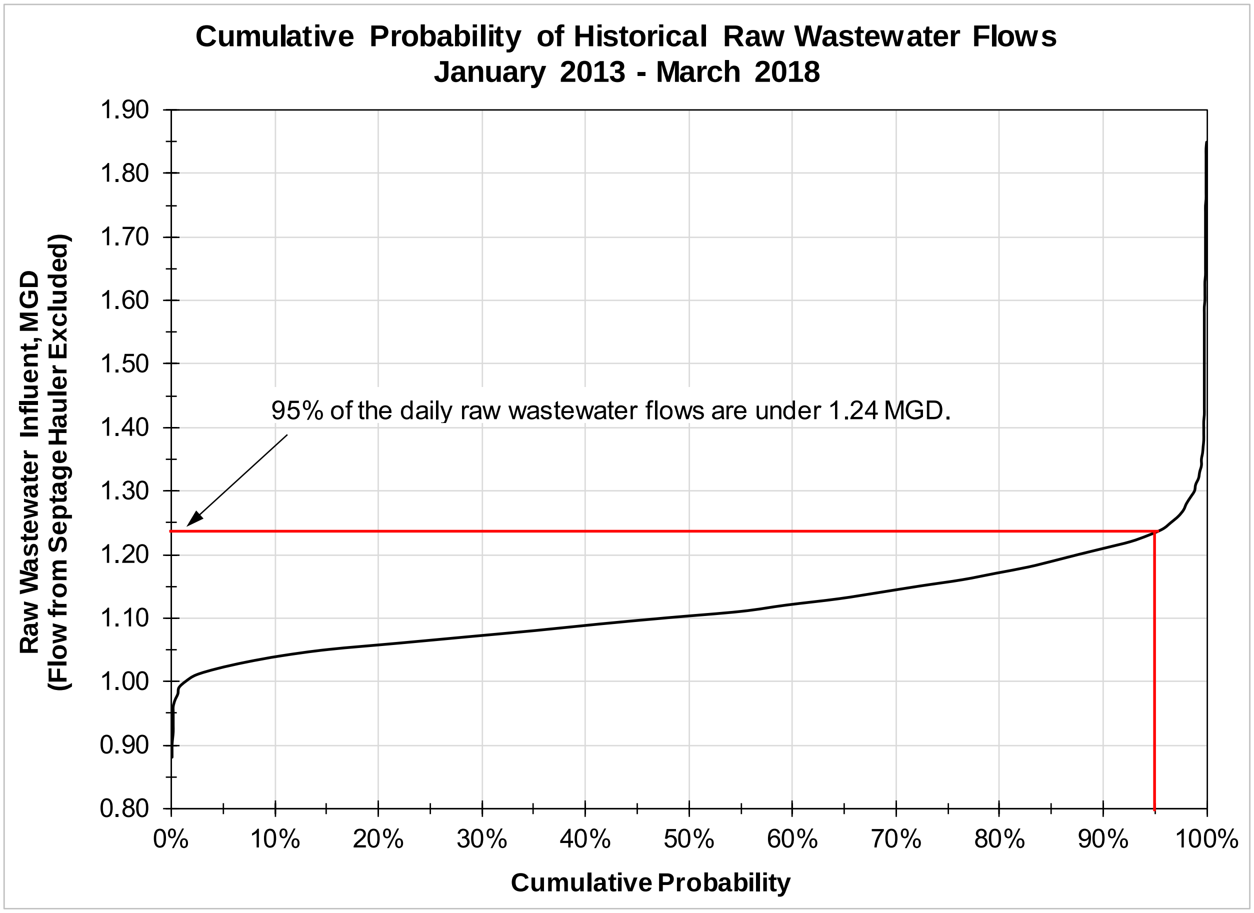


Figure 2-2: Cumulative Probability for Historical Raw Wastewater Flows

Figure 2-2 illustrates the cumulative probability of daily raw wastewater flows. As shown, 95% of the flows are below 1.24 MGD. The 95% confidence value is used as the design basis for this concept report.

2.1.2 Septage Influent Flow Rate

Historical data of septage influent to the WWTP was collected and analyzed for the period from January 1, 2016 through March 31, 2018. For this concept report, the design flow rate of septage influent was estimated using the same approach as for raw wastewater influent. Figure 2-3 shows the cumulative probability of historical daily septage influent, and 95% of the flows are under 0.03 MGD.

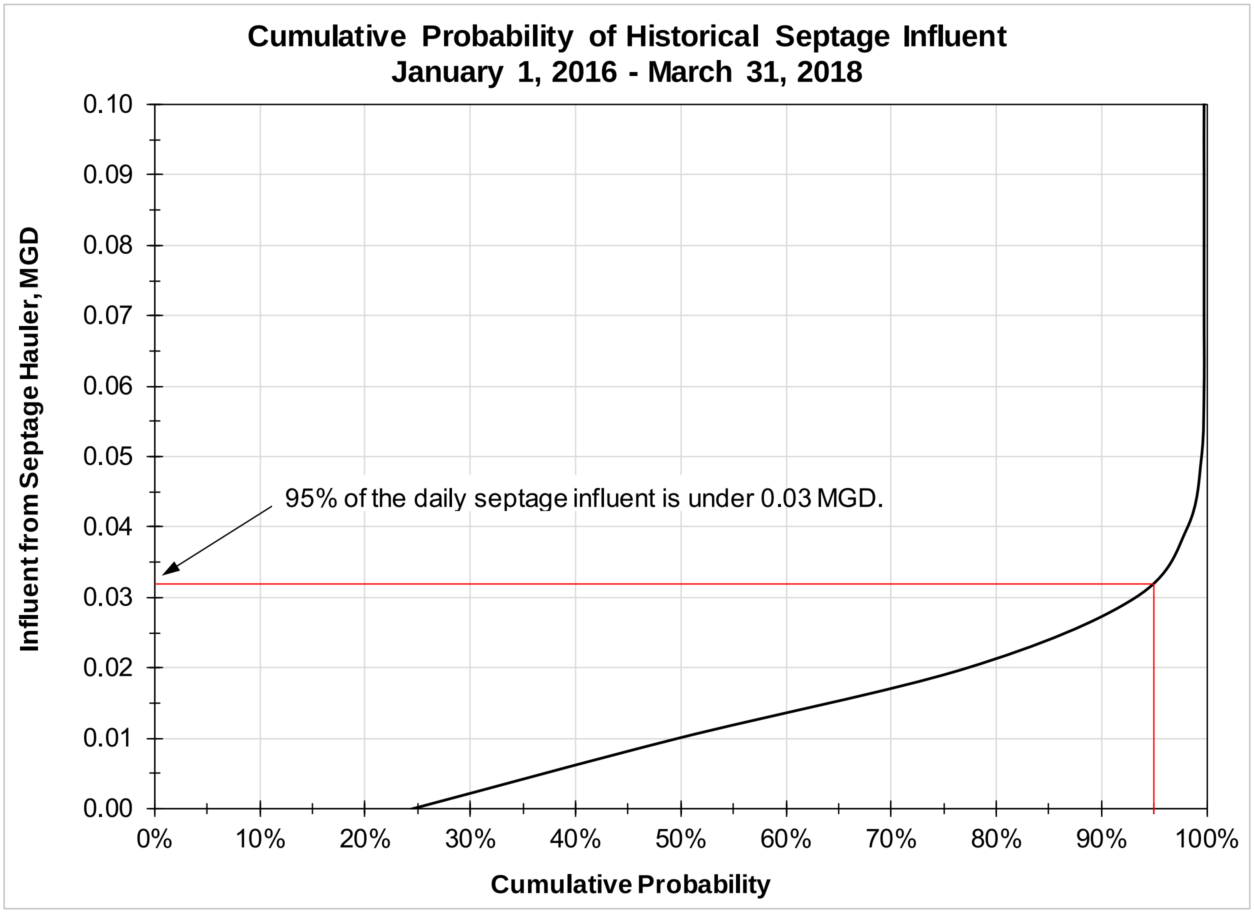


Figure 2-3: Cumulative Probability for Historical Raw Wastewater Flows

Daily flow data for both raw wastewater and septage is provided in Appendix A. Table 2-1 summarizes the results from historical flow analysis. The total design flow rate is 1.27 MGD. For the purposes of this concept design, a peaking factor of 2 was assumed for this concept level report resulting in a hourly peak flow rate of 2.54 MGD.

Table 2-1: Concept Design Flow Rates for RCSD WWTP Expansion

Component	Design Flow Rates
Raw Wastewater Flow (95 % confidence)	1.24 MGD
Septage Influent (Average Daily Flow)	0.03 MGD
Total Influent	**1.27 MGD**

2.2 Influent Water Quality

2.2.1 Raw Wastewater Water Quality

Samples of raw wastewater (RCSD WWTP), were collected and analyzed from 2012 to 2015. Lab reports are attached in Appendix B. Table 2-2 presents the important raw wastewater water quality parameters for design purposes.

Table 2-2: Raw Wastewater Water Quality

Sample Date	BOD_5	COD	NO3-N	TKN	NH3-N	Alkalinity	TSS
	[mg/L]						
7/3/2018	190		ND*	44	36	290	82
6/26/2018	120		ND	55	42	290	79
6/19/2018	370		ND	68	57		27
6/12/2018	240		ND	71	49	320	140
5/15/2018	470		ND	46	70	320	320
10/13/2015	270		ND	55			350
9/22/2015	240	720	ND	52	34		
8/11/2015	200		ND	54			170
7/28/2015	200		ND	54			220
4/28/2015	310		ND	70			490
4/14/2015	340		ND	52			810
4/7/2015	280		ND	70			1,300
3/31/2015	250		ND	67			480
3/17/2015	350		ND	73			830
3/3/2015	260	380	ND	56	41		
5/21/2013	290		ND	48			360
5/7/2013	340	750	ND	63	24		440
2/21/2012	250	510		71		340	
2/17/2012	350	400		66		330	
2/16/2012	390	190		70		710	
Max.	470	750	ND	73	70	710	1,300
Min.	120	190	ND	44	24	290	27
Ave.	286	492	ND	60	44	371	407

* Analyte not detected at or above the reporting limit

Figure 2-4 through Figure 2-8 depicts cumulative probabilities for concentrations of BOD_5, COD, ammonia, TKN and TSS, respectively. The 95% confidence values, which are summarized in Table 2-3, are used as design basis for this concept report.

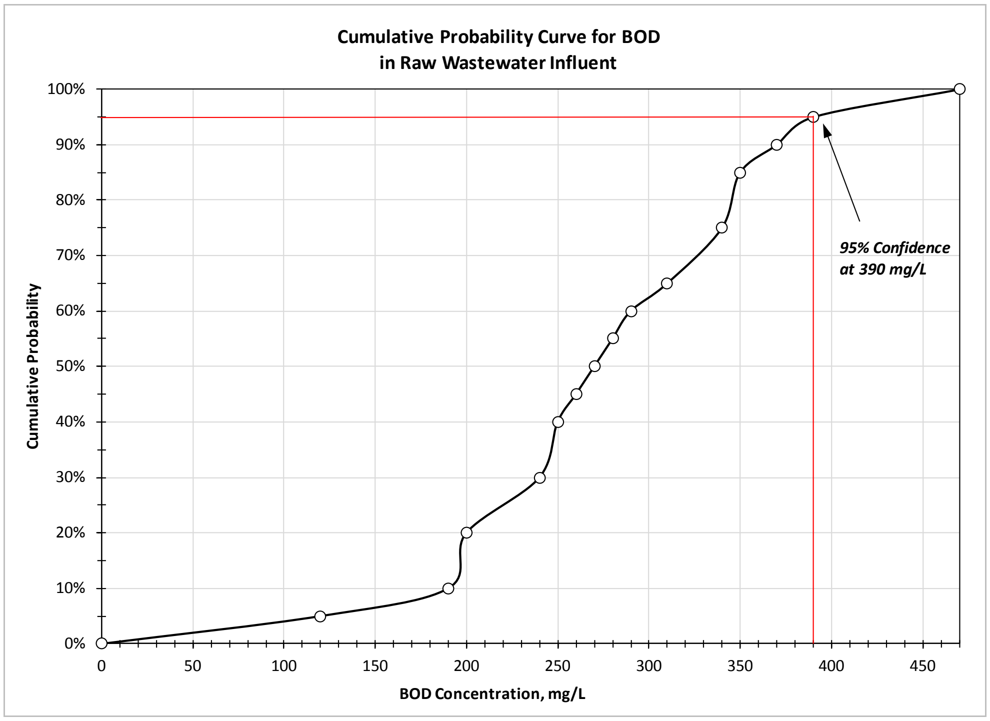


Figure 2-4: Cumulative Probability for BOD_5 Concentrations

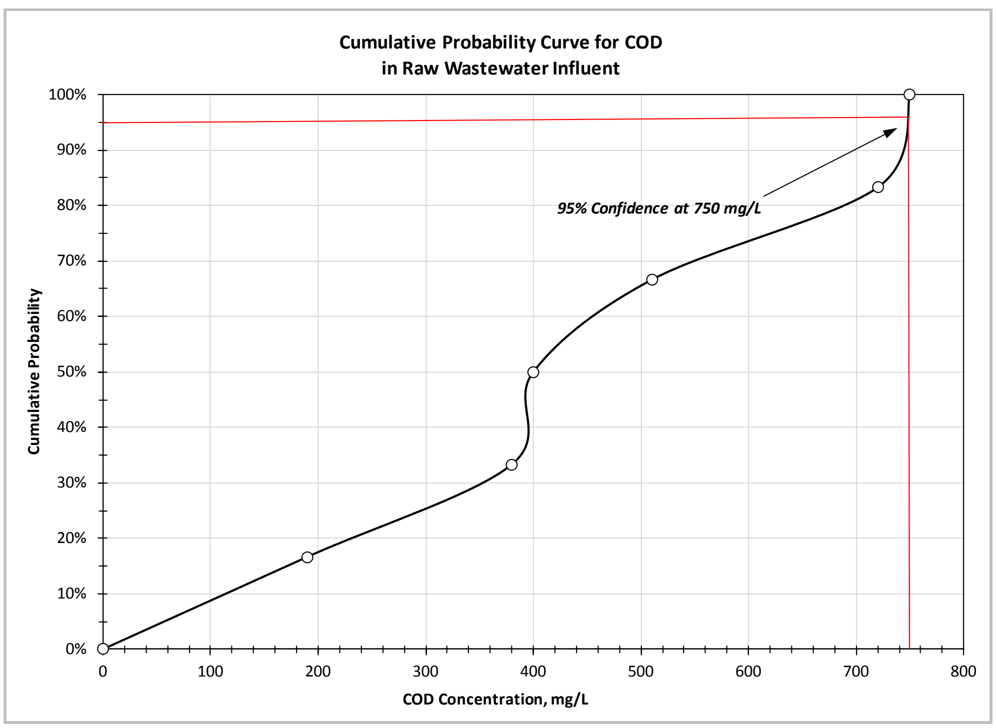


Figure 2-5: Cumulative Probability for COD Concentrations

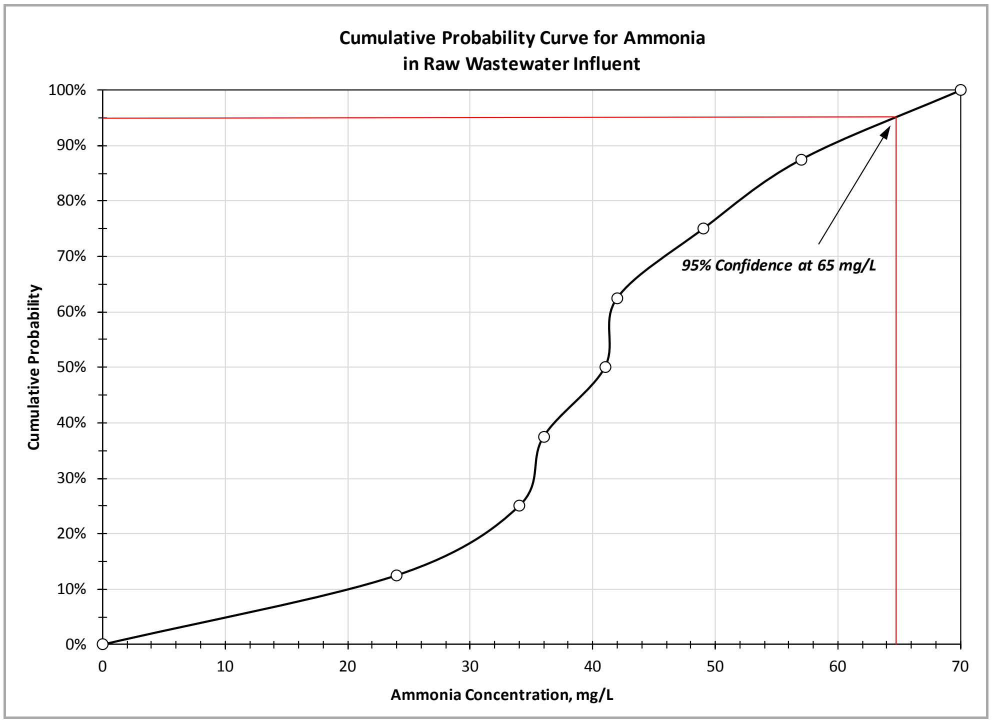


Figure 2-6: Cumulative Probability for Ammonia Concentrations

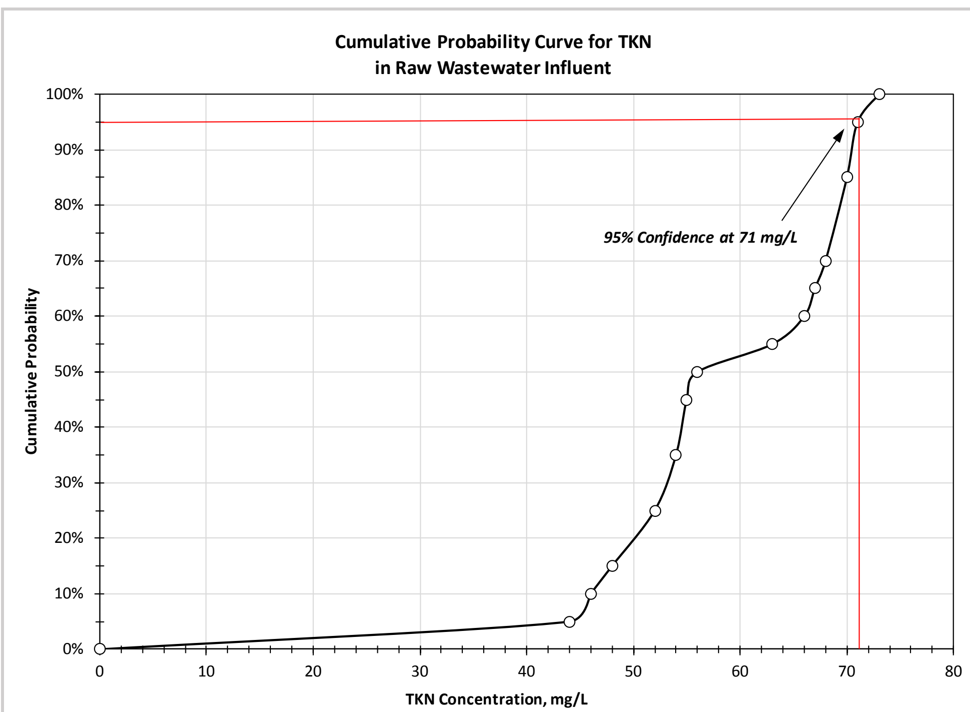


Figure 2-7: Cumulative Probability for TKN Concentrations

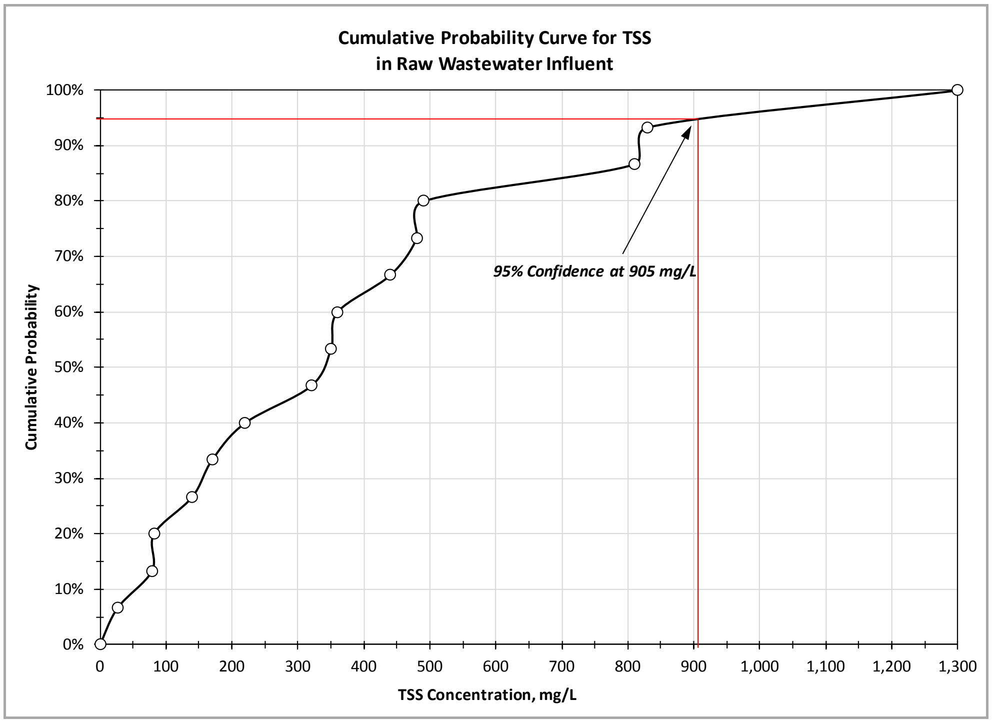


Figure 2-8: Cumulative Probability for TSS Concentrations

Alkalinity is another important design parameter, as pH is a critical control variable for an optimum denitrification process (6.5<pH<7.5). During the nitrification process alkalinity is consumed. For every 1 mg/L of converted ammonia (as NH3-N), alkalinity is consumed by 7.14 mg/L(Mary Evans and Gary Sober, 2015) . However, during the denitrification process alkalinity is recovered again. For every 1 mg/L ammonia, denitrified to nitrogen gas, 3.54 mg/L alkalinity is recovered (Ekama, GA, *et al*). Thus, the NET nitrification-denitrification consumption of alkalinity is 3.6 mg/L (as CaCO3) per 1 mg/L ammonia in the raw influent (as NH3-N). For concept design purposes, a historical low of 290 mg/L alkalinity is sufficient to nitrify-denitrify 67 mg/L ammonia (3.6 x 67 = 241) in the combined influent (raw + septage). Thus, taking into account the overall average alkalinity values (> 300 mg/L as CaCO3), its predicted that no additional alkalinity dosage would be needed. Furthermore, alkalinity levels will be closely monitored during the design phase to ensure optimum process performance.

The 95% confidence values for TSS were found to be exceedingly high as the value associated with this constituent is typically in the same range as BOD values in typical wastewater treatment plants. As such, the TSS data is suspect and could be the result of the low number of data points along with a few high values. Therefore, the concentration of TSS was assumed to be 95% of the BOD_5 concentration, resulting in a value of 371 mg/L as reflected in Table 2-3.

Table 2-3: Design Basis for Raw Wastewater Water Qualities

Component	Design Concentrations (mg/L)
BOD_5	390
$CBOD_5$ (1)	332
COD	750
Ammonia	65
TSS	371
TKN	71
Alkalinity (as $CaCO_3$) (2)	290

1) Concentration of CBOD has been calculated based on typical CBOD/BOD ratio of 0.85.
2) Assume historical low alkalinity concentration (as $CaCO_3$).

2.2.2 Septage Influent Water Quality

The District has confirmed that they expect to continue to accept septage at the plant from commercial septage haulers. Contributors consist mostly of residential sources, small restaurants, and other domestic costumers. Septage samples were conducted and analyzed in May and June of 2018. Lab reports in Appendix C were received from the District in July 2018. The average septage concentrations summarized in Table 2-4 were considered for the basis of design. TSS concentrations contained within the septage samples were not analyzed and therefore a 5% increase in TSS influent strengths were assumed as directed by the District. However, the District is currently conducting additional septage sampling and laboratory analysis. Laboratory reports will be available in September 2018, which will be incorporated during the design phase.

Table 2-4: Design Basis for Septage Influent Water Qualities

Component	Design Concentrations (1) (mg/L)
BOD_5 (2)	2,590
$CBOD_5$ (3)	2,201
COD	8,600
Ammonia	170
TKN	430

1) Outlier results from 'Benz-septage' was not considered in average due to skewed statistical analysis outcome.
2) Septage BOD for 'Development Septage' was calculated assuming a typical COD/BOD ratio of 2.1.
3) CBOD was calculated assuming typical CBOD/BOD ratio of 0.85.

2.2.3 Combined Influent Water Quality

For this concept design the anticipated combined (raw + septage) influent wastewater quality was calculated based on a mass balance of the flow contribution and concentrations of the raw wastewater and septage influent presented in Table 2-3 and Table 2-4. Table 2-5 summarizes the combined influent wastewater quality to be utilized as a basis of design for this report. As previously mentioned, TSS concentrations contained within the septage samples were not analyzed and therefore a 5% increase in TSS influent strengths were assumed as directed by the District. However, the District is currently conducting additional septage sampling and laboratory analysis. Laboratory reports will be available in September 2018, which will be incorporated in the during the design phase.

Table 2-5: Design Basis for Combined Influent Water Quality

Component	Design Concentrations[1] (mg/L)
BOD_5	442
$CBOD_5$	376
COD	935
Ammonia	67
TSS[2]	390
TKN	79
Alkalinity (as $CaCO_3$)[3]	290

1) Concentrations based on mass balance.
2) Concentrations of TSS were not measured during septage sample analysis, therefore the concentrations shown are based on a 5% increase of 5% exceedance values derived for raw wastewater strengths in Table 2-3.
3) Alkalinity was assumed to be the lowest historic measurement for a conservative assumption.

Section 3: Treatment Objectives

This Section describes the Project water use and its expected wastewater discharge permit water quality goals.

3.1 Potential Water Uses

As presented in Section 1, the preferred Project alternative involves expanding the 0.5 mgd plant to 1.27 mgd by duplicating the existing Biolac activated sludge system, secondary clarifier, and sludge drying beds, and allowing the de-nitrified, undisinfected secondary effluent to discharge into new percolation ponds for disposal. An Infiltration Test Basin is proposed to address the potential for the existing Pond 17 (modified for percolation) to leach nitrate and TDS (associated with untreated effluent that may have found its way into the soil matrix from leaking evaporation ponds) into the groundwater.

If the leaching tests provide promising results, Pond 17 will be reconfigured into 3 ponds and the top 5 feet of the existing pond bottom will be excavated and removed to convert it from an evaporation pond to a percolation pond system. Access ramps will be included for operation and maintenance. The pond design includes a Distribution Box with three slide gates for 14-inch pipeline outlets to distribute the effluent to one or more of the three percolation ponds. Figure 3-1 shows the Pond 17 upgrades in addition to the nearby Monitoring Well 12.

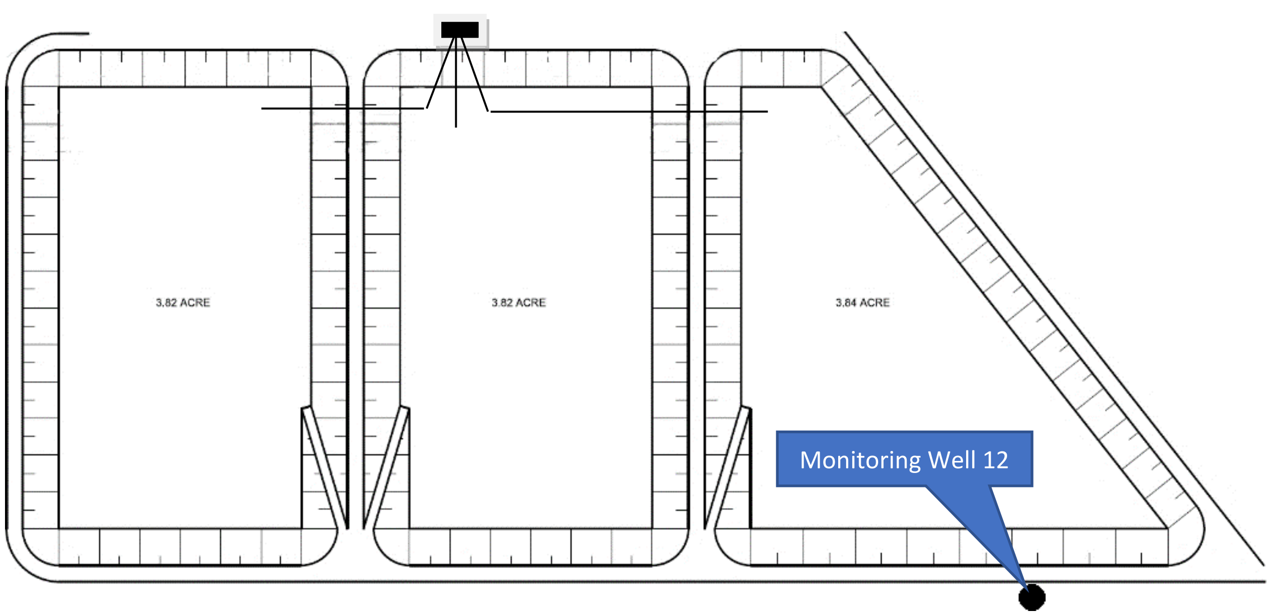


Figure 3-1: Pond 17 Infiltration Basin Upgrades

If it is found that nitrate and TDS (from previous pond leakage of untreated wastewater) is able to leach into the groundwater and Pond 17 cannot be utilized, then new percolation ponds are required. As shown in Figure 3-2, the alternate percolation pond location is west of Pond 17. The area designated for the new percolation ponds is currently vacant and within the current property boundary. This parcel of land is within the District's property limit and has not yet been used for percolation.

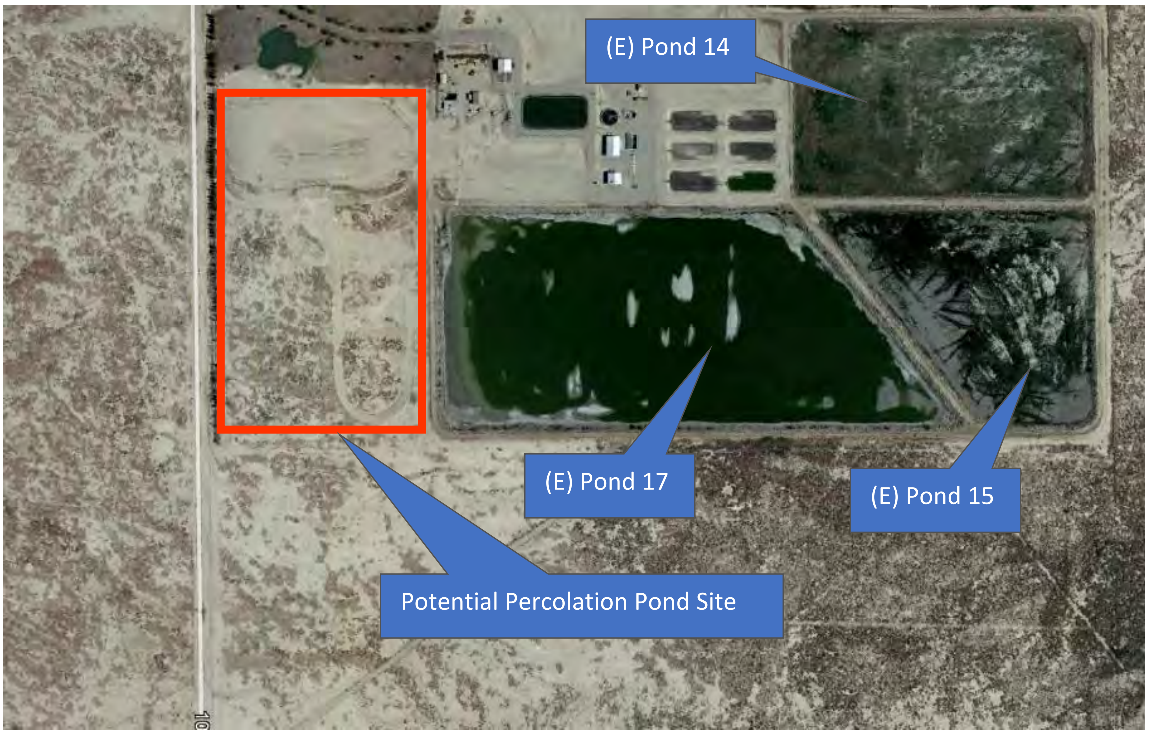


Figure 3-2: Potential Percolation Pond Site in Case of Pond 17 Leaching

3.2 Water Quality Goals

RCSD was originally issued a discharge permit by the Regional Board in 2015 titled Board Order R6V-2015-0069, WDID No. 6B150112001 (Board Order). Currently, the District is in violation of its wastewater discharge permit due to the operation of leaking evaporation ponds. The District currently operates a facultative pond treatment process with disposal in a system of 16 lined evaporation ponds. The District currently discharges untreated wastewater into 16 evaporation ponds, which in normal operation is an acceptable form of discharge. However, the ponds leak significantly, which allows nitrates to seep into the groundwater and ultimately violates the Basin Plan. The Project will allow the District to meet wastewater discharge goals required by the Regional Board via the de-nitrified, undisinfected secondary effluent discharging to percolation ponds for disposal.

However, a new discharge permit must be obtained to move from evaporation to percolation, which requires a Form 200 permit application to be submitted within the next year for the new wastewater treatment plant design. The new wastewater discharge permit will require technology-based effluent limits based on the following standards:

- Secondary Treatment Standards,
- Equivalent to Secondary Treatment Standards, or
- Equivalent to Secondary Treatment Standards with State Alternative Limits for TSS.

Based on Regional Board water quality limits set for several similar projects involving treatment plant upgrades, the goals required by the District's new permit will likely have the following limits:

Table 3-1: Expected Discharge Permit Water Quality Goals

Item	Value(1)
$CBOD_5$ Limits	
Monthly Average, mg/L	30
Weekly Average, mg/L	45
TSS Limits	
Monthly Average, mg/L	30
Weekly Average, mg/L	45
pH Range (Minimum to Maximum)	6.5-8.5
Nitrogen Limits	
Total Inorganic Nitrogen (TIN), Monthly Average mg/L	<10
Ammonia-Nitrogen, Monthly Average mg/L	<1

1) Values from typical California discharge permits

Section 4: Septage Receiving Station

4.1 Proposed Septage Receiving Station System

A new septage receiving station is to be installed north of the WWTP on the southwest side of existing Pond 11 as seen in Figure 4-1. Sewage is anticipated to be discharged from the septage hauler truck into a septage receiving station involving a concrete tank with sloped floors leading to a channel with a manual-cleaned coarse screen to remove large solids before proceeding to a lined septage holding pond. Manual raking of the screens will be required, and materials will be disposed of in the screenings bin adjacent to the channel as seen in Figure 4-2. Additionally, an automated refrigerated sampler will be installed at the receiving station to sample the septage influent. A Teledyne ISCO 6712FR Fiberglass Refrigerated sampler is recommended as it is designed to withstand the harshest outdoor environments with corrosion and UV protection (see Appendix D). The septage effluent will flow out of the channel and spill into a septage holding pond. Flows from the septage pond are anticipated to bleed into the system upstream of the pretreatment screen during low flow through a 6-inch effluent pipeline. Diurnal data for the plant is not currently available, however it is assumed that low flows are to occur at night. An additional carbon source (associated with septage addition) during low flow periods, can also assist with optimum denitrification.

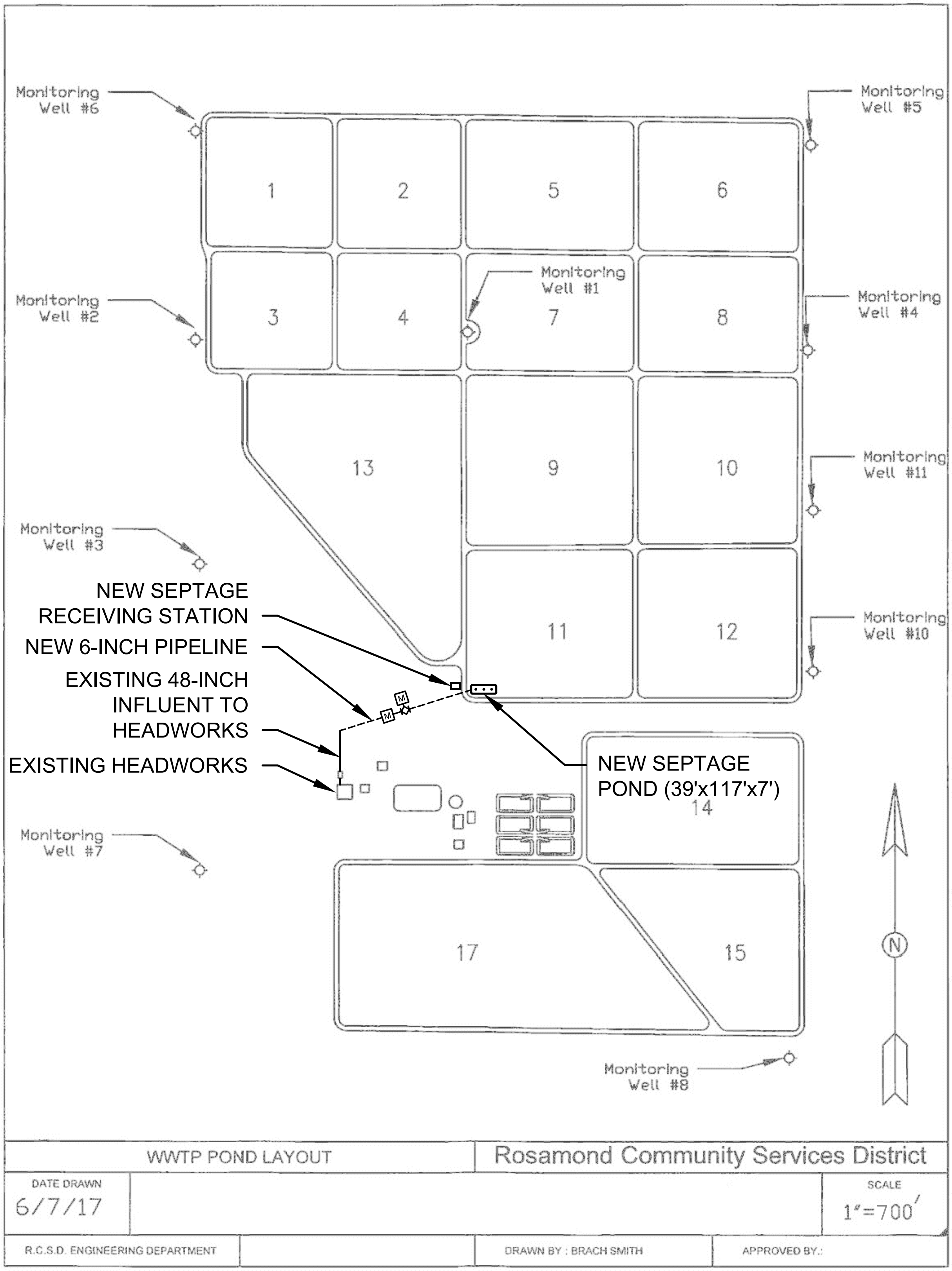
4.2 Proposed Septage Pond

Construction of the new septage holding pond will consist of rehabilitating the southwest corner of Pond 11. The proposed septage pond will be approximately 117-feet long by 39-feet wide with a water surface area of 4,800 sqft and an embankment slope ratio of 1 to 3 per typical septage pond design. The pond is anticipated to hold approximately 90,000 gallons of septage, allowing for 3 days of retention time, with a working depth of 5 feet and minimum freeboard of 2 feet. Design criteria for the proposed septage pond is summarized in Table 4-1. Supporting calculations can be found in Appendix E. A cross section of the proposed septage pond is presented in Figure 4-3.

Table 4-1:Septage Pond Design Criteria

Parameter	Units	Quantity
Average Septage Flow	MGD	0.03
Retention Time	days	3
Operating Volume	gallons	90,000
Side Slopes	H:V	3:1
Length(1)	ft	117
Width(1)	ft	39
Working Depth	ft	5
Minimum Freeboard	ft	2
Effluent Pipeline	in	6

(1) Dimensions of water surface area. Based on EPA recommended length to width ratio of 3:1.



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ROSAMOND WWTP
UPGRADE CONCEPT DESIGN

SEPTAGE RECEIVING STATION
LOCATION MAP

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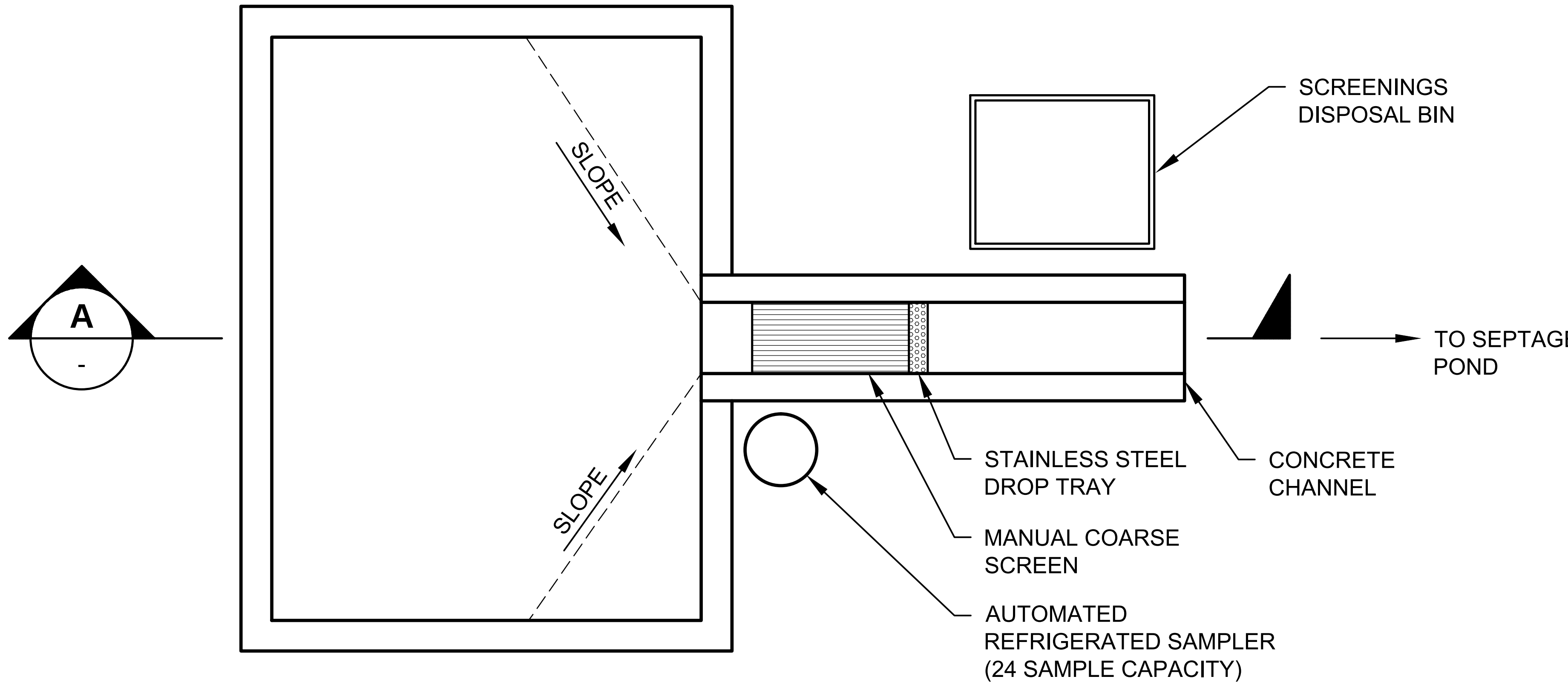
FIGURE 4-1



SEPTAGE RECEIVING STATION PLAN

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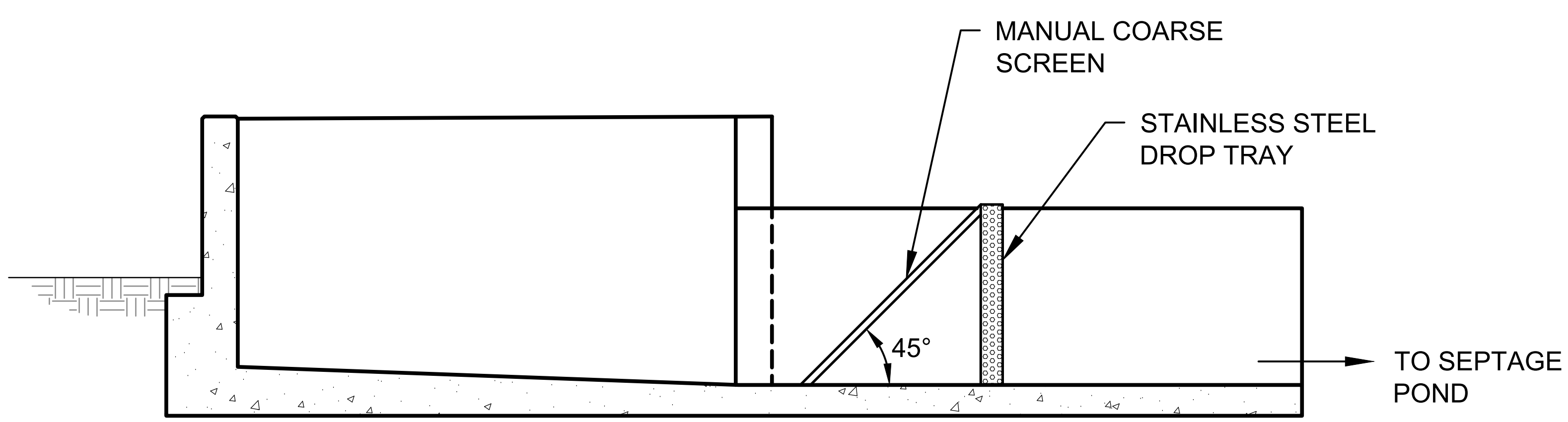

SEPTAGE RECEIVING STATION SECTION

A
-

N.T.S.

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ROSAMOND WWTP
UPGRADE CONCEPT DESIGN

SEPTAGE RECEIVING STATION
PLAN AND SECTION

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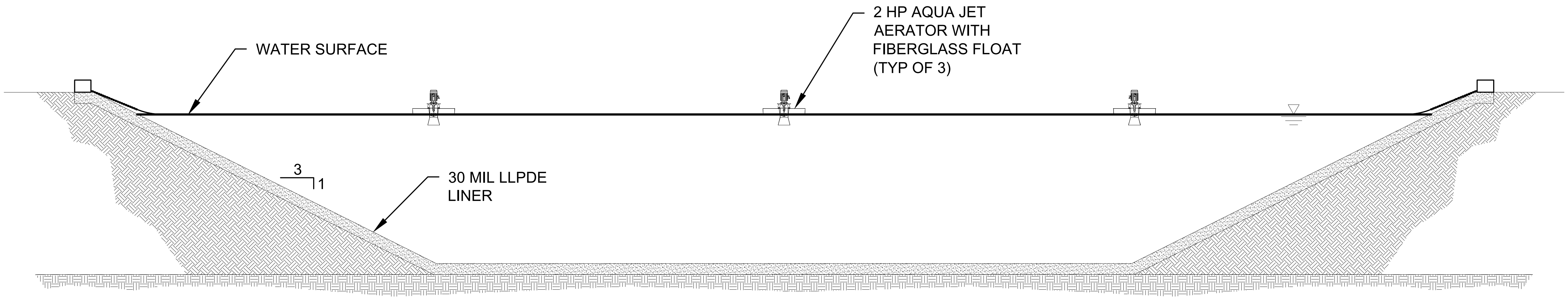
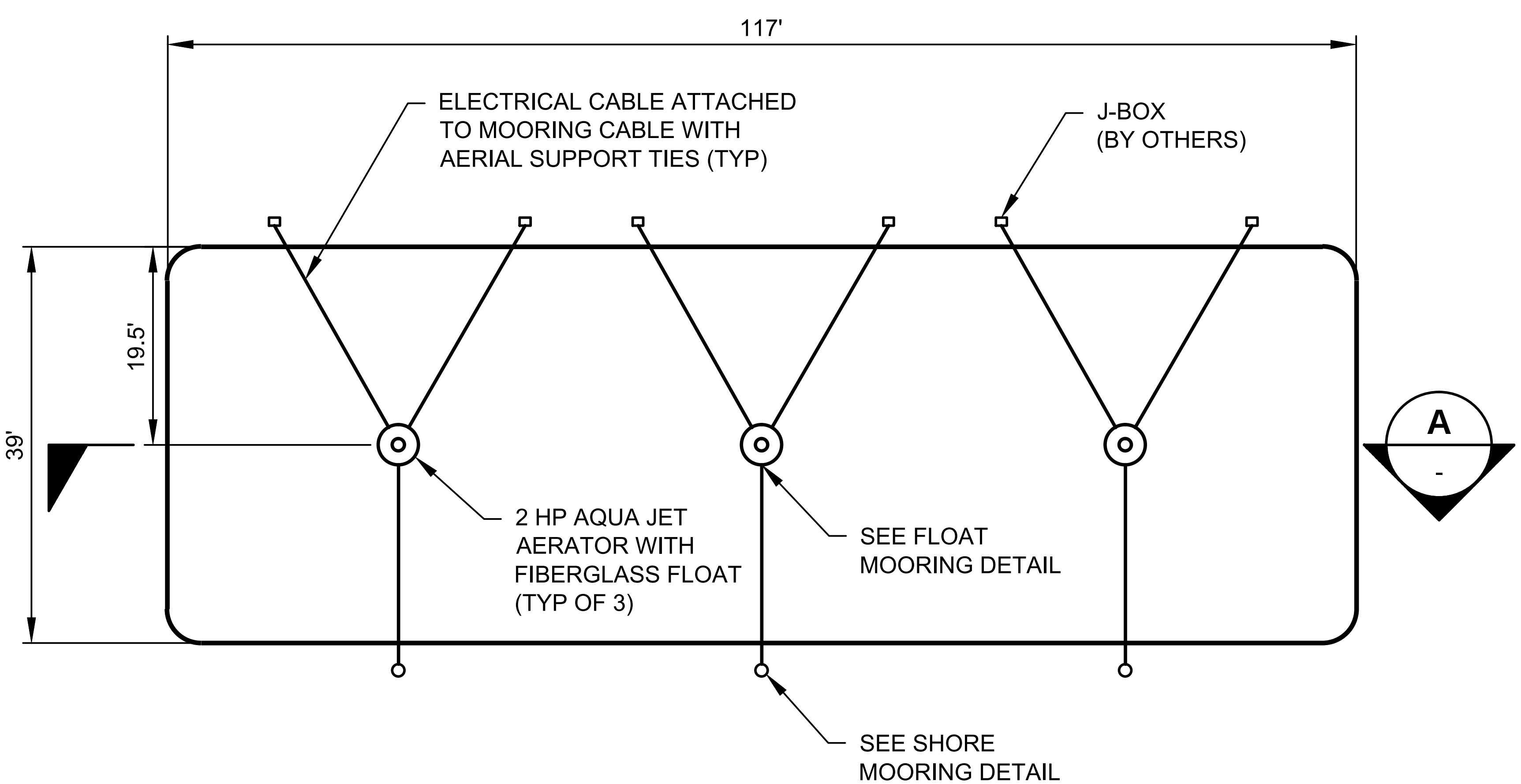
FIGURE 4-2



SEPTAGE POND SECTION A -

0 10 20

1"=10'



AQUA-JET MOORING ARRANGEMENT

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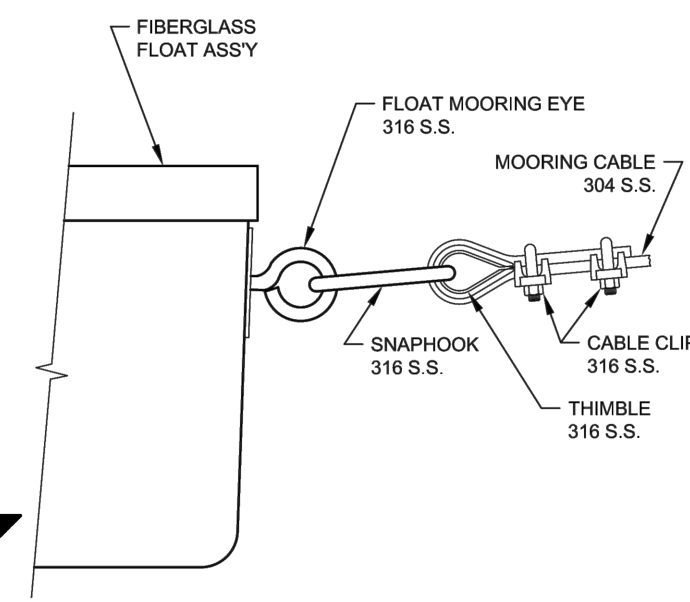

FLOAT MOORING DETAIL

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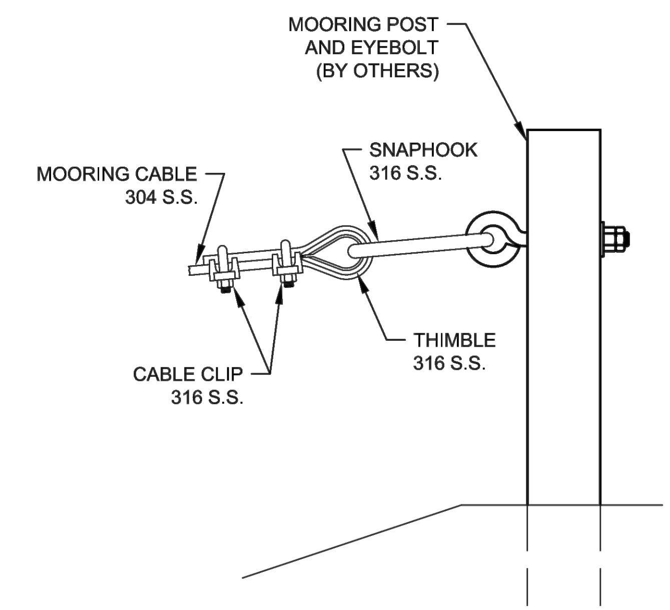

SHORE MOORING DETAIL

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ROSAMOND WWTP
UPGRADE CONCEPT DESIGN

SEPTAGE POND SECTION
AND DETAILS

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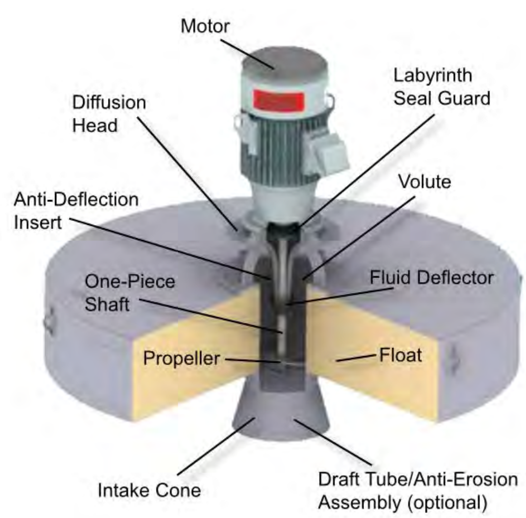
FIGURE 4-3

The new septage holding pond will be lined with a 30 mil linear low density polyethylene (LLDPE) liner to prevent leakage. LLPDE liner is designed to be used for higher elongation properties, is UV stable and has high puncture resistance. LLPDE is similar to high density polyethylene (HDPE) (including similar conductivity properties), however is lower in density and thus more flexible. LLPDE has been used to line domestic septage ponds.

Surface aerators will be installed in the pond to prevent the septage from going anaerobic (supporting odor control) and to prevent potentially increasing ammonia levels. Three (3) 2 hp Aqua-Jet mechanical aerators with fiberglass floats are recommended to provide complete mixing. These mechanical surface aerators are to be installed in a three-point mooring arrangement, consisting of three mooring cables attached to each aerator float, then attached to mooring posts on the shore as seen in the details on Figure 4-3. The Aqua-Jet aerator, seen in Figure 4-4, is a mechanical direct-drive unit designed to provide optimum oxygen transfer in a variety of municipal and industrial wastewater applications. The performance of the Aqua-Jet aerator also provides the mixing necessary to uniformly disperse oxygen and organic matter within the microbial population. Equipment specifications have been provided in Appendix F.



Source: Aqua-Aerobic Systems, Inc

Figure 4-4: Aqua-Jet Surface Mechanical Aerator

Water level fluctuations are anticipated to be minimal, however anti-erosion assembly can be provided in order to prevent the aerator's pumping action from damaging the liner. The United Stated Environmental Protection Agency (EPA) recommends supplying oxygen at a rate of 5 mg/L/hr (about 4.6 lb/hr) to maintain aerobic conditions (source: Table V-1, Evaluation of Flow Equalization at a Small Wastewater Treatment Plant, Office of Research and Development, US Environmental Protection Agency). The recommended aerators are expected to exceed this guideline and provide more than sufficient oxygen.

Table 4-2: Septage Pond Surface Aerators

Parameter	Units	
Type	-	Aqua-Jet Surface Mechanical Aerator®
No. of Units	ea	3
Size	hp	2
Mooring Arrangement	-	Three-point

(1) Data provided by Aqua-Aerobic Systems, Inc.

Section 5: Wastewater Treatment Plant Upgrade – Concept Design

The existing RCSD Wastewater Treatment Plant (WWTP) is designed to treat an average flow of 0.5 MGD. This section discusses the conceptual design established to upgrade the system to treat a design flow of 1.27 MGD (including 0.3 MGD septage). The upgraded plant is also anticipated to treat septage bleeding in (during specific flow conditions) from a new septage receiving station upstream of the headworks.

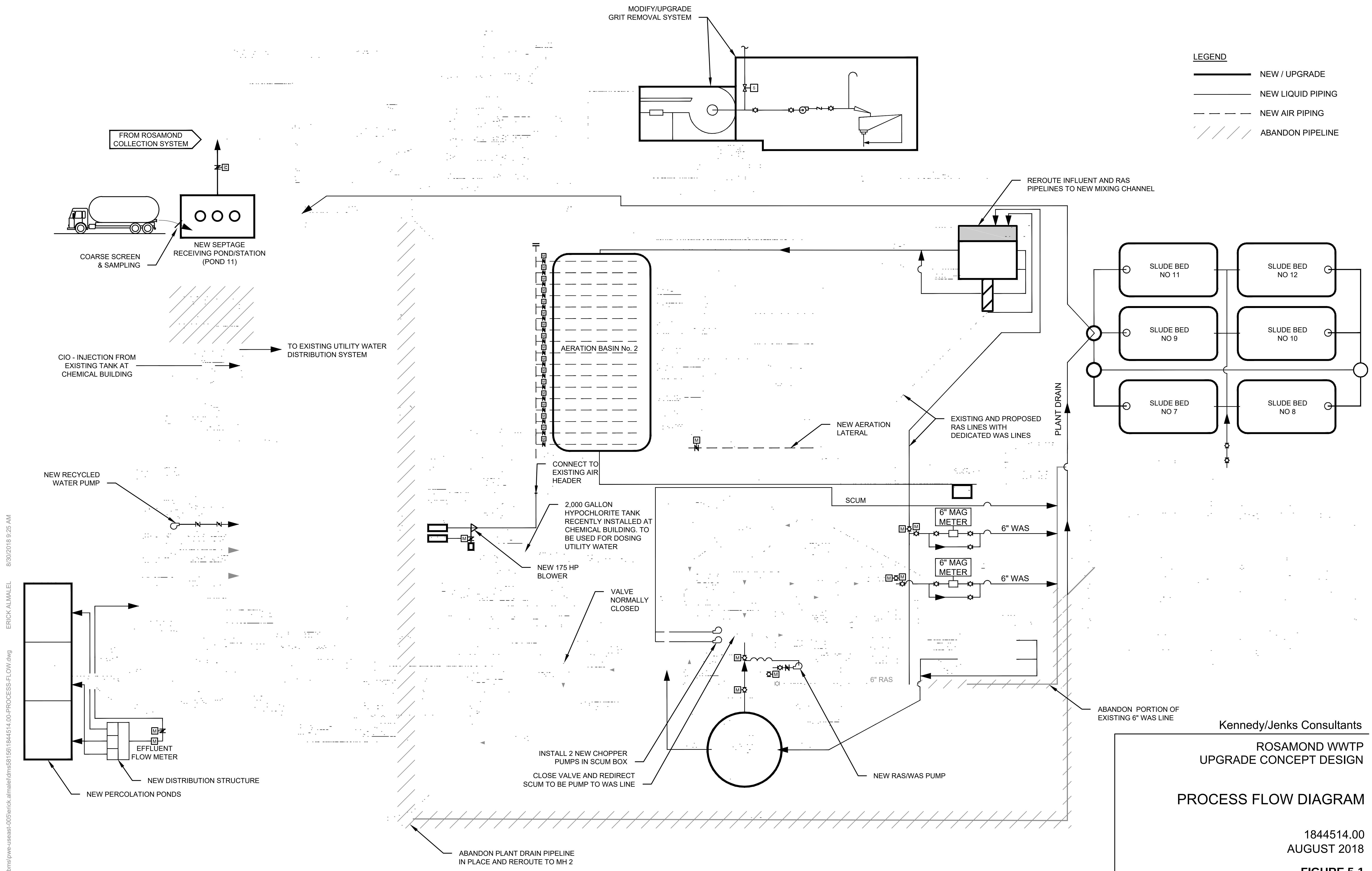
The existing RCSD WWTP consists of a 0.5 MGD tertiary treatment plant that can produce disinfected tertiary recycled water. The plant currently includes screening, grit removal, a Parkson Biolac activated sludge aeration basin, secondary clarifier, sand filters, and UV disinfection. The current expansion does not include expansion of the filters and disinfection system as the objective is to produce a nitrified, undisinfected secondary effluent for disposal through percolation.

Proposed upgrades to the 0.5 MGD secondary plant include the expansion to 1.27 MGD via a 25/75 flow split with approximately 25% of the flow going to the existing Biolac/clarifier system and 75% of the flow going to a new Biolac/clarifier system. (Note: Proposed flows to the existing Biolac/Clarifier system will now be less than anticipated when it was originally designed, due to a significant increase in wastewater strength associated with water conservation). This approach eliminates the need for major upgrades to the existing process units (Biolac and Secondary clarifier). The upgrade project will provide a new larger Biolac/ clarifier system and will duplicate the existing six sludge drying beds. De-nitrified, undisinfected secondary effluent will be discharged to percolation ponds for disposal. The process flow diagram for the proposed concept design is presented in Figure 5-1.

5.1 Headworks

The existing headworks facility consists of the influent pump station, screens and a grit removal/classification system. Influent wastewater from the collection system is conveyed through a 48-inch trunk into manhole MH-1 located upstream of the headworks. Minor sewage flows from the wastewater plant itself (as does supernatant from the sludge drying beds) also drains into manhole MH-1 and contributes to the influent into the headworks.

Influent wastewater discharges into the existing headworks structure, where it flows through 4-foot-wide by 5 feet deep channels. A mechanical bar screen located in one of the influent channels is operated as a traveling chain-and-link system that removes large solids. Screenings within the channel are removed and disposed of in a lower deck trash receptacle where it is periodically disposed of via truck crane and bucket. Influent wastewater is pumped from the wet well with four (4) 75 HP vertical dry-pit screw centrifugal wastewater pumps that are driven by variable frequency drives (VFD). A magmeter measures the flow delivered to both treatment plants. The lift pumps pump the influent trough to a vortex grit chamber at grade. Grit slurry collected in the vortex grit chamber is pumped to a vortex grit separator and classifier for dewatering.



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ROSAMOND WWTP
UPGRADE CONCEPT DESIGN

PROCESS FLOW DIAGRAM

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FIGURE 5-1

Per the original design documentation, the vortex grit chamber was designed for a peak hydraulic load of 1 MGD. For this concept design a peak hourly rate of 2.54 MGD is used. A hydraulic analysis of the grit removal system was performed to evaluate this higher hydraulic requirement. For this hydraulic analysis, three of the four weir boxes within distribution box #1 was assumed to deliver 75% of the flow to the proposed Biolac basin and one of the weir boxes was assumed to deliver 25% of the flow to the existing Biolac basin. At peak flow of 2.54 MGD, the water surface elevation within the existing grit chamber is anticipated to increase 7 inches (to 2313.38 feet) in comparison to the water level during the previous peak flow of 1 MGD (2312.80 feet), allowing for 2.6 feet of freeboard. Appendix G provides preliminary hydraulic calculations through the grit removal system to distribution box #1. It was determined that the existing grit structure can be retained, however Aquadyne Associates (representative of Smith & Loveless) has confirmed that the grit removal efficiency is anticipated to decrease during periods of excessively high flows. However, the District has confirmed that the sewage manholes are very well sealed, and they anticipate minimal infiltration of stormwater and associated grit into the system. The majority of grit and sludge from the addition of septage is expected to be collected in the proposed septage pond. Due to these two factors, a significant increase in grit is not anticipated to accompany the increase in influent flow. A condition assessment of the slurry pump and mechanical classifier is to be performed during 30% Design.

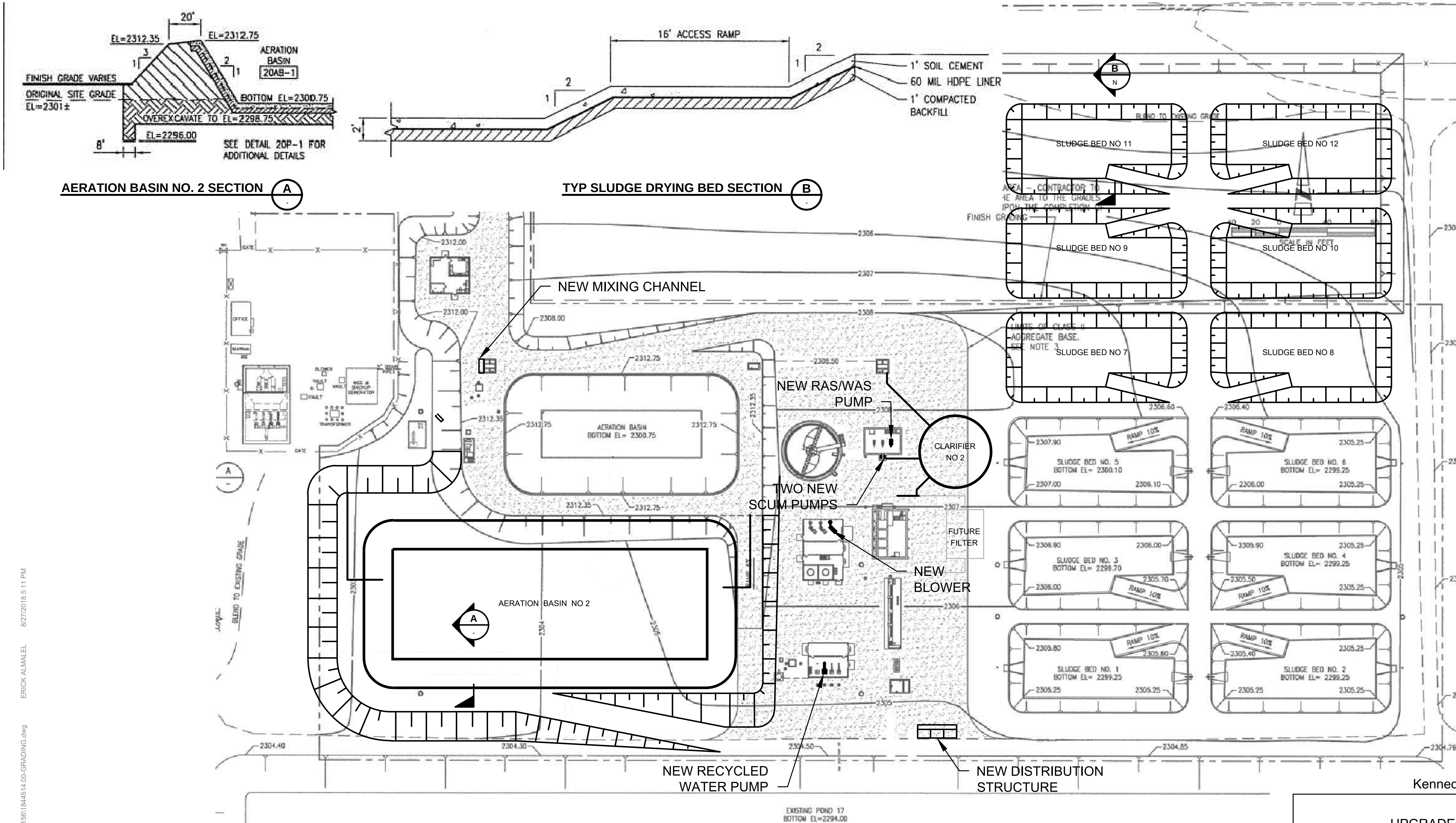
5.2 Biological Process – Parkson Biolac® System

The proposed new Biolac system is anticipated to treat approximately 75% of the influent flow, while the existing Biolac basin is anticipated to treat about 25% of the influent flow. This flow split can easily be accomplished at existing Box 1 by dedicating three weirs to the new Biolac and the forth weir to the existing Biolac. RAS will also be introduced upstream of the weirs to maintain a single biomass for the secondary process.

Kennedy/Jenks, in collaboration with Parkson, also explored a 50/50 flow split. Although a 50/50 split would be preferred for ease of operation, this would require upsizing both the existing Biolac basin size (with the addition of 4 aeration chains) and the existing secondary clarifier (increasing the size of an existing clarifier typically means replacement).As such the 50/50 split was judged to be uneconomical. As mentioned, a second treatment train, is recommended to treat approximately 75% of the total design flow. This train will consist of a new Biolac system (design capacity of 0.92 MGD). The new Biolac basin is to be constructed just south of the existing basin. The concept design location and associate grading plan and section is shown in Figure 5-2.

The existing Biolac basin will treat the remaining 0.35 MGD flow. For this concept design the anticipated combined influent wastewater quality presented in Table 2-5 was utilized. To accommodate the anticipated higher strength influent, one additional aeration lateral will be installed in the existing basin and the diffusers will operate at a slightly increased air flow per diffuser, which is not anticipated to cause any issues. On May 17, 2018, the District confirmed that the existing blower bearings have been replaced and the existing lateral air modulating valves have been replaced in preparation of restarting the plant. However, further inspection of the entire existing Biolac system and associated equipment will be performed to determine if any additional replacements or upgrades are required.

Mixed liquor from both Biolac systems flows to existing Box 2, which mainly serves as a collection manhole for the two aeration basins. Flows from Box 2 proceed to box 3. Weirs of equal elevation in Box 3 set the upstream water surface elevation in the Biolac basins, as well as, split the flows to the clarifiers. In a fashion similar to Box 1, three weirs would send flow to the new Biolac basin's clarifier, while the forth weir would send flow to the existing clarifier. See Section 5.3 for a discussion of the clarifiers.



NOTE: PROPOSED YARD PIPING IS NOT SHOWN ON THIS FIGURE

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UPGRADE CONCEPT DESIGN

GRADING PLAN

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FIGURE 5-2

The proposed Biolac system upgrade is based on the wastewater influent and effluent parameters shown in Table 5-1 and Table 5-2.

Table 5-1: Design Influent Parameters

Influent Parameters	Units	Existing Basin	New Basin
Average Daily Flow	MGD	0.35	0.92
Maximum Month Flow (Design)	MGD	0.35	0.92
Peak Hourly Flow	MGD	0.70	1.84
BOD_5	mg/L	442	442
CBOD	mg/L	376	376
COD	mg/L	935	935
TSS	mg/L	390	390
TKN	mg/L	79	79
NH_3	mg/L	67	67
Total Phosphorous	mg/L	6	6
Maximum Wastewater Temperature	ºC	20	20
Minimum Wastewater Temperature	ºC	10	10
Site Elevation	Ft	2,300	2,300
pH	-	6 to 8	6 to 8
Alkalinity	mg/L as $CaCO_3$	290	290

Source: Parkson Biolac® Treatment System, Preliminary Design Proposal (see Appendix H)
Note: Previous design criteria presented to Parkson included 1,219 mg/L COD and 81 mg/L TKN. Impacts of these changes are minimal. Design criteria will be update in 30% design.

Table 5-2: Design Effluent Parameters

Effluent Parameters	Units	Existing Basin	New Basin
BOD_5	mg/L	20	20
TSS	mg/L	20	20
Total Nitrogen	mg/L	8	8

Source: Parkson Biolac® Treatment System, Preliminary Design Proposal (see Appendix H)

The proposed new Biolac treatment system preliminary design criteria is presented in Table 5-3.

Table 5-3: Proposed Biolac Treatment System Preliminary Design Information

Parameter	
Number of Biolac® Basin (s)	1
Basin Construction	Earthen
Approximate Dimensions at Grade (ft)	311 x 140
Approximate Bottom Dimensions (ft)	263 x 92
Side Slope	2:1
Basin Volume (MG)	2.37
Side Water Depth (ft)	10
MLSS (mg/L)	3,000 – 3,300
SRT (days)	35-40
Estimated SOR (lbs/hr)	
Oxidation-only	736
Wave Oxidation (including denite credit)	481
Estimated SCFM	
Oxidation-only	4,089
Wave Oxidation (including denite credit)	2,778
Estimated Brake HP	
Oxidation-only	154
Wave Oxidation (including denite credit)	105
No. of Diffusers	1,105
No. of Biofuser® Assemblies	221
No. of Bioflex© Headers	17

Source: Parkson Biolac® Treatment System, Preliminary Design Proposal (see Appendix H)

The total air demand required for both Biolac basins during denitrification is 3,900 scfm. For this conceptual design, a design point of 4,300 scfm was chosen, which includes a 10% safety factor. The new basin is anticipated to be the same depth as the existing basin, 10 feet deep. Therefore, all diffusers in both basins will be at the same depth with the same pressure requirement from the blowers allowing all blowers to be connected to a common manifold to serve both Biolac systems. The existing blower room, seen in Figure 5-3, has two existing 100 hp multi-stage centrifugal blowers, each of which provide 1,500 standard cubic feet per minute (scfm). A new 200 hp blower will be provided with a capacity of 2,800 scfm that will furnish the required 4,300 scfm design point when operated in combination with one of the existing 100 hp blowers.

With the operational scenario described above, one 100 hp blower will be available for standby duties. Thus, should a 100 hp blower fail the other 100 hp blower would provide sufficient standby. However, if the new 200hp blower failed, only a total of 3,000 scfm would be provided by the two existing 100 hp blowers working together. This would only meet approximately 70% of the required air demand. To mitigate the impact of such emergency conditions, it is recommended that a spare motor and associate bearings for the proposed blower be kept on site. This approach is being considered as it is not now clear if the addition of a second 200hp blower (replacing an existing 100hp blower) would require modification/replacement of the main plant service along with standby generation facilities. Further study and discussion with the District is needed before making a final decision.

Space availability for the new blower has been confirmed with cut sheets provided by the vendor (Atlas Copco) and expansion of the existing building will not be required. However, a 10-inch future blower connection, as seen in Figure 5-4, will require removal and replacement with a 16-inch spool to accommodate the larger blower. A plan view of the new blower to be installed in the blower/MCC room is presented in Figure 5-5. See Appendix I for further details on the new specified blower.

Figure 5-3: Existing Blowers

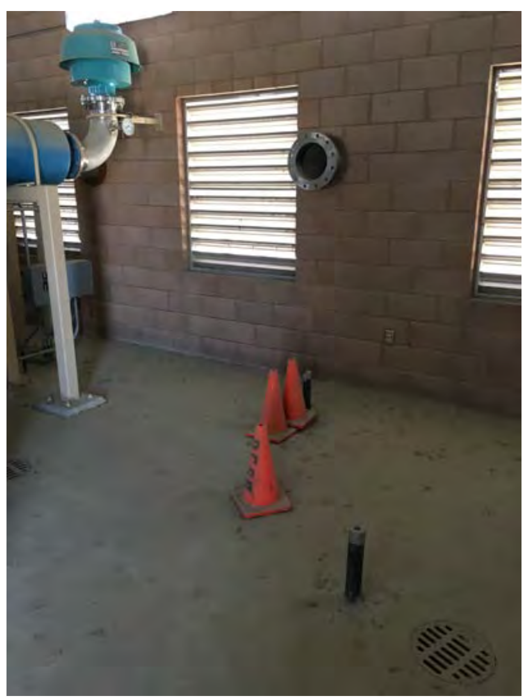
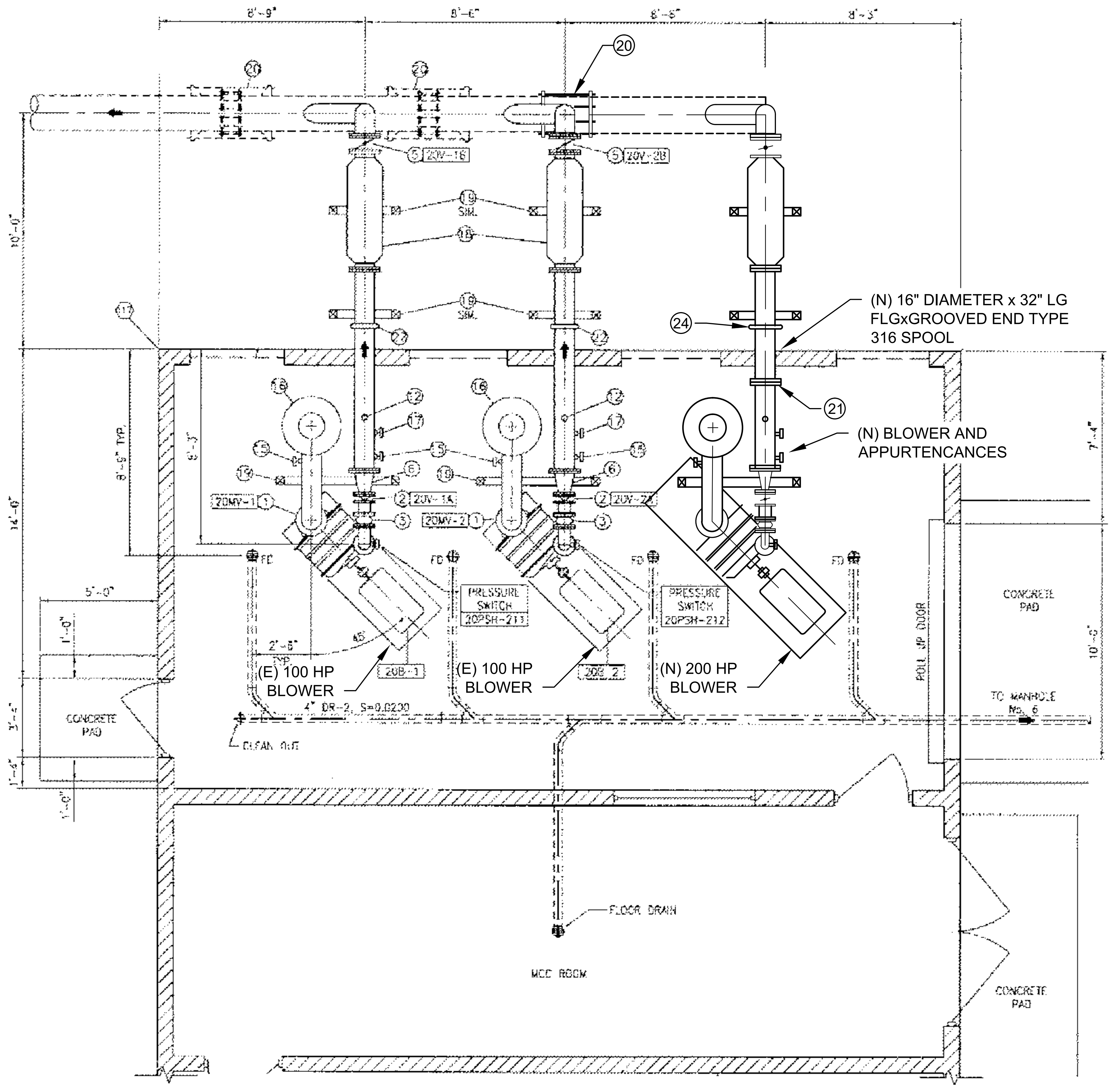


Figure 5-4: Future Blower Connection



(12) 1" THREADED OUTLET
(13) 18" x 10" x 18" WYE
(14) 18" x 10" REDUCER
(15) TEMPERATURE GAUGE, SEE DETAIL
(16) AIR INLET FILTER/SILENCER
(17) PRESSURE GAUGE, SEE DETAIL
(18) BLOWER OUTLET SILENCER
(19) PIPE SUPPORT, SEE DETAIL
(20) RESTRAINED FLEXIBLE COUPLING, SEE DETAIL
(21) 10" BLIND FLANGE
(22) 10" GROOVED END COUPLING
(23) 10" GROOVED END CAP
(24) 16" GROOVED END COUPLING

NOTE: EXISTING AND PROPOSED PIPING TO BE VERIFIED IN THE FIELD PRIOR TO 30% DESIGN.

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ROSAMOND WWTP
UPGRADE CONCEPT DESIGN

BLOWER / MCC ROOM
PLAN VIEW

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FIGURE 5-5

5.3 Secondary Clarifiers

The addition of a second secondary clarifier and associated piping is required to facilitate the plant expansion and operation of the Biolac system.. The diameter of the proposed secondary clarifier is anticipated to be larger than the existing clarifier due to the increase in flow, hydraulic loading rate and solids loading rate. The existing clarifier is 45 feet in diameter and 16 feet deep. The proposed clarifier is anticipated to be 60 feet in diameter and approximately 16 feet deep, mechanically equipped with a rotating mechanism servicing a scum collection system and a spiral squeegee to collect settled biomass for return (RAS) or waste activated sludge (WAS). Table 5-4 presents the design criteria for the proposed secondary clarifier.

Table 5-4: Proposed Secondary Clarifier Design Criteria

Parameter	Units	Quantity
No. of Units	ea	1
Diameter	ft	60
Depth	ft	16
Sludge Volume Index (SVI)	mg/L	100
Design Hydraulic Loading Rate	gpd/sqft	325
Solids Loading Rate	lb/sqft·day	20

Source: Parkson Biolac® Treatment System, Preliminary Design Proposal (see Appendix H)

A new scum collection box will be installed to accumulate debris from the clarifier water surface. Scum from both clarifiers will be pumped by one of the two new chopper pump (one duty and one standby, each with a capacity of 30 gpm) to be installed within the existing scum box at the sludge pump station and ultimately sent to the sludge drying beds through the WAS line.

5.4 RAS/WAS Conveyance System

The sludge pump station is designed to convey RAS on a continuous basis to optimize the activated sludge process. There are currently two existing screw centrifugal pumps. One new RAS pump will be added to the existing sludge pumping facility and will be located in the space already allocated for expansion. The recycled flow is anticipated to be 1.5 times the influent flow and therefore will require an additional 6-inch RAS line to return flow back to the Biolac basins.

The existing 6-inch RAS line and proposed 6-inch RAS line will be routed to return flow back to a new mixing channel to be constructed adjacent to distribution box #1 to ensure proper mixing of the RAS and influent flow prior to distribution to the Biolac basins. Each RAS line will have a 6-inch WAS line branching off and motor operated valves on each side to control the flow. Each WAS line will be equipped with a magnetic flow meter to record the amount of mass wasted in order to calculate solids retention time (SRT), which is the average time the activated-sludge solids are in the system. SRT is an important design and operating parameter affecting the performance of an activated-sludge system. These two WAS lines will join into one 6-inch WAS line to convey sludge to the existing and proposed drying beds. Please refer to Appendix J for preliminary calculations of RAS and WAS pipeline sizing.

5.5 Percolation Pond

As discussed above in Section 3, denitrified, undisinfected secondary effluent will be sent to an existing evaporation pond modified for percolation (Pond 17), located south of the existing plant. A new distribution structure consisting of an inlet channel and three weirs boxes will be constructed to evenly distribute the flow to three (3) percolation ponds. Percolation Pond 17 is anticipated to be rehabilitated and divided into three (3) percolation ponds with a depth of 5-feet to provide acceptable permeability for groundwater recharge. Geotechnical borings are anticipated to be taken and permeability testing will be performed to ensure that the ponds are adequately sized. As discussed in Section 3.1, an Infiltration Test Basin is proposed to address the potential for the existing Pond 17 to leach nitrate and TDS (associated with untreated effluent that may have found its way into the soil matrix from leaking evaporation ponds) into the groundwater.

5.6 Sludge Drying Beds

Excess waste biosolids from the activated sludge process are dewatered in onsite sludge drying beds. Currently, there are six soil-cement and HDPE lined sludge drying beds. Each existing bed is 5,400 sqft. Six new sludge drying beds of the same size are anticipated to be installed to dewater the additional sludge from the expanded plant. Based on an assumed solids concentration of 0.7% and one pound of dry solids produced per pound of BOD removed (as requested by Parkson), a design bed loading rate of 28.8 lb/sqft/yr is anticipated (see Appendix K for preliminary calculations). Previous operations at the plant demonstrate that this loading rate is appropriate. Two of the sludge drying beds will be dedicated for stockpiling dried sludge, while the other 10 beds will be rotated for sludge application, drying, cleaning and standby service. The proposed sludge drying beds will be located just north of the existing beds, as seen in Figure 5-2. The new beds will consist of the same construction and design criteria as the existing beds, as summarized in Table 5-5.

Table 5-5: Sludge Drying Beds Design Criteria

Parameter	Units	Quantity
No. of Existing Beds	ea	6
No. of New Beds	ea	6
Area	sqft/ea	5,400
Design Loading	lb/sqft/yr	28.8

The RWQCB requires certain testing, record keeping, and monitoring of the dried sludge and shall be performed by operators at the plant. The updated Waste Discharge Requirements will require a Sludge Management Plan which will specifically outline the plan for monitoring and disposal of the dried sludge

5.7 Potable Water and Utility Water

Tertiary effluent from the recycled water pump station was previously conveyed both on and off-site. A portion of the flow was conveyed through a 12-inch pipeline to a storage reservoir and distribution lines off-site. The remaining flow was utilized as ‘non-potable’ utility water and conveyed through a 4-inch pipeline to several hose bibbs throughout the plant for maintenance purposes. With the current secondary effluent percolation project, secondary effluent will now be used as utility water. As this secondary effluent is not disinfected, the addition of a small chlorination system is anticipated. Both potable water from offsite sources and utility water produced by the plant is utilized for on-site operation and maintenance purposes. This utility water and potable water is distributed to several locations throughout the plant and has been summarized in Table 5-6.

Table 5-6: Utility Water Distribution Locations

Fixture	Qty	Lateral	Location	Sheet, Dwg No.
Hydrant	1	8-inch WTR	Lift Station	23, 5P-1
Hydrant	1	6-inch WTR	Control Building	11, C-4
Hydrant	1	6-inch WTR	Distribution Box #2	11, C-4
Hose Bibb and Rack	1	1-inch NPW	Grit Removal Structure	25, 10P-1
Spray Bar Water	1	1-inch NPW	Grit Pump Station	26, 10P-2
Hose Bibb and Rack	1	1-inch NPW	Secondary Clarifier	32, 30P-1
Emergency Shower and Eye Wash	2	1-1/4-inch WTR	Chemical Feed Room	37, 40P-3
Hose Bibb	1	1-inch NPW	UV Structure	38, 50P-1
Hose Bibb	1	1-inch NPW	Effluent Flume	39, 60P-1
Hose Bibb and Rack	1	1-inch NPW	Sludge Pump Station	42, 70P-1

Note: Offsite potable water is identified as WTR. Tertiary effluent utilized as non-potable water is identified as NPW. As-builts show a hose bibb on the west side of the existing clarifier, however was confirmed in the field to be removed and caped.

Expansion of the WWTP will require additional utility water lines to be routed to the new facilities, as well as the septage receiving station north of the site. A hypochlorite injection system will need to be installed after the recycled water pump station discharge and before the effluent flow meter. A 2,000-gallon hypochlorite tank was recently installed in the chemical building on site, just north of this proposed injection site, and is anticipated to be utilized for dosing the utility water. Expansion of the utility water system will be determined in the 30% design phase of this project.

5.8 Electrical

The RCSD WWTP is currently powered from an existing Southern California Edison (SCE) transformer rated 1000kVA, 12kV delta primary and 480Y/277 secondary voltage. The transformer supplies power to a General Electric (GE) Spectra Series switchboard ‘DS-1’ rated at 2000A, 3-phase, 4-wire, and suitable to interrupt 65kA symmetrical short circuit current. The Main Distribution Switchboard ‘DS-1’ then distributes power to four (4) 480V, 3-phase, 3-wire Motor Control Centers (MCC’s) and four (4) 480V, 3-phase, 3-wire Panelboard around the site with their locations in Table 5-7 below:

Table 5-7: Main Distribution Switchboard DS-1

Motor Control Center	Location
MCC-1	MCC and Backup Generator Building
MCC-2	MCC and Backup Generator Building
MCC-3 (Subfed from MCC-1)	Blower/Chemical Building Electrical Room
Panelboard P-4	Blower/Chemical Building Electrical Room
Panelboard P-3A	Blower/Chemical Building Electrical Room
Panelboard P-3B	Recycled Water Pump Station Electrical Room
Panelboard P-5	Recycled Water Pump Station Electrical Room
MCC-5	Recycled Water Pump Station Electrical Room

The MCC's and panelboards feed 480V process and building mechanical loads as well as combination power centers (GE Servicecenters) transforming incoming 480V power to 120/240V to power lighting, receptacles and other auxiliary loads in nearby process areas.

There is an existing 750kVA diesel engine standby generator located in the MCC/Backup Generator Building. The generator is connected to an 800A Automatic Transfer Switch (ATS) and currently provides standby power to MCC-1, MCC-3, Panelboard P3A and Panelboard P3B. It is the intent of this project to reconfigure the incoming utility and generator power supplies to provide adequate standby power to the facility after the modifications have been made. The additional equipment to receive standby power will be MCC-2 and Panelboard P4. The loads connected to MCC-5 and Panelboard P3B (Recycled Water Pump Station) will not be online as part of this project and will require lockout to ensure their inability to operate loads under a standby power condition. The existing electrical system was analyzed at a high level to determine if any modifications may be required to the existing distribution system to adequately provide power for the expansion. Table 5-8 presents the results of the preliminary load analysis after looking at the plant single lines and the projected additional load being added as part of this project.

Table 5-8: Preliminary Load Analysis

Facility	SCE Transformer KVA	Utility Demand KVA	Generator Demand KVA	Estimated Demand Amperes
MCC-1		271.6	271.6	323.4
MCC-2		90.3	76.2	108.6
MCC-3		269.0	269.0	323.5
P3A		64.3	64.3	77.4
P4		41.0	34.5	49.3
MCC-5		158.7	2.7	190.9
P5		70.1	15.0	84.0
P3B		59.6	15.0	71.3
Totals	**1000.0**	**1024.6**	**748.3**	**1228.2**

These results are preliminary and will require detailed analysis during final design to make an informed decision. A general rule of thumb is to not operate your generator greater than 90% of its nameplate rating to maximize the life of the generator. The numbers in the table above, indicate the existing generator will be loaded up to its nameplate rating. Kennedy Jenks will coordinate with the District to ensure proper load shedding practices or operational philosophies are employed to limit the load on the existing generator and have it run at optimal capacity. The reconfigured power system will also be analyzed with input from the District to ensure it operates within the limits of both utility and standby power sources. Part of this analysis will require confirmation with 30 days of peak demand KW information recorded from the GE PQMII meter located in DS-1 to comply with the requirements of NEC Article 220.87.

The required electrical work for the expansion will also occur at the individual MCC level. The MCC's supplying power to the expansion equipment appear to be sized and equipped with overcurrent protective devices and/or controllers to support the additional load. Existing embedded raceway has also been routed from the existing source MCC to the proposed equipment being added as part of this expansion. The main concern with the process additions is the new Biolac blower that is required for the additional Aeration Basin being added. The blower horsepower rating is projected to be larger than existing units and this may result in insufficient physical space for the electrical equipment required to supply power to it. Currently there's an unidentified wall mounted variable frequency drive mounted in the space intended for the MCC to be expanded with the addition of a reduced voltage starter to control the additional blower. Also, panelboard P3A appears to be installed within the area allocated for the housing of the reduced voltage starter. The proposed resolution would be to add a molded case circuit breaker within the MCC available space and feed a separately mounted reduced voltage starter. There may be available space within the electrical room to house the reduced voltage starter but will depend on final horsepower rating of the blower. The original design provide raceway from the electrical room to the new blower, however given the larger horsepower rating of the new blower, the existing encased raceway is too small to house the required cables to supply power to the blower. New exposed raceway for power, control and analog signal conductors will be required and its support from the walls and ceiling will require coordination with structural engineers.

The Electrical design will coordinate with the Building Mechanical design to determine any modifications to the existing HVAC system. There will also be several instruments and devices that require electrical power routed around the site, but those loads are minimal and included in the numbers given above. Detailed site analysis will determine what new raceway is required to supply power and control to these instruments and devices.

5.9 Instrumentation and Controls

The Rosamond Community Services District (RCSD; District) Wastewater Treatment Plant (WWTP) is currently equipped with a Supervisory Control and Data Acquisition System (SCADA) in the Plant Control Room. The communication cabinet houses the ethernet media converter, transitioning from the fiber optic communication network around the site to ethernet connections to the fully-redundant, hot-standby SCADA servers. The information is then displayed on windows-based desktop screens via Wonderware software for Operator remote interface with the process equipment. Table 5-9 lists the networked PLC's and their locations:

Table 5-9: Programable Logic Controller Locations

Programmable Logic Controller (PLC)	Location
PLC-1 (Inside ICP-1)	Generator Building Electrical Room
PLC-2 (Inside ICP-2)	Blower Building Electrical Room
PLC-3 (Inside ICP-3)	Recycled Water Pump Station Electrical Room
PLC-4 (Inside 20A-LCP)	Blower Building Electrical Room (Supplied by Biolac)
PLC-5 (Inside 20B-LCP)	Blower Building Electrical Room (Supplied by Biolac)
PLC-6 (Inside ICP-6)	UV Structure (Supplied by Trojan)

The proposed additions for the plant expansion will add additional I/O to PLC-1 (ICP-1) for the new Bar Screen, new Septage Receiving Station Control Panel interface, and miscellaneous instrumentation, PLC-2 (ICP-2) for the new Secondary Clarifier, new Sludge Pump and miscellaneous instrumentation, PLC-4 for the new Biolac Aeration Basin and miscellaneous instrumentation and PLC-5 for new Biolac Blower and miscellaneous instrumentation. Further analysis of ICP and vendor control panel shop drawings is required to determine if there's sufficient spare I/O within existing communication cards or space for new communication cards to accommodate the I/O requirements of the Plant Expansion.

The Plant Control Room hardware and software will be analyzed in detail to determine if upgrades to the existing communication hardware (ethernet switches, modems, media converters, etc.) and Wonderware software program are required. The Contractor will hire a system integrator to program the plant expansion equipment and associated controls resulting in a completely functional SCADA system.

Section 6: Opinion of Probable Construction Cost

6.1 Cost Estimating Assumptions

An Opinion of Probable Construction Cost (OPCC) and estimate of project cost were prepared for the improvements described above. The OPCC and project costs for the project were prepared using a combination of quantity takeoffs from the conceptual design report and included drawings and figures, review of existing plant as-builts, commercial cost estimating software, costs from other similar projects, and budgetary quotes from major process equipment manufacturers. This estimate should be considered to have an accuracy of +50% to -30%, consistent with a conceptual level Class 4 estimate as defined by the Association for the Advancement of Cost Engineering (AACE).

6.2 Opinion of Probable Construction Costs

OPCC and Project Cost for RCSD WWTP Rehabilitation Project[a]

Description	Estimate
OPCC - Estimated Bid Price[b]	$9,600,000

Notes:

(a) Cost estimate was prepared using 2018 dollars and escalated at 3.5% for a mid-point of construction in 18 months. This estimate should be adjusted if the implementation schedule is extended further out in time.
(b) The OPCC represents the estimated contractor bid price for construction of this project, which includes: materials, equipment, installation, overhead and profit, taxes, and cost escalation to the midpoint of construction. A design contingency is included to cover design details not yet fully developed at conceptual design.
(c) Pending geotechnical investigation, additional stabilization fill may be required.

Further details and assumptions made in preparing the cost estimates are provided in Appendix L.

Section 7: Next Steps/Implementation Plan

This section describes the next steps required for implementation of the proposed upgrade project facilities, including a summary of recommended field investigations, groundwater modeling, design, CEQA, permitting, bid phase and construction. An implementation schedule is presented summarizing these activities, in figure 7-1 below.

7.1 Additional Studies

The next step in implementation of the project is to utilize the Concept Design report for review and concurrence from the District; submit and solicit comments from the Regional Board; and expand the level of detail and incorporate into the Basis of Design Memorandum. Several field investigations are recommended to inform the design development in the next phase, including:

- Aerial and Topographical Survey – to develop base maps with accurate ground contours and tie-in existing facilities.
- Geotechnical Investigation – to incorporate site-specific sub-surface considerations for all project facilities.
- Potholing Coordination – to further develop design of all pipelines by identifying potential utility conflicts.
- Plant startup and operation – to operate the plant and test the existing equipment, provide additional operational data, and provide 0.5 MGD of de-nitrified, un-disinfected secondary effluent to run the Infiltration Test described below.
- Infiltration Test – to (1) estimate the infiltration rate as the basis of designing the percolation ponds, and (2) to evaluate if past evaporation pond leakage has contaminated the vadose zone with nitrate, ammonia, or TDS that could leach into the groundwater under future percolation of de-nitrified, un-disinfected secondary effluent and cause elevated nitrate levels.

7.2 Groundwater Modeling

A two-component model will be developed to properly account for the water balance associated with this discharge and its impact on local groundwater flow. The model components will include:

1. A spreadsheet-based effluent discharge model that will track evaporative losses from the ponds. The model will include monthly discharge volumes, pond use history, wetted pond(s) surface area, and monthly pan evaporation data (measured or calculated). The output from this model will be used to inform a recharge source term for a subregional groundwater flow model (i.e., the second model component, below).
2. A subregional model for groundwater flow beneath the WWTP and encompassing the adjacent Fremont Valley. This model will be derived from the regional MODFLOW model developed for the Antelope Valley by the U.S. Geological Survey (Siade et al., 2014) at a

1-km grid resolution. A portion of the model will be delineated as a submodel, with appropriate boundary conditions and grid refinement, to enable groundwater modeling at a local scale near the WWTP, with the plant discharge treated as a time-varying recharge condition.

The combination of the two model components will allow an informed estimate of the proportion of the plant discharge that recharges groundwater within the Antelope Valley. Particle tracking (via MODPATH) will be employed to ascertain the portion of the plant discharge, if any, that would be expected to move into Fremont Valley. Currently, the regional MODFLOW model employs a time-varying head boundary condition at the boundary between the Antelope and Fremont valleys; the model does not extend into the Fremont Valley proper. Consequently, the impact of any new pumping in Fremont Valley on the water balance will be addressed using a simplified approach, such as an analytical groundwater pumping model, to adjust the head along the boundary.

The results of the modeling assessment will be summarized in a technical memorandum.

7.3 Design

The design phase will progress from this Final Concept Design Report (10% design) to 30%, 60%, and 90% submittals. Each submittal (30, 60, and 90%) will be followed by review workshops with the District. Final Bid Documents will be advertised following adoption of the CEQA MND.

7.4 CEQA

HELIX, as a subconsultant to Kennedy/Jenks, will continue the CEQA process started during the base scope of Work Order 2018-4 – WWTP Rehab Concept Design. The work includes:

- Initial Study
- Regional Board Review and Public Review
- Review/Summarize Public Comments
- Adopt MND

7.5 Permitting

Permitting will be a continuous process working closely with the Regional Board. Multiple review meetings are planned. This Final Concept Design report will be presented and submitted to the Regional Board for their review. If acceptable, this Final Concept Design report will be re-titled and submitted along with 30% Design Drawings to the Regional Board by November 5, 2018. The adopted CEQA MND along with the near-Final Design Documents will be submitted to the Regional Board by the target date of April 5, 2019. The Bid Package is scheduled to be advertised in later-April 2019.

7.6 Bid Phase

The bid phase begins with the advertisement of the contract documents, with typically 30 days for bidders to prepare their bids, a bid opening, evaluation, and recommendation for award.

7.7 Construction

The construction period is estimated to be 15 months, followed by one month for startup, a total of 350 work days or 16 months.

7.8 Implementation Schedule

The Project implementation schedule is provided as Figure 7-1. As described above, the primary tasks are Design, CEQA, Permitting, Bid Assistance, and Construction.

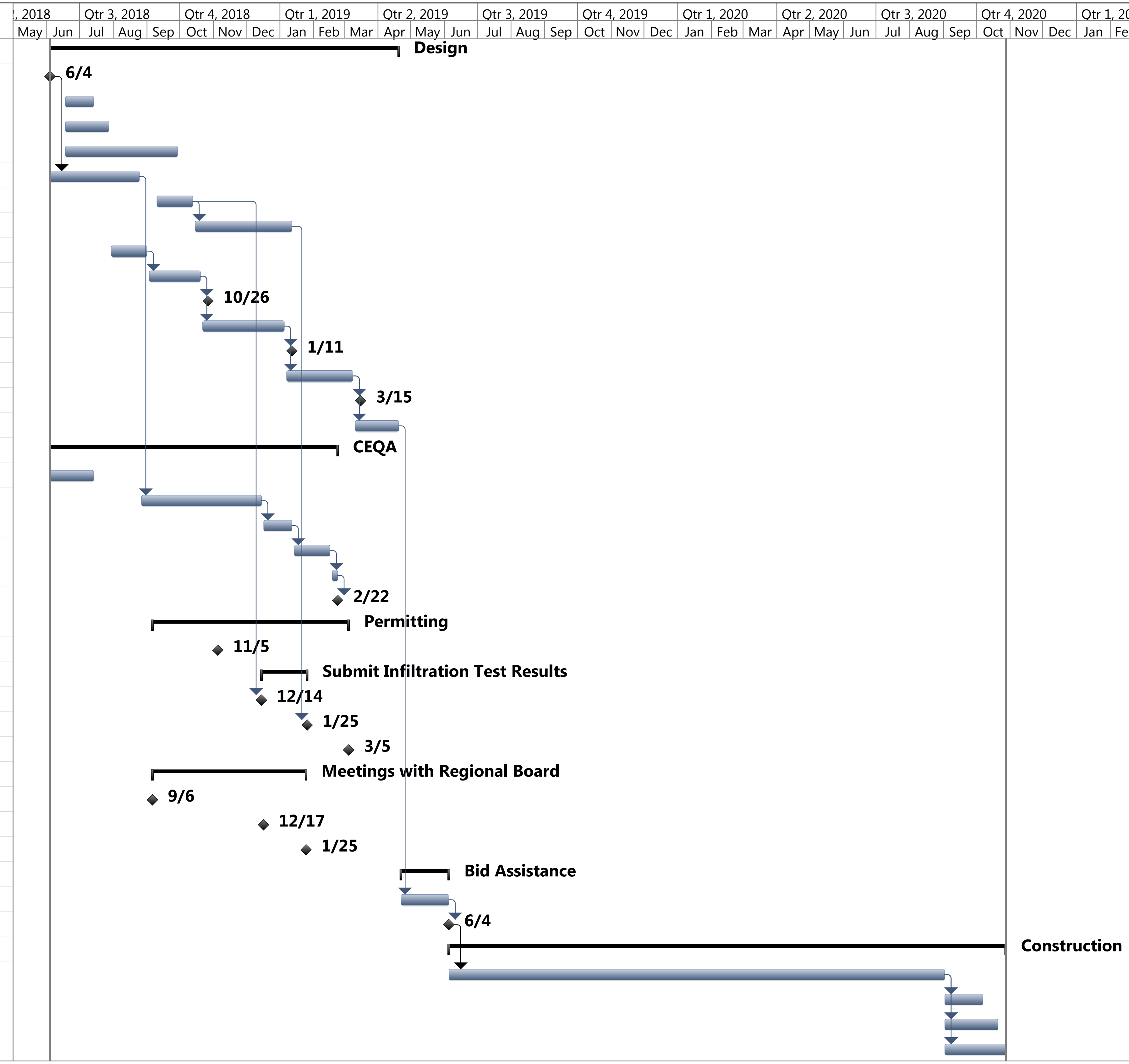
A key milestone is the submittal of a Technical Report and Project drawings to the Regional Board by November 5, 2018. Another key milestone is the adoption of the CEQA MND in February 2019. These tasks clear the way for the Bid Documents to be advertised for competitive bids.

Before the project enters construction in the summer of 2019, a Permit 200 application to revise the Waste Discharge Permit will be submitted to the Regional Board.

The new plant should be on-line in late 2020.

RCSD WWTP REHAB PROJECT - IMPLEMENTATION SCHEDULE

ID	Task Name	Duration	Start	Finish	Predecessors
1	**Design**	**230 days**	**Mon 6/4/18**	**Fri 4/19/19**	
2	Draft Concept Design Report	0 days	Mon 6/4/18	Mon 6/4/18	
3	Topo survey	20 days	Mon 6/18/18	Fri 7/13/18	
4	Geotech Investigation	30 days	Mon 6/18/18	Fri 7/27/18	
5	Groundwater Model Development	75 days	Mon 6/18/18	Fri 9/28/18	
6	Final Concept Design Report	60 days	Mon 6/4/18	Fri 8/24/18	2
7	Plant Startup and Run	25 days	Mon 9/10/18	Fri 10/12/18	
8	Infiltration Test	65 days	Mon 10/15/18	Fri 1/11/19	7
9	10% Preliminary Design	25 days	Mon 7/30/18	Fri 8/31/18	
10	30% Design	35 days	Mon 9/3/18	Fri 10/19/18	9
11	30% Review Workshop	0 days	Fri 10/26/18	Fri 10/26/18	10FS+5 days
12	60% Design	55 days	Mon 10/22/18	Fri 1/4/19	10
13	60% Review Workshop	0 days	Fri 1/11/19	Fri 1/11/19	12FS+5 days
14	90% Design	45 days	Mon 1/7/19	Fri 3/8/19	12
15	90% Review Workshop	0 days	Fri 3/15/19	Fri 3/15/19	14FS+5 days
16	100% Design	30 days	Mon 3/11/19	Fri 4/19/19	14
17	**CEQA**	**190 days**	**Mon 6/4/18**	**Fri 2/22/19**	
18	Complete Bio Suveys	30 days	Mon 6/4/18	Fri 7/13/18	
19	Initial Study	80 days	Mon 8/27/18	Fri 12/14/18	6
20	Regional Board Review	20 days	Mon 12/17/18	Fri 1/11/19	19
21	Public Review	25 days	Mon 1/14/19	Fri 2/15/19	20
22	Review/Summarize Comments	5 days	Mon 2/18/19	Fri 2/22/19	21
23	Adopt MND	0 days	Fri 2/22/19	Fri 2/22/19	22
24	**Permitting**	**128 days**	**Thu 9/6/18**	**Tue 3/5/19**	
25	Submit Tech. Rep. & 30% Drawings	0 days	Mon 11/5/18	Mon 11/5/18	
26	**Submit Infiltration Test Results**	**30 days**	**Fri 12/14/18**	**Fri 1/25/19**	
27	Submit Prelim. Infiltration Test Results	0 days	Fri 12/14/18	Fri 12/14/18	7FS+45 days
28	Submit Final Infiltration Test Results	0 days	Fri 1/25/19	Fri 1/25/19	8FS+10 days
29	Revised Discharge Permit	0 days	Tue 3/5/19	Tue 3/5/19	
30	**Meetings with Regional Board**	**101 days**	**Thu 9/6/18**	**Fri 1/25/19**	
31	Meeting 1 with Regional Board	0 days	Thu 9/6/18	Thu 9/6/18	
32	Meeting 2 with Regional Board	0 days	Mon 12/17/18	Mon 12/17/18	
33	Meeting 3 with Regional Board	0 days	Fri 1/25/19	Fri 1/25/19	
34	**Bid Assistance**	**32 days**	**Mon 4/22/19**	**Tue 6/4/19**	
35	Bid Support	32 days	Mon 4/22/19	Tue 6/4/19	16
36	Award	0 days	Tue 6/4/19	Tue 6/4/19	35
37	**Construction**	**365 days**	**Wed 6/5/19**	**Tue 10/27/20**	
38	Construction	325 days	Wed 6/5/19	Tue 9/1/20	36
39	Startup Support	25 days	Wed 9/2/20	Tue 10/6/20	38
40	Record Drawings	35 days	Wed 9/2/20	Tue 10/20/20	38
41	O&M Manual	40 days	Wed 9/2/20	Tue 10/27/20	38



Project: RCSD WWTP REHAB PR
Date: Mon 8/20/18

Task | Milestone ◆ | Summary

References

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Appendix A: Raw Wastewater and Septage Influent Daily Flow Data

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: JANUARY 2013

DATE		MILLION GALLONS	PER DAY
1		1.18	MG
2		1.17	MG
3		1.18	MG
4		1.23	MG
5		1.18	MG
6		1.23	MG
7		1.18	MG
8		1.2	MG
9		1.19	MG
10		1.2	MG
11		1.28	MG
12		1.15	MG
13		1.29	MG
14		1.32	MG
15		1.24	MG
16		1.23	MG
17		1.25	MG
18		1.22	MG
19		1.18	MG
20		1.22	MG
21		1.25	MG
22		1.29	MG
23		1.18	MG
24		1.16	MG
25		1.24	MG
26		1.16	MG
27		1.25	MG
28		1.26	MG
29		1.22	MG
30		1.2	MG
31		1.2	MG
	TOTAL	37.73	MILLION GALLONS
	AVERAGE PER DAY	1.22	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: FEBUARY 2013

DATE	MILLION GALLONS	PER DAY
1	1.23	MG
2	1.13	MG
3	1.26	MG
4	1.33	MG
5	1.25	MG
6	1.24	MG
7	1.23	MG
8	1.3	MG
9	1.19	MG
10	1.27	MG
11	1.32	MG
12	1.3	MG
13	1.25	MG
14	1.17	MG
15	1.16	MG
16	1.15	MG
17	1.21	MG
18	1.22	MG
19	1.28	MG
20	1.21	MG
21	1.22	MG
22	1.23	MG
23	1.17	MG
24	1.23	MG
25	1.25	MG
26	1.22	MG
27	1.16	MG
28	1.17	MG

TOTAL	34.35	MILLION GALLONS
AVERAGE PER DAY	1.23	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: MARCH 2013

DATE	MILLION GALLONS PER DAY	
1	1.16	MG
2	1.21	MG
3	1.17	MG
4	1.23	MG
5	1.14	MG
6	1.15	MG
7	1.15	MG
8	1.17	MG
9	1.14	MG
10	1.2	MG
11	1.22	MG
12	1.19	MG
13	1.16	MG
14	1.12	MG
15	1.22	MG
16	1.16	MG
17	1.19	MG
18	1.24	MG
19	1.2	MG
20	1.09	MG
21	1.15	MG
22	1.14	MG
23	1.13	MG
24	1.19	MG
25	1.18	MG
26	1.17	MG
27	1.14	MG
28	1.15	MG
29	1.2	MG
30	1.17	MG
31	1.22	MG
TOTAL	36.35	MILLION GALLONS
AVERAGE PER DAY	1.17	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: APRIL 2013

DATE	MILLION GALLONS	PER DAY
1	1.16	MG
2	1.21	MG
3	1.17	MG
4	1.19	MG
5	1.18	MG
6	1.15	MG
7	1.18	MG
8	1.24	MG
9	1.16	MG
10	1.14	MG
11	1.14	MG
12	1.18	MG
13	1.14	MG
14	1.19	MG
15	1.2	MG
16	1.21	MG
17	1.14	MG
18	1.17	MG
19	1.18	MG
20	1.11	MG
21	1.19	MG
22	1.25	MG
23	1.21	MG
24	1.19	MG
25	1.17	MG
26	1.24	MG
27	1.16	MG
28	1.22	MG
29	1.27	MG
30	1.34	MG

TOTAL	35.68	MILLION GALLONS
AVERAGE PER DAY	1.19	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: MAY 2013

DATE		MILLION GALLONS	PER DAY
1		1.21	MG
2		1.23	MG
3		1.25	MG
4		1.19	MG
5		1.24	MG
6		1.28	MG
7		1.21	MG
8		1.25	MG
9		1.21	MG
10		1.28	MG
11		1.22	MG
12		1.32	MG
13		1.26	MG
14		1.3	MG
15		1.26	MG
16		1.18	MG
17		1.2	MG
18		1.15	MG
19		1.18	MG
20		1.26	MG
21		1.22	MG
22		1.23	MG
23		1.23	MG
24		1.23	MG
25		1.2	MG
26		1.21	MG
27		1.2	MG
28		1.32	MG
29		1.2	MG
30		1.24	MG
31		1.26	MG
	TOTAL	38.22	MILLION GALLONS
	AVERAGE PER DAY	1.23	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: JUNE 2013

DATE	MILLION GALLONS	PER DAY
1	1.16	MG
2	1.23	MG
3	1.26	MG
4	1.21	MG
5	1.22	MG
6	1.24	MG
7	1.24	MG
8	1.23	MG
9	1.22	MG
10	1.24	MG
11	1.2	MG
12	1.18	MG
13	1.2	MG
14	1.2	MG
15	1.14	MG
16	1.23	MG
17	1.21	MG
18	1.23	MG
19	1.16	MG
20	1.16	MG
21	1.24	MG
22	1.2	MG
23	1.22	MG
24	1.23	MG
25	1.23	MG
26	1.18	MG
27	1.18	MG
28	1.21	MG
29	1.14	MG
30	1.2	MG

TOTAL	36.19	MILLION GALLONS
AVERAGE PER DAY	1.21	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: JULY 2013

DATE		MILLION GALLONS	PER DAY
1		1.22	MG
2		1.19	MG
3		1.2	MG
4		1.24	MG
5		1.23	MG
6		1.17	MG
7		1.22	MG
8		1.22	MG
9		1.22	MG
10		1.21	MG
11		1.18	MG
12		1.19	MG
13		1.19	MG
14		1.2	MG
15		1.14	MG
16		1.25	MG
17		1.17	MG
18		1.18	MG
19		1.16	MG
20		1.23	MG
21		1.25	MG
22		1.23	MG
23		1.22	MG
24		1.22	MG
25		1.24	MG
26		1.22	MG
27		1.22	MG
28		1.22	MG
29		1.2	MG
30		1.15	MG
31		1.16	MG
	TOTAL	37.34	MILLION GALLONS
	AVERAGE PER DAY	1.20	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR:AUGUST 2013

DATE		MILLION GALLONS	PER DAY
1		1.15	MG
2		1.15	MG
3		1.18	MG
4		1.17	MG
5		1.2	MG
6		1.24	MG
7		1.19	MG
8		1.14	MG
9		1.15	MG
10		1.24	MG
11		1.32	MG
12		1.24	MG
13		1.21	MG
14		1.24	MG
15		1.08	MG
16		1.3	MG
17		1.06	MG
18		1.26	MG
19		1.08	MG
20		1.12	MG
21		1.15	MG
22		1.14	MG
23		1.17	MG
24		1.13	MG
25		1.27	MG
26		1.11	MG
27		1.16	MG
28		1.19	MG
29		1.2	MG
30		1.22	MG
31		1.18	MG
	TOTAL	36.64	MILLION GALLONS
	AVERAGE PER DAY	1.18	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: SEPTEMBER 2013

DATE	MILLION GALLONS	PER DAY
1	1.2	MG
2	1.19	MG
3	1.29	MG
4	1.15	MG
5	1.15	MG
6	1.17	MG
7	1.11	MG
8	1.2	MG
9	1.25	MG
10	1.18	MG
11	1.14	MG
12	1.12	MG
13	1.12	MG
14	1.12	MG
15	1.18	MG
16	1.24	MG
17	1.12	MG
18	1.08	MG
19	1.07	MG
20	1.08	MG
21	1.01	MG
22	1.13	MG
23	1.16	MG
24	1.06	MG
25	1.05	MG
26	1.13	MG
27	1.14	MG
28	1.12	MG
29	1.19	MG
30	1.2	MG

TOTAL	34.35	MILLION GALLONS
AVERAGE PER DAY	1.15	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: OCTOBER 2013

DATE		MILLION GALLONS PER DAY	
1		1.13	MG
2		1.13	MG
3		1.17	MG
4		1.17	MG
5		1.11	MG
6		1.18	MG
7		1.22	MG
8		1.16	MG
9		1.14	MG
10		1.13	MG
11		1.14	MG
12		1.1	MG
13		1.17	MG
14		1.22	MG
15		1.14	MG
16		1.1	MG
17		1.06	MG
18		1.09	MG
19		1.01	MG
20		1.09	MG
21		1.17	MG
22		1.09	MG
23		1.08	MG
24		1.06	MG
25		1.07	MG
26		1.04	MG
27		1.1	MG
28		1.13	MG
29		1.1	MG
30		1.07	MG
31		1.09	MG
	TOTAL	34.66	MILLION GALLONS
	AVERAGE PER DAY	1.12	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: NOVEMBER 2013

DATE	MILLION GALLONS	PER DAY
1	1.02	MG
2	1.08	MG
3	1.12	MG
4	1.24	MG
5	1.08	MG
6	1.08	MG
7	1.08	MG
8	1.08	MG
9	1.05	MG
10	1.1	MG
11	1.13	MG
12	1.19	MG
13	1.06	MG
14	1.07	MG
15	1.07	MG
16	1.03	MG
17	1.1	MG
18	1.18	MG
19	1.07	MG
20	1.06	MG
21	1.05	MG
22	1.03	MG
23	1.1	MG
24	1.07	MG
25	1.17	MG
26	1.05	MG
27	1.07	MG
28	1.2	MG
29	1.29	MG
30	1.03	MG

TOTAL	32.95	MILLION GALLONS
AVERAGE PER DAY	1.10	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR:DECEMBER 2013

DATE	MILLION GALLONS	PER DAY
1	1.13	MG
2	1.15	MG
3	1.07	MG
4	1.07	MG
5	1.05	MG
6	1.07	MG
7	1.01	MG
8	1.14	MG
9	1.19	MG
10	1.06	MG
11	1.09	MG
12	1.06	MG
13	1.09	MG
14	1.09	MG
15	1.12	MG
16	1.03	MG
17	1.06	MG
18	1.06	MG
19	1.05	MG
20	1.09	MG
21	1.04	MG
22	1.08	MG
23	1.08	MG
24	1.1	MG
25	1.09	MG
26	1.07	MG
27	1.02	MG
28	1.04	MG
29	1.05	MG
30	1.06	MG
31	1.09	MG
TOTAL	33.4	MILLION GALLONS
AVERAGE PER DAY	1.08	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: JANUARY 2014

DATE		MILLION GALLONS	PER DAY
1		1.15	MG
2		1	MG
3		1.08	MG
4		1.06	MG
5		1.09	MG
6		1.15	MG
7		1.06	MG
8		1.04	MG
9		1.05	MG
10		1.12	MG
11		1.02	MG
12		1.1	MG
13		1.19	MG
14		1.11	MG
15		1.13	MG
16		1.08	MG
17		1.15	MG
18		1.08	MG
19		1.12	MG
20		1.14	MG
21		1.21	MG
22		1.08	MG
23		1.09	MG
24		1.11	MG
25		1.05	MG
26		1.15	MG
27		1.22	MG
28		1.24	MG
29		1.03	MG
30		1.09	MG
31		1.1	MG
	TOTAL	34.29	MILLION GALLONS
	AVERAGE PER DAY	1.11	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: FEBUARY 2014

DATE	MILLION GALLONS	PER DAY
1	1.04	MG
2	1.15	MG
3	1.17	MG
4	1.1	MG
5	1.04	MG
6	1.08	MG
7	1.07	MG
8	1.03	MG
9	1.12	MG
10	1.14	MG
11	1.1	MG
12	1.06	MG
13	1.05	MG
14	1.06	MG
15	1.04	MG
16	1.11	MG
17	1.17	MG
18	1.17	MG
19	1.08	MG
20	1.06	MG
21	1.11	MG
22	1.04	MG
23	1.1	MG
24	1.17	MG
25	1.08	MG
26	1.08	MG
27	1.05	MG
28	1.1	MG

TOTAL	30.57	MILLION GALLONS
AVERAGE PER DAY	1.09	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: MARCH 2014

DATE	MILLION GALLONS	PER DAY
1	1.15	MG
2	1.22	MG
3	1.17	MG
4	1.12	MG
5	1.08	MG
6	1.07	MG
7	1.08	MG
8	1.09	MG
9	1.08	MG
10	1.16	MG
11	1.1	MG
12	1.08	MG
13	1.05	MG
14	1.21	MG
15	1	MG
16	1.03	MG
17	1.04	MG
18	1.17	MG
19	1.11	MG
20	1.05	MG
21	1.13	MG
22	1.07	MG
23	1.13	MG
24	1.19	MG
25	1.1	MG
26	1.03	MG
27	1.06	MG
28	1.11	MG
29	1.08	MG
30	1.09	MG
31	1.17	MG
TOTAL	34.22	MILLION GALLONS
AVERAGE PER DAY	1.10	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: APRIL 2014

DATE	MILLION GALLONS	PER DAY
1	1.11	MG
2	1.09	MG
3	1.1	MG
4	1.18	MG
5	1.02	MG
6	1.13	MG
7	1.18	MG
8	1.15	MG
9	1.11	MG
10	1.08	MG
11	1.11	MG
12	1.07	MG
13	1.1	MG
14	1.17	MG
15	1.12	MG
16	1.09	MG
17	1.11	MG
18	1.12	MG
19	1.12	MG
20	1.1	MG
21	1.12	MG
22	1.12	MG
23	1.08	MG
24	1.08	MG
25	1.09	MG
26	1.03	MG
27	1.11	MG
28	1	MG
29	1.11	MG
30	1.13	MG

TOTAL	33.13	MILLION GALLONS
AVERAGE PER DAY	1.10	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR:MAY 2014

DATE		MILLION GALLONS	PER DAY
1		1.07	MG
2		1.1	MG
3		1.1	MG
4		1.13	MG
5		1.17	MG
6		1.11	MG
7		1.1	MG
8		1.08	MG
9		1.15	MG
10		1.05	MG
11		1.08	MG
12		1.13	MG
13		1.14	MG
14		1.1	MG
15		1.14	MG
16		1.18	MG
17		1.1	MG
18		1.13	MG
19		1.22	MG
20		1.14	MG
21		1.16	MG
22		1.1	MG
23		1.1	MG
24		1.11	MG
25		1.16	MG
26		1.16	MG
27		1.27	MG
28		1.13	MG
29		1.14	MG
30		1.2	MG
31		1.09	MG
	TOTAL	35.04	MILLION GALLONS
	AVERAGE PER DAY	1.13	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR:JUNE 2014

DATE	MILLION GALLONS	PER DAY
1	1.2	MG
2	1.11	MG
3	1.16	MG
4	1.06	MG
5	1.12	MG
6	1.2	MG
7	1.23	MG
8	1	MG
9	1.13	MG
10	1.16	MG
11	1.11	MG
12	1.13	MG
13	1.1	MG
14	1.09	MG
15	1.18	MG
16	1.14	MG
17	1.14	MG
18	1.14	MG
19	1.06	MG
20	1.03	MG
21	1.06	MG
22	1.07	MG
23	1.12	MG
24	1.07	MG
25	1.06	MG
26	1.07	MG
27	1.06	MG
28	1.07	MG
29	1.08	MG
30	1.11	MG

TOTAL	33.26	MILLION GALLONS
AVERAGE PER DAY	1.11	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: JULY 2014

DATE		MILLION GALLONS	PER DAY
1		1.08	MG
2		1.05	MG
3		1.12	MG
4		1.02	MG
5		1.11	MG
6		1.07	MG
7		1.13	MG
8		1.09	MG
9		1.07	MG
10		1.06	MG
11		1.11	MG
12		1.07	MG
13		1.1	MG
14		1.14	MG
15		1.11	MG
16		1.13	MG
17		1.01	MG
18		1.1	MG
19		1.07	MG
20		1.1	MG
21		1.16	MG
22		1.09	MG
23		1.08	MG
24		1.09	MG
25		1.06	MG
26		1.06	MG
27		1.1	MG
28		1.13	MG
29		1.07	MG
30		1.05	MG
31		1.04	MG
	TOTAL	33.67	MILLION GALLONS
	AVERAGE PER DAY	1.09	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: AUGUST 2014

DATE		MILLION GALLONS	PER DAY
1		1.05	MG
2		1.09	MG
3		1.09	MG
4		1.08	MG
5		1.09	MG
6		1.06	MG
7		1.09	MG
8		1.09	MG
9		1.1	MG
10		1.11	MG
11		1.13	MG
12		1.09	MG
13		1.08	MG
14		1.05	MG
15		1.11	MG
16		1.01	MG
17		1.13	MG
18		1.15	MG
19		1.1	MG
20		1.07	MG
21		1.05	MG
22		1.24	MG
23		1.08	MG
24		1.01	MG
25		1.1	MG
26		1.07	MG
27		1.08	MG
28		1.07	MG
29		1.1	MG
30		1.04	MG
31		1.1	MG
	TOTAL	33.71	MILLION GALLONS
	AVERAGE PER DAY	1.09	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: SEPTEMBER 2014

DATE	MILLION GALLONS	PER DAY
1	1.11	MG
2	1.22	MG
3	1.03	MG
4	1.06	MG
5	1.03	MG
6	1.06	MG
7	1.11	MG
8	1.19	MG
9	1.09	MG
10	1.05	MG
11	1.06	MG
12	1.06	MG
13	1.06	MG
14	1.08	MG
15	1.18	MG
16	1.07	MG
17	1.06	MG
18	1.04	MG
19	1.04	MG
20	1.03	MG
21	1.07	MG
22	1.17	MG
23	1.07	MG
24	1.13	MG
25	1.06	MG
26	1.15	MG
27	1.05	MG
28	0.98	MG
29	1.08	MG
30	1.09	MG
		MG
TOTAL	32.48	MILLION GALLONS
AVERAGE PER DAY	1.08	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: October 2014

DATE	MILLION GALLONS PER DAY	
1	1.05	MG
2	1.04	MG
3	1.18	MG
4	1.07	MG
5	1.12	MG
6	1.16	MG
7	1.1	MG
8	1.11	MG
9	1.09	MG
10	1.09	MG
11	1.09	MG
12	1.12	MG
13	1.16	MG
14	1.14	MG
15	1.1	MG
16	1.04	MG
17	1.07	MG
18	1.06	MG
19	1.12	MG
20	1.17	MG
21	1.08	MG
22	1.06	MG
23	1.05	MG
24	1.11	MG
25	1.07	MG
26	1.09	MG
27	1.16	MG
28	1.11	MG
29	1.06	MG
30	1.05	MG
31	1.06	MG
TOTAL	33.98	MILLION GALLONS
AVERAGE PER DAY	1.10	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: November 2014

DATE	MILLION GALLONS	PER DAY
1	1.04	MG
2	1.04	MG
3	1.024	MG
4	1.06	MG
5	1.05	MG
6	1.1	MG
7	1.06	MG
8	1.11	MG
9	1.05	MG
10	1.22	MG
11	1.07	MG
12	1.14	MG
13	1.09	MG
14	1.07	MG
15	1.07	MG
16	1.11	MG
17	1.21	MG
18	1.1	MG
19	1.09	MG
20	1.05	MG
21	1.06	MG
22	1.07	MG
23	1.11	MG
24	1.13	MG
25	1.16	MG
26	1.27	MG
27	1.18	MG
28	1.15	MG
29	1.05	MG
30	1.03	MG

TOTAL	32.96	MILLION GALLONS
AVERAGE PER DAY	1.10	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: December 2014

DATE	MILLION GALLONS	PER DAY
1	1.18	MG
2	1.14	MG
3	1.13	MG
4	1.06	MG
5	1.13	MG
6	1.13	MG
7	1.16	MG
8	1.2	MG
9	1.12	MG
10	1.11	MG
11	1.09	MG
12	1.21	MG
13	1.14	MG
14	1.06	MG
15	1.16	MG
16	1.15	MG
17	1.1	MG
18	1.13	MG
19	1.09	MG
20	1.11	MG
21	1.14	MG
22	1.13	MG
23	1.12	MG
24	1.16	MG
25	1.16	MG
26	1.06	MG
27	1.16	MG
28	1.12	MG
29	1.13	MG
30	1.01	MG
31	1.03	MG
TOTAL	34.82	MILLION GALLONS
AVERAGE PER DAY	1.12	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: JANUARY 2015

DATE		MILLION GALLONS	PER DAY
1		1.18	MG
2		1.07	MG
3		1.13	MG
4		1.16	MG
5		1.19	MG
6		1.17	MG
7		1.11	MG
8		1.11	MG
9		1.16	MG
10		1.11	MG
11		1.12	MG
12		1.23	MG
13		1.15	MG
14		1.27	MG
15		1.14	MG
16		1.13	MG
17		1.12	MG
18		1.17	MG
19		1.13	MG
20		1.21	MG
21		1.14	MG
22		1.16	MG
23		1.15	MG
24		1.11	MG
25		1.21	MG
26		1.21	MG
27		1.12	MG
28		1.11	MG
29		1.2	MG
30		1.18	MG
31		1.15	MG
	TOTAL	35.80	MILLION GALLONS
	AVERAGE PER DAY	1.15	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: FEBUARY 2015

DATE	MILLION GALLONS PER DAY	
1	1.23	MG
2	1.25	MG
3	1.21	MG
4	1.21	MG
5	1.11	MG
6	1.11	MG
7	1.09	MG
8	1.11	MG
9	1.22	MG
10	1.11	MG
11	1.08	MG
12	1.13	MG
13	1.12	MG
14	1.08	MG
15	1.16	MG
16	1.21	MG
17	1.21	MG
18	1.14	MG
19	1.14	MG
20	1.11	MG
21	1.07	MG
22	1.21	MG
23	1.26	MG
24	1.19	MG
25	1.13	MG
26	1.17	MG
27	1.15	MG
28	1.16	MG

TOTAL	32.37	MILLION GALLONS
AVERAGE PER DAY	1.16	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: MARCH 2015

DATE	MILLION GALLONS	PER DAY
1	1.18	MG
2	1.23	MG
3	1.19	MG
4	1.16	MG
5	1.18	MG
6	1.16	MG
7	1.21	MG
8	1.21	MG
9	1.31	MG
10	1.06	MG
11	1.09	MG
12	1.05	MG
13	1.07	MG
14	1.07	MG
15	1.14	MG
16	1.21	MG
17	1.11	MG
18	1.12	MG
19	1.08	MG
20	1.11	MG
21	1.03	MG
22	1.15	MG
23	1.16	MG
24	1.11	MG
25	1.08	MG
26	1.08	MG
27	1.09	MG
28	1.11	MG
29	1.09	MG
30	1.12	MG
31	1.13	MG
TOTAL	35.09	MILLION GALLONS
AVERAGE PER DAY	1.13	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: APRIL 2015

DATE	MILLION GALLONS PER DAY	
1	1.1	MG
2	1.08	MG
3	1.15	MG
4	1.28	MG
5	1.26	MG
6	0.99	MG
7	1.05	MG
8	1.04	MG
9	1.07	MG
10	1.06	MG
11	1.02	MG
12	1.11	MG
13	1.12	MG
14	1.11	MG
15	1.05	MG
16	1.06	MG
17	1.06	MG
18	1.04	MG
19	1.09	MG
20	1.11	MG
21	1.08	MG
22	1.03	MG
23	1.09	MG
24	1.08	MG
25	1.06	MG
26	1.06	MG
27	1.18	MG
28	1.13	MG
29	1.12	MG
30	1.11	MG

TOTAL	32.79	MILLION GALLONS
AVERAGE PER DAY	1.09	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR:MAY 2015

DATE		MILLION GALLONS	PER DAY
1		1.11	MG
2		1.11	MG
3		1.06	MG
4		1.19	MG
5		1.14	MG
6		1.13	MG
7		1.12	MG
8		1.12	MG
9		1.11	MG
10		1.16	MG
11		1.18	MG
12		1.14	MG
13		1.11	MG
14		1.11	MG
15		1.12	MG
16		1.06	MG
17		1.16	MG
18		1.19	MG
19		1.13	MG
20		1.11	MG
21		1.08	MG
22		1.08	MG
23		1.07	MG
24		1.16	MG
25		1.11	MG
26		1.25	MG
27		1.03	MG
28		1.06	MG
29		1.09	MG
30		1.08	MG
31		1.21	MG
	TOTAL	34.78	MILLION GALLONS
	AVERAGE PER DAY	1.12	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR:JUNE 2015

DATE	MILLION GALLONS	PER DAY
1	1.18	MG
2	1.05	MG
3	1.03	MG
4	1.04	MG
5	1.02	MG
6	1.08	MG
7	1.05	MG
8	1.17	MG
9	1.11	MG
10	1.06	MG
11	1.09	MG
12	1.14	MG
13	1.07	MG
14	1.15	MG
15	1.18	MG
16	1.11	MG
17	1.1	MG
18	1.1	MG
19	1.1	MG
20	1.16	MG
21	1.13	MG
22	1.16	MG
23	1.15	MG
24	1.17	MG
25	1.13	MG
26	1.13	MG
27	1.11	MG
28	1.13	MG
29	1.09	MG
30	1.14	MG

TOTAL	33.33	MILLION GALLONS
AVERAGE PER DAY	1.11	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: JULY 2015

DATE		MILLION GALLONS	PER DAY
1		1.1	MG
2		1.08	MG
3		1.1	MG
4		1.15	MG
5		1.11	MG
6		1.12	MG
7		1.11	MG
8		1.1	MG
9		1.08	MG
10		1.11	MG
11		1.09	MG
12		1.13	MG
13		1.17	MG
14		1.14	MG
15		1.09	MG
16		1.1	MG
17		1.12	MG
18		1.04	MG
19		1.07	MG
20		1.1	MG
21		1.17	MG
22		1.15	MG
23		1.11	MG
24		1.02	MG
25		1.13	MG
26		1.19	MG
27		1.09	MG
28		1.08	MG
29		1.15	MG
30		1.17	MG
31		1.04	MG
	TOTAL	34.41	MILLION GALLONS
	AVERAGE PER DAY	1.11	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFLUENT SEWAGE REPORT
FOR: AUGUST 2015

DATE		MILLION GALLONS	PER DAY
1		1.09	MG
2		1.13	MG
3		1.18	MG
4		1.1	MG
5		1.1	MG
6		1.09	MG
7		1.1	MG
8		1.08	MG
9		1.11	MG
10		1.14	MG
11		1.07	MG
12		1.15	MG
13		1.13	MG
14		1.07	MG
15		1.09	MG
16		1.14	MG
17		1.24	MG
18		1.17	MG
19		1.04	MG
20		1.11	MG
21		1.3	MG
22		1.04	MG
23		1.07	MG
24		1.36	MG
25		1.18	MG
26		1.27	MG
27		1.19	MG
28		1.29	MG
29		1.23	MG
30		1.33	MG
31		1.19	MG
	TOTAL	35.78	MILLION GALLONS
	AVERAGE PER DAY	1.15	MILLION GALLONS

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: JANUARY 2016

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	0.384	mg	0.005	mg	0.5	mg	0.914	mgd
2	0.571	mg	0.002	mg	0.5	mg	1.064	mgd
3	0.626	mg	0	mg	0.5	mg	1.130	mgd
4	0.716	mg	0.017	mg	0.5	mg	1.203	mgd
5	0.634	mg	0.01	mg	0.5	mg	1.149	mgd
6	0.691	mg	0.018	mg	0.5	mg	1.210	mgd
7	0.711	mg	0.011	mg	0.5	mg	1.224	mgd
8	0.597	mg	0.021	mg	0.5	mg	1.138	mgd
9	0.568	mg	0.011	mg	0.5	mg	1.077	mgd
10	0.703	mg	0	mg	0.5	mg	1.159	mgd
11	0.711	mg	0.028	mg	0.5	mg	1.189	mgd
12	0.591	mg	0.037	mg	0.5	mg	1.132	mgd
13	0.552	mg	0.031	mg	0.5	mg	1.087	mgd
14	0.554	mg	0.025	mg	0.5	mg	1.088	mgd
15	0.559	mg	0.007	mg	0.5	mg	1.081	mgd
16	0.535	mg	0.01	mg	0.5	mg	1.068	mgd
17	0.597	mg	0	mg	0.5	mg	1.088	mgd
18	0.614	mg	0.014	mg	0.5	mg	1.140	mgd
19	0.662	mg	0.019	mg	0.5	mg	1.153	mgd
20	0.559	mg	0.026	mg	0.5	mg	1.091	mgd
21	0.545	mg	0.024	mg	0.6	mg	1.129	mgd
22	0.516	mg	0.022	mg	0.5	mg	1.003	mgd
23	0.508	mg	0.006	mg	0.5	mg	1.031	mgd
24	0.587	mg	0	mg	0.5	mg	1.129	mgd
25	0.681	mg	0.013	mg	0.4	mg	1.130	mgd
26	0.546	mg	0.011	mg	0.5	mg	1.058	mgd
27	0.524	mg	0.019	mg	0.5	mg	1.036	mgd
28	0.518	mg	0.023	mg	0.5	mg	1.039	mgd
29	0.578	mg	0.022	mg	0.5	mg	1.110	mgd
30	0.536	mg	0.014	mg	0.5	mg	1.071	mgd
31	0.604	mg	0		0.5	mg	1.098	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly Total mg Tertiary Treatmeant plant		Monthly Total mg To the Facilty	
18.278	mg	0.446	mg	15.495	mg	34.219	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average MG		Daily Average MGD To the Facilty	
18.724	MG	0.604	MG	0.500	MG	1.104	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: FEBUARY 2016

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	0.719	mg	0.02	mg	0.4	mg	1.148	mgd
2	0.571	mg	0.024	mg	0.6	mg	1.185	mgd
3	0.537	mg	0.014	mg	0.5	mg	1.055	mgd
4	0.501	mg	0.011	mg	0.5	mg	1.014	mgd
5	0.513	mg	0.019	mg	0.5	mg	1.036	mgd
6	0.491	mg	0.004	mg	0.5	mg	1.013	mgd
7	0.575	mg	0.005	mg	0.5	mg	1.066	mgd
8	0.673	mg	0.021	mg	0.5	mg	1.166	mgd
9	0.533	mg	0.021	mg	0.5	mg	1.058	mgd
10	0.518	mg	0.045	mg	0.5	mg	1.048	mgd
11	0.497	mg	0.032	mg	0.5	mg	1.030	mgd
12	0.531	mg	0.014	mg	0.5	mg	1.078	mgd
13	0.513	mg	0.015	mg	0.5	mg	1.021	mgd
14	0.563	mg	0	mg	0.4	mg	0.995	mgd
15	0.521	mg	0.021	mg	0.5	mg	1.042	mgd
16	0.609	mg	0.019	mg	0.5	mg	1.166	mgd
17	0.572	mg	0.025	mg	0.5	mg	1.094	mgd
18	0.697	mg	0.039	mg	0.4	mg	1.106	mgd
19	0.554	mg	0.013	mg	0.5	mg	1.072	mgd
20	0.606	mg	0.004	mg	0.5	mg	1.066	mgd
21	0.781	mg	0	mg	0.4	mg	1.148	mgd
22	0.845	mg	0.031	mg	0.3	mg	1.214	mgd
23	0.787	mg	0.015	mg	0.4	mg	1.228	mgd
24	0.564	mg	0.018	mg	0.5	mg	1.081	mgd
25	0.595	mg	0.013	mg	0.5	mg	1.122	mgd
26	0.573	mg	0.009	mg	0.5	mg	1.115	mgd
27	0.542	mg	0	mg	0.5	mg	1.018	mgd
28	0.614	mg	0	mg	0.5	mg	1.131	mgd
29	0.708	mg	0.022	mg	0.5	mg	1.210	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly Total mg Tertiary Treatmeant plant		Monthly Total mg To the Facilty	
17.303	mg	0.474	mg	13.949	mg	31.726	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average MG		Daily Average MGD To the Facilty	
17.777	MG	0.613	MG	0.481	MG	1.094	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: MARCH 2016

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	0.586	mg	0.38	mg	0.5	mg	1.468	mgd
2	0.575	mg	0.023	mg	0.5	mg	1.105	mgd
3	0.572	mg	0.009	mg	0.5	mg	1.083	mgd
4	0.557	mg	0.01	mg	0.5	mg	1.067	mgd
5	0.537	mg	0.019	mg	0.5	mg	1.070	mgd
6	0.629	mg	0	mg	0.5	mg	1.115	mgd
7	0.724	mg	0.008	mg	0.5	mg	1.252	mgd
8	0.599	mg	0.023	mg	0.5	mg	1.121	mgd
9	0.585	mg	0.015	mg	0.5	mg	1.124	mgd
10	0.558	mg	0.031	mg	0.6	mg	1.163	mgd
11	0.626	mg	0.028	mg	0.5	mg	1.140	mgd
12	0.534	mg	0.013	mg	0.5	mg	1.015	mgd
13	0.589	mg	0	mg	0.5	mg	1.112	mgd
14	0.678	mg	0.009	mg	0.5	mg	1.146	mgd
15	0.652	mg	0.01	mg	0.5	mg	1.177	mgd
16	0.603	mg	0.015	mg	0.5	mg	1.136	mgd
17	0.547	mg	0.032	mg	0.5	mg	1.044	mgd
18	0.602	mg	0.025	mg	0.5	mg	1.116	mgd
19	0.623	mg	0.009	mg	0.5	mg	1.163	mgd
20	0.615	mg	0.002	mg	0.5	mg	1.113	mgd
21	0.738	mg	0.013	mg	0.3	mg	1.091	mgd
22	0.631	mg	0.022	mg	0.5	mg	1.160	mgd
23	0.725	mg	0.017	mg	0.4	mg	1.092	mgd
24	0.703	mg	0.012	mg	0.4	mg	1.115	mgd
25	0.764	mg	0.018	mg	0.4	mg	1.159	mgd
26	0.653	mg	0.006	mg	0.5	mg	1.156	mgd
27	0.689	mg	0	mg	0.4	mg	1.058	mgd
28	0.738	mg	0.009	mg	0.4	mg	1.119	mgd
29	0.737	mg	0.028	mg	0.4	mg	1.199	mgd
30	0.707	mg	0.014	mg	0.4	mg	1.155	mgd
31	0.721	mg	0.028		0.4	mg	1.154	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly Total mg Tertiary Treatmeant plant		Monthly Total mg To the Facilty	
19.797	mg	0.828	mg	14.563	mg	35.188	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average MG		Daily Average MGD To the Facilty	
20.625	MG	0.665	MG	0.470	MG	1.135	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: April 2016

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	0.732	mg	0.025	mg	0.4	mg	1.108	mgd
2	0.721	mg	0.003	mg	0.4	mg	1.131	mgd
3	0.653	mg	0.002	mg	0.4	mg	1.061	mgd
4	0.781	mg	0.016	mg	0.4	mg	1.224	mgd
5	0.682	mg	0.016	mg	0.4	mg	1.121	mgd
6	0.671	mg	0.033	mg	0.5	mg	1.157	mgd
7	0.661	mg	0.031	mg	0.4	mg	1.127	mgd
8	0.641	mg	0.031	mg	0.4	mg	1.105	mgd
9	0.625	mg	0.006	mg	0.4	mg	1.080	mgd
10	0.648	mg	0	mg	0.4	mg	1.047	mgd
11	0.793	mg	0.019	mg	0.4	mg	1.248	mgd
12	0.638	mg	0.022	mg	0.5	mg	1.133	mgd
13	0.621	mg	0.024	mg	0.5	mg	1.104	mgd
14	0.641	mg	0.023	mg	0.4	mg	1.087	mgd
15	0.658	mg	0.015	mg	0.4	mg	1.094	mgd
16	0.621	mg	0.006	mg	0.4	mg	1.043	mgd
17	0.632	mg	0	mg	0.4	mg	1.022	mgd
18	0.758	mg	0.018	mg	0.4	mg	1.197	mgd
19	1.638	mg	0.02	mg		mg	1.658	mgd
20	1.053	mg	0.034	mg		mg	1.087	mgd
21	1.096	mg	0.036	mg		mg	1.132	mgd
22	1.046	mg	0.016	mg		mg	1.062	mgd
23	1.052	mg	0.012	mg		mg	1.064	mgd
24	1.074	mg	0	mg		mg	1.074	mgd
25	1.161	mg	0.019	mg		mg	1.180	mgd
26	1.115	mg	0.024	mg		mg	1.139	mgd
27	1.038	mg	0.021	mg		mg	1.059	mgd
28	1.084	mg	0.011	mg		mg	1.095	mgd
29	1.033	mg	0.011	mg		mg	1.044	mgd
30	1.042	mg	0.01	mg		mg	1.052	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly Total mg Tertiary Treatmeant plant		Monthly Total mg To the Facilty	
25.609	mg	0.504	mg	7.622	mg	33.735	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average MG		Daily Average MGD To the Facilty	
26.113	MG	0.870	MG	0.254	MG	1.125	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: May 2016

Date	Influent Flow to Evaporation pond	Flow from Septage hauler to ponds	Flow to Tertiary Treatmeant plant	Total flow To the Facilty
1	1.102 mg	0 mg	0.0 mg	1.102 mgd
2	1.118 mg	0.019 mg	0.0 mg	1.137 mgd
3	1.086 mg	0.011 mg	0.0 mg	1.097 mgd
4	1.101 mg	0.044 mg	0.0 mg	1.145 mgd
5	1.002 mg	0.022 mg	0.0 mg	1.024 mgd
6	1.112 mg	0.019 mg	0.0 mg	1.131 mgd
7	1.054 mg	0.011 mg	0.0 mg	1.065 mgd
8	1.098 mg	0 mg	0.0 mg	1.098 mgd
9	1.036 mg	0.02 mg	0.0 mg	1.056 mgd
10	1.102 mg	0.016 mg	0.0 mg	1.118 mgd
11	1.142 mg	0.025 mg	0.0 mg	1.167 mgd
12	1.004 mg	0.053 mg	0.0 mg	1.057 mgd
13	1.071 mg	0.018 mg	0.0 mg	1.089 mgd
14	1.108 mg	0.002 mg	0.0 mg	1.110 mgd
15	1.085 mg	0 mg	0.0 mg	1.085 mgd
16	1.102 mg	0.018 mg	0.0 mg	1.120 mgd
17	1.071 mg	0.027 mg	0.0 mg	1.098 mgd
18	1.064 mg	0.009 mg	0.0 mg	1.073 mgd
19	1.051 mg	0.028 mg	0.0 mg	1.079 mgd
20	1.074 mg	0.017 mg	0.0 mg	1.091 mgd
21	1.025 mg	0.006 mg	0.0 mg	1.031 mgd
22	1.038 mg	0 mg	0.0 mg	1.038 mgd
23	1.118 mg	0.021 mg	0.0 mg	1.139 mgd
24	1.073 mg	0.011 mg	0.0 mg	1.084 mgd
25	1.073 mg	0.039 mg	0.0 mg	1.112 mgd
26	1.053 mg	0.037 mg	0.0 mg	1.090 mgd
27	1.069 mg	0.021 mg	0.0 mg	1.090 mgd
28	1.072 mg	0.013 mg	0.0 mg	1.085 mgd
29	1.085 mg	0 mg	0.0 mg	1.085 mgd
30	1.053 mg	0.001 mg	0.0 mg	1.054 mgd
31	1.035 mg	0.001 mg	0.0 mg	1.036 mgd

Monthly Total mg influent to Evaporation pond	Monthly Total mg From Septage hauler	Monthly Total mg Tertiary Treatmeant plant	Monthly Total mg To the Facilty
33.277 mg	0.509 mg	0 mg	33.786 mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler	Daily Average MG to Evaporation pond Infuent & Septage hauler	Daily Average MG	Daily Average MGD To the Facilty
33.786 MG	1.090 MG	0.000 MG	1.090 MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR:June 2016

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	0.880	mg	0.036	mg	0.0	mg	0.916	mgd
2	0.970	mg	0.042	mg	0.0	mg	1.012	mgd
3	1.060	mg	0.02	mg	0.0	mg	1.080	mgd
4	1.056	mg	0	mg	0.0	mg	1.056	mgd
5	1.072	mg	0	mg	0.0	mg	1.072	mgd
6	1.143	mg	0.026	mg	0.0	mg	1.169	mgd
7	1.073	mg	0.03	mg	0.0	mg	1.103	mgd
8	1.058	mg	0.015	mg	0.0	mg	1.073	mgd
9	1.035	mg	0.023	mg	0.0	mg	1.058	mgd
10	1.089	mg	0.021	mg	0.0	mg	1.110	mgd
11	1.041	mg	0.004	mg	0.0	mg	1.045	mgd
12	1.056	mg	0.013	mg	0.0	mg	1.069	mgd
13	1.078	mg	0.005	mg	0.0	mg	1.083	mgd
14	1.067	mg	0.017	mg	0.0	mg	1.084	mgd
15	1.054	mg	0.029	mg	0.0	mg	1.083	mgd
16	1.031	mg	0.025	mg	0.0	mg	1.056	mgd
17	1.051	mg	0.037	mg	0.0	mg	1.088	mgd
18	1.064	mg	0.006	mg	0.0	mg	1.070	mgd
19	1.051	mg	0.001	mg	0.0	mg	1.052	mgd
20	1.102	mg	0.009	mg	0.0	mg	1.111	mgd
21	1.100	mg	0.027	mg	0.0	mg	1.127	mgd
22	1.021	mg	0.015	mg	0.0	mg	1.036	mgd
23	1.056	mg	0.007	mg	0.0	mg	1.063	mgd
24	1.047	mg	0.01	mg	0.0	mg	1.057	mgd
25	1.059	mg	0	mg	0.0	mg	1.059	mgd
26	1.068	mg	0.005	mg	0.0	mg	1.073	mgd
27	1.122	mg	0.005	mg	0.0	mg	1.127	mgd
28	1.173	mg	0.008	mg	0.0	mg	1.181	mgd
29	1.035	mg	0.039	mg	0.0	mg	1.074	mgd
30	1.055	mg	0.014	mg	0.0	mg	1.069	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly Total mg Tertiary Treatmeant plant		Monthly Total mg To the Facilty	
31.767	mg	0.489	mg	0	mg	32.256	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average MG		Daily Average MGD To the Facilty	
32.256	MG	1.075	MG	0.000	MG	1.075	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: July 2016

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.026	mg	0.015	mg	0.0	mg	1.041	mgd
2	1.032	mg	0.002	mg	0.0	mg	1.034	mgd
3	1.054	mg	0.002	mg	0.0	mg	1.056	mgd
4	1.091	mg	0.001	mg	0.0	mg	1.092	mgd
5	1.084	mg	0.027	mg	0.0	mg	1.111	mgd
6	1.049	mg	0.017	mg	0.0	mg	1.066	mgd
7	1.084	mg	0.016	mg	0.0	mg	1.100	mgd
8	1.013	mg	0.019	mg	0.0	mg	1.032	mgd
9	1.117	mg	0.024	mg	0.0	mg	1.141	mgd
10	0.980	mg	0.002	mg	0.0	mg	0.982	mgd
11	1.010	mg	0.012	mg	0.0	mg	1.022	mgd
12	0.920	mg	0.016	mg	0.0	mg	0.936	mgd
13	1.018	mg	0.032	mg	0.0	mg	1.050	mgd
14	0.980	mg	0.028	mg	0.0	mg	1.008	mgd
15	1.173	mg	0.008	mg	0.0	mg	1.181	mgd
16	1.057	mg	0.009	mg	0.0	mg	1.066	mgd
17	1.031	mg	0.002	mg	0.0	mg	1.033	mgd
18	1.095	mg	0.021	mg	0.0	mg	1.116	mgd
19	1.069	mg	0.016	mg	0.0	mg	1.085	mgd
20	1.047	mg	0.022	mg	0.0	mg	1.069	mgd
21	1.059	mg	0.023	mg	0.0	mg	1.082	mgd
22	1.035	mg	0.032	mg	0.0	mg	1.067	mgd
23	1.072	mg	0.002	mg	0.0	mg	1.074	mgd
24	1.032	mg	0	mg	0.0	mg	1.032	mgd
25	1.104	mg	0.025	mg	0.0	mg	1.129	mgd
26	1.053	mg	0.008	mg	0.0	mg	1.061	mgd
27	1.046	mg	0.017	mg	0.0	mg	1.063	mgd
28	1.052	mg	0.011	mg	0.0	mg	1.063	mgd
29	1.037	mg	0.005	mg	0.0	mg	1.042	mgd
30	1.042	mg	0.006	mg	0.0	mg	1.048	mgd
31	1.056	mg	0.003		0.0	mg	1.059	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly Total mg Tertiary Treatmeant plant		Monthly Total mg To the Facilty	
32.518	mg	0.423	mg	0	mg	32.941	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average MG		Daily Average MGD To the Facilty	
32.941	MG	1.063	MG	0.000	MG	1.063	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: August 2016

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.081	mg	0.026	mg	0.0	mg	1.107	mgd
2	1.112	mg	0.013	mg	0.0	mg	1.125	mgd
3	1.072	mg	0.032	mg	0.0	mg	1.104	mgd
4	1.126	mg	0.031	mg	0.0	mg	1.157	mgd
5	1.067	mg	0.011	mg	0.0	mg	1.078	mgd
6	1.032	mg	0	mg	0.0	mg	1.032	mgd
7	1.051	mg	0.002	mg	0.0	mg	1.053	mgd
8	1.152	mg	0.03	mg	0.0	mg	1.182	mgd
9	1.101	mg	0.012	mg	0.0	mg	1.113	mgd
10	1.053	mg	0.035	mg	0.0	mg	1.088	mgd
11	1.010	mg	0.026	mg	0.0	mg	1.036	mgd
12	1.109	mg	0.008	mg	0.0	mg	1.117	mgd
13	1.111	mg	0	mg	0.0	mg	1.111	mgd
14	1.093	mg	0	mg	0.0	mg	1.093	mgd
15	0.968	mg	0.013	mg	0.0	mg	0.981	mgd
16	1.255	mg	0.016	mg	0.0	mg	1.271	mgd
17	0.987	mg	0.016	mg	0.0	mg	1.003	mgd
18	1.017	mg	0.019	mg	0.0	mg	1.036	mgd
19	1.137	mg	0.013	mg	0.0	mg	1.150	mgd
20	0.971	mg	0.002	mg	0.0	mg	0.973	mgd
21	1.207	mg	0.004	mg	0.0	mg	1.211	mgd
22	1.017	mg	0.016	mg	0.0	mg	1.033	mgd
23	1.052	mg	0.005	mg	0.0	mg	1.057	mgd
24	1.761	mg	0.01	mg	0.0	mg	1.771	mgd
25	1.019	mg	0.034	mg	0.0	mg	1.053	mgd
26	1.126	mg	0.034	mg	0.0	mg	1.160	mgd
27	1.089	mg	0.004	mg	0.0	mg	1.093	mgd
28	1.142	mg	0	mg	0.0	mg	1.142	mgd
29	1.057	mg	0.002	mg	0.0	mg	1.059	mgd
30	1.151	mg	0.017	mg	0.0	mg	1.168	mgd
31	1.096	mg	0.014	mg	0.0	mg	1.110	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly Total mg Tertiary Treatmeant plant		Monthly Total mg To the Facilty	
34.2221	mg	0.445	mg	0	mg	34.6671	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average MG		Daily Average MGD To the Facilty	
34.6671	MG	1.118	MG	0.000	MG	1.118	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: September 2016

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.091	mg	0.01	mg	0.0	mg	1.101	mgd
2	1.051	mg	0.012	mg	0.0	mg	1.063	mgd
3	1.057	mg	0.003	mg	0.0	mg	1.060	mgd
4	1.098	mg	0.008	mg	0.0	mg	1.106	mgd
5	1.064	mg	0.006	mg	0.0	mg	1.070	mgd
6	1.191	mg	0.002	mg	0.0	mg	1.193	mgd
7	1.092	mg	0.029	mg	0.0	mg	1.121	mgd
8	1.071	mg	0.045	mg	0.0	mg	1.116	mgd
9	1.184	mg	0.02	mg	0.0	mg	1.204	mgd
10	1.033	mg	0.007	mg	0.0	mg	1.040	mgd
11	1.045	mg	0.002	mg	0.0	mg	1.047	mgd
12	1.197	mg	0.023	mg	0.0	mg	1.220	mgd
13	1.108	mg	0.009	mg	0.0	mg	1.117	mgd
14	1.127	mg	0.015	mg	0.0	mg	1.142	mgd
15	1.075	mg	0.017	mg	0.0	mg	1.092	mgd
16	1.088	mg	0.011	mg	0.0	mg	1.099	mgd
17	1.099	mg	0.003	mg	0.0	mg	1.102	mgd
18	1.168	mg	0.004	mg	0.0	mg	1.172	mgd
19	1.205	mg	0.011	mg	0.0	mg	1.216	mgd
20	1.198	mg	0.013	mg	0.0	mg	1.211	mgd
21	1.032	mg	0.031	mg	0.0	mg	1.063	mgd
22	1.115	mg	0.022	mg	0.0	mg	1.137	mgd
23	1.156	mg	0.022	mg	0.0	mg	1.178	mgd
24	1.057	mg	0.004	mg	0.0	mg	1.061	mgd
25	1.089	mg	0.003	mg	0.0	mg	1.092	mgd
26	1.156	mg	0.007	mg	0.0	mg	1.163	mgd
27	1.099	mg	0.005	mg	0.0	mg	1.104	mgd
28	1.057	mg	0.015	mg	0.0	mg	1.072	mgd
29	1.109	mg	0.006	mg	0.0	mg	1.115	mgd
30	1.113	mg	0.009	mg	0.0	mg	1.122	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly Total mg Tertiary Treatmeant plant		Monthly Total mg To the Facilty	
33.225	mg	0.374	mg	0	mg	33.599	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average MG		Daily Average MGD To the Facilty	
33.599	MG	1.120	MG	0.000	MG	1.120	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: October 2016

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.080	mg	0.023	mg	0.0	mg	1.103	mgd
2	1.110	mg	0.009	mg	0.0	mg	1.119	mgd
3	1.150	mg	0.015	mg	0.0	mg	1.165	mgd
4	1.096	mg	0.017	mg	0.0	mg	1.113	mgd
5	1.062	mg	0.011	mg	0.0	mg	1.073	mgd
6	1.071	mg	0.003	mg	0.0	mg	1.074	mgd
7	1.089	mg	0	mg	0.0	mg	1.089	mgd
8	1.061	mg	0.002	mg	0.0	mg	1.063	mgd
9	1.056	mg	0.03	mg	0.0	mg	1.086	mgd
10	1.119	mg	0.012	mg	0.0	mg	1.131	mgd
11	1.129	mg	0.035	mg	0.0	mg	1.164	mgd
12	1.077	mg	0.026	mg	0.0	mg	1.103	mgd
13	1.095	mg	0.008	mg	0.0	mg	1.103	mgd
14	1.095	mg	0	mg	0.0	mg	1.095	mgd
15	1.091	mg	0	mg	0.0	mg	1.091	mgd
16	1.088	mg	0.004	mg	0.0	mg	1.092	mgd
17	1.153	mg	0.011	mg	0.0	mg	1.164	mgd
18	1.095	mg	0.013	mg	0.0	mg	1.108	mgd
19	1.073	mg	0.031	mg	0.0	mg	1.104	mgd
20	1.032	mg	0.022	mg	0.0	mg	1.054	mgd
21	1.051	mg	0.022	mg	0.0	mg	1.073	mgd
22	1.069	mg	0.004	mg	0.0	mg	1.073	mgd
23	1.062	mg	0.016	mg	0.0	mg	1.078	mgd
24	1.179	mg	0.005	mg	0.0	mg	1.184	mgd
25	1.122	mg	0.01	mg	0.0	mg	1.132	mgd
26	1.084	mg	0.034	mg	0.0	mg	1.118	mgd
27	1.074	mg	0.034	mg	0.0	mg	1.108	mgd
28	1.063	mg	0.004	mg	0.0	mg	1.067	mgd
29	1.054	mg	0	mg	0.0	mg	1.054	mgd
30	1.145	mg	0.002	mg	0.0	mg	1.147	mgd
31	1.122	mg	0.017		0.0	mg	1.139	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly Total mg Tertiary Treatmeant plant		Monthly Total mg To the Facilty	
33.847	mg	0.42	mg	0	mg	34.267	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average MG		Daily Average MGD To the Facilty	
34.267	MG	1.105	MG	0.000	MG	1.105	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR:November 2016

Date	Influent Flow to Evaporation pond	Flow from Septage hauler to ponds	Flow to Tertiary Treatmeant plant	Total flow To the Facilty
1	1.026 mg	0.024 mg	0.0 mg	1.050 mgd
2	1.047 mg	0.002 mg	0.0 mg	1.049 mgd
3	1.068 mg	0.012 mg	0.0 mg	1.080 mgd
4	1.081 mg	0.016 mg	0.0 mg	1.097 mgd
5	1.013 mg	0.032 mg	0.0 mg	1.045 mgd
6	1.088 mg	0.028 mg	0.0 mg	1.116 mgd
7	1.189 mg	0.008 mg	0.0 mg	1.197 mgd
8	1.079 mg	0.009 mg	0.0 mg	1.088 mgd
9	1.051 mg	0.002 mg	0.0 mg	1.053 mgd
10	1.023 mg	0.021 mg	0.0 mg	1.044 mgd
11	1.018 mg	0.016 mg	0.0 mg	1.034 mgd
12	1.066 mg	0.022 mg	0.0 mg	1.088 mgd
13	1.026 mg	0.023 mg	0.0 mg	1.049 mgd
14	1.037 mg	0.021 mg	0.0 mg	1.058 mgd
15	1.049 mg	0.004 mg	0.0 mg	1.053 mgd
16	1.032 mg	0.013 mg	0.0 mg	1.045 mgd
17	1.023 mg	0.005 mg	0.0 mg	1.028 mgd
18	1.063 mg	0.017 mg	0.0 mg	1.080 mgd
19	1.042 mg	0.029 mg	0.0 mg	1.071 mgd
20	1.067 mg	0.025 mg	0.0 mg	1.092 mgd
21	1.010 mg	0.037 mg	0.0 mg	1.047 mgd
22	1.033 mg	0.006 mg	0.0 mg	1.039 mgd
23	1.085 mg	0.001 mg	0.0 mg	1.086 mgd
24	1.123 mg	0.009 mg	0.0 mg	1.132 mgd
25	1.114 mg	0.027 mg	0.0 mg	1.141 mgd
26	1.101 mg	0.015 mg	0.0 mg	1.116 mgd
27	1.095 mg	0.007 mg	0.0 mg	1.102 mgd
28	1.163 mg	0.01 mg	0.0 mg	1.173 mgd
29	1.044 mg	0 mg	0.0 mg	1.044 mgd
30	1.029 mg	0 mg	0.0 mg	1.029 mgd

Monthly Total mg influent to Evaporation pond	Monthly Total mg From Septage hauler	Monthly Total mg Tertiary Treatmeant plant	Monthly Total mg To the Facilty
31.885 mg	0.441 mg	0 mg	32.326 mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler	Daily Average MG to Evaporation pond Infuent & Septage hauler	Daily Average MG	Daily Average MGD To the Facilty
32.326 MG	1.078 MG	0.000 MG	1.078 MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR:December 2016

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.024	mg	0.021	mg	0.0	mg	1.045	mgd
2	1.033	mg	0.021	mg	0.0	mg	1.054	mgd
3	1.001	mg	0.045	mg	0.0	mg	1.046	mgd
4	1.072	mg	0.032	mg	0.0	mg	1.104	mgd
5	1.173	mg	0.014	mg	0.0	mg	1.187	mgd
6	1.055	mg	0.015	mg	0.0	mg	1.070	mgd
7	1.037	mg	0.013	mg	0.0	mg	1.050	mgd
8	1.032	mg	0.022	mg	0.0	mg	1.054	mgd
9	1.041	mg	0.017	mg	0.0	mg	1.058	mgd
10	1.037	mg	0.012	mg	0.0	mg	1.049	mgd
11	1.072	mg	0.018	mg	0.0	mg	1.090	mgd
12	1.199	mg	0.006	mg	0.0	mg	1.205	mgd
13	1.057	mg	0	mg	0.0	mg	1.057	mgd
14	1.055	mg	0.009	mg	0.0	mg	1.064	mgd
15	1.058	mg	0.028	mg	0.0	mg	1.086	mgd
16	1.056	mg	0.014	mg	0.0	mg	1.070	mgd
17	1.065	mg	0.028	mg	0.0	mg	1.093	mgd
18	1.108	mg	0.029	mg	0.0	mg	1.137	mgd
19	1.101	mg	0.025	mg	0.0	mg	1.126	mgd
20	1.061	mg	0.037	mg	0.0	mg	1.098	mgd
21	1.053	mg	0.008	mg	0.0	mg	1.061	mgd
22	1.043	mg	0.023	mg	0.0	mg	1.066	mgd
23	1.127	mg	0.015	mg	0.0	mg	1.142	mgd
24	1.156	mg	0.031	mg	0.0	mg	1.187	mgd
25	1.212	mg	0.028	mg	0.0	mg	1.240	mgd
26	1.089	mg	0.013	mg	0.0	mg	1.102	mgd
27	1.072	mg	0	mg	0.0	mg	1.072	mgd
28	1.103	mg	0	mg	0.0	mg	1.103	mgd
29	1.143	mg	0	mg	0.0	mg	1.143	mgd
30	1.024	mg	0	mg	0.0	mg	1.024	mgd
31	1.071	mg	0		0.0	mg	1.071	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly Total mg Tertiary Treatmeant plant		Monthly Total mg To the Facilty	
33.43	mg	0.524	mg	0	mg	33.954	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average MG		Daily Average MGD To the Facilty	
33.954	MG	1.095	MG	0.000	MG	1.095	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: JANUARY 2017

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.163	mg	0	mg	0.0	mg	1.163	mgd
2	1.018	mg	0.026	mg	0.0	mg	1.044	mgd
3	1.163	mg	0.013	mg	0.0	mg	1.176	mgd
4	1.071	mg	0.032	mg	0.0	mg	1.103	mgd
5	1.074	mg	0.031	mg	0.0	mg	1.105	mgd
6	1.033	mg	0.011	mg	0.0	mg	1.044	mgd
7	1.101	mg	0	mg	0.0	mg	1.101	mgd
8	1.062	mg	0.002	mg	0.0	mg	1.064	mgd
9	1.206	mg	0.03	mg	0.0	mg	1.236	mgd
10	1.045	mg	0.012	mg	0.0	mg	1.057	mgd
11	1.051	mg	0.035	mg	0.0	mg	1.086	mgd
12	1.045	mg	0.026	mg	0.0	mg	1.071	mgd
13	1.041	mg	0.008	mg	0.0	mg	1.049	mgd
14	1.068	mg	0	mg	0.0	mg	1.068	mgd
15	1.081	mg	0	mg	0.0	mg	1.081	mgd
16	1.097	mg	0.026	mg	0.0	mg	1.123	mgd
17	1.118	mg	0.03	mg	0.0	mg	1.148	mgd
18	1.054	mg	0.015	mg	0.0	mg	1.069	mgd
19	1.038	mg	0.023	mg	0.0	mg	1.061	mgd
20	1.021	mg	0.021	mg	0.0	mg	1.042	mgd
21	1.095	mg	0.004	mg	0.0	mg	1.099	mgd
22	1.135	mg	0.013	mg	0.0	mg	1.148	mgd
23	1.221	mg	0.005	mg	0.0	mg	1.226	mgd
24	1.111	mg	0.017	mg	0.0	mg	1.128	mgd
25	1.084	mg	0.029	mg	0.0	mg	1.113	mgd
26	1.096	mg	0.025	mg	0.0	mg	1.121	mgd
27	1.091	mg	0.018	mg	0.0	mg	1.109	mgd
28	1.111	mg	0.027	mg	0.0	mg	1.138	mgd
29	1.131	mg	0.009	mg	0.0	mg	1.140	mgd
30	1.171	mg	0.028	mg	0.0	mg	1.199	mgd
31	1.097	mg	0.017		0.0	mg	1.114	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly plant		Monthly Total mg To the Facilty	
33.8925	mg	0.533	mg	0	mg	34.4255	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average		Daily Average MGD To the Facilty	
34.4255	MG	1.111	MG	0.000	MG	1.111	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: FEBUARY 2017

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.056	mg	0.005	mg	0.0	mg	1.061	mgd
2	1.057	mg	0.017	mg	0.0	mg	1.074	mgd
3	1.082	mg	0.029	mg	0.0	mg	1.111	mgd
4	1.051	mg	0.025	mg	0.0	mg	1.076	mgd
5	1.161	mg	0.037	mg	0.0	mg	1.198	mgd
6	1.155	mg	0.006	mg	0.0	mg	1.161	mgd
7	1.088	mg	0.001	mg	0.0	mg	1.089	mgd
8	1.069	mg	0.009	mg	0.0	mg	1.078	mgd
9	1.044	mg	0.027	mg	0.0	mg	1.071	mgd
10	1.112	mg	0.015	mg	0.0	mg	1.127	mgd
11	1.034	mg	0.007	mg	0.0	mg	1.041	mgd
12	1.061	mg	0	mg	0.0	mg	1.061	mgd
13	1.057	mg	0.002	mg	0.0	mg	1.059	mgd
14	1.055	mg	0.03	mg	0.0	mg	1.085	mgd
15	1.038	mg	0.012	mg	0.0	mg	1.050	mgd
16	1.041	mg	0.035	mg	0.0	mg	1.076	mgd
17	1.062	mg	0.026	mg	0.0	mg	1.088	mgd
18	1.339	mg	0.008	mg	0.0	mg	1.347	mgd
19	1.131	mg	0	mg	0.0	mg	1.131	mgd
20	1.343	mg	0	mg	0.0	mg	1.343	mgd
21	1.197	mg	0.025	mg	0.0	mg	1.222	mgd
22	1.054	mg	0.008	mg	0.0	mg	1.062	mgd
23	1.026	mg	0.017	mg	0.0	mg	1.043	mgd
24	1.063	mg	0.011	mg	0.0	mg	1.074	mgd
25	1.042	mg	0.005	mg	0.0	mg	1.047	mgd
26	1.013	mg	0	mg	0.0	mg	1.013	mgd
27	1.189	mg	0	mg	0.0	mg	1.189	mgd
28	1.081	mg	0.021	mg	0.0	mg	1.102	mgd
	0.000	mg	0	mg	0.0	mg	0.000	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Total mg plant		Monthly Total mg To the Facilty	
30.7006	mg	0.378	mg	0	mg	31.0786	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		MG		Daily Average MGD To the Facilty	
31.0786	MG	1.110	MG	0.000	MG	1.110	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: MARCH 2017

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.048	mg	0	mg	0.0	mg	1.048	mgd
2	1.071	mg	0.021	mg	0.0	mg	1.092	mgd
3	1.115	mg	0.011	mg	0.0	mg	1.126	mgd
4	1.034	mg	0.039	mg	0.0	mg	1.073	mgd
5	1.132	mg	0.037	mg	0.0	mg	1.169	mgd
6	1.193	mg	0.021	mg	0.0	mg	1.214	mgd
7	1.101	mg	0.013	mg	0.0	mg	1.114	mgd
8	1.067	mg	0	mg	0.0	mg	1.067	mgd
9	1.076	mg	0	mg	0.0	mg	1.076	mgd
10	1.092	mg	0.016	mg	0.0	mg	1.108	mgd
11	1.066	mg	0.033	mg	0.0	mg	1.099	mgd
12	1.076	mg	0.031	mg	0.0	mg	1.107	mgd
13	1.227	mg	0.031	mg	0.0	mg	1.258	mgd
14	1.082	mg	0.006	mg	0.0	mg	1.088	mgd
15	1.081	mg	0	mg	0.0	mg	1.081	mgd
16	1.055	mg	0	mg	0.0	mg	1.055	mgd
17	1.103	mg	0.02	mg	0.0	mg	1.123	mgd
18	1.033	mg	0.034	mg	0.0	mg	1.067	mgd
19	1.072	mg	0.036	mg	0.0	mg	1.108	mgd
20	1.188	mg	0.016	mg	0.0	mg	1.204	mgd
21	1.063	mg	0.012	mg	0.0	mg	1.075	mgd
22	1.015	mg	0	mg	0.0	mg	1.015	mgd
23	1.042	mg	0.011	mg	0.0	mg	1.053	mgd
24	1.059	mg	0.057	mg	0.0	mg	1.116	mgd
25	1.035	mg	0.023	mg	0.0	mg	1.058	mgd
26	1.148	mg	0.019	mg	0.0	mg	1.167	mgd
27	1.127	mg	0.045	mg	0.0	mg	1.172	mgd
28	1.094	mg	0	mg	0.0	mg	1.094	mgd
29	1.096	mg	0.032	mg	0.0	mg	1.128	mgd
30	1.044	mg	0.011	mg	0.0	mg	1.055	mgd
31	0.000	mg	0.036		0.0	mg	0.036	mgd
	Monthly Total mg influent to Evaporation pond		**Monthly Total mg From Septage hauler**		**Total mg** plant		**Monthly Total mg To the Facilty**	
	32.635	mg	0.611	mg	0	mg	33.246	mg
	Monthly Total mg to Evaporation pond Infuent & Septage hauler		**Daily Average MG to Evaporation pond Infuent & Septage hauler**		**MG**		**Daily Average MGD To the Facilty**	
	33.246	MG	1.072	MG	0.000	MG	1.072	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: April 2017

Date	Influent Flow to Evaporation pond	Flow from Septage hauler to ponds	Flow to Tertiary Treatmeant plant	Total flow To the Facilty
1	1.064 mg	0.0067 mg	0.0 mg	1.071 mgd
2	1.108 mg	0 mg	0.0 mg	1.108 mgd
3	1.185 mg	0.018 mg	0.0 mg	1.203 mgd
4	1.071 mg	0.029 mg	0.0 mg	1.100 mgd
5	1.068 mg	0.039 mg	0.0 mg	1.107 mgd
6	1.098 mg	0.034 mg	0.0 mg	1.132 mgd
7	1.084 mg	0.015 mg	0.0 mg	1.099 mgd
8	1.045 mg	0 mg	0.0 mg	1.045 mgd
9	1.064 mg	0 mg	0.0 mg	1.064 mgd
10	1.199 mg	0.015 mg	0.0 mg	1.214 mgd
11	1.077 mg	0.023 mg	0.0 mg	1.100 mgd
12	1.110 mg	0.037 mg	0.0 mg	1.147 mgd
13	1.023 mg	0.02 mg	0.0 mg	1.043 mgd
14	1.086 mg	0.017 mg	0.0 mg	1.103 mgd
15	1.029 mg	0.002 mg	0.0 mg	1.031 mgd
16	1.122 mg	0.001 mg	0.0 mg	1.123 mgd
17	1.153 mg	0.046 mg	0.0 mg	1.199 mgd
18	1.108 mg	0.019 mg	0.0 mg	1.127 mgd
19	1.077 mg	0.014 mg	0.0 mg	1.091 mgd
20	1.128 mg	0.032 mg	0.0 mg	1.160 mgd
21	1.123 mg	0.11 mg	0.0 mg	1.233 mgd
22	1.101 mg	0.001 mg	0.0 mg	1.102 mgd
23	1.088 mg	0.016 mg	0.0 mg	1.104 mgd
24	1.181 mg	0.01 mg	0.0 mg	1.191 mgd
25	1.094 mg	0.017 mg	0.0 mg	1.111 mgd
26	1.085 mg	0.014 mg	0.0 mg	1.099 mgd
27	1.048 mg	0.015 mg	0.0 mg	1.063 mgd
28	1.058 mg	0.005 mg	0.0 mg	1.063 mgd
29	1.290 mg	0 mg	0.0 mg	1.290 mgd
30	1.117 mg	0 mg	0.0 mg	1.117 mgd

Monthly Total mg influent to Evaporation pond	Monthly Total mg From Septage hauler	Total mg plant	Monthly Total mg To the Facilty
33.084 mg	0.5557 mg	0 mg	33.6397 mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler	Daily Average MG to Evaporation pond Infuent & Septage hauler	MG	Daily Average MGD To the Facilty
33.6397 MG	1.121 MG	0.000 MG	1.121 MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: May 2017

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.089	mg	0.01	mg	0.0	mg	1.099	mgd
2	1.172	mg	0.022	mg	0.0	mg	1.194	mgd
3	1.116	mg	0.041	mg	0.0	mg	1.157	mgd
4	1.083	mg	0.05	mg	0.0	mg	1.133	mgd
5	1.117	mg	0	mg	0.0	mg	1.117	mgd
6	1.092	mg	0	mg	0.0	mg	1.092	mgd
7	1.101	mg	0.015	mg	0.0	mg	1.116	mgd
8	1.153	mg	0.026	mg	0.0	mg	1.179	mgd
9	1.083	mg	0.019	mg	0.0	mg	1.102	mgd
10	1.064	mg	0.011	mg	0.0	mg	1.075	mgd
11	1.054	mg	0.013	mg	0.0	mg	1.067	mgd
12	1.081	mg	0	mg	0.0	mg	1.081	mgd
13	1.106	mg	0.002	mg	0.0	mg	1.108	mgd
14	1.198	mg	0	mg	0.0	mg	1.198	mgd
15	1.097	mg	0	mg	0.0	mg	1.097	mgd
16	1.091	mg	0.014	mg	0.0	mg	1.105	mgd
17	1.091	mg	0.026	mg	0.0	mg	1.117	mgd
18	1.059	mg	0.033	mg	0.0	mg	1.092	mgd
19	1.116	mg	0.012	mg	0.0	mg	1.128	mgd
20	1.121	mg	0.0003	mg	0.0	mg	1.121	mgd
21	1.101	mg	0.002	mg	0.0	mg	1.103	mgd
22	1.197	mg	0.008	mg	0.0	mg	1.205	mgd
23	1.054	mg	0.032	mg	0.0	mg	1.086	mgd
24	1.076	mg	0.018	mg	0.0	mg	1.094	mgd
25	1.131	mg	0.027	mg	0.0	mg	1.158	mgd
26	1.072	mg	0.057	mg	0.0	mg	1.129	mgd
27	1.056	mg	0	mg	0.0	mg	1.056	mgd
28	1.176	mg	0	mg	0.0	mg	1.176	mgd
29	1.103	mg	0.005	mg	0.0	mg	1.108	mgd
30	1.236	mg	0.018	mg	0.0	mg	1.254	mgd
31	1.096	mg	0.039	mg	0.0	mg	1.135	mgd
	Monthly Total mg influent to Evaporation pond		**Monthly Total mg From Septage hauler**		**Total mg** plant		**Monthly Total mg To the Facilty**	
	34.382	mg	0.5003	mg	0	mg	34.8823	mg
	Monthly Total mg to Evaporation pond Infuent & Septage hauler		**Daily Average MG to Evaporation pond Infuent & Septage hauler**		**MG**		**Daily Average MGD To the Facilty**	
	34.8823	MG	1.125	MG	0.000	MG	1.125	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR:June 2017

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.191	mg	0.017	mg	0.0	mg	1.208	mgd
2	1.081	mg	0.022	mg	0.0	mg	1.103	mgd
3	1.069	mg	0.002	mg	0.0	mg	1.071	mgd
4	1.158	mg	0	mg	0.0	mg	1.158	mgd
5	1.162	mg	0.019	mg	0.0	mg	1.181	mgd
6	1.092	mg	0.009	mg	0.0	mg	1.101	mgd
7	1.078	mg	0.028	mg	0.0	mg	1.106	mgd
8	1.111	mg	0.024	mg	0.0	mg	1.135	mgd
9	1.065	mg	0.024	mg	0.0	mg	1.089	mgd
10	1.176	mg	0.003	mg	0.0	mg	1.179	mgd
11	1.052	mg	0	mg	0.0	mg	1.052	mgd
12	1.179	mg	0.013	mg	0.0	mg	1.192	mgd
13	1.046	mg	0.009	mg	0.0	mg	1.055	mgd
14	1.073	mg	0.021	mg	0.0	mg	1.094	mgd
15	1.064	mg	0.013	mg	0.0	mg	1.077	mgd
16	1.087	mg	0.021	mg	0.0	mg	1.108	mgd
17	1.119	mg	0.002	mg	0.0	mg	1.121	mgd
18	1.191	mg	0	mg	0.0	mg	1.191	mgd
19	1.163	mg	0.01	mg	0.0	mg	1.173	mgd
20	1.128	mg	0.022	mg	0.0	mg	1.150	mgd
21	1.143	mg	0.015	mg	0.0	mg	1.158	mgd
22	1.132	mg	0.032	mg	0.0	mg	1.164	mgd
23	1.187	mg	0.033	mg	0.0	mg	1.220	mgd
24	1.049	mg	0	mg	0.0	mg	1.049	mgd
25	1.138	mg	0	mg	0.0	mg	1.138	mgd
26	1.258	mg	0.018	mg	0.0	mg	1.276	mgd
27	1.131	mg	0.027	mg	0.0	mg	1.158	mgd
28	1.848	mg	0.012	mg	0.0	mg	1.860	mgd
29	1.079	mg	0.026	mg	0.0	mg	1.105	mgd
30	1.081	mg	0.017	mg	0.0	mg	1.098	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Total mg plant		Monthly Total mg To the Facilty	
34.331	mg	0.439	mg	0	mg	34.77	mg
Monthly Total mg to Evaporation pond Infuent & Septage hauler		**Daily Average MG to Evaporation pond Infuent & Septage hauler**		**MG**		**Daily Average MGD To the Facilty**	
34.77	MG	1.159	MG	0.000	MG	1.159	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: July 2017

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.087	mg	0	mg	0.0	mg	1.087	mgd
2	1.141	mg	0	mg	0.0	mg	1.141	mgd
3	1.119	mg	0.023	mg	0.0	mg	1.142	mgd
4	1.081	mg	0	mg	0.0	mg	1.081	mgd
5	1.131	mg	0.018	mg	0.0	mg	1.149	mgd
6	1.095	mg	0.044	mg	0.0	mg	1.139	mgd
7	1.103	mg	0.021	mg	0.0	mg	1.124	mgd
8	1.079	mg	0.012	mg	0.0	mg	1.091	mgd
9	1.595	mg	0	mg	0.0	mg	1.595	mgd
10	1.078	mg	0	mg	0.0	mg	1.078	mgd
11	1.121	mg	0.013	mg	0.0	mg	1.134	mgd
12	1.108	mg	0.009	mg	0.0	mg	1.117	mgd
13	1.113	mg	0.027	mg	0.0	mg	1.140	mgd
14	1.113	mg	0.018	mg	0.0	mg	1.131	mgd
15	1.217	mg	0	mg	0.0	mg	1.217	mgd
16	1.088	mg	0	mg	0.0	mg	1.088	mgd
17	1.091	mg	0.013	mg	0.0	mg	1.104	mgd
18	1.126	mg	0.019	mg	0.0	mg	1.145	mgd
19	1.102	mg	0.036	mg	0.0	mg	1.138	mgd
20	1.114	mg	0.035	mg	0.0	mg	1.149	mgd
21	1.098	mg	0.023	mg	0.0	mg	1.121	mgd
22	1.097	mg	0.005	mg	0.0	mg	1.102	mgd
23	1.141	mg	0	mg	0.0	mg	1.141	mgd
24	1.152	mg	0.016	mg	0.0	mg	1.168	mgd
25	1.141	mg	0.021	mg	0.0	mg	1.162	mgd
26	1.125	mg	0.018	mg	0.0	mg	1.143	mgd
27	1.103	mg	0.011	mg	0.0	mg	1.114	mgd
28	1.107	mg	0.013	mg	0.0	mg	1.120	mgd
29	1.108	mg	0	mg	0.0	mg	1.108	mgd
30	1.209	mg	0	mg	0.0	mg	1.209	mgd
31	1.301	mg	0.02		0.0	mg	1.321	mgd
	Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Total mg plant		Monthly Total mg To the Facilty	
	35.284	mg	0.415	mg	0	mg	35.699	mg
	Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		MG		Daily Average MGD To the Facilty	
	35.699	MG	1.152	MG	0.000	MG	1.152	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: August 2017

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.099	mg	0.007	mg	0.0	mg	1.106	mgd
2	1.108	mg	0.025	mg	0.0	mg	1.133	mgd
3	1.129	mg	0.04	mg	0.0	mg	1.169	mgd
4	1.151	mg	0.024	mg	0.0	mg	1.175	mgd
5	1.163	mg	0	mg	0.0	mg	1.163	mgd
6	1.195	mg	0	mg	0.0	mg	1.195	mgd
7	1.178	mg	0.024	mg	0.0	mg	1.202	mgd
8	1.134	mg	0.015	mg	0.0	mg	1.149	mgd
9	1.167	mg	0.03	mg	0.0	mg	1.197	mgd
10	1.151	mg	0.023	mg	0.0	mg	1.174	mgd
11	1.148	mg	0.034	mg	0.0	mg	1.182	mgd
12	1.417	mg	0	mg	0.0	mg	1.417	mgd
13	1.016	mg	0.005	mg	0.0	mg	1.021	mgd
14	1.176	mg	0.013	mg	0.0	mg	1.189	mgd
15	1.145	mg	0.013	mg	0.0	mg	1.158	mgd
16	1.123	mg	0.015	mg	0.0	mg	1.138	mgd
17	1.019	mg	0.017	mg	0.0	mg	1.036	mgd
18	1.172	mg	0.024	mg	0.0	mg	1.196	mgd
19	1.131	mg	0	mg	0.0	mg	1.131	mgd
20	1.153	mg	0	mg	0.0	mg	1.153	mgd
21	1.171	mg	0.013	mg	0.0	mg	1.184	mgd
22	1.106	mg	0.004	mg	0.0	mg	1.110	mgd
23	1.147	mg	0.027	mg	0.0	mg	1.174	mgd
24	1.211	mg	0.046	mg	0.0	mg	1.257	mgd
25	1.104	mg	0.015	mg	0.0	mg	1.119	mgd
26	1.371	mg	0	mg	0.0	mg	1.371	mgd
27	1.211	mg	0	mg	0.0	mg	1.211	mgd
28	1.107	mg	0.016	mg	0.0	mg	1.123	mgd
29	1.141	mg	0.012	mg	0.0	mg	1.153	mgd
30	1.129	mg	0.028	mg	0.0	mg	1.157	mgd
31	1.147	mg	0.013	mg	0.0	mg	1.160	mgd
	Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Total mg plant		Monthly Total mg To the Facilty	
	35.82	mg	0.483	mg	0	mg	36.303	mg
	Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		MG		Daily Average MGD To the Facilty	
	36.303	MG	1.171	MG	0.000	MG	1.171	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: September 2017

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.114	mg	0.011	mg	0.0	mg	1.125	mgd
2	1.142	mg	0	mg	0.0	mg	1.142	mgd
3	1.174	mg	0	mg	0.0	mg	1.174	mgd
4	1.179	mg	0.005	mg	0.0	mg	1.184	mgd
5	1.286	mg	0.016	mg	0.0	mg	1.302	mgd
6	1.162	mg	0.028	mg	0.0	mg	1.190	mgd
7	1.122	mg	0.015	mg	0.0	mg	1.137	mgd
8	1.102	mg	0.034	mg	0.0	mg	1.136	mgd
9	1.134	mg	0	mg	0.0	mg	1.134	mgd
10	1.117	mg	0	mg	0.0	mg	1.117	mgd
11	1.307	mg	0.005	mg	0.0	mg	1.312	mgd
12	1.156	mg	0.014	mg	0.0	mg	1.170	mgd
13	1.159	mg	0.02	mg	0.0	mg	1.179	mgd
14	1.219	mg	0.032	mg	0.0	mg	1.251	mgd
15	1.131	mg	0.008	mg	0.0	mg	1.139	mgd
16	1.105	mg	0.004	mg	0.0	mg	1.109	mgd
17	1.149	mg	0	mg	0.0	mg	1.149	mgd
18	1.157	mg	0.013	mg	0.0	mg	1.170	mgd
19	1.082	mg	0.016	mg	0.0	mg	1.098	mgd
20	1.104	mg	0.009	mg	0.0	mg	1.113	mgd
21	1.095	mg	0.02	mg	0.0	mg	1.115	mgd
22	1.071	mg	0.021	mg	0.0	mg	1.092	mgd
23	1.121	mg	0	mg	0.0	mg	1.121	mgd
24	1.145	mg	0	mg	0.0	mg	1.145	mgd
25	1.121	mg	0.009	mg	0.0	mg	1.130	mgd
26	1.114	mg	0.018	mg	0.0	mg	1.132	mgd
27	1.082	mg	0.017	mg	0.0	mg	1.099	mgd
28	1.126	mg	0.015	mg	0.0	mg	1.141	mgd
29	1.103	mg	0.027	mg	0.0	mg	1.130	mgd
30	1.095	mg	0	mg	0.0	mg	1.095	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Total mg plant		Monthly Total mg To the Facilty	
34.174	mg	0.357	mg	0	mg	34.531	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		MG		Daily Average MGD To the Facilty	
34.531	MG	1.151	MG	0.000	MG	1.151	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: October 2017

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.173	mg	0	mg	0.0	mg	1.173	mgd
2	1.261	mg	0.015	mg	0.0	mg	1.276	mgd
3	1.082	mg	0.022	mg	0.0	mg	1.104	mgd
4	1.109	mg	0.014	mg	0.0	mg	1.123	mgd
5	1.098	mg	0.008	mg	0.0	mg	1.106	mgd
6	1.101	mg	0.024	mg	0.0	mg	1.125	mgd
7	1.101	mg	0	mg	0.0	mg	1.101	mgd
8	1.097	mg	0	mg	0.0	mg	1.097	mgd
9	1.204	mg	0.011	mg	0.0	mg	1.215	mgd
10	1.107	mg	0.012	mg	0.0	mg	1.119	mgd
11	1.212	mg	0.041	mg	0.0	mg	1.253	mgd
12	1.085	mg	0.045	mg	0.0	mg	1.130	mgd
13	1.088	mg	0.026	mg	0.0	mg	1.114	mgd
14	1.114	mg	0.005	mg	0.0	mg	1.119	mgd
15	1.141	mg	0	mg	0.0	mg	1.141	mgd
16	1.271	mg	0.025	mg	0.0	mg	1.296	mgd
17	1.303	mg	0.014	mg	0.0	mg	1.317	mgd
18	1.067	mg	0.021	mg	0.0	mg	1.088	mgd
19	1.052	mg	0.012	mg	0.0	mg	1.064	mgd
20	1.056	mg	0.02	mg	0.0	mg	1.076	mgd
21	1.087	mg	0	mg	0.0	mg	1.087	mgd
22	1.076	mg	0	mg	0.0	mg	1.076	mgd
23	1.199	mg	0.006	mg	0.0	mg	1.205	mgd
24	1.084	mg	0.026	mg	0.0	mg	1.110	mgd
25	1.061	mg	0.047	mg	0.0	mg	1.108	mgd
26	1.068	mg	0.019	mg	0.0	mg	1.087	mgd
27	1.067	mg	0.018	mg	0.0	mg	1.085	mgd
28	1.213	mg	0	mg	0.0	mg	1.213	mgd
29	1.176	mg	0	mg	0.0	mg	1.176	mgd
30	1.021	mg	0.024	mg	0.0	mg	1.045	mgd
31	1.357	mg	0.039		0.0	mg	1.396	mgd
	Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Total mg plant		Monthly Total mg To the Facilty	
	35.131	mg	0.494	mg	0	mg	35.625	mg
	Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		MG		Daily Average MGD To the Facilty	
	35.625	MG	1.149	MG	0.000	MG	1.149	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR:November 2017

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.041	mg	0.024	mg	0.0	mg	1.065	mgd
2	1.063	mg	0.041	mg	0.0	mg	1.104	mgd
3	1.087	mg	0.022	mg	0.0	mg	1.109	mgd
4	1.088	mg	0	mg	0.0	mg	1.088	mgd
5	1.161	mg	0	mg	0.0	mg	1.161	mgd
6	1.220	mg	0.025	mg	0.0	mg	1.245	mgd
7	1.162	mg	0.007	mg	0.0	mg	1.169	mgd
8	1.077	mg	0.026	mg	0.0	mg	1.103	mgd
9	1.069	mg	0.039	mg	0.0	mg	1.108	mgd
10	1.116	mg	0.053	mg	0.0	mg	1.169	mgd
11	1.077	mg	0.01	mg	0.0	mg	1.087	mgd
12	1.217	mg	0	mg	0.0	mg	1.217	mgd
13	1.163	mg	0.02	mg	0.0	mg	1.183	mgd
14	1.129	mg	0.012	mg	0.0	mg	1.141	mgd
15	1.087	mg	0.011	mg	0.0	mg	1.098	mgd
16	1.084	mg	0.028	mg	0.0	mg	1.112	mgd
17	1.096	mg	0.014	mg	0.0	mg	1.110	mgd
18	1.072	mg	0	mg	0.0	mg	1.072	mgd
19	1.152	mg	0	mg	0.0	mg	1.152	mgd
20	1.165	mg	0.014	mg	0.0	mg	1.179	mgd
21	1.083	mg	0.019	mg	0.0	mg	1.102	mgd
22	1.096	mg	0.006	mg	0.0	mg	1.102	mgd
23	1.189	mg	0	mg	0.0	mg	1.189	mgd
24	1.182	mg	0.02	mg	0.0	mg	1.202	mgd
25	1.025	mg	0	mg	0.0	mg	1.025	mgd
26	1.109	mg	0	mg	0.0	mg	1.109	mgd
27	1.217	mg	0.016	mg	0.0	mg	1.233	mgd
28	1.274	mg	0.009	mg	0.0	mg	1.283	mgd
29	1.091	mg	0.019	mg	0.0	mg	1.110	mgd
30	1.172	mg	0.03	mg	0.0	mg	1.202	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Total mg plant		Monthly Total mg To the Facilty	
33.764	mg	0.465	mg	0	mg	34.229	mg
Monthly Total mg to Evaporation pond Infuent & Septage hauler		**Daily Average MG to Evaporation pond Infuent & Septage hauler**		**MG**		**Daily Average MGD To the Facilty**	
34.229	MG	1.141	MG	0.000	MG	1.141	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR:December 2017

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to Tertiary Treatmeant plant		Total flow To the Facilty	
1	1.218	mg	0.021	mg	0.0	mg	1.239	mgd
2	1.082	mg	0.005	mg	0.0	mg	1.087	mgd
3	1.191	mg	0	mg	0.0	mg	1.191	mgd
4	1.132	mg	0.026	mg	0.0	mg	1.158	mgd
5	1.138	mg	0.035	mg	0.0	mg	1.173	mgd
6	1.064	mg	0.022	mg	0.0	mg	1.086	mgd
7	1.072	mg	0.016	mg	0.0	mg	1.088	mgd
8	1.082	mg	0.012	mg	0.0	mg	1.094	mgd
9	1.105	mg	0.01	mg	0.0	mg	1.115	mgd
10	1.041	mg	0	mg	0.0	mg	1.041	mgd
11	1.225	mg	0.016	mg	0.0	mg	1.241	mgd
12	1.221	mg	0.01	mg	0.0	mg	1.231	mgd
13	1.082	mg	0.02	mg	0.0	mg	1.102	mgd
14	1.088	mg	0.024	mg	0.0	mg	1.112	mgd
15	1.085	mg	0.019	mg	0.0	mg	1.104	mgd
16	1.091	mg	0.002	mg	0.0	mg	1.093	mgd
17	1.107	mg	0	mg	0.0	mg	1.107	mgd
18	1.121	mg	0.028	mg	0.0	mg	1.149	mgd
19	1.102	mg	0.041	mg	0.0	mg	1.143	mgd
20	1.081	mg	0.025	mg	0.0	mg	1.106	mgd
21	1.073	mg	0.032	mg	0.0	mg	1.105	mgd
22	1.085	mg	0.03	mg	0.0	mg	1.115	mgd
23	1.162	mg	0.01	mg	0.0	mg	1.172	mgd
24	1.157	mg	0	mg	0.0	mg	1.157	mgd
25	1.192	mg	0	mg	0.0	mg	1.192	mgd
26	1.017	mg	0.009	mg	0.0	mg	1.026	mgd
27	1.112	mg	0.017	mg	0.0	mg	1.129	mgd
28	1.147	mg	0.027	mg	0.0	mg	1.174	mgd
29	1.121	mg	0.022	mg	0.0	mg	1.143	mgd
30	1.055	mg	0	mg	0.0	mg	1.055	mgd
31	1.111	mg	0		0.0	mg	1.111	mgd
	Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Total mg plant		Monthly Total mg To the Facilty	
	34.56	mg	0.479	mg	0	mg	35.039	mg
	Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		MG		Daily Average MGD To the Facilty	
	35.039	MG	1.130	MG	0.000	MG	1.130	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: JANUARY 2018

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to plant		Total flow To the Facilty	
1	1.201	mg	0	mg	0.0	mg	1.201	mgd
2	1.067	mg	0.008	mg	0.0	mg	1.075	mgd
3	1.129	mg	0.018	mg	0.0	mg	1.147	mgd
4	1.078	mg	0.031	mg	0.0	mg	1.109	mgd
5	1.095	mg	0.027	mg	0.0	mg	1.122	mgd
6	1.107	mg	0.001	mg	0.0	mg	1.108	mgd
7	1.133	mg	0	mg	0.0	mg	1.133	mgd
8	1.228	mg	0.016	mg	0.0	mg	1.244	mgd
9	1.081	mg	0.035	mg	0.0	mg	1.116	mgd
10	1.126	mg	0.034	mg	0.0	mg	1.160	mgd
11	1.071	mg	0.023	mg	0.0	mg	1.094	mgd
12	1.075	mg	0.021	mg	0.0	mg	1.096	mgd
13	1.217	mg	0	mg	0.0	mg	1.217	mgd
14	1.181	mg	0	mg	0.0	mg	1.181	mgd
15	1.041	mg	0.007	mg	0.0	mg	1.048	mgd
16	1.047	mg	0.019	mg	0.0	mg	1.066	mgd
17	1.195	mg	0.029	mg	0.0	mg	1.224	mgd
18	1.217	mg	0.042	mg	0.0	mg	1.259	mgd
19	1.078	mg	0.007	mg	0.0	mg	1.085	mgd
20	1.114	mg	0	mg	0.0	mg	1.114	mgd
21	1.164	mg	0	mg	0.0	mg	1.164	mgd
22	1.207	mg	0.023	mg	0.0	mg	1.230	mgd
23	1.217	mg	0.013	mg	0.0	mg	1.230	mgd
24	1.164	mg	0.018	mg	0.0	mg	1.182	mgd
25	1.064	mg	0.037	mg	0.0	mg	1.101	mgd
26	1.072	mg	0.035	mg	0.0	mg	1.107	mgd
27	1.121	mg	0.005	mg	0.0	mg	1.126	mgd
28	1.093	mg	0	mg	0.0	mg	1.093	mgd
29	1.074	mg	0.014	mg	0.0	mg	1.088	mgd
30	1.006	mg	0.015	mg	0.0	mg	1.021	mgd
31	1.101	mg	0.019		0.0	mg	1.120	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly Total plant		Monthly Total mg To the Facilty	
34.7636	mg	0.497	mg	0	mg	35.2606	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average MG		Daily Average MGD To the Facilty	
35.2606	MG	1.137	MG	0.000	MG	1.137	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: FEBUARY 2018

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to plant		Total flow To the Facilty	
1	1.071	mg	0.029	mg	0.0	mg	1.100	mgd
2	1.168	mg	0.022	mg	0.0	mg	1.190	mgd
3	1.234	mg	0	mg	0.0	mg	1.234	mgd
4	1.137	mg	0.002	mg	0.0	mg	1.139	mgd
5	1.029	mg	0.029	mg	0.0	mg	1.058	mgd
6	1.109	mg	0.034	mg	0.0	mg	1.143	mgd
7	1.049	mg	0.023	mg	0.0	mg	1.072	mgd
8	1.113	mg	0.013	mg	0.0	mg	1.126	mgd
9	1.017	mg	0.026	mg	0.0	mg	1.043	mgd
10	1.148	mg	0	mg	0.0	mg	1.148	mgd
11	1.076	mg	0	mg	0.0	mg	1.076	mgd
12	1.102	mg	0.021	mg	0.0	mg	1.123	mgd
13	1.105	mg	0.012	mg	0.0	mg	1.117	mgd
14	1.083	mg	0.011	mg	0.0	mg	1.094	mgd
15	1.067	mg	0.03	mg	0.0	mg	1.097	mgd
16	1.141	mg	0.039	mg	0.0	mg	1.180	mgd
17	1.076	mg	0	mg	0.0	mg	1.076	mgd
18	1.034	mg	0	mg	0.0	mg	1.034	mgd
19	1.146	mg	0.013	mg	0.0	mg	1.159	mgd
20	1.035	mg	0.026	mg	0.0	mg	1.061	mgd
21	1.094	mg	0.016	mg	0.0	mg	1.110	mgd
22	1.083	mg	0.034	mg	0.0	mg	1.117	mgd
23	1.137	mg	0.03	mg	0.0	mg	1.167	mgd
24	1.176	mg	0	mg	0.0	mg	1.176	mgd
25	1.047	mg	0	mg	0.0	mg	1.047	mgd
26	1.384	mg	0.012	mg	0.0	mg	1.396	mgd
27	1.092	mg	0.016	mg	0.0	mg	1.108	mgd
28	1.148	mg	0.031	mg	0.0	mg	1.179	mgd
	0.000	mg	0	mg	0.0	mg	0.000	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly Total plant		Monthly Total mg To the Facilty	
31.101	mg	0.469	mg	0	mg	31.57	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average MG		Daily Average MGD To the Facilty	
31.57	MG	1.128	MG	0.000	MG	1.128	MGD

ROSAMOND COMMUNITY SERVICES DISTRICT
DAILY INFUENT SEWERAGE REPORT
FOR: MARCH 2018

Date	Influent Flow to Evaporation pond		Flow from Septage hauler to ponds		Flow to plant		Total flow To the Facilty	
1	1.039	mg	0.036	mg	0.0	mg	1.075	mgd
2	1.082	mg	0.016	mg	0.0	mg	1.098	mgd
3	1.118	mg	0	mg	0.0	mg	1.118	mgd
4	1.211	mg	0	mg	0.0	mg	1.211	mgd
5	0.982	mg	0.016	mg	0.0	mg	0.998	mgd
6	1.151	mg	0.028	mg	0.0	mg	1.179	mgd
7	1.061	mg	0.007	mg	0.0	mg	1.068	mgd
8	1.107	mg	0.024	mg	0.0	mg	1.131	mgd
9	1.031	mg	0.026	mg	0.0	mg	1.057	mgd
10	1.076	mg	0	mg	0.0	mg	1.076	mgd
11	1.141	mg	0	mg	0.0	mg	1.141	mgd
12	1.023	mg	0.02	mg	0.0	mg	1.043	mgd
13	1.116	mg	0.016	mg	0.0	mg	1.132	mgd
14	1.037	mg	0.001	mg	0.0	mg	1.038	mgd
15	1.112	mg	0.03	mg	0.0	mg	1.142	mgd
16	1.060	mg	0.022	mg	0.0	mg	1.082	mgd
17	1.023	mg	0	mg	0.0	mg	1.023	mgd
18	1.107	mg	0	mg	0.0	mg	1.107	mgd
19	1.073	mg	0.024	mg	0.0	mg	1.097	mgd
20	1.065	mg	0.018	mg	0.0	mg	1.083	mgd
21	1.012	mg	0.022	mg	0.0	mg	1.034	mgd
22	1.121	mg	0.012	mg	0.0	mg	1.133	mgd
23	1.076	mg	0.019	mg	0.0	mg	1.095	mgd
24	1.032	mg	0.005	mg	0.0	mg	1.037	mgd
25	1.041	mg	0.005	mg	0.0	mg	1.046	mgd
26	1.016	mg	0.022	mg	0.0	mg	1.038	mgd
27	1.074	mg	0.016	mg	0.0	mg	1.090	mgd
28	1.065	mg	0.026	mg	0.0	mg	1.091	mgd
29	1.143	mg	0.009	mg	0.0	mg	1.152	mgd
30	1.087	mg	0.018	mg	0.0	mg	1.105	mgd
31	1.126	mg	0.01		0.0	mg	1.136	mgd

Monthly Total mg influent to Evaporation pond		Monthly Total mg From Septage hauler		Monthly Total plant		Monthly Total mg To the Facilty	
33.408	mg	0.448	mg	0	mg	33.856	mg

Monthly Total mg to Evaporation pond Infuent & Septage hauler		Daily Average MG to Evaporation pond Infuent & Septage hauler		Daily Average MG		Daily Average MGD To the Facilty	
33.856	MG	1.092	MG	0.000	MG	1.092	MGD

Appendix B: Raw Wastewater Water Quality

Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Wastewater	Work Order: 15J1056
3179 35th St. West	Sub Project:	Received: 10/13/15 18:05
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 10/27/15

Influent — **15J1056-01 (Waste Water)** — **Sample Date:** 10/13/15 13:00 — **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Biochemical Oxygen Demand	SM 5210B	**270**	mg/L	5.0	10/14/15	10/19/15	1542256	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	10/14/15	10/14/15	1542366	
Non-Filterable Residue/TSS	SM 2540D	**350**	mg/L	2.5	10/15/15	10/16/15	1542469	
Total Kjeldahl Nitrogen	EPA 351.2	**55**	mg/L	2.0	10/15/15	10/16/15	1542483	

Effluent — **15J1056-02 (Waste Water)** — **Sample Date:** 10/13/15 13:00 — **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
Microbiology Analyses								
Total Coliform (15 Tube)	SM 9221	**6.8**	MPN/100 mL	1.8	10/13/15	10/17/15	1543009	
Fecal Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	1.8	10/13/15	10/17/15	1543009	
General Chemical Analyses								
Ammonia as N (NH3-N)	EPA 350.1	ND	mg/L	0.50	10/21/15	10/26/15	1543225	
Biochemical Oxygen Demand	SM 5210B	ND	mg/L	5.0	10/14/15	10/19/15	1542256	
Specific Conductance (E.C.)	SM 2510B	**790**	umhos/cm	2.0	10/26/15	10/26/15	1543470	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	10/14/15	10/14/15	1542366	
Non-Filterable Residue/TSS	SM 2540D	ND	mg/L	2.5	10/15/15	10/16/15	1542469	
Total Filterable Residue/TDS	SM 2540C	**460**	mg/L	5.0	10/16/15	10/19/15	1542592	
Total Kjeldahl Nitrogen	EPA 351.2	ND	mg/L	1.0	10/15/15	10/16/15	1542483	

ND Analyte NOT DETECTED at or above the reporting limit

JStyles

Stu Styles For Leisl Cole

Project Manager

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Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Wastewater	Work Order: 15H0944
3179 35th St. West	Sub Project:	Received: 08/11/15 17:30
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 08/25/15

Influent **15H0944-01 (Waste Water)** **Sample Date:** 08/11/15 13:00 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Biochemical Oxygen Demand	SM 5210B	**200**	mg/L	5.0	08/12/15	08/17/15	1533350	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	08/12/15	08/13/15	1533372	
Non-Filterable Residue/TSS	SM 2540D	**170**	mg/L	2.5	08/14/15	08/14/15	1533603	
Total Kjeldahl Nitrogen	EPA 351.2	**54**	mg/L	2.0	08/17/15	08/18/15	1534134	

Effluent **15H0944-02 (Waste Water)** **Sample Date:** 08/11/15 13:00 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Ammonia as N (NH3-N)	EPA 350.1	ND	mg/L	0.50	08/17/15	08/17/15	1534009	
Biochemical Oxygen Demand	SM 5210B	ND	mg/L	5.0	08/12/15	08/17/15	1533350	
Specific Conductance (E.C.)	SM 2510B	**780**	umhos/cm	2.0	08/19/15	08/19/15	1534168	
Nitrate as N (NO3-N)	EPA 300.0	**1.9**	mg/L	0.40	08/12/15	08/13/15	1533372	
Non-Filterable Residue/TSS	SM 2540D	ND	mg/L	2.5	08/14/15	08/14/15	1533603	
Total Filterable Residue/TDS	SM 2540C	**480**	mg/L	5.0	08/12/15	08/13/15	1533457	
Total Kjeldahl Nitrogen	EPA 351.2	ND	mg/L	1.0	08/17/15	08/18/15	1534134	

ND Analyte NOT DETECTED at or above the reporting limit

Leisl Cole

Leisl Cole

Project Manager

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Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Wastewater	Work Order: 15G2470
3179 35th St. West	Sub Project:	Received: 07/28/15 17:00
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 08/10/15

Influent — **15G2470-01 (Waste Water)** — **Sample Date:** 07/28/15 13:00 — **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Biochemical Oxygen Demand	SM 5210B	**200**	mg/L	5.0	07/29/15	08/03/15	1531298	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	07/29/15	07/29/15	1531337	
Non-Filterable Residue/TSS	SM 2540D	**220**	mg/L	2.5	07/31/15	07/31/15	1531544	
Total Kjeldahl Nitrogen	EPA 351.2	**54**	mg/L	2.0	08/03/15	08/04/15	1532270	

Effluent — **15G2470-02 (Waste Water)** — **Sample Date:** 07/28/15 13:00 — **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
Microbiology Analyses								
Total Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	2	07/28/15	07/30/15	1531502	
Fecal Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	2	07/28/15	07/30/15	1531502	
General Chemical Analyses								
Ammonia as N (NH3-N)	EPA 350.1	ND	mg/L	0.50	07/31/15	08/03/15	1531555	
Biochemical Oxygen Demand	SM 5210B	ND	mg/L	5.0	07/29/15	08/03/15	1531298	
Specific Conductance (E.C.)	SM 2510B	**820**	umhos/cm	2.0	07/30/15	07/30/15	1531208	
Nitrate as N (NO3-N)	EPA 300.0	**7.4**	mg/L	0.40	07/29/15	07/29/15	1531337	
Non-Filterable Residue/TSS	SM 2540D	ND	mg/L	2.5	07/31/15	07/31/15	1531544	
Total Filterable Residue/TDS	SM 2540C	**490**	mg/L	5.0	07/29/15	07/30/15	1531335	
Total Kjeldahl Nitrogen	EPA 351.2	**1.2**	mg/L	1.0	08/03/15	08/04/15	1532270	

ND Analyte NOT DETECTED at or above the reporting limit

Leisl Cole

Leisl Cole

Project Manager

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Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Wastewater	Work Order: 15D2267
3179 35th St. West	Sub Project:	Received: 04/28/15 17:10
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 05/08/15

Influent **15D2267-01 (Waste Water)** **Sample Date:** 04/28/15 13:00 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Biochemical Oxygen Demand	SM 5210B	**310**	mg/L	5.0	04/29/15	05/04/15	1518257	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	04/29/15	04/29/15	1518121	
Non-Filterable Residue/TSS	SM 2540D	**490**	mg/L	2.5	05/04/15	05/05/15	1519062	
Total Kjeldahl Nitrogen	EPA 351.2	**70**	mg/L	2.0	05/04/15	05/05/15	1519197	

Effluent **15D2267-02 (Waste Water)** **Sample Date:** 04/28/15 13:00 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
Microbiology Analyses								
Total Coliform (15 Tube)	SM 9221	**2**	MPN/100 mL	2	04/28/15	05/02/15	1518469	
Fecal Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	2	04/28/15	05/02/15	1518469	
General Chemical Analyses								
Ammonia as N (NH3-N)	EPA 350.1	ND	mg/L	0.50	05/05/15	05/05/15	1519073	
Biochemical Oxygen Demand	SM 5210B	ND	mg/L	5.0	04/29/15	05/04/15	1518257	
Specific Conductance (E.C.)	SM 2510B	**750**	umhos/cm	2.0	05/01/15	05/01/15	1518331	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	04/29/15	04/29/15	1518121	
Non-Filterable Residue/TSS	SM 2540D	ND	mg/L	2.5	05/04/15	05/05/15	1519062	
Total Kjeldahl Nitrogen	EPA 351.2	**1.5**	mg/L	1.0	05/04/15	05/05/15	1519197	

ND Analyte NOT DETECTED at or above the reporting limit

Robin Glenney

Project Manager

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Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Wastewater	Work Order: 15D1224
3179 35th St. West	Sub Project:	Received: 04/14/15 17:50
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 04/24/15

Influent **15D1224-01 (Waste Water)** **Sample Date:** 04/14/15 13:00 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Biochemical Oxygen Demand	SM 5210B	**340**	mg/L	5.0	04/15/15	04/20/15	1516428	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	04/15/15	04/15/15	1516348	
Non-Filterable Residue/TSS	SM 2540D	**810**	mg/L	2.5	04/15/15	04/16/15	1516517	
Total Kjeldahl Nitrogen	EPA 351.2	**52**	mg/L	2.0	04/16/15	04/17/15	1516612	

Effluent **15D1224-02 (Waste Water)** **Sample Date:** 04/14/15 13:00 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
Microbiology Analyses								
Total Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	2	04/14/15	04/16/15	1516561	
Fecal Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	2	04/14/15	04/16/15	1516561	
General Chemical Analyses								
Ammonia as N (NH3-N)	EPA 350.1	ND	mg/L	0.50	04/20/15	04/20/15	1517010	
Biochemical Oxygen Demand	SM 5210B	ND	mg/L	5.0	04/15/15	04/20/15	1516428	
Specific Conductance (E.C.)	SM 2510B	**760**	umhos/cm	2.0	04/20/15	04/20/15	1516298	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	04/15/15	04/15/15	1516348	
Non-Filterable Residue/TSS	SM 2540D	ND	mg/L	2.5	04/15/15	04/16/15	1516517	
Total Kjeldahl Nitrogen	EPA 351.2	**1.2**	mg/L	1.0	04/16/15	04/17/15	1516612	

ND Analyte NOT DETECTED at or above the reporting limit

Robin Glenney

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Wastewater	Work Order: 15D0605
3179 35th St. West	Sub Project:	Received: 04/07/15 18:10
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 04/21/15

Influent **15D0605-01 (Waste Water)** **Sample Date:** 04/07/15 13:00 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Biochemical Oxygen Demand	SM 5210B	**280**	mg/L	5.0	04/08/15	04/13/15	1515356	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	04/08/15	04/08/15	1515347	
Non-Filterable Residue/TSS	SM 2540D	**1300**	mg/L	2.5	04/10/15	04/10/15	1515592	
Total Kjeldahl Nitrogen	EPA 351.2	**70**	mg/L	2.0	04/10/15	04/10/15	1515623	

Effluent **15D0605-02 (Waste Water)** **Sample Date:** 04/07/15 13:00 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
Microbiology Analyses								
Total Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	2	04/07/15	04/09/15	1515516	
Fecal Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	2	04/07/15	04/09/15	1515516	
General Chemical Analyses								
Ammonia as N (NH3-N)	EPA 350.1	ND	mg/L	0.50	04/13/15	04/13/15	1516098	
Biochemical Oxygen Demand	SM 5210B	ND	mg/L	5.0	04/08/15	04/13/15	1515356	
Specific Conductance (E.C.)	SM 2510B	**800**	umhos/cm	2.0	04/20/15	04/20/15	1516486	
Nitrate as N (NO3-N)	EPA 300.0	**4.1**	mg/L	0.40	04/08/15	04/08/15	1515347	
Non-Filterable Residue/TSS	SM 2540D	**4.1**	mg/L	2.5	04/10/15	04/10/15	1515592	
Total Kjeldahl Nitrogen	EPA 351.2	ND	mg/L	1.0	04/10/15	04/10/15	1515623	

ND Analyte NOT DETECTED at or above the reporting limit

Robin Glenney

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Wastewater	Work Order: 15D0020
3179 35th St. West	Sub Project:	Received: 03/31/15 17:45
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 04/09/15

Influent — **15D0020-01 (Waste Water)** — **Sample Date:** 03/31/15 13:00 — **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Biochemical Oxygen Demand	SM 5210B	**250**	mg/L	5.0	04/01/15	04/06/15	1514304	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	04/01/15	04/01/15	1514307	
Non-Filterable Residue/TSS	SM 2540D	**480**	mg/L	2.5	04/03/15	04/03/15	1514455	
Total Kjeldahl Nitrogen	EPA 351.2	**67**	mg/L	2.0	04/02/15	04/02/15	1514367	

Effluent — **15D0020-02 (Waste Water)** — **Sample Date:** 03/31/15 13:00 — **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
Microbiology Analyses								
Total Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	2	03/31/15	04/04/15	1514472	
Fecal Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	2	03/31/15	04/04/15	1514472	
General Chemical Analyses								
Ammonia as N (NH3-N)	EPA 350.1	ND	mg/L	0.50	04/03/15	04/03/15	1514449	
Biochemical Oxygen Demand	SM 5210B	ND	mg/L	5.0	04/01/15	04/06/15	1514304	
Specific Conductance (E.C.)	SM 2510B	**780**	umhos/cm	2.0	04/03/15	04/03/15	1514219	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	04/01/15	04/01/15	1514307	
Non-Filterable Residue/TSS	SM 2540D	ND	mg/L	2.5	04/03/15	04/03/15	1514455	
Total Kjeldahl Nitrogen	EPA 351.2	ND	mg/L	1.0	04/02/15	04/02/15	1514367	

ND Analyte NOT DETECTED at or above the reporting limit

Robin Glenney

Project Manager

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Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Wastewater	Work Order: 15C1381
3179 35th St. West	Sub Project:	Received: 03/17/15 17:40
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 03/31/15

Influent — **15C1381-01 (Waste Water)** — **Sample Date:** 03/17/15 13:00 — **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Biochemical Oxygen Demand	SM 5210B	**350**	mg/L	5.0	03/18/15	03/23/15	1512319	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	03/18/15	03/18/15	1512317	
Non-Filterable Residue/TSS	SM 2540D	**830**	mg/L	2.5	03/20/15	03/20/15	1513015	
Total Kjeldahl Nitrogen	EPA 351.2	**73**	mg/L	2.0	03/19/15	03/20/15	1512515	

Effluent — **15C1381-02 (Waste Water)** — **Sample Date:** 03/17/15 13:00 — **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
Microbiology Analyses								
Total Coliform (15 Tube)	SM 9221	**30**	MPN/100 mL	2	03/17/15	03/21/15	1512534	
Fecal Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	2	03/17/15	03/21/15	1512534	
General Chemical Analyses								
Ammonia as N (NH3-N)	EPA 350.1	ND	mg/L	0.50	03/23/15	03/23/15	1513013	
Biochemical Oxygen Demand	SM 5210B	ND	mg/L	5.0	03/18/15	03/23/15	1512319	
Specific Conductance (E.C.)	SM 2510B	**720**	umhos/cm	2.0	03/26/15	03/26/15	1512527	
Nitrate as N (NO3-N)	EPA 300.0	**0.57**	mg/L	0.40	03/18/15	03/18/15	1512317	
Non-Filterable Residue/TSS	SM 2540D	ND	mg/L	2.5	03/20/15	03/20/15	1513015	
Total Kjeldahl Nitrogen	EPA 351.2	**1.2**	mg/L	1.0	03/19/15	03/20/15	1512515	

ND Analyte NOT DETECTED at or above the reporting limit

Robin Glenney

Project Manager

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Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Wastewater	Work Order: 15C0305
3179 35th St. West	Sub Project: Semi Annual Influent	Received: 03/03/15 17:25
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 03/17/15

Influent **15C0305-01 (Waste Water)** **Sample Date:** 03/03/15 13:00 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Ammonia as N (NH3-N)	EPA 350.1	**41**	mg/L	0.50	03/11/15	03/11/15	1511245	
Biochemical Oxygen Demand	SM 5210B	**260**	mg/L	5.0	03/04/15	03/09/15	1510391	
Chemical Oxygen Demand	HACH 8000	**380**	mg/L	5.0	03/06/15	03/06/15	1510574	
MBAS (LAS Mole. Wt 340.0)	SM 5540C	**1.6**	mg/L	0.10	03/04/15	03/04/15	1510289	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	03/04/15	03/04/15	1510396	
Total Kjeldahl Nitrogen	EPA 351.2	**56**	mg/L	2.0	03/06/15	03/06/15	1510579	

ND Analyte NOT DETECTED at or above the reporting limit

Robin Glenney

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Wastewater	Work Order: 13E1607
3179 35th St. West	Sub Project:	Received: 05/21/13 17:50
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 06/05/13

Influent **13E1607-01 (Waste Water)** **Sample Date:** 05/21/13 11:00 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Biochemical Oxygen Demand	SM 5210B	**290**	mg/L	5.0	05/22/13	05/27/13	1321269	
Nitrate as N (NO3-N)	EPA 353.2	ND	mg/L	0.40	05/22/13	05/22/13	1321245	
Non-Filterable Residue/TSS	SM 2540D	**360**	mg/L	2.0	05/23/13	05/24/13	1321397	
Total Kjeldahl Nitrogen	EPA 351.2	**48**	mg/L	4.0	05/23/13	05/24/13	1321385	

Effluent **13E1607-02 (Waste Water)** **Sample Date:** 05/21/13 11:00 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
Microbiology Analyses								
Total Coliform (15 Tube)	SM 9221	**8**	MPN/100 mL	2	05/21/13	05/21/13	1322009	
Fecal Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	2	05/21/13	05/21/13	1322009	
General Chemical Analyses								
Ammonia as N (NH3-N)	EPA 350.1	ND	mg/L	0.50	05/30/13	05/30/13	1322147	
Biochemical Oxygen Demand	SM 5210B	ND	mg/L	5.0	05/22/13	05/27/13	1321269	
Specific Conductance (E.C.)	SM 2510B	**730**	umhos/cm	2.0	05/22/13	05/22/13	1321285	
Nitrate as N (NO3-N)	EPA 353.2	**3.8**	mg/L	0.40	05/22/13	05/22/13	1321245	
Non-Filterable Residue/TSS	SM 2540D	ND	mg/L	2.0	05/23/13	05/24/13	1321397	
Total Kjeldahl Nitrogen	EPA 351.2	**1.7**	mg/L	1.0	05/23/13	05/24/13	1321385	

ND Analyte NOT DETECTED at or above the reporting limit

Robin Glenney

Project Manager

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Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Wastewater	Work Order: 15I1954
3179 35th St. West	Sub Project:	Received: 09/22/15 17:30
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 10/15/15

Influent — **15I1954-01 (Waste Water)** — **Sample Date:** 09/22/15 14:00 — **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Ammonia as N (NH3-N)	EPA 350.1	**34**	mg/L	0.50	09/24/15	09/28/15	1539453	
Biochemical Oxygen Demand	SM 5210B	**240**	mg/L	5.0	09/23/15	09/28/15	1539370	
Chloride (Cl)	EPA 300.0	**95**	mg/L	1.0	09/23/15	09/23/15	1539391	
Chemical Oxygen Demand	HACH 8000	**720**	mg/L	5.0	09/29/15	09/29/15	1540084	
MBAS (LAS Mole. Wt 340.0)	SM 5540C	**0.64**	mg/L	0.10	09/23/15	09/23/15	1539374	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	09/23/15	09/23/15	1539391	
Total Kjeldahl Nitrogen	EPA 351.2	**52**	mg/L	2.0	09/24/15	09/25/15	1539645	
Metals								
Aluminum (Al)	EPA 200.7	**1200**	ug/L	50	09/28/15	09/28/15	1540023	
Antimony (Sb)	SM3113-B	ND	ug/L	6.0	09/25/15	09/25/15	1539636	
Arsenic (As)	SM3113-B	**7.0**	ug/L	2.0	09/30/15	09/30/15	1540233	
Barium (Ba)	EPA 200.7	ND	ug/L	100	09/28/15	09/28/15	1540023	
Beryllium (Be)	EPA 200.7	ND	ug/L	1.0	10/05/15	10/05/15	1541032	
Boron (B)	EPA 200.7	**370**	ug/L	100	09/28/15	09/28/15	1540023	
Cadmium (Cd)	EPA 200.7	ND	ug/L	1.0	10/05/15	10/05/15	1541032	
Chromium (Total Cr)	EPA 200.7	**29**	ug/L	10	10/05/15	10/05/15	1541032	
Cobalt (Co)	EPA 200.7	ND	ug/L	10	09/28/15	09/28/15	1540023	
Copper (Cu)	EPA 200.7	**71**	ug/L	50	09/28/15	09/28/15	1540023	
Iron (Fe)	EPA 200.7	**920**	ug/L	100	09/28/15	09/28/15	1540023	
Lead (Pb)	SM3113-B	ND	ug/L	5.0	09/29/15	09/29/15	1540072	
Manganese (Mn)	EPA 200.7	**37**	ug/L	20	09/28/15	09/28/15	1540023	
Mercury (Hg)	EPA 245.1	ND	ug/L	1.0	09/29/15	09/29/15	1540078	
Molybdenum (Mo)	EPA 200.7	ND	ug/L	10	09/28/15	09/28/15	1540023	
Nickel (Ni)	EPA 200.7	ND	ug/L	10	10/05/15	10/05/15	1541032	
Selenium (Se)	SM3113-B	ND	ug/L	5.0	09/28/15	09/28/15	1540015	
Silver (Ag)	EPA 200.7	ND	ug/L	10	10/05/15	10/05/15	1541032	
Thallium (Tl)	EPA 200.9	ND	ug/L	1.0	09/28/15	09/28/15	1540013	
Vanadium (V)	EPA 200.9	**24**	ug/L	3.0	09/28/15	09/28/15	1540001	
Zinc (Zn)	EPA 200.7	**210**	ug/L	50	09/28/15	09/28/15	1540023	

Monitoring Well 1 — **15I1954-02 (Water)** — **Sample Date:** 09/22/15 14:30 — **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
Microbiology Analyses								
Total Coliform	SM 9223	A	P/A		09/22/15	09/23/15	1539387	
E. Coli	SM 9223	A	P/A		09/22/15	09/23/15	1539387	
General Chemical Analyses								
Ammonia as N (NH3-N)	EPA 350.1	ND	mg/L	0.50	09/24/15	09/28/15	1539453	
Biochemical Oxygen Demand	SM 5210B	ND	mg/L	5.0	09/23/15	09/28/15	1539370	
Chloride (Cl)	EPA 300.0	**360**	mg/L	1.0	09/23/15	09/23/15	1539391	

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Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Wastewater	Work Order: 13E0459
3179 35th St. West	Sub Project:	Received: 05/07/13 18:00
Rosamond CA, 93560	Project Manager: John Haughton	Reported: 05/21/13

WW Influent — **13E0459-01 (Waste Water)** **Sample Date:** 05/07/13 11:45 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Ammonia (NH3)	EPA 350.1	**24**	mg/L	1.2	05/15/13	05/15/13	1320188	
Biochemical Oxygen Demand	SM 5210B	**340**	mg/L	5.0	05/08/13	05/13/13	1319206	
Chemical Oxygen Demand	HACH 8000	**750**	mg/L	5.0	05/15/13	05/15/13	1320257	
Specific Conductance (E.C.)	SM 2510B	**1000**	umhos/cm	2.0	05/09/13	05/09/13	1319255	
Nitrate (NO3)	EPA 353.2	ND	mg/L	2.0	05/08/13	05/08/13	1319187	
Non-Filterable Residue/TSS	SM 2540D	**440**	mg/L	2.0	05/13/13	05/13/13	1320033	
Total Kjeldahl Nitrogen	EPA 351.2	**63**	mg/L	4.0	05/09/13	05/14/13	1319403	

WW Effluent — **13E0459-02 (Waste Water)** **Sample Date:** 05/07/13 11:40 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
Microbiology Analyses								
Total Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	2	05/07/13	05/11/13	1319483	
Fecal Coliform (15 Tube)	SM 9221	ND	MPN/100 mL	2	05/07/13	05/11/13	1319483	
General Chemical Analyses								
Ammonia (NH3)	EPA 350.1	**0.83**	mg/L	0.60	05/15/13	05/15/13	1320188	
Biochemical Oxygen Demand	SM 5210B	ND	mg/L	5.0	05/08/13	05/13/13	1319206	
Chemical Oxygen Demand	HACH 8000	**11**	mg/L	5.0	05/15/13	05/15/13	1320202	
Specific Conductance (E.C.)	SM 2510B	**760**	umhos/cm	2.0	05/09/13	05/09/13	1319255	
Nitrate (NO3)	EPA 353.2	**58**	mg/L	2.0	05/08/13	05/08/13	1319187	
Non-Filterable Residue/TSS	SM 2540D	ND	mg/L	2.0	05/13/13	05/13/13	1320033	
Total Kjeldahl Nitrogen	EPA 351.2	**2.5**	mg/L	1.0	05/09/13	05/14/13	1319403	

ND Analyte NOT DETECTED at or above the reporting limit

Robin Glenney

Project Manager

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Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Routine - Wastewater	Work Order: 12B1800
3179 35th St. West	Sub Project:	Received: 02/25/12 10:00
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 03/16/12

WW Influent **12B1800-01 (Waste Water)** **Sample Date:** 02/24/12 14:00 **Sampler:** Mike

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Alkalinity, Total (as CaCO3)	SM 2320 B	**360**	mg/L	5.0	02/28/12	02/28/12	1209064	
Biochemical Oxygen Demand	SM 5210B	**550**	mg/L	5.0	02/26/12	03/02/12	1209055	
Chemical Oxygen Demand	HACH 8000	**1200**	mg/L	50	02/28/12	02/29/12	1209167	
Specific Conductance (E.C.)	SM 2510B	**1200**	umhos/cm	2.0	02/28/12	02/28/12	1209064	
MBAS (LAS Mole. Wt 342.4)	SM 5540C	**1.0**	mg/L	0.10	02/27/12	03/12/12	1209164	HT-06
Total Filterable Residue/TDS	SM 2540C	**790**	mg/L	5.0	02/28/12	02/29/12	1209131	
Total Kjeldahl Nitrogen	EPA 351.2	**97**	mg/L	2.0	03/06/12	03/06/12	1211033	
Total Organic Carbon	SM 5310B	**63**	mg/L	6.0	02/28/12	02/29/12	1209065	
Metals								
Aluminum (Al)	EPA 200.7	**7700**	ug/L	100	02/29/12	02/29/12	1209201	
Antimony (Sb)	SM3113-B	ND	ug/L	12	02/29/12	02/29/12	1209214	
Arsenic (As)	SM3113-B	**12**	ug/L	2.0	03/01/12	03/01/12	1209278	
Barium (Ba)	EPA 200.7	**250**	ug/L	100	02/29/12	02/29/12	1209201	
Beryllium (Be)	EPA 200.7	ND	ug/L	1.0	03/01/12	03/01/12	1209298	
Boron (B)	EPA 200.7	**360**	ug/L	100	02/29/12	02/29/12	1209201	
Cadmium (Cd)	EPA 200.7	**1.6**	ug/L	1.0	03/01/12	03/01/12	1209298	
Chromium (Total Cr)	EPA 200.7	**47**	ug/L	10	03/01/12	03/01/12	1209298	
Cobalt (Co)	EPA 200.7	ND	ug/L	10	02/29/12	02/29/12	1209201	
Copper (Cu)	EPA 200.7	**220**	ug/L	50	02/29/12	02/29/12	1209201	
Iron (Fe)	EPA 200.7	**4700**	ug/L	100	02/29/12	02/29/12	1209201	
Lead (Pb)	SM3113-B	**14**	ug/L	5.0	03/02/12	03/02/12	1209366	
Manganese (Mn)	EPA 200.7	**92**	ug/L	20	02/29/12	02/29/12	1209201	
Mercury (Hg)	EPA 245.1	ND	ug/L	1.0	03/02/12	03/02/12	1209357	
Molybdenum (Mo)	EPA 200.7	**17**	ug/L	10	02/29/12	02/29/12	1209201	
Nickel (Ni)	EPA 200.7	ND	ug/L	10	03/01/12	03/01/12	1209298	
Selenium (Se)	SM3113-B	ND	ug/L	10	02/29/12	02/29/12	1209269	
Silver (Ag)	EPA 200.7	ND	ug/L	10	03/01/12	03/01/12	1209298	
Thallium (Tl)	EPA 200.9	ND	ug/L	2.0	02/29/12	02/29/12	1209194	
Vanadium (V)	EPA 200.9	**60**	ug/L	6.0	02/29/12	02/29/12	1209175	
Zinc (Zn)	EPA 200.7	**1000**	ug/L	50	02/29/12	02/29/12	1209201	

HT-06 Sample was received and analyzed outside of recommended hold time.

ND Analyte NOT DETECTED at or above the reporting limit

Stu Styles

Client Services Manager

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Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Routine - Wastewater	Work Order: 12B1561
3179 35th St. West	Sub Project:	Received: 02/22/12 10:03
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 03/05/12

WW Influent **12B1561-01 (Waste Water)** **Sample Date:** 02/21/12 14:00 **Sampler:** Not Listed

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Alkalinity, Total (as CaCO3)	SM 2320 B	**340**	mg/L	5.0	02/24/12	02/24/12	1208344	
Biochemical Oxygen Demand	SM 5210B	**250**	mg/L	5.0	02/22/12	02/27/12	1208188	
Chemical Oxygen Demand	HACH 8000	**510**	mg/L	50	02/28/12	02/29/12	1209167	
Specific Conductance (E.C.)	SM 2510B	**1100**	umhos/cm	2.0	02/24/12	02/24/12	1208344	
MBAS (LAS Mole. Wt 342.4)	SM 5540C	**1.0**	mg/L	0.10	02/22/12	03/01/12	1208292	
Total Filterable Residue/TDS	SM 2540C	**730**	mg/L	5.0	02/23/12	02/24/12	1208218	
Total Kjeldahl Nitrogen	EPA 351.2	**71**	mg/L	2.0	02/28/12	02/29/12	1209112	
Total Organic Carbon	SM 5310B	**37**	mg/L	6.0	02/28/12	02/29/12	1209065	
Metals								
Aluminum (Al)	EPA 200.7	**2000**	ug/L	50	02/28/12	02/28/12	1209092	
Antimony (Sb)	SM3113-B	ND	ug/L	12	02/29/12	02/29/12	1209214	
Arsenic (As)	SM3113-B	**9.9**	ug/L	2.0	02/28/12	02/28/12	1209080	
Barium (Ba)	EPA 200.7	**110**	ug/L	100	02/28/12	02/28/12	1209092	
Beryllium (Be)	EPA 200.7	ND	ug/L	1.0	02/27/12	02/27/12	1209019	
Boron (B)	EPA 200.7	**270**	ug/L	100	02/28/12	02/28/12	1209092	
Cadmium (Cd)	EPA 200.7	**4.1**	ug/L	1.0	02/27/12	02/27/12	1209019	
Chromium (Total Cr)	EPA 200.7	**26**	ug/L	10	02/27/12	02/27/12	1209019	
Cobalt (Co)	EPA 200.7	ND	ug/L	10	02/28/12	02/28/12	1209092	
Copper (Cu)	EPA 200.7	**340**	ug/L	50	02/28/12	02/28/12	1209092	
Iron (Fe)	EPA 200.7	**2000**	ug/L	100	02/28/12	02/28/12	1209092	
Lead (Pb)	SM3113-B	**6.6**	ug/L	5.0	02/28/12	02/28/12	1209093	
Manganese (Mn)	EPA 200.7	**52**	ug/L	20	02/28/12	02/28/12	1209092	
Mercury (Hg)	EPA 245.1	ND	ug/L	1.0	03/02/12	03/05/12	1209357	
Molybdenum (Mo)	EPA 200.7	**11**	ug/L	10	02/28/12	02/28/12	1209092	
Nickel (Ni)	EPA 200.7	ND	ug/L	10	02/27/12	02/27/12	1209019	
Selenium (Se)	SM3113-B	ND	ug/L	10	02/29/12	02/29/12	1209269	
Silver (Ag)	EPA 200.7	ND	ug/L	10	02/27/12	02/27/12	1209019	
Thallium (Tl)	EPA 200.9	ND	ug/L	2.0	02/29/12	02/29/12	1209194	
Vanadium (V)	EPA 200.9	**41**	ug/L	6.0	02/29/12	02/29/12	1209175	
Zinc (Zn)	EPA 200.7	**750**	ug/L	50	02/28/12	02/28/12	1209092	

ND Analyte NOT DETECTED at or above the reporting limit

JStyles

Stu Styles
Client Services Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Routine - Wastewater	Work Order: 12B1375
3179 35th St. West	Sub Project:	Received: 02/18/12 09:50
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 03/02/12

WW Influent **12B1375-01 (Waste Water)** **Sample Date:** 02/17/12 14:00 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Alkalinity, Total (as CaCO3)	SM 2320 B	**330**	mg/L	5.0	02/27/12	02/27/12	1207373	
Biochemical Oxygen Demand	SM 5210B	**350**	mg/L	5.0	02/19/12	02/24/12	1208031	
Chemical Oxygen Demand	HACH 8000	**400**	mg/L	50	02/28/12	02/29/12	1209167	
Specific Conductance (E.C.)	SM 2510B	**1100**	umhos/cm	2.0	02/21/12	02/21/12	1207373	
MBAS (LAS Mole. Wt 342.4)	SM 5540C	**1.1**	mg/L	0.10	02/20/12	02/20/12	1208118	HT-01
Total Filterable Residue/TDS	SM 2540C	**730**	mg/L	5.0	02/20/12	02/21/12	1208026	
Total Kjeldahl Nitrogen	EPA 351.2	**66**	mg/L	2.0	02/21/12	02/22/12	1208046	
Total Organic Carbon	SM 5310B	**41**	mg/L	6.0	02/21/12	02/21/12	1208051	

HT-01 Analysis performed outside of recommended hold time

ND Analyte NOT DETECTED at or above the reporting limit

Stu Styles

Client Services Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

Rosamond Community Services	Project: Routine - Wastewater	Work Order: 12B1345
3179 35th St. West	Sub Project:	Received: 02/17/12 11:14
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 02/29/12

WW Influent **12B1345-01 (Waste Water)** **Sample Date:** 02/16/12 14:00 **Sampler:** Mike Gilardone

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
<u>**General Chemical Analyses**</u>								
Alkalinity, Total (as CaCO3)	SM 2320 B	**710**	mg/L	5 0	02/28/12	02/28/12	1209064	
Biochemical Oxygen Demand	SM 5210B	**390**	mg/L	5 0	02/17/12	02/22/12	1207413	
Chemical Oxygen Demand	HACH 8000	**190**	mg/L	50	02/28/12	02/29/12	1209167	
Specific Conductance (E.C.)	SM 2510B	**7300**	umhos/cm	2 0	02/28/12	02/28/12	1209064	
MBAS (LAS Mole. Wt 342.4)	SM 5540C	**1.1**	mg/L	0 10	02/17/12	02/17/12	1207418	
Total Filterable Residue/TDS	SM 2540C	**5000**	mg/L	5.0	02/20/12	02/21/12	1208026	
Total Kjeldahl Nitrogen	EPA 351.2	**70**	mg/L	2.0	02/21/12	02/22/12	1208046	
Total Organic Carbon	SM 5310B	**53**	mg/L	6.0	02/21/12	02/21/12	1208051	

ND Analyte NOT DETECTED at or above the reporting limit

Stu Styles

Client Services Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017

Rosamond Community Services District	Project: Wastewater	Work Order: 18E1527
3179 35th St. West	Sub Project:	Received: 05/15/18 18:33
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 05/29/18

Influent **18E1527-01 (Waste Water)** **Sample Date:** 05/15/18 10:30 **Sampler:** Ryan Becker

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
<u>**General Chemical Analyses**</u>								
Ammonia as N (NH3-N)	EPA 350.1	**70**	mg/L	1.0	05/25/18	05/29/18	1821173	
Biochemical Oxygen Demand	SM 5210B	**470**	mg/L	5.0	05/16/18	05/21/18	1820082	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	05/16/18	05/16/18	1820079	
Non-Filterable Residue/TSS	SM 2540D	**320**	mg/L	2.5	05/21/18	05/24/18	1821025	
Total Kjeldahl Nitrogen	EPA 351.2	**46**	mg/L	1.0	05/24/18	05/24/18	1821148	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

0/0/2 18E1527

Client	Rosamond Community Service District	System Number	
Address	3179 35th Street West		
	Rosamond, CA 93560		
Contact	*Ryan Becker*	Email Address:	rbecker@rosamondcsd.com
Phone #	(661) 816-6055	Fax #:	(661) 256-2557
Project	*Waste Water*	Reporting Requests:	
Sub Project		( ) State EDT (X) Test Share ( ) CC's To:________	
Sampled by	Ryan Becker		

Analysis Requested

Date	Time	Sample Identification	Matrix	Type	Preservatives	# of Bottles	Free Chlorine	Temp C	BOD	TSS	No3-N,TKN,NH3-N					Comments
5/15/2018	*10:30Am*	influent	WW	1	7	2			X	X	X					

Matrix: DW-Drinking Water, WW-Waste Water, SW-Storm Water, GW- Ground Water *Type-* 1-Routine, 2-Repeat, 3-Replacement, 4-Special *Preservatives:* (1) Na2S2O3 (2) HCl (3) HNO3 (4) NH4Cl (5) H2SO4 (6) Na2SO3 (7) Cold (8) Other:________

Relinquished By (Sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
[signature]	Ryan Becker rosamond csd	5/15/2018 5:52	[signature]	MikeS/CLSB
[signature]	MikeS/CLSB	6:23	[signature]	CCSD

Samples received: ( ) *On ice* ( ) *Intact* ( ) *Custody seals Temp*________ ( ) *F* ( ) *C*

ELAP # 1088 *Page*

TEMP. 14. °C

Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017

Rosamond Community Services District	Project: Wastewater	Work Order: 18F0938
3179 35th St. West	Sub Project:	Received: 06/12/18 16:30
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 06/25/18

Influent **18F0938-01 (Waste Water)** **Sample Date:** 06/12/18 8:30 **Sampler:** Ryan Becker

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Alkalinity, Total (as CaCO3)	SM 2320 B	**320**	mg/L	5.0	06/19/18	06/19/18	1824064	
Ammonia as N (NH3-N)	EPA 350.1	**49**	mg/L	1.0	06/21/18	06/22/18	1825112	
Biochemical Oxygen Demand	SM 5210B	**240**	mg/L	5.0	06/13/18	06/18/18	1824063	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	06/12/18	06/12/18	1824048	
Non-Filterable Residue/TSS	SM 2540D	**140**	mg/L	2.5	06/13/18	06/13/18	1824072	
Total Kjeldahl Nitrogen	EPA 351.2	**71**	mg/L	2.0	06/20/18	06/20/18	1825088	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

0/0/2

18F0938

Client	Rosamond Community Service District	System Number	
Address	3179 35th Street West Rosamond, CA 93560	6B150112001	
Contact	*Ryan Becker*	Email Address:	rbecker@rosamondcsd.com
Phone #	(661) 816-6055	Fax #:	(661) 256-2557
Project	*Waste Water*	Reporting Requests:	
Sub Project		( ) State EDT (X) Test Share ( ) CC's To:________	
Sampled by	Ryan Becker		

Date	Time	Sample Identification	Matrix	Type	Preservatives	# of Bottles	Free Chlorine	Temp C	BOD	TSS	Total alkalinity (CaCO3)	No3-N,TKN,NH3-N					Comments
6/12/2018	8:30am	Influent	WW	1	7	2			X	X	X	X					

Matrix: DW-Drinking Water, WW-Waste Water, SW-Storm Water, GW- Ground Water *Type-* 1-Routine, 2-Repeat, 3-Replacement, 4-Special

Preservatives: (1) Na2S2O3 (2) HCl (3) HNO3 (4) NH4Cl (5) H2SO4 (6) Na2SO3 (7) Cold (8) Other:________

Relinquished By (Sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
Ryan Becker	Ryan Becker rosamond csd	6/12/2018 1:57	Michael Soth	Mike S/CLSB
	Mike S/CLSB	4:30		CLSB

Samples received: ( ) On ice ( ) Intact ( ) Custody seals Temp________ ( ) F ( ) C

ELAP # 1088

TEMP 13.8°C

Rosamond Community Services District	Project: Wastewater	Work Order: 18F1596
3179 35th St. West	Sub Project:	Received: 06/19/18 18:42
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 06/29/18

Influent **18F1596-01 (Waste Water)** **Sample Date:** 06/19/18 8:30 **Sampler:** Ryan Becker

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Alkalinity, Total (as CaCO3)	SM 2320 B	**320**	mg/L	5.0	06/26/18	06/26/18	1825056	
Ammonia as N (NH3-N)	EPA 350.1	**57**	mg/L	1.0	06/27/18	06/28/18	1826071	
Biochemical Oxygen Demand	SM 5210B	**370**	mg/L	5.0	06/20/18	06/25/18	1825061	
Carbonate (CO3)	SM 2320B	ND	mg/L	5.0	06/26/18	06/26/18	1825056	
Nitrate as N (NO3-N)	EPA 300.0	ND	mg/L	0.40	06/20/18	06/20/18	1825070	
Non-Filterable Residue/TSS	SM 2540D	**27**	mg/L	2.5	06/25/18	06/27/18	1826018	
Total Kjeldahl Nitrogen	EPA 351.2	**68**	mg/L	2.0	06/27/18	06/27/18	1826098	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

0/0/2 18F1596

Client	Rosamond Community Service District	System Number	
Address	3179 35th Street West Rosamond, CA 93560	6B150112001	
Contact	*Ryan Becker*	Email Address:	rbecker@rosamondcsd.com
Phone #	(661) 816-6055	Fax #:	(661) 256-2557
Project	*Waste Water*	Reporting Requests:	
Sub Project		( ) State EDT (X) Test Share ( ) CC's To:	
Sampled by	Ryan Becker		

Analysis Requested

Date	Time	Sample Identification	Matrix	Type	Preservatives	# of Bottles	Free Chlorine	Temp C	BOD	TSS	Total alkalinity (CaCO3)	No3-N,TKN,NH3-N				Comments
6/19/2018	8:30am	Influent	WW	1	7	2			X	X	X	X				we need 20 half gallon Bottles

Matrix: DW-Drinking Water, WW-Waste Water, SW-Storm Water, GW- Ground Water *Type*- 1 Routine, 2-Repeat, 3 Replacement, 4-Special *Preservatives:* (1) Na2S2O3 (2) HCl (3) HNO3 (4) NH4Cl (5) H2SO4 (6) Na2SO3 (7) Cold (8) Other:

Relinquished By (Sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
Ryan Becker	Ryan Becker rosamond csd	6/19/2018	3:16 Michael Salazar	MIKES/CLSB
	MIKES/CLSB	6:42	HF/Bob Gl	Bob Glocki, /CLSB

Samples received: (✓) *On ice* (✓) *Intact* ( ) *Custody seals* *Temp*______ ( ) F ( ) C

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TEMP. 17.1 °C

Appendix C: Septage Water Quality

Rosamond Community Services District	Project: Wastewater	Work Order: 18E1541
3179 35th St. West	Sub Project:	Received: 05/15/18 18:33
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 05/31/18

A1-septage **18E1541-01 (Waste Water)** **Sample Date:** 05/15/18 8:30 **Sampler:** Ryan Becker

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Ammonia (NH3)	EPA 350.1	**410**	mg/L	24	05/25/18	05/29/18	1821173	
Biochemical Oxygen Demand	SM 5210B	**2900**	mg/L	5.0	05/16/18	05/21/18	1820082	
Chemical Oxygen Demand	HACH 8000	**10000**	mg/L	250	05/30/18	05/30/18	1822045	
Total Kjeldahl Nitrogen	EPA 351.2	**850**	mg/L	20	05/24/18	05/24/18	1821148	

Benz-septage **18E1541-02 (Waste Water)** **Sample Date:** 05/15/18 9:00 **Sampler:** Ryan Becker

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Ammonia (NH3)	EPA 350.1	**110**	mg/L	3.0	05/29/18	05/30/18	1822030	
Biochemical Oxygen Demand	SM 5210B	**690**	mg/L	5.0	05/16/18	05/21/18	1820082	
Chemical Oxygen Demand	HACH 8000	**1200**	mg/L	25	05/30/18	05/30/18	1822045	
Total Kjeldahl Nitrogen	EPA 351.2	**140**	mg/L	10	05/24/18	05/24/18	1821148	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

0/0/4

18E1541

Client	Rosamond Community Service District	System Number	
Address	3179 35th Street West		
	Rosamond, CA 93560		
Contact	*Ryan Becker*	Email Address: becker@rosamondcsd.cor	
Phone #	(661) 816-6055	Fax #: (661) 256-2557	
Project	*Waste Water*	Reporting Requests:	
Sub Project		( ) State EDT (X) Test Share ( ) CC's To:_________	
Sampled by	Ryan Becker		

Analysis Requested

Date	Time	Sample Identification	Matrix	Type	Preservatives	# of Bottles	Free Chlorine	Temp C	BOD	COD	TKN	Ammonia(NH4)					Comments
5/15/2018	8:30am	A1-septage	WW	4	1,7	2			X	X	X	X					
5/15/2018	9:00am	Benz-septage	WW	4	1,7	2			X	X	X	X					

Matrix: DW-Drinking Water, WW-Waste Water, SW-Storm Water, GW- Ground Water *Type-* 1-Routine, 2-Repeat, 3-Replacement, 4-Special *Preservatives:* (1) Na2S2O3 (2) HCl (3) HNO3 (4) NH4Cl (5) H2SO4 (6) Na2SO3 (7) Cold (8) Other

Relinquished By (Sign)	*Print Name / Company*	*Date / Time*	*Received By (Sign)*	*Print Name / Company*
[signature]	Ryan Becker rosamond csd	2/27/2018	[signature]	Mikes/CLSB
[signature]	5/15	2:52	HF/Bob Gl	Bob Glaubig / CLSB
	Mikes/CLSB	6:30		

Samples received: (✓) *On ice* (✓) *Intact* ( ) *Custody seals* *Temp*________ ( ) *F* ( ) *C*

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TEMP. 14 °C

Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017

Rosamond Community Services District	Project: Wastewater	Work Order: 18F0939
3179 35th St. West	Sub Project:	Received: 06/12/18 16:33
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 06/25/18

L Development Septage **18F0939-01 (Waste Water)** **Sample Date:** 06/12/18 10:00 **Sampler:** Ryan Becker

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Ammonia (NH3)	EPA 350.1	**98**	mg/L	3.0	06/21/18	06/22/18	1825112	
Biochemical Oxygen Demand	SM 5210B	›ns set-up did n	mg/L	5.0	06/13/18	06/18/18	1824063	
Chemical Oxygen Demand	HACH 8000	**6400**	mg/L	50	06/21/18	06/21/18	1825114	
Total Kjeldahl Nitrogen	EPA 351.2	**280**	mg/L	20	06/20/18	06/20/18	1825088	

Roto Rooter **18F0939-02 (Waste Water)** **Sample Date:** 06/12/18 10:35 **Sampler:** Ryan Becker

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Ammonia (NH3)	EPA 350.1	**110**	mg/L	3.0	06/21/18	06/22/18	1825112	
Biochemical Oxygen Demand	SM 5210B	**5300**	mg/L	5.0	06/13/18	06/18/18	1824063	
Chemical Oxygen Demand	HACH 8000	**17000**	mg/L	100	06/21/18	06/21/18	1825114	
Total Kjeldahl Nitrogen	EPA 351.2	**610**	mg/L	20	06/20/18	06/20/18	1825088	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

0/0/4

18F0939

Client	Rosamond Community Service District	System Number
Address	3179 35th Street West Rosamond, CA 93560	6B150112001
Contact	*Ryan Becker*	Email Address: rbecker@rosamondcsd.com
Phone #	(661) 816-6055	Fax #: (661) 256-2557
Project	*Waste Water*	Reporting Requests:
Sub Project		( ) State EDT (X) Test Share ( ) CC's To:________
Sampled by	Ryan Becker	

Date	Time	Sample Identification	Matrix	Type	Preservatives	# of Bottles	Free Chlorine	Temp C	BOD	COD	TKN	Ammonia(NH4)					Comments
6/12/2018	10:00am	L development septage	WW	4	1,7	2			X	X	X	X					
6/12/2018	10:35am	Roto Rooter	WW	4	1,7	2			X	X	X	X					

Matrix: DW-Drinking Water, WW-Waste Water, SW-Storm Water, GW- Ground Water *Type-* 1-Routine, 2-Repeat, 3-Replacement, 4-Special *Preservatives:* (1) Na2S
(3) HNO3 (4) NH4Cl (5) H2SO4 (6) Na2SO3 (7) Cold (8) Other:________

Relinquished By (Sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
[signature]	Ryan Becker rosamond csd	6/12/2018 1:57	Michael [illegible]	Mike SCLSD
[signature]	Mike SCLSD	4:33	[signature]	CSB

Samples received:* ( ) *On ice* ( ) *Intact* ( ) *Custody seals Temp*________ ( ) *F* ( ) *C

ELAP # 1088 *Page* __

TEMP. 13.8°

Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017

Rosamond Community Services District	Project: Wastewater	Work Order: 18F1597
3179 35th St. West	Sub Project:	Received: 06/19/18 18:36
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 07/02/18

JT Sanitation **18F1597-01 (Waste Water)** **Sample Date:** 06/19/18 12:00 **Sampler:** Ryan Becker

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Ammonia (NH3)	EPA 350.1	**83**	mg/L	3.0	06/27/18	06/28/18	1826071	
Biochemical Oxygen Demand	SM 5210B	**1100**	mg/L	5.0	06/20/18	06/25/18	1825061	
Chemical Oxygen Demand	HACH 8000	**6600**	mg/L	50	06/29/18	06/29/18	1826149	
Total Kjeldahl Nitrogen	EPA 351.2	**200**	mg/L	5.0	06/27/18	06/27/18	1826098	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

0/0/2

18F1597

Client	Rosamond Community Service District	System Number
Address	3179 35th Street West	6B15011200l
	Rosamond, CA 93560	
Contact	*Ryan Becker*	Email Address rbecker@rosamondcsd.com
Phone #	(661) 816-6055	Fax #: (661) 256-2557
Project	*Waste Water*	Reporting Requests:
Sub Project		( ) State EDT (X) Test Share ( ) CC's To:___ ___
Sampled by	Ryan Becker	

Analysis Requested

Date	Time	Sample Identification	Matrix	Type	Preservatives	# of Bottles	Free Chlorine	Temp C	BOD	COD	TKN	Ammonia(NH4)					Comments
6/19/2018	12:00	JT sanitation	WW	4	1,7	2			X	X	X	X					

Matrix: DW-Drinking Water, WW-Waste Water, SW-Storm Water, GW- Ground Water *Type-* 1 Routine, 2-Repeat, 3 Replacement, 4-Special *Preservatives:* (1) Na2S2O3 (2) HCl (3) HNO3 (4) NH4Cl (5) H2SO4 (6) Na2SO3 (7) Cold (8) Other:

Relinquished By (Sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
Ryan Becker	Ryan Becker rosamond csd	6/19/2018	3:16 Michael	MikeS/CLSB
	MikeS/CLSB	6:30	HF/	JA CLSB

Samples received: (✓) On ice (✓) Intact ( ) Custody seals Temp______ ( ) F ( ) C

ELAP # 1088 *Page*

TEMP 21.4°C

Rosamond Community Services District	Project: Wastewater	Work Order: 18F2161
3179 35th St. West	Sub Project:	Received: 06/26/18 15:54
Rosamond CA, 93560	Project Manager: Mike Gilardone	Reported: 07/11/18

Benz **18F2161-01 (Waste Water)** **Sample Date:** 06/26/18 9:20 **Sampler:** Ryan Becker

Analyte	Method	Result	Units	Rep. Limit	Prepared	Analyzed	Batch	Qualifier
General Chemical Analyses								
Ammonia (NH3)	EPA 350.1	**150**	mg/L	3.0	07/02/18	07/05/18	1827021	
Biochemical Oxygen Demand	SM 5210B	**1500**	mg/L	5.0	06/27/18	07/02/18	1826065	
Chemical Oxygen Demand	HACH 8000	**3000**	mg/L	50	06/29/18	06/29/18	1826149	
Total Kjeldahl Nitrogen	EPA 351.2	**210**	mg/L	8.0	07/06/18	07/06/18	1827144	

ND Analyte NOT DETECTED at or above the reporting limit

Gregory Nelson

Project Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

0/0/2 18F2161

Client	Rosamond Community Service District	System Number	
Address	3179 35th Street West Rosamond, CA 93560	6B1501l2001	
Contact	*Ryan Becker*	Email Address: rbecker@rosamondcsd.cor	
Phone #	(661) 816-6055	Fax #: (661) 256-2557	
Project	*Waste Water*	Reporting Requests:	
Sub Project		( ) State EDT (X) Test Share ( ) CC's To:______	
Sampled by	Ryan Becker		

Date	Time	Sample Identification	Matrix	Type	Preservatives	# of Bottles	Free Chlorine	Temp C	BOD	COD	TKN	Ammonia(NH4)					Comments
6/26/2018	9:20am	Benz	WW	4	1,7	2			X	X	X	X					

Matrix: DW-Drinking Water, WW-Waste Water, SW-Storm Water, GW- Ground Water *Type-* 1-Routine, 2-Repeat, 3-Replacement, 4-Special *Preservatives:* (1) HCl (3) HNO3 (4) NH4Cl (5) H2SO4 (6) Na2SO3 (7) Cold (8) Other:______

Relinquished By (Sign)	*Print Name / Company*	*Date / Time*	*Received By (Sign)*	*Print Name / Company*
[signature]	Ryan Becker rosamond csd	6/26/2018 1:30	[signature]	MIKES/CLSB
			[signature]	JA CLSB
[signature]	MIKE/CLSB	3:54		

Samples received: ( ) On ice ( ) Intact ( ) Custody seals Temp______ ( ) F ( ) C

ELAP # 1088 Pa

14.4 °C

Appendix D: Teledyne ISCO 6712FR Fiberglass Refrigerated Sampler

Isco 6712FR Fiberglass Refrigerated Sampler

The 6712FR is a sequential or composite refrigerated sampler designed for indoor or outdoor applications where rugged, corrosion-resistant construction is required.The extensive range of programming modes lets you select the most suitable routine for your application. Programming is fast and simple, with on-line help just a key stroke away.

The environmentally-sealed 6712 controller delivers maximum accuracy and easily handles all of your sampling applications, including:

- wastewater effluent
- stormwater monitoring
- CSO monitoring
- permit compliance
- pretreatment complience

In the Standard Programming Mode, the controller walks you through the sampling sequence step-by-step, allowing you to choose all parameters specific to your application. Selecting the Extended Programming Mode lets you enter more complex programs.

Factory installed options

An optional built-in telephone modem lets you change programs and download data remotely, from a touch-tone phone. It also has dial-out alarm features.

For automatic documentation of sample storage temperature, specify the 6712FR with optional temperature sensor. With this thermally ballasted sensor, the 6712 controller can log compartment temperatures at programmable intervals with 0.1°C precision.

Versatile, Tough, and Reliable

Isco FR samplers feature a corrosion-proof refrigerator cabinet molded from polyester resin fiberglass and supported by a stainless steel frame. A UV-resistant gel coat provides a smooth, non-porous finish for added protection and easy cleaning.

The 6712FR uses thick, foamed-in-place insulation to keep samples preserved at the EPA-recommended 39°F (4°C). An automatically controlled, built-in heater ensures that samples won't freeze, even when ambient temperatures drop to -20°F (-29°C). Coolant is environmentally safe R134a. Durable powder-coated epoxy, phenolic paint, and polyester tubing, protect refrigeration components against corrosion.

The 6712FR provides long service life in corrosive environments, and can be used outdoors without an enclosure.

Specifications

Isco 6712FR	
Size (HxWxD):	49.3 x 26 x 26 inches (125 x 66 x 66 cm)
Weight:	Dry, 160 lbs (73 kg)
Bottle configurations:	24 1-liter PP or 350-ml glass 24 ProPak 1-liter disposable sample bags 12 2.5-liter wedge PE 8 2-liter PE or 1.8-liter glass. 2 2-gallon (7.5-liter) PE or 2.5-gallon (9.4-liter) glass 1 2.5-gallon (9.4 liter) PE or glass 1 4-gallon (15-liter) PE 1 5.5-gallon (21-liter) PE or 5 gallon (19 liter) glass
Refrigerator Body	Fiberglass reinforced plastic with UV-resistant gel coat
Power Requirements:	120 VAC, 60 Hz; or 240 VAC, 50 Hz (specify)

Pump	
Intake suction tubing: Length Material Inside dimension	 3 to 99 feet (1 to 30 m) Vinyl or Teflon 3/8 inch (1 cm)
Pump tubing life:	Typically 1,000,000 pump counts
Maximum lift:	28 feet (8.5 m)
Typical Repeatability	±5 ml or ±5% of the average volume in a set
Typical line velocity at Head height: of 3 ft. (0.9 m) 10 ft. (3.1 m) 15 ft. (4.6 m)	 3.0 ft./s (0.91 m/s) 2.9 ft./s (0.87 m/s) 2.7 ft./s (0.83 m/s)
Liquid presence detector:	Non-wetted, non-conductive sensor detects when liquid sample reaches the pump to automatically compensate for changes in head heights.

Controller	
Weight:	13 lbs. (5.9 kg)
Size (HxWxD)	10.3 x 12.5 x 10 inches (26 x 31.7 x 25.4 cm)
Operational temperature:	32° to 120°F (0° to 49°C)
Enclosure rating:	NEMA 4X, 6 (IP67)
Program memory:	Non-volatile ROM
Flow meter signal input:	5 to 15 volt DC pulse or 25 millisecond isolated contact closure.
Number of composite samples:	Programmable from 1 to 999 samples.
Clock Accuracy:	1 minute per month, typical, for real time clock

Software	
Sample frequency:	1 minute to 99 hours 59 minutes, in 1 minute increments. Non-uniform times in minutes or clock times 1 to 9,999 flow pulses
Sampling modes:	Uniform time, non-uniform time, flow, random interval event. (Flow mode is controlled by external flow meter pulses.)
Programmable sample volumes:	10 to 9,990 ml in 1 ml increments
Sample retries:	If no sample is detected, up to 3 attempts; user selectable
Rinse cycles:	Automatic rinsing of suction line up to 3 rinses for each sample collection
Program storage:	5 sampling programs
Sampling Stop/Resume:	Up to 24 real time/date sample stop/resume commands
Controller diagnostics:	Tests for RAM, ROM, pump, display, and distributor

Ordering Information

***Note**: Bottle configuration, suction line, and strainer must be ordered separately. Many options and accessories are available for 6712 Samplers; see separate literature for 700 Series Modules and other components to expand your monitoring capabilities.*

Description	Part No.
6712FR Refrigerated Sampler, 120VAC 60Hz Includes controller, distributor arm, instruction manual, pocket guide.	**68-6710-072**
6712FR Refrigerated Sampler, 230VAC 50Hz includes controller, distribution arm instruction manual, pocket guide.	**68-6710-073**
6712FR with temperature logging, 120VAC 60Hz As above, with internal temperature sensor	**68-6710-144**
6712FR with temperature logging, 230VAC 50Hz As above, with internal temperature sensor	**68-6710-145**

The 6712 Controller is also an SDI-12 data logger, and has many optional capabilities. Please contact Isco or your Isco distributor for more information.

TELEDYNE ISCO
Everywhereyoulook™

4700 Superior Street
Lincoln NE 68504 USA
Tel: (402) 464-0231
USA and Canada: (800) 228-4373
Fax: (402) 465-3022
E-Mail: iscoinfo@teledyne.com
Internet: www.teledyneisco.com

Appendix E: Proposed Septage Receiving Station and Septage Pond Design

Kennedy/Jenks Consultants
Engineers & Scientists

Project	Rosamond Community Service District (RCSD)
	WWTP Upgrades Project Conceptual Design TM
Job #	1844514*00
By	Rachel Druffel-Rodriguez — Date May 22, 2018
Checked By	Tobie Welgemoed — Date May 25,2018

Proposed Septage Receiving Station

Concrete Tank

Parameter	Quantity
Influent Septage Flow Rate (MGD)	0.03
Tank Operating Volume (gallons)	337
Dump Time (mins)	15
Freeboard (ft)	2
Above grade (ft)	3
Below grade	5
Total Height (ft)	10
Width (ft)	14.5
Length (ft)	21.75

Assume: -Assume typical 5,000 gallon truck haul volume

Required Values
Input Values
Calculated Values

Kennedy/Jenks Consultants
Engineers & Scientists

Project	Rosamond Community Service District (RCSD)
	WWTP Upgrades Project Conceptual Design TM
Job #	1844514*00
By	Rachel Druffel-Rodriguez — Date May 22, 2018
Checked By	Tobie Welgemoed — Date May 25,2018

Proposed Septage Pond

Parameter	Quantity
Influent Septage Flow Rate (MGD)	0.030
Rentention Time (days)	3
Required Operating Volume (gallons)	90,000
Actual Operating Volume (gallons)	90,211
Side Slopes (ft:ft)	3

Operating Depth (ft)	5	
Freeboard (ft)	5	freeboard required not to back up septage tank
Total Depth of Pond	10	
Total Lined Area	9,866	anchored trench installation

Water Surface Area (sf)	4,563
Length (ft)	117
Width (ft)	39
Length to Width Ratio	3

Assume:
- Sized for 3 days retention time
- Truncated pyramid formula used to size pond
- length to width ratio of 3:1

$$V = \frac{h}{3}\left(A_1 + A_2 + \sqrt{A_1 \cdot A_2}\right)$$

Required Values
Input Values
Calculated Values

Sources: https://inspectapedia.com/septic/Lagoon-Septic-Systems.php
https://www.epa.gov/sites/production/files/2014-09/documents/lagoon-pond-treatment-2011.pdf
http://www.health.gov.au/internet/publications/publishing.nsf/Content/ohp-enhealth-manual-atsi-cnt-l~ohp-enhealth-manual-atsi-cnt-l-ch2~ohp-enhealth-manual-atsi-cnt-l-ch2.11

Appendix F: Aqua-Jet® Surface Mechanical Aerator

AQUA-AEROBIC SYSTEMS, INC.

Aqua-Jet®

SURFACE MECHANICAL AERATOR

Aqua-Jet®

SURFACE MECHANICAL AERATOR

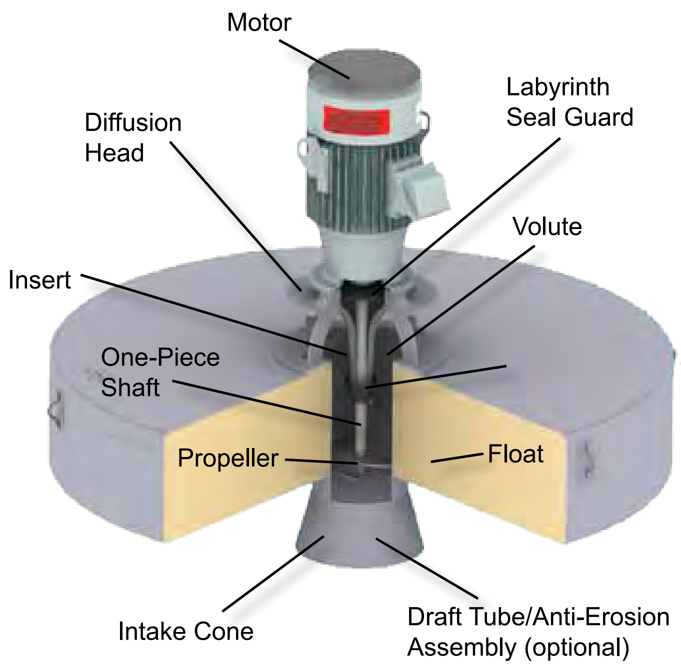
The Aqua-Jet® aerator is the most durable, highly efficient wastewater aerator on the market today. Since 1969, more than 80,000 Aqua-Jet aerators have been installed throughout the world, representing 1.5 million horsepower and over 9 billion hours of runtime.

The robust design and use of the highest quality materials have also made the Aqua-Jet the most trusted aerator in the industry, outlasting other aerators 2 to 1.

Features and Advantages

- Vibration limiting design; velocity of 0.3 inches/second or less
- Proven oxygen and mixing performance
- Easy and flexible installation
- Short lead times
- Easily incorporated into existing plants
- Units are retrievable for easy access
- Various mooring arrangements available
- Endura® Series low maintenance motors save energy, reduce O&M costs and increase performance

Aqua-Jet® Components



Motor - standard 3-year warranty, severe duty, totally enclosed fan-cooled (TEFC), Class F insulation, 1.15 service factor

Diffusion Head - monolithic casting, 304 stainless steel (ss), limits vibration

Motor Shaft - one-piece, 17-4 precipitation hardened (PH) ss, eliminates couplings

Float - Fiberglass or 304 ss exterior. Interior closed-cell polyurethane foam adds structural stability and prevents sinking. Heavy wall ss volute.

Propeller - two-blade design precision cast, 316 ss, non-clog operation

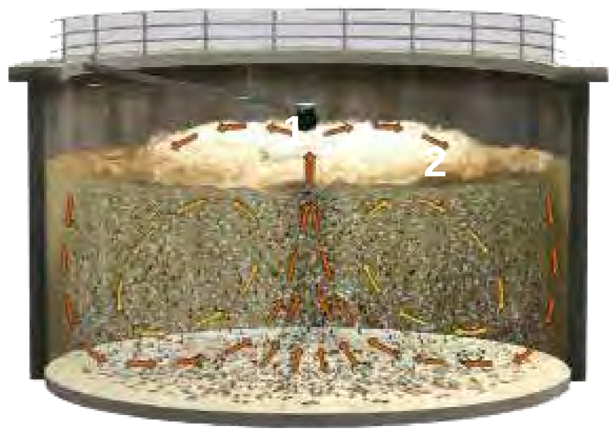
Intake Cone/Anti-Vortex Cross - 304 ss, provides minimum headloss

Aqua-Jet® Operation

The Aqua-Jet aerator is a mechanical direct-drive unit designed to provide optimum oxygen transfer in a variety of municipal and industrial wastewater applications. The performance of the Aqua-Jet aerator also provides the mixing necessary to uniformly disperse oxygen and organic matter within the microbial population.

How it Works

Basin water is pumped up into the intake cone and through the volute, and is dispersed through the diffusion head in a spray pattern. Oxygenation occurs at two critical points: **1)** when the water exits the diffusion head and **2)** when the spray enters the water surface.



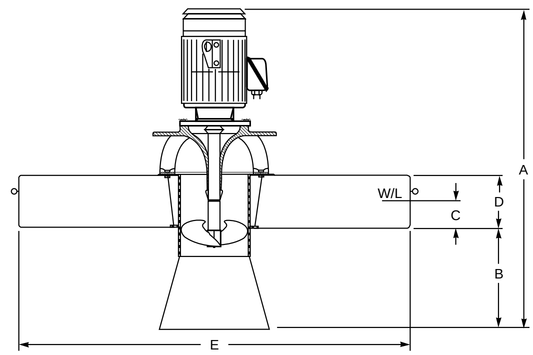
Typical Aqua-Jet® aerator operation.

Aqua-Jet® Unit Sizes and Dimensions

SS Series (stainless steel)

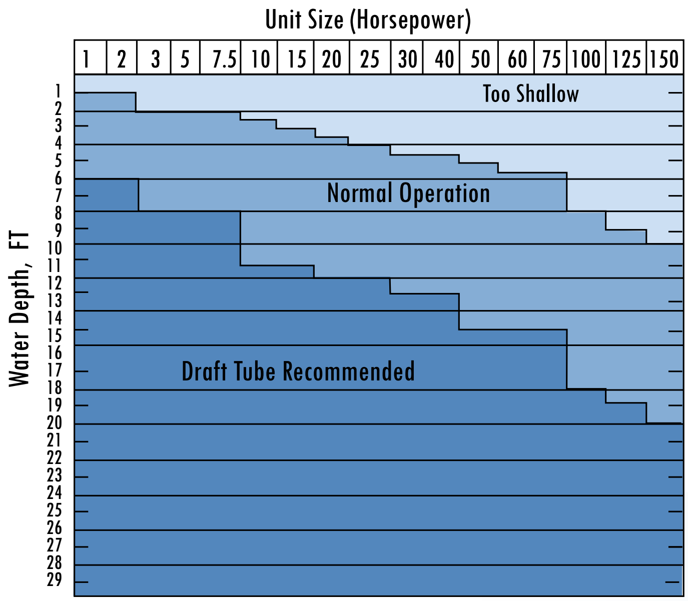
FSS Model	HP	RPM	Approx Ship Wt (lbs)	DIMENSIONS (inches) A	B	C	D	E	Shaft Dia.	Mooring Cable Dia.
3900111	1	1800	325	34.69	8.5	4	7.5	46.75	.875	3/16"
3900211	2	1800	325	34.69	8.5	4	7.5	46.75	.875	
3900311	3	1800	525	44.13	8.5	5	11	59.5	1.250	
3900511	5	1800	525	44.13	8.5	5.25	11	59.5	1.250	
3900711	7.5	1800	625	46.63	8.5	6.75	11	59.5	1.250	
3901011	10	1800	945	51.69	10.38	6	12	70	1.750	
3901511	15	1800	970	55.63	10.38	6.25	12	70	1.750	
3902011	20	1200	1,300	79.94*	27.5*	6.5	13.5	82.88	2.125	
3902511	25	1200	1,350	80.81*	27.5*	6.75	13.5	82.88	2.125	
3903011	30	1200	1,845	86.94	30.63*	9.5	14.88	94.5	2.125	
3904011	40	1200	1,870	90.31	30.63*	10	14.88	94.5	2.500	1/4"
3905411	50	1200	1,900	90.31	30.63	10.5	14.88	94.5	2.500	
3905011	50	1200	2,850	101.06	40.69*	8.88	14.88	114.63	2.500	
3906011	60	1200	3,000	102.81	40.69*	10	14.88	114.63	2.703	
3907511	75	1200	3,000	102.81	40.69*	10	14.88	114.63	2.703	
3910021	100	900	4,500	113.5	42.5*	9.5	17	131	3.930	3/8"
3912511	125	900	5,240	125.5	46.5*	11.5	19	131	3.930	
3915011	150	900	5,390	128	46.5*	11.65	19	131	3.930	

* Includes allowance for anti-vortex cross. *Dual speed units are available upon request.*

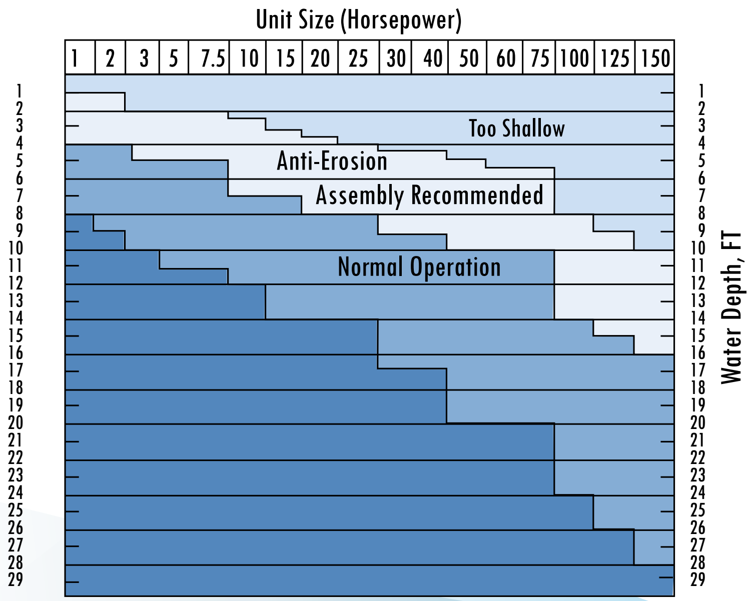


Typical Aqua-Jet® Aerator Operating Depths*

Activated Sludge



Aerated Lagoons



*These charts are intended for approximation purposes only. Requirements are dependent upon basin geometry. Consult Aqua-Aerobic Systems for larger horsepower units or specific applications.

FSS Series (fiberglass)

FSS Model	HP	RPM	Approx Ship Wt (lbs)	DIMENSIONS (inches)					Shaft Dia.	Mooring Cable Dia.
				A	B	C	D	E		
4200111	1	1800	325	34.69	8.5	4	7	46.75	.875	
4200211	2	1800	325	34.69	8.5	4	7	46.75	.875	
4200311	3	1800	550	44.13	8.5	4	11	64	1.250	
4200511	5	1800	550	44.13	8.5	5	11	64	1.250	
4200711	7.5	1800	625	46.63	8.5	6	11	64	1.250	3/16”
4201011	10	1800	900	51.69	10.38	5.5	12	71	1.750	
4201511	15	1800	925	55.63	10.38	6	12	71	1.750	
4202011	20	1200	1,100	79.94*	27.5*	7	14	84	2.125	
4202511	25	1200	1,150	80.81*	27.5*	8	14	84	2.125	
4203011	30	1200	1,845	86.94	*30	8	15.5	94.5	2.125	
4204011	40	1200	1,845	90.31	*30	9	15.5	94.5	2.500	
4205011	50	1200	1,900	90.31	*30	9	15.5	94.5	2.500	
4205021	50	1200	2,350	101.06	40.69	5.5	15.25	114.75	2.500	1/4”
4206011	60	1200	2700	102.81	40.69	6.25	15.25	114.75	2.703	
4207517	75	1200	2700	102.81	40.69	6.25	15.25	114.75	2.703	

*** Includes allowance for anti-vortex cross.** *Dual speed units are available upon request.*

Aqua-Jet® Aerator Model SS-PW

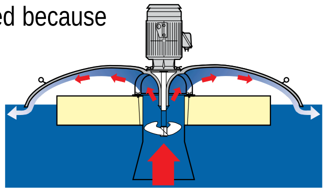
- Ideal for Total Trihalomethane (TTHM) stripping in potable water applications with a minimum volume of 100,000 gallons
- Certified to NSF/ANSI 61 by UL
- Endura® Series high efficiency, low maintenance motors

Aqua-Jet® aerator model SS-PW in operation in a TTHM stripping application.

Aqua-Jet® Accessory Options

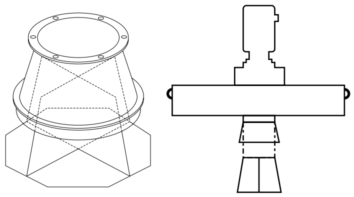
Aqua-Jet II® Contained Flow Aerator

The Aqua-Jet II Contained Flow Aerator is designed for applications which require continued operation of aeration equipment during cold weather months, but are limited because of an inadequate heat sink due to process selection or environmental conditions. This aerator has proven to operate efficiently in a variety of applications, even in sub-zero temperatures. The dome is essentially a spray control shield mounted to the diffusion head of the Aqua-Jet aerator.



Anti-Erosion Assemblies

Anti-Erosion Assemblies consist of a stainless steel plate attached to the bottom of the Aqua-Jet aerator intake cone via an anti-vortex cross. The assembly causes water to be drawn from the sides of the intake cone, rather than from directly below it; and prevents damage to the basin liner or erosion of the bottom. Anti-Erosion Assemblies are available for all horsepower Aqua-Jet aerators. Consult your Aqua-Aerobic representative, or the factory for dimensions.



Draft Tubes

The Draft Tube accessory provides an extension of the intake cone and permits a deeper intake of water. Available in lengths of 3 and 6 feet.

Low Trajectory Diffuser (L.T.D.) Assembly

The Low Trajectory Diffuser (L.T.D.) Assembly is a high density polyethylene ring that is attached to the top of the diffusion head, increasing the diameter of the diffuser. This arrangement lowers the spray of the Aqua-Jet aerator reducing windblown spray and misting. Low trajectory diffusers are used in colder climates, and where a smaller, lower spray pattern is desired.

Arctic Pak

The Arctic Pak ring contains thermal resistance heaters which minimize the chance of icing on exposed surfaces of the Aqua-Jet aerator, such as the cast diffusion head. The Arctic Pak is complete with its own junction box (which mounts on the motor fan cover), automatic controls and control panel. Operation of the Arctic Pak is controlled by an ambient temperature thermostat.

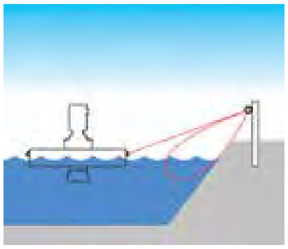
The unit is available in either 230 or 460 volts, and can be used on either floating or fix-mounted Aqua-Jet aerators. Drawings and wiring diagrams are available on request. Contact your Aqua-Aerobic representative.

Aqua-Jet® Mooring Arrangements

There are four standard mooring arrangements for the Aqua-Jet aerator. The type selected is dependent on the specific application.

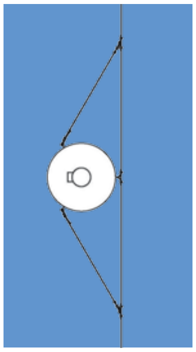
Post/Maintenance Mooring

A mooring post is installed on shore and the mooring line is attached to an eyebolt in the post. A maintenance loop enables the operator to pull the unit to shore or opposite side of the basin without disconnecting the line. Available for 3 or 4 point mooring.



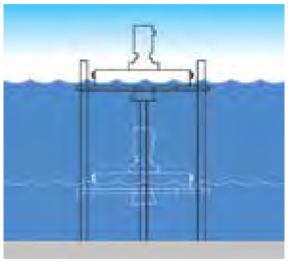
Span Mooring

Span Mooring is used in larger lagoon applications, allowing more than one (1) aerator to be attached to a single mooring cable across the lagoon. Each aerator is attached to the cable using a 3 point mooring concept and can be removed individually for service (*plan view shown to the right*).



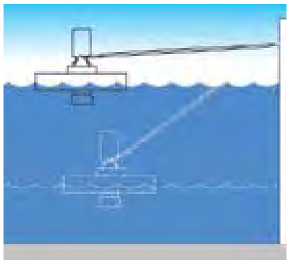
Restrained Mooring

Restrained Mooring is used in applications with varying water levels. The Aqua-Jet mooring frame fits around the mooring posts and allows the aerator to slide up and down the posts as the water level changes.



Pivotal Mooring

A Pivotal Mooring arm is used in applications with varying water levels with arm lengths up to 40 feet. The arm fits at the base of the motor allowing the aerator to adjust to varying water levels.



Aqua-Jet® Typical Applications

- Extended aeration
- Aerobic digestion
- Equalization
- Aerated lagoons
- Oxidation ditches
- Sludge holding
- Municipal-industrial combinations
- Batch reactor processes

Pulp and Paper Mills

- Simple and flexible installation
- Equipment is easily retrievable without dewatering basin
- Short lead times
- High efficiency motors reduce energy consumption
- Low installation cost
- Easily retrofitted into existing aeration systems

Digesters/Sludge Holding Basins

- Provides efficient oxygen transfer and complete mixing
- Pivotal Mooring or Restrained Mooring accomodates large changes in water level
- Units can be pulled to the side of the basin for service without dewatering
- Aerator can be cycled on/off to control dissolved oxygen (D.O.) and save energy

Providing TOTAL Water Management Solutions

Visit our website at www.aqua-aerobic.com to learn more about the Aqua-Jet® Surface Mechanical Aerator and our complete line of products and services:

Aeration & Mixing

Biological Processes

Filtration

Membrane Systems

Controls & Monitoring Systems

Aftermarket Products and Services

AQUA-AEROBIC SYSTEMS, INC.

6306 N. Alpine Rd Loves Park, IL 61111-7655

p 815.654.2501 f 815.654.2508

www.aqua-aerobic.com

solutions@aqua-aerobic.com

Appendix G: Grit Removal System Hydraulic Analysis

Kennedy/Jenks Consultants
Engineers & Scientists

Project	Rosemond Community Service District WWTP		
	Conceptual Design Report		
Job #	1844514*01		
By	Rachel Druffel-Rodriguez	Date	July 25, 2018
Checked By	Joe Wojslaw	Date	July 25, 2018

Hydraulics From Grit Removal System to Distribution Box #1

Flow Rate (MGD)	**2.54**
Flow Rate (gpm)	**1764**

Pipe Material	**DIP**
C Factor (<12")	**140**
C Factor (>12")	**140**
SG (lb/ft^3)	**62.4**

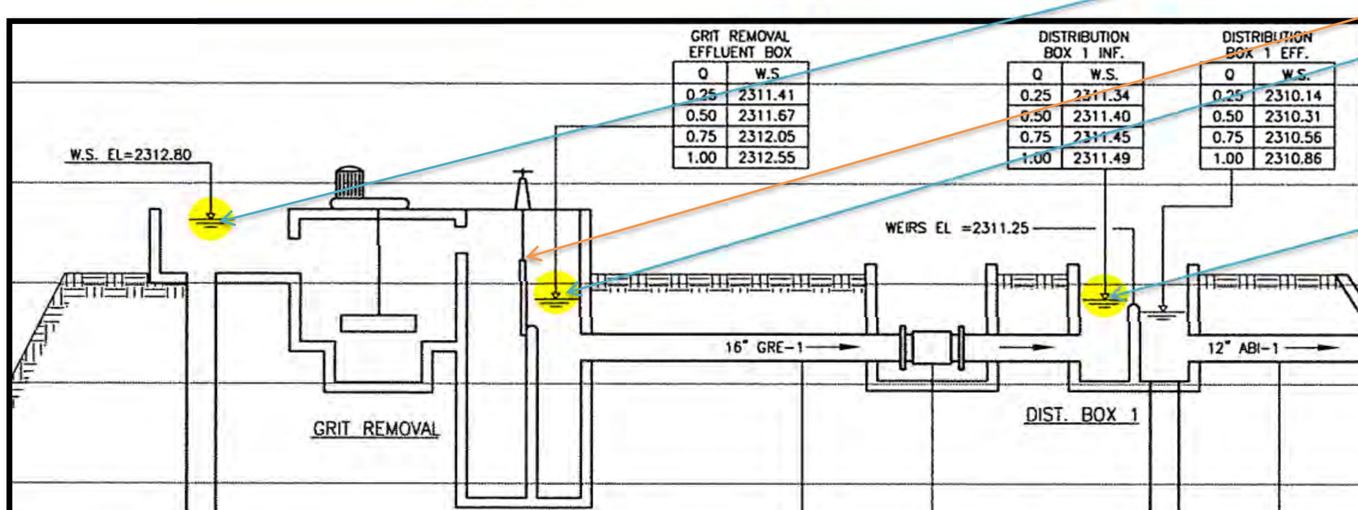
ASSUME:
- Assume weir upstream of grit removal effluent box is at constant elevation of 2312.56
- Height of water over the weirs determined using rectangular weir calculator (http://irrigation.wsu.edu/Content/Calculators/Water-Measurements/Rectangular-Contracted-Weir.php)

1.0 MGD		
Location:	**Weir Gate**	**Dist Box #1**
Weir width (ft) =	4	4
Height of water over weir @ 1 MGD (ft) =	0.24	0.24

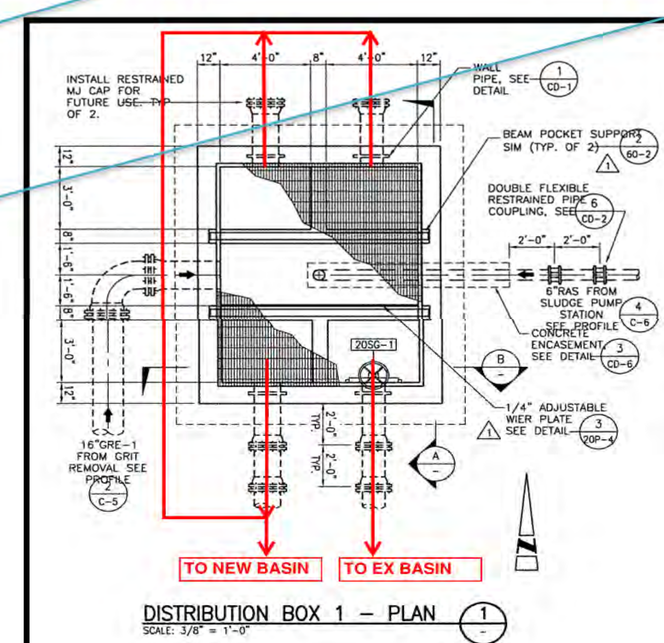
2.54 MGD		
Location:	**Weir Gate**	**Dist Box #1**
Weir widths (ft) =	4	4x4 ft weirs = 16 ft
Height of water over weir @ 1 MGD (ft) =	0.45	0.18

- Top of weirs in distribution box #1 is at an elevation of 2311.25' (as indicated in sheet 29 of as-builts)
- One 4 ft weir currently used for existing basin. For this conceptual design, all four weirs (4 ft each) will be used to split flow 75% to new basin & 25% to existing basin (see figure from Sheet 29 below)
- Assume 6" drop over weir within grit removal effluent box

TYPE	LOCATION	PIPE RUN LENGTH (ft)	QTY (-)	PEAK FLOW (MGD)	DIAMETER (in)	AREA (ft^2)	VELOCITY (ft^2/s)	MINOR LOSS PER UNIT K-VALUE	ITEM HEAD LOSS (ft)	CUMULATIVE HEAD LOSS (ft)	Existing HGL @ 1.0 MGD (From As-builts, Sheet 7) (ft)	HGL @ 2.54 MGD Peak Flow (ft)	
GRIT REMOVAL SYSTEM TO EFFLUENT BOX													
GRIT REMOVAL TANK W.S.E.											2312.80	**2313.38**	
HEADLOSS THROUGH GRIT REMOVAL SYSTEM	(from Smith & Loveless/Aquadyne)	--	--	--	--	--	--	--	0.021	--	--	2313.35	* Provided by vendor
W.S.E. OVER TOP OF WEIR GATE UPSTREAM OF EFFLUENT BOX		--	--	--	--	--	--	--	--	--	2312.30	2313.33	*Assuming weir is set 6" above W.S.E. in effluent box
GRIT REMOVAL EFFLUENT BOX											2312.55	**2312.38**	
GRIT REMOVAL EFFLUENT BOX TO DISTRIBUTION BOX #1													
PIPING		90.00	--	2.54	16	1.40	2.815	--	0.141	0.14	--	2312.38	
PIPE ENTRY		--	2	2.54	16	1.40	2.815	0.500	0.123	0.26	--	2312.24	
90 DEGREE ELBOW		-	2	2.54	16	1.40	2.815	0.300	0.074	0.34	--	2312.12	
16" TO 8" REDUCER		--	2	2.54	16	1.40	2.815	0.107	0.026	0.29	--	2312.04	
MAGNETIC FLOWMETER		--	1	2.54	8	0.35	11.259	0.300	0.590	0.93	--	2312.02	
DISTRIBUTION BOX #1	(over top of weirs)										2311.49	**2311.43**	*Height of weir = 2311.25 ft



Source: As-built, Sheet 7



Source: As-built, Sheet 29

Appendix H: Parkson Biolac® Treatment System Preliminary Design Proposal

To:	**Rachel Erin Druffel-Rodriguez / Tobie Welgemoed**	**Date:**	**8/9/2018**
Company:	**Kennedy Jenks**	**From:**	**Rakesh Desai**
Tel.:	**858.676.7532**	**Tel.:**	**954-917-1818**
cc:	**Mark Rasor, Chuck Morgan, Steve Young; Ron Maiorana; Jeremy Neill (Coombs-Hopkins)**		
Subject:	**Parkson Biolac® Treatment System Expansion Proposal for the Rosamond, CA WWTP**		

Dear Ms. Druffel-Rodriguez / Mr. Welgemoed:

Based upon our recent email, Parkson is pleased to provide this revised Biolac® System preliminary design proposal for expanding the existing Biolac System at the Rosamond, CA WWTP.

This revised preliminary proposal is based on the following:

1. The existing basin will remain the same size but will now only be able to treat 0.35 MGD flow at the new higher influent load. This loading allows the existing aeration equipment to be used. Therefore, the new basin is designed to treat 0.92 MGD design flow so that the total treatment capability of the two basins together is 1.27 MGD as requested. We have included a new DO probe and analyzer for this basin, as well as new diffuser membranes and downcoming hoses.
2. The new influent loadings are described in the attached proposal. The increased design load will now need to increase the new basin volume. We have maintained the 10'SWD in the basin, so both the length and width have increased. If a different shape is needed to best fit the project site, please let us know and we can rework the dimensions.
3. The new secondary clarifier is quoted as an add option.
4. This proposal does not include any short term replacement or repair of the aeration equipment in the existing basin which may be needed to operate this basin in the short term. This is being addressed separately.
5. One additional 175 HP multi-stage centrifugal blowers will be provided for the new basin. The plant currently has two, 100 HP multistage blowers - one duty, one standby. Installing all blowers on a common blower manifold should allow one of the existing 100 HP blowers to serve as a standby blower for

either basin. Providing a separate air header to each treatment basin with an airflow control valve and an air flow meter allows independent air flow and DO control of each treatment basin. Parkson has included air header control valves and flow meters in this preliminary proposal.

6. A new online DO probe and analyzer will be provided for the new basin to continuously measure the dissolved oxygen level in this treatment basin. We assume the DO probe and analyzer currently installed in the existing basin is working properly and will continue to be used.
7. Both treatment basins will be independently controlled using Parkson Wave-Ox™ controls with online DO control to achieve total nitrogen removal. With this approach, Parkson typically guarantees an effluent total nitrogen concentration < 8 mg/l. One new control panel that will control both treatment basins, including independent air flow and DO control for each basin is included in this proposal.
8. As an option, Parkson also offers our Wave-Ox™ Plus controls, using both online DO and NH_3 control to optimize the nitrogen removal process. With this approach, Parkson will typically guarantee an effluent total nitrogen concentration < 5 mg/l. This approach includes an online nutrient analyzer to analyze secondary effluent samples from both treatment trains independently for both NH_3 and NO_3 concentration, with this input used by the Biolac System control system to optimize the nitrogen removal process in each basin. The added advantages of Wave-Ox Plus are less operator attention required, lower effluent TN, and less energy usage.

Please let me know if you have any questions or need any further information. Thank you for this opportunity to be of service.

Sincerely,

PARKSON CORPORATION

An Axel Johnson, Inc. Company

Rakesh Desai

Sr. Applications Engineer

RDesai@Parkson.com

Table of Content

3. Design Basis

3.1. Design Influent / Effluent Specifications

This proposed Biolac System upgrade is based on the wastewater influent and effluent parameters as shown in Table 1 below. The influent BOD, TSS, NH_3 and TKN concentrations are increased from the values used for the original design.

Table 1 - Design Influent and Effluent Parameters*

INFLUENT PARAMETERS	UNITS	EXISTING BASIN	NEW BASIN
Ave. Daily Flow	MGD	0.35	0.92
Max. Month Flow (Design)	MGD	0.35	0.92
Peak Hourly Flow	MGD	0.70	1.84
BOD_5	mg/L	442	
CBOD	mg/L	376	
COD	mg/L	1,219	
TSS	mg/L	390	
TKN	mg/L	81	
NH3	mg/L	67	
Total Phos. (TP)	mg/L	6	
Max. WW Temp.	Deg C	20	
Min. WW Temp.	Deg C	10	
Site Elevation	Ft	2300	
pH	-	6 to 8	
Alkalinity	mg/L as $CaCO_3$	290	
EFFLUENT PARAMETERS	**UNITS**		
BOD_5	mg/L	20	
TSS	mg/L	20	
Total Nitrogen	mg/L	8	

*To be confirmed by customer prior to final design

3.2. Design Assumptions

Parkson has made the following design assumptions to complete this preliminary design:

a. The influent will continue to be pretreated to remove debris using a fine influent screen. This should be confirmed.

b. Sufficient alkalinity will continue to be present to allow nitrification to proceed uninhibited. A residual alkalinity in the effluent of 50 mg/l is recommended.

c. The incoming oil, grease, chemical and metals concentrations will all continue to be within biologically treatable levels and will not inhibit the biological activity.

d. Sufficient nutrients (P, N, etc.) will continue to be present in the influent for biomass growth or will be added by the plant operating staff. The minimum nutrient requirement is 100:5:1 (BOD:TN:TP).

e. A qualified operator will continue to supervise plant activities and performance.

Please advise if any of these assumptions are incorrect or need to be modified, as this may require changes to this design.

4. Process Description / Design

4.1. Biolac® Long Sludge Age Process Will Continue to be Used

The existing Biolac® System basin will continue to be used and a second basin will be added to increase the total plant capacity to 1.27 MGD design flow.

4.2. Aeration System Design

The Biolac moving aeration chain system as currently installed in the existing basin will continue to be used. Due to the increase in design influent strength, the air flow per diffuser will increase slightly. The existing 100 HP blowers have sufficient capacity for the new design conditions in the existing basin.

The aeration system for the new basin will use the same equipment design as the existing basin. The details of this design are given in Section 5 of this preliminary proposal.

4.3. Wave-Ox™ and Wave-Ox™ Plus Total Nitrogen Removal Process

The operation and control of the existing Biolac treatment train and the new treatment basin will use our Wave-Ox™ process for total nitrogen removal. The existing Biolac control panel will be replaced with a new Wave-Ox™ control system that will control both basins. The Wave-Ox™ process is a simple, single basin total nitrogen removal process developed specifically for the Biolac System's unique, long sludge age process and moving aeration chain design.

As an option, Parkson has also provided a budget price for the Wave-Ox™ Plus process which produces lower total nitrogen using less energy. Parkson typically guarantees effluent total nitrogen < 5 mg/l at the lowest possible energy consumption using MixMode™ Energy Reduction Technology (ERT). Automatic control of the dissolved oxygen and the air flow distribution to the Bioflex moving aeration chains create unique moving waves of multiple oxic and anoxic zones. This repeated cycling of environments nitrifies and denitrifies the wastewater without internal NO3 recycle pumping, separate staging or additional external basins.

- The Wave-Ox™ Plus process uses continuous online effluent NH_3 measurement to automatically adjust the process and maximized total nitrogen removal. Online measurement of NO_3 is also provided to give the operator more complete instantaneous process feedback.
- Using the online effluent ammonia (NH3) concentration, the DO setpoint is automatically adjusted and the air distribution to the aeration chains is determined to provide the optimum balance of oxic and anoxic conditions.
- Energy usage is minimized as the control system continuously optimizes the process by achieving the maximum total nitrogen removal with the lowest possible energy usage.
- During times of low load, the MixMode™ technology provides significantly greater turndown capability by sequentially aerating only the volume of aeration basin needed to achieve the best total nitrogen removal through a wide range of loading conditions.

The result is total nitrogen removal < 5 mg/l typical, greater turndown capability, and reduced energy consumption.

Many customers who do not have total nitrogen limits today still include Wave-Ox in their design to take advantage of the energy savings, the reduction in alkalinity consumption and the increased process flexibility with the MixMode™ technology.

5. Biolac® Treatment System Preliminary Design Information

New Biolac Treatment Train	EXISTING BASIN	NEW BASIN
Number of Biolac® Basin(s)	1	1
Approximate Dimensions at Grade (ft)	195 x 100	311 x 140
Approximate Bottom Dimensions (ft)	147 x 52	263 x 92
Side Slope	2:1	2:1
Side Water Depth (ft)	10	10
Basin Volume (MG)	0.9	2.37
Clarifier Design Hyd. Loading Rate (gpd/ft^2)	-	325
Clarifier Diameter (ft)	-	60
Number of Clarifiers	-	1
Estimated SOR (lbs/hr)		
Oxidation-only	280	736
Wave Oxidation (including denite credit)	183	481
Estimated SCFM		
Oxidation-only	1,672	4,089
Wave Oxidation (including denite credit)	1,122	2,778
Estimated Brake HP		
Oxidation-only	63	154
Wave Oxidation (including denite credit)	42	105
# Diffusers	300	1,105
# Biofuser® Assemblies	60	221
# BioFlex© Headers	10	17

6. Parkson Scope of Equipment and Services Supplied

Parkson will supply the following equipment and services for the Biolac® treatment system upgrade described above:

Equipment for the Existing Treatment Train - 0.35 MGD Design

1. Qty (1) lot new diffuser membranes, downcoming hoses and hose clamps to replace all current in-basin diffuser membranes and hoses.
2. Qty (1), one dissolved oxygen probe and analyzer with handrail mounting kit. This will send a 4-20 mA signal to the new Biolac Wave-Ox PLC described in item 6 below.
3. Note – this is the long term equipment upgrade recommended for the new design criteria. The work which must be done to the existing diffusers for short term operation is being proposed separately.

New 0.92 MGD Treatment Train Equipment

1. Qty (17), complete BioFlex® moving chains with Qty (13) BioFuser® aeration units each including, reinforced hi-temperature connecting hose, HDPE piping, restraining cable system and required hardware (same as the existing basin).
2. Qty (17), Electric motor actuated butterfly valves for individual control of each BioFlex aeration chain (similar to the existing basin).
3. Qty (1), 175 HP multi-stage centrifugal blower packages with Hi-Efficiency TEFC motor, motor coupling, base, surge/overload panel, and automatic inlet butterfly valve to allow automatic air flow control.
4. Qty (2), mass air flow meters and Qty (2), modulating butterfly valves (one for each air main to each aeration basin), to be used to control the air flow between basins automatically via the Wave-Ox™ Plus control panel.
5. Qty (1), one dissolved oxygen probe and analyzer with handrail mounting kit.
6. Qty (1), Biolac System Wave-Ox™ control panel, NEMA 12 enclosure, with Allen Bradley PLC; 12” Panelview HMI color touchscreen to provide automatic DO control of each basin independently, controlling the lead/lag, add/remove operation and inlet valve position of all four blowers using online DO

measurement from each basin; control the operating cycle of the aeration chains as needed to provide both nitrification and denitrification within each treatment basin. The control panel will be provided with a modem for remote access.

7. Final installation inspection, start-up supervision and operator training.

<u>Add Option 1 – 60' Diameter Secondary Clarifier</u>

8. Qty (1) 60' Dia. x 12' SWD (15'-8 3/4" SD) secondary clarifier mechanism for installation in new concrete tank with integral concrete launder, including drive unit with a TEFC motor at 1800RPM, 60HZ, 230/460V; overload protection device; bridge, walkway and equipment platforms; center support column; EDI type II; torque cage of steel structural box truss construction; two rake arms of steel truss construction with steel spiral scraping blades equipped with adjustable stainless steel squeegees; one (1) rotating full surface scum skimmer arm; one (1) scum trough with steel support frame and 6" scum discharge piping; automatic scum trough flushing valve; FRP effluent weir and scum baffle with 304SS fasteners and hardware; fasteners and bolts of 304 stainless steel; one (1) Lot density current baffle plates of pultruded fiberglass plate with galvanized steel supports at 45 degree angle bolted to launder with stainless steel fasteners around full tank perimeter; one (1) Local electrical control panel for Clarifier.

<u>Add Option 2 - Wave-Ox™ Plus Control Using Online Ammonia Control</u>

1. Qty (1), one ChemScan nutrient analyzer with (2) sample lines (one secondary effluent sample line for each treatment train) for online measurement of ammonia (NH_3) and nitrate (NO_3) concentration..

   Note: The ChemScan analyzer must be located inside a building for weather protection.

2. Qty (1), Wave-Ox™ Plus control panel, NEMA 12, with Allen Bradley PLC; 12" Panelview HMI color touchscreen; and all the same capabilities as the Wave-Ox control panel described above, but with the ability to use the online secondary effluent ammonia value transmitted from the online nutrient analyzer to optimizel the process, including automatic control of the DO set point, aeration chain cycle, and oxic and anoxic volume split in the treatment basin.

7. Cost Estimate and Terms

The rough budget price for the equipment and services supplied is .... $705,000 FOB Factory, Freight Allowed.

Add Option 1: Adding 60' secondary clarifier to our scope - $175,000 total (Approx)

Add Option 2: Adding Wave-Ox™ Plus Control with online nutrient analyzer - $64,000 total

Payment terms are 90% net 30, 10% upon startup.

Approval drawings - typically 8-12 weeks after receipt of written order.

Equipment Shipment - typically 16-20 weeks after complete release for manufacture.

8. Supplemental Information

8.1. None

Appendix I: Altas Copco Blower

GIERLICH MITCHELL
EST. 1964

GMI Quote #01535

August 27, 2018

Rachel Druffel-Rodriguez
Kennedy/Jenks Consultants
9665 Granite Ridge Drive, Suite 210
San Diego, Ca. 92123
VIA EMAIL: RachelDruffel-Rodriguez@kennedyjenks.com

Re: Budgetary Quote

Dear Rachel,

We are pleased to offer the following for your consideration:

ITEM	QUANTITY	DESCRIPTION	PRICE EA.	PRICE
1	1	Atlas-Copco Blower Model ZM8807, blower, motor, coupling guard and skid w/accessories - 8" Expansion Joint (inlet) - 8" Discharge Isolation valve (Manual-Bray) - 8" check valve (Technocheck) - 8" Discharge Silencer (Universal) - 10" Inlet filter silencer (Endustra) - 10" Actuated inlet valve (Bray/Rotork) Freight and Startup included in price.	$82,171	$82,171
2	1	Optional: Spare motor and blower bearings	$17,537	$17,537
3	1	Optional: Local Control Panel L1 LCP Monitoring and protection on blower vibration, surge, overload, and motor temp. Including instruments.	$14,620	$14,620

GENERAL NOTES:

1. No taxes included in above pricing
2. Pricing valid for thirty (30) days from date of bid.
3. Price is F.O.B. factory, PP&A.
4. Proposal subject to GMI Terms & Conditions attached and/or terms and conditions of individual companies quoted.

Thank you for giving us the opportunity to quote you on this project. If you have any comments or questions, please feel free to contact our office at (714) 236-6070.

Respectfully yours,
GIERLICH-MITCHELL, INC.

Devin Hanson
Sales Engineer

GIERLICH MITCHELL
EST. 1964

TERMS AND CONDITIONS OF SALE

Proposal No. 01535

1. **ACCEPTANCE.** This proposal is submitted to Purchaser subject to the terms and conditions hereinafter set forth. There are no agreements or representations, verbal or otherwise, outside of this proposal. Upon the acceptance hereof by Purchaser by signing an acceptance copy of this proposal and returning the same to Seller and upon execution of this proposal by an authorized representative of Seller, this proposal shall become a binding contract

2. **DELIVERIES.** GIERLICH-MITCHELL, Inc. shall not be liable for delays in delivery due to fire, flood, natural causes, labor trouble (including strikes, slowdowns and lockouts), war, Government regulation, riot, civil disorders, interruption of or delay in transportation, power failure, inability to obtain materials and supplies, accidents, acts of God, or any other cause beyond Seller's reasonable control. Please let us know the delivery date required for this equipment. We will process this order using all means possible to insure "on time" delivery. Any information regarding delays in your schedule that will affect our equipment, must be made available to us. In most instances, our factories can delay shipment of equipment within reasonable limits to meet a revised schedule. Job delay information not passed on to us in time for us to reschedule delivery will not be considered sufficient cause to delay payment to us. If shipment is delayed at request of Purchaser or by Governmental actions, payment becomes due when the factory is ready to make shipment.

3. **PAYMENT.** Terms are 15% upon submittal approval, 85% Net 30 days from date of shipment invoice. Interest charges of 1.5% per month will be added to any past due invoices. Seller may ship on a "when ready" basis and partial invoice that equipment shipped. Partial invoices are bound by the same terms and conditions as those invoices submitted upon complete shipment of equipment.

4. **BACKCHARGES** not authorized by GIERLICH-MITCHELL, INC. written purchase order will not be honored.

5. **RETENTIONS** not previously approved in writing by GIERLICH-MITCHELL, INC. will not be honored.

6. **RESPONSIBILITY**. GIERLICH-MITCHELL, INC. shall not be responsible for damage to equipment if misused, stored or improperly installed. GIERLICH-MITCHELL, INC. SHALL NOT BE LIABLE FOR CONSEQUENTIAL, LIQUIDATED OR OTHER SPECIAL DAMAGES, CONSEQUENTIAL DAMAGES FOR THE PURPOSES OF THIS AGREEMENT SHALL INCLUDE BUT NOT BE LIMITED TO, LOSS OF USE, INCOME OR PROFIT, OR LOSS OF DAMAGE TO PROPERTY (INCLUDING, BUT WITHOUT LIMITATION, PRODUCTS MANUFACTURED, PROCESSED OR TRANSPORTED BY THE USE OF THE EQUIPMENT) OCCASIONED BY OR ARISING OUT OF THE OPERATION, USE, INSTALLATION, REPAIR OR REPLACEMENT OF THE EQUIPMENT OR OTHERWISE. Breach of any term or condition of this contract shall not be deemed to invalidate the remainder of this contract.

7. **WARRANTY**. For benefit of the original user, GIERLICH-MITCHELL, INC., warrants all new equipment to be free from defects in material and workmanship; and will replace or repair, F.O.B. at its factories or other location designated by it, any part or parts returned to it which GIERLICH-MITCHELL, Inc. examination shall show to have failed under normal use and service by the original user within one year following initial shipment to the Purchaser. This warranty does not cover parts damaged by maintenance, installation, modification or adjustment. Such repair or replacement shall be free of charge for items except for those items that are consumable and normally replaced during maintenance.

THIS WARRANTY IS EXPRESSLY MADE BY GIERLICH-MITCHELL, INC. AND ACCEPTED BY PURCHASER IN LIEU OF ALL OTHER WARRANTIES, WHETHER WRITTEN, ORAL, EXPRESS, IMPLIED OR STATUTORY.

This warranty shall not apply to equipment or parts thereof which have been altered or repaired without GIERLICH-MITCHELL, INC. authorization or damaged by improper installation or application, or subject to misuse, abuse, neglect or accident. This warranty applies only to equipment manufactured and sold by GIERLICH-MITCHELL, INC. In cases where equipment is manufactured by others, the manufacturer's warranty shall take precedence.

8. **TAXES.** Prices are exclusive of all taxes, federal, state, local of any kind of nature.

9. **PRICE PROTECTION.** Unless otherwise set forth herein, prices are firm based upon the following conditions:
   a. Receipt of a valid order within thirty (30) days from date or proposal.
   b. Receipt of drawings and specifications necessary to proceed within one week of purchase order.
   c. Receipt of customer's complete written approval and release for production within four weeks after approval drawings are submitted by GIERLICH-MITCHELL, INC.

   Prices will be increased a maximum or one percent per month for any additional time required by contractor.

10. **TRANSPORTATION.** Unless otherwise set forth herein, all prices are F.O.B. our factories with full freight allowed. The consignee must report all claims for damages in transit to the carrier.

11. **COMPLIANCE WITH LAWS.** Purchaser shall be solely responsible for securing any necessary permits under and for compliance with all safety, health, sanitation and other laws, ordinances and regulations in connection with the installation and operation of the equipment.

12. **INDEMNIFICATION.** It is understood that Seller has relied upon data furnished by and on behalf of Purchaser with respect to the safety aspects of the equipment and that is Purchaser's responsibility to assure that the equipment will, when installed and put in use, be in compliance with safety requirements fixed by law and otherwise legally adequate to safeguard against injuries or damage to persons or property. Purchaser hereby agrees to defend, indemnify and hold harmless Seller, its' agents and employees, against any and all losses, costs, damages, claims, liabilities or expenses, including but not limited to reasonably attorney's fees arising out of or use or operation of the same, except claims for repair or replacement of defective parts as provided in Paragraph 7 hereof.

13. **RETURN GOODS.** Goods may not be returned without previous written permission. Returned material must be sent prepaid and is subject to a re-stocking charge.

14. **CANCELLATION.** The purchaser may cancel his order only upon written notice and payment of reasonable cancellation charges, taking into account expenses, commitments already made, and anticipated profit.

15. **TITLE.** Title to equipment specified herein, and to any and all additions and accessories thereto and substitutions therefore, shall remain with Seller until the purchase price thereof is paid in full.

16. **LIEN INFORMATION.** Please provide if applicable.

This signed acceptance of this quotation constitutes a contract and order to purchase in accordance with all Terms and Conditions referred to herein. Buyers purchase order is acceptable, providing purchase order references Terms and Conditions contained herein.

Project: Budgetary Quote

Accepted:	______________________	Accepted:	Gierlich-Mitchell, Inc
Signature:	______________________	Signature:	______________________
By:	______________________	By:	______________________
Date:	______________________	Date:	______________________

Pasel3 Performance Report HT
Performance graphs

V3.3.14 x86 | DB V1.5.2 U24

Customer:	SUA	Date:	8/22/2018
Reference:		User:	lahellums
Model:	ZM088-07-111-421-213_60Hz (SPECIAL)		

Customer conditions

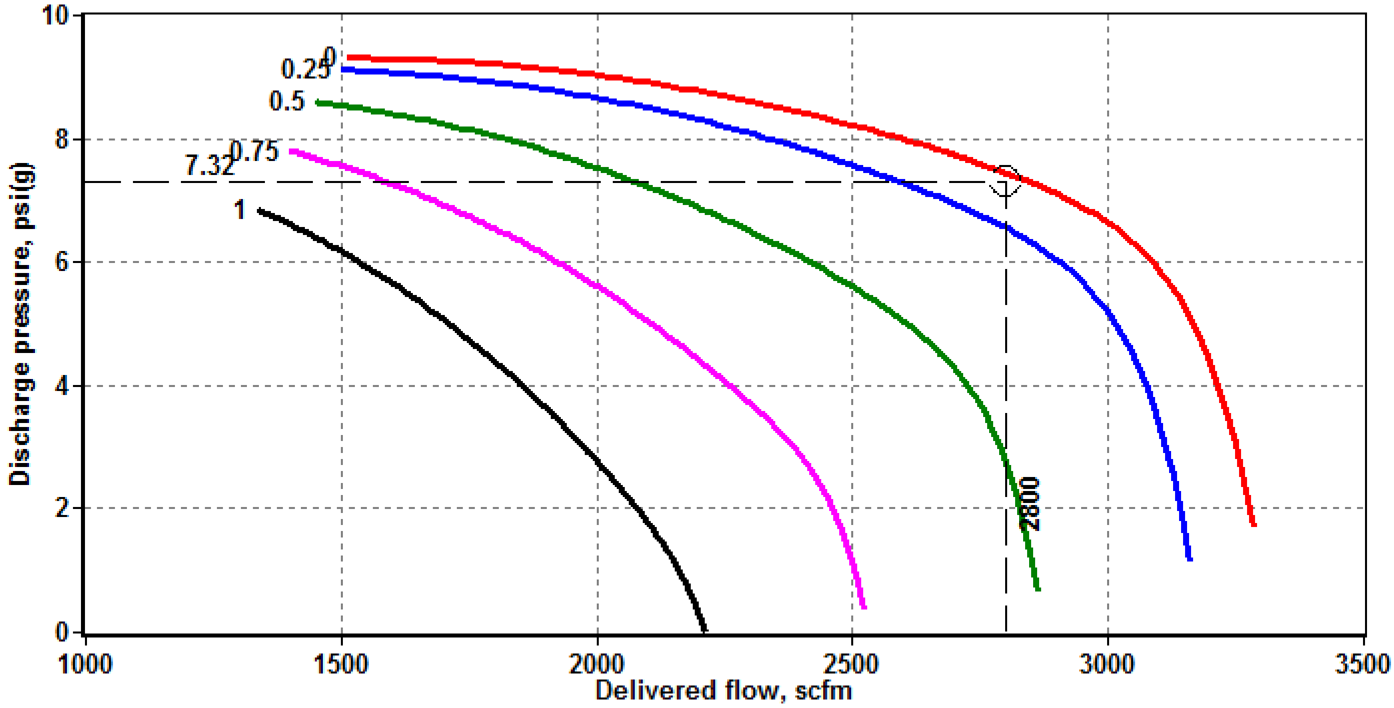
Atmospheric pressure	13.515	psi(a)
Inlet pressure before filter	0.000	psi(g)
Inlet filter dp factor	1.000	-
Inlet temperature	110.0	°F
Relative humidity	100.0	%
Frequency	60.0	Hz
Gas	Air	

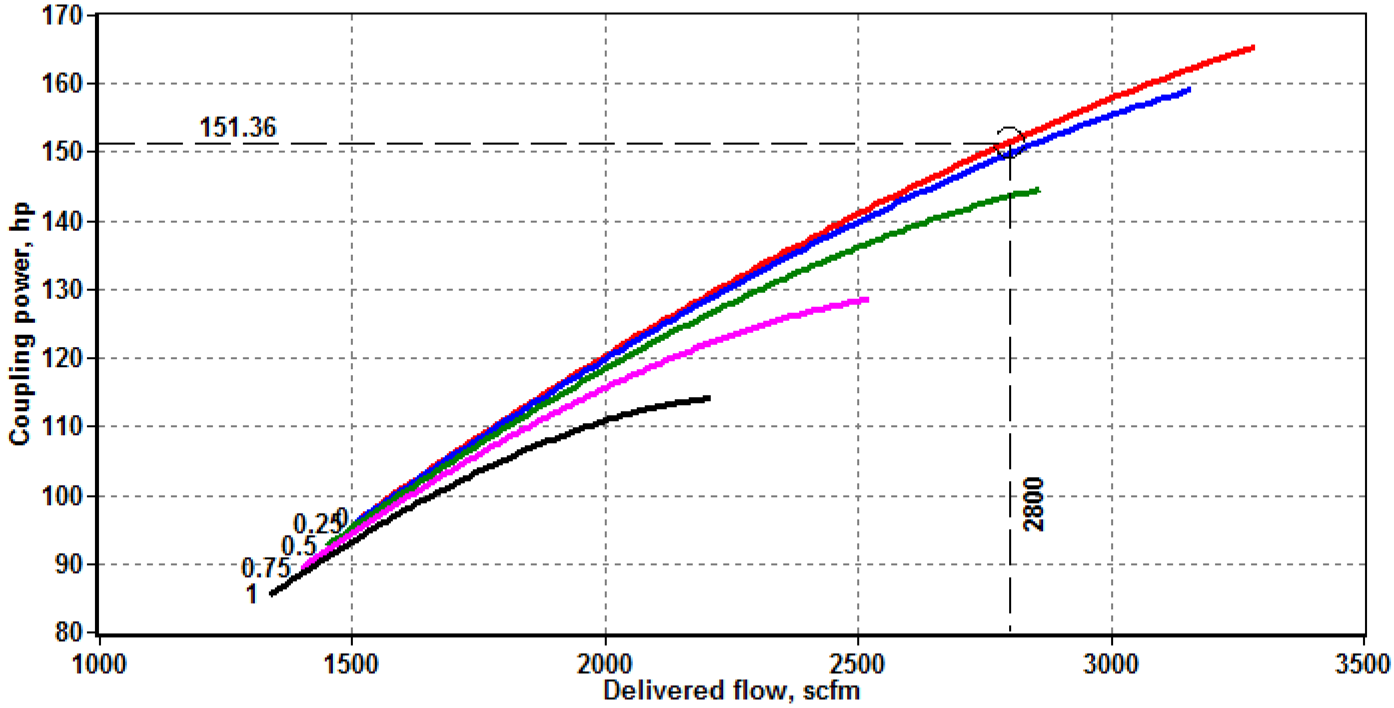
Reference conditions

Pressure	14.70000	psi(a)
Temperature	68.0	°F
Relative humidity	36.0	%

Acceptance Pt Tolerance

Flow +/-	4	%
SER +/-	5	%
Pressure +/-	4	%
Overrides	No	





Calculated capacity and specific energy requirement values are guaranteed within published tolerance at design point and under AML conditions. All additional performance output parameters, as well as off-design calculations at non-AML conditions, are indicative. Atlas Copco reserves the right to revise calculation algorithms and improve output results without prior notice.

Pasel3 Performance Report HT

Summary operating point 1

V3.3.14 x86 | DB V1.5.2 U24

Customer:	SUA	Date:	8/22/2018
Reference:		User:	lahellums
Model:	ZM088-07-111-421-213_60Hz (SPECIAL)	Case:	Specified flow

Customer conditions

Atmospheric pressure	13.515	psi(a)
Inlet pressure before filter	0.000	psi(g)
Inlet filter dp factor	1.000	-
Inlet temperature	110.0	°F
Relative humidity	100.0	%
Discharge pressure	7.320	psi(g)
Frequency	60.0	Hz
Driver speed	3575	rpm
Gas	Air	

Inlet Filter	Yes	Control	No
Aftercooler	No	Overrides	No
Check valve	Yes		
Safety valve	No		

Tolerance

Flow +/-	4	%
SER +/-	5	%
Pressure +/-	4	%

Reference conditions

Pressure	14.7000	psi(a)
Temperature	68.0	°F
Relative humidity	36.0	%

Estimated performance	Unit	Surge	Surge @ pr.	Design	Max. flow	Operating
Delivered flow	scfm	1496	1366	2840	3303	2800
Std. Outlet Flow	scfm	1496	1366	2840	3303	2800
Discharge pressure	psi(g)	9.31	7.32	7.32	0.83	7.32
Differential pressure	psi	9.31	7.32	7.32	0.83	7.32
Coupling power	hp	95.7	87.3	152.9	165.7	151.4
Isothermal efficiency (coupling)	%	58.7	48.5	57.5	8.6	57.3
SER (coupling)	bhp/100cfm	5.3	5.3	4.4	4.1	4.5

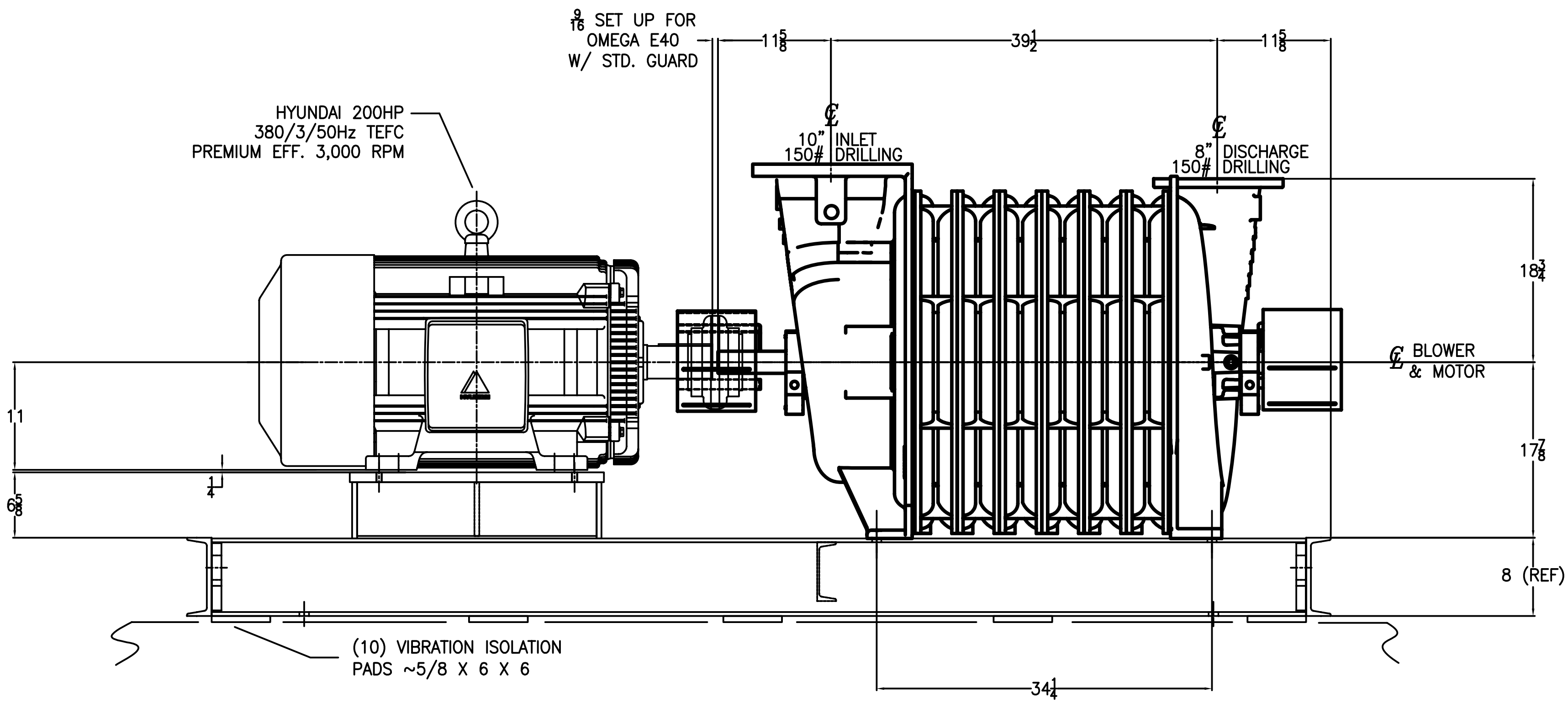
Operating Conditions

Stable pressure rise at open inlet / on operating curve 9.5 % / 9.4%

Estimated theoretical turndown / turnup at operating point 51.2 % / 1.4%

	Unit	Design point	Operating point
Inlet filter pressure drop	psi	0.0497	0.0483
Checkvalve pressure drop	psi	0.0206	0.02
Discharge temperature	°F	230.4	230.9

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0			



NOTES:

1) APPLICATION: AIR
2) LUBE: GREASE
3) IMPELLER MIX: (1) 5011, (4) 5021, (2) 5012
4) INTERNAL COATING: N/A
5) EXTERNAL COATING: HSI STANDARD GRAY
6) DRAINS: N/A
7) OPERATING SPEED: 3,750 RPM
8) LIFTING LUGS: YES
9) DRILL & TAP BEARING TO 1/2" NPS

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES
TOLERANCES
FINAL OUTSIDE DIM. WHEN MEASURED FROM OPP. OUTSIDE DIM. ±(1/8)
ELEVATIONS IN REF. TO ANY OTHER ELEVATION ±(1/16)
TILTS IN BEAM FLANGE, WEB, OR SURFACE ±(1/2 DEG.) BUT NOT TO EXCEED 1/8in.
BOLT HOLE ORIENTAION ±(1/16)

THIRD ANGLE PROJECTION

MATERIAL:

DRAWN BY	EC	02/07/12
CHECK'D BY	EI	2/9/12

HOUSTON SERVICE INDUSTRIES
7901 HANSEN, HOUSTON, TX 77061

TITLE: HSI 88 SERIES (SIDE VIEW)
7 STAGE BLOWER ASSEMBLY

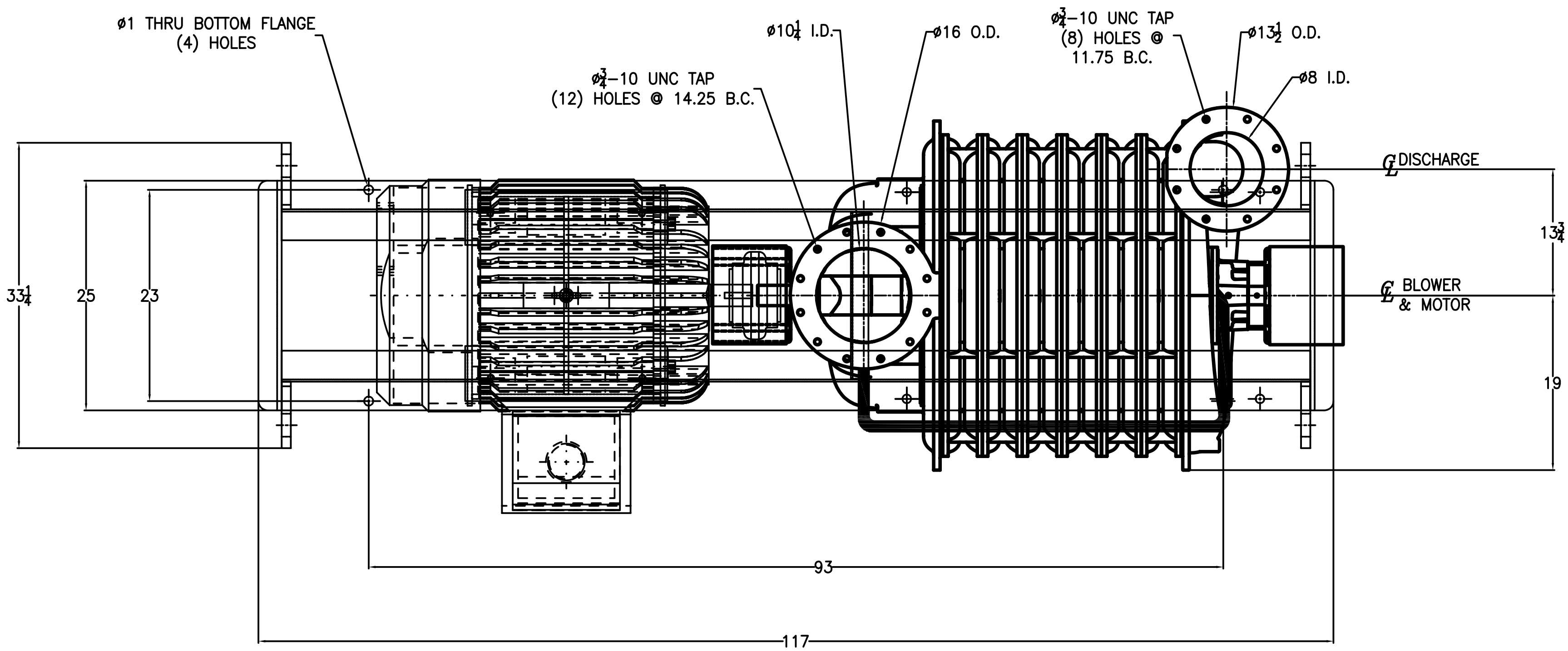
SIZE	REF.	PRT. NO./DWG. NO.	REV
B		WO34284	0

SCALE: NONE | DO NOT SCALE DRAWING | SHEET: 1 OF 2

AUTOCAD 2000i

AUTOMATED TESTING SOLUTIONS WO33543-001

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



TOTAL ASSEMBLY WEIGHT	
BLOWER	3,710 LBS
MOTOR	1,900 LBS
SKID	540 LBS
MOTOR BASE	165 LBS
COUPLING	35 LBS
TOTAL WEIGHT	6,350 LBS

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES
TOLERANCES
FINAL OUTSIDE DIM. WHEN MEASURED FROM OPP. OUTSIDE DIM. ±(1/8)
ELEVATIONS IN REF. TO ANY OTHER ELEVATION ±(1/16)
TILTS IN BEAM FLANGE, WEB, OR SURFACE ±(1/2 DEG.) BUT NOT TO EXCEED 1/8in.
BOLT HOLE ORIENTAION ±(1/16)

THIRD ANGLE PROJECTION

MATERIAL:

DRAWN BY	EC	02/07/12
CHECK'D BY	EI	2/9/12
REVISION BY		

HOUSTON SERVICE INDUSTRIES
7901 HANSEN, HOUSTON, TX 77061

TITLE
HSI 88 SERIES (TOP VIEW)
7 STAGE BLOWER ASSEMBLY

SIZE	REF.	PRT. NO./DWG. NO.	REV
B		WO34284-001	0

SCALE: NONE | DO NOT SCALE DRAWING | SHEET: 2 OF 2

WINDOWS XP PRO
AUTOCAD 2008

AUTOMATED TESTING SOLUTIONS WO33543-001

ZM OIL-FREE MULTISTAGE CENTRIFUGAL BLOWER

100–40,000 cfm / 2–24 psi / 5–3,600 hp / 3–1,160 m³/m
100–1,700 mbar / 4–2,600 kW

Atlas Copco

A ZM FOR EVERY APPLICATION

Atlas Copco's ZM oil-free multistage centrifugal blowers are working successfully in thousands of installations around the world. These reliable blowers are ideal for applications ranging from air to gas and pressure to vacuum. The ZM can be equipped with all the necessary accessories such as motor, valves, filters and skid as well as local or networked control panels to ensure a complete working system. Ask our group to find a ZM blower system to meet your exact requirements.

ENVIRONMENTAL

RELIABILITY ENSURED

From water and wastewater applications to landfill gas recovery systems, Atlas Copco's years of experience, backed up by a strong global service network, ensure that ZM blowers meet all your environmental application requirements including basin aeration, digester gas, soil remediation, filter backwash systems and other processes.

MINING

GLOBAL SERVICE

The ZM is a worldwide proven leader in mining applications such as reclaiming heavy metals from slurry in floatation cells, a leaching process or methane extraction. Our centrifugal blowers showcase their durability and reliability in the harshest of conditions with options to handle tough environments such as temperature, dust, high altitude, or long life with limited maintenance.

POWER INDUSTRY

These innovative centrifugal blowers are ideal for applications such as flue gas desulphurization, oxidation air, and fluidized beds. When your application absolutely requires continuous operation the ZM is your preferred choice.

PETROCHEMICAL INDUSTRY

TOTALLY DEPENDABLE

Sulfur recovery, sour gas, thermal oxidation or refinery tail gas, the ZM's high reliability and low maintenance make it the perfect centrifugal blower for vital processes. ZM blowers meet the most exacting industry standards in the testing and documentation needs.

INDUSTRIAL

EXCEEDS YOUR EXPECTATIONS

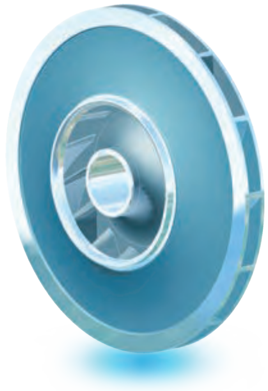
A wide variety manufacturing applications can be served by the ZM. Pulp and paper, carbon black, printing, or blow off systems are a few of many strong examples of ZM being the preferred technology that will outperformance your expectations

VACUUM APPLICATIONS

CLEAN AND DUST FREE

Pharmaceutical, breweries, and other food production facilities need clean and oil free environments. Central vacuum systems serve a variety of applications. ZM has the power to achieve their requirements

WHAT MAKES THE ZM SPECIAL?



EFFICIENT

ZM oil-free multistage centrifugal blowers were developed using the most advanced technology available. Tools including 3D Modeling, Computational Fluid Dynamics and Finite Element Analysis were used at the design stage to pinpoint areas where we make improvements. The resulting modern and innovative design allows for increased efficiency, while the wide product range and configuration options ensure we can offer the best solution possible to meet your needs.

RELIABLE

The ZM blowers have earned the reputation of being "the most reliable blowers" in the industry. Even so, we still work to continually enhance the reliability of the ZM product line. In order to do this, we have made significant investments in the best people, facilities and equipment in the industry. Our commitment to Research and Development, Quality Control, and Product Testing, is driven by our desire to offer our customers the reliability they require in a variety of air and gas as well as pressure and vacuum applications.

LIMITED MAINTENANCE

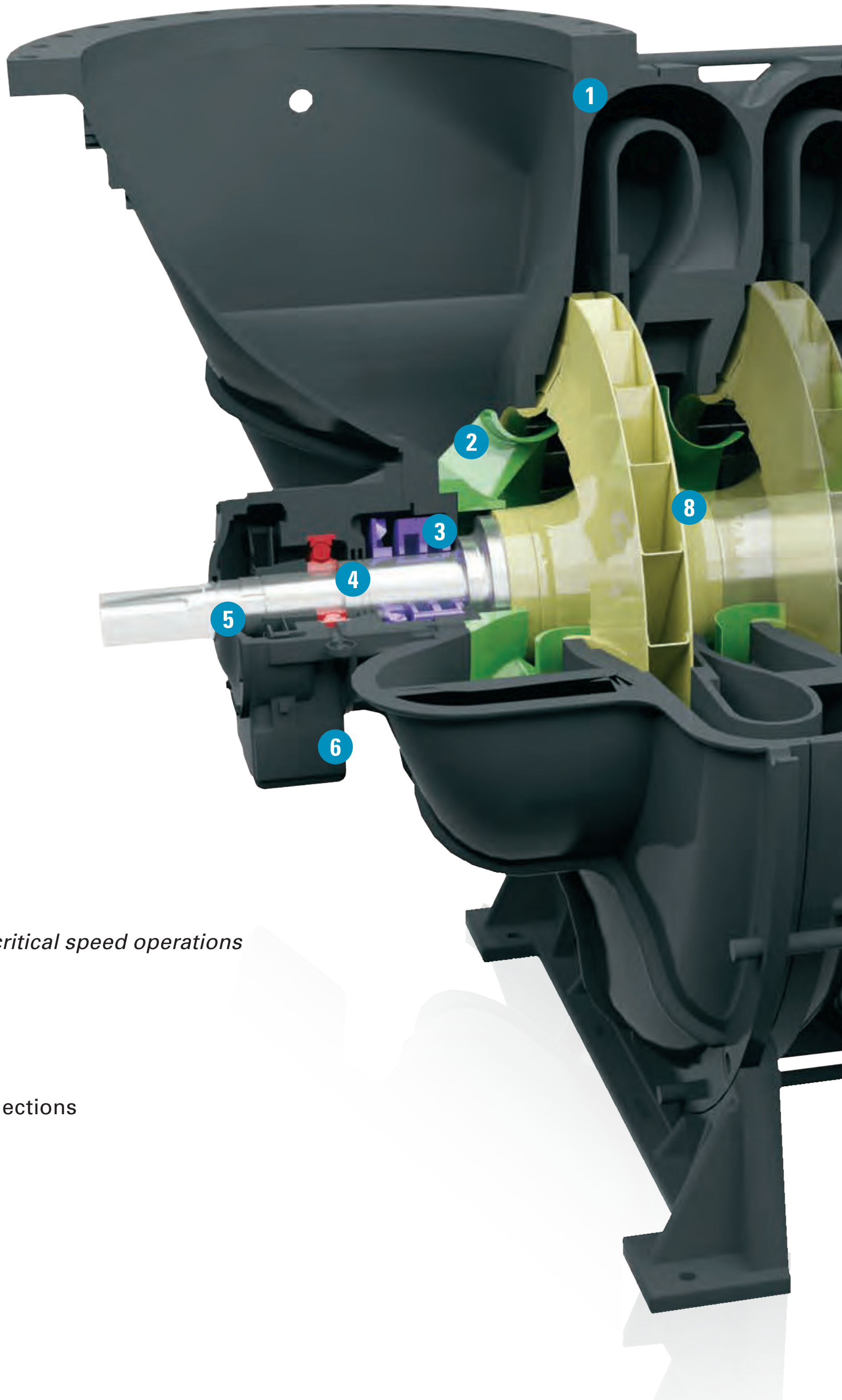
You won't suffer from lengthy downtimes or process interruptions when your ZM is maintained. Service intervals are reduced to a minimum and maintenance is quick and simple. Maintenance points are easily accessible and basic repairs can be conducted with a minimum of time and materials offering you a low cost of ownership.

GLOBAL SERVICE SUPPORT

At Atlas Copco we place high value on outstanding customer service and are on call at all times to help with urgent situations. We pride ourselves in responding quickly to your requests for information and quotations. Contact your local Atlas Copco representative and find out how we can make a difference in your next project.

ZM CENTRIFUGAL BLOWERS: DURABILITY AND PERFORMANCE

Atlas Copco's ZM centrifugal blowers are built to last. Solidly constructed out of premium components, they will run and run, with minimum maintenance requirements and unbeatable cost-effectiveness.



1

Casing
Cast iron, ductile iron available
For low vibration

2

Guide Vanes
Stainless steel guide vanes
Improve efficiency

3

Seals
Gas or Air Seals
To protect the environment

4

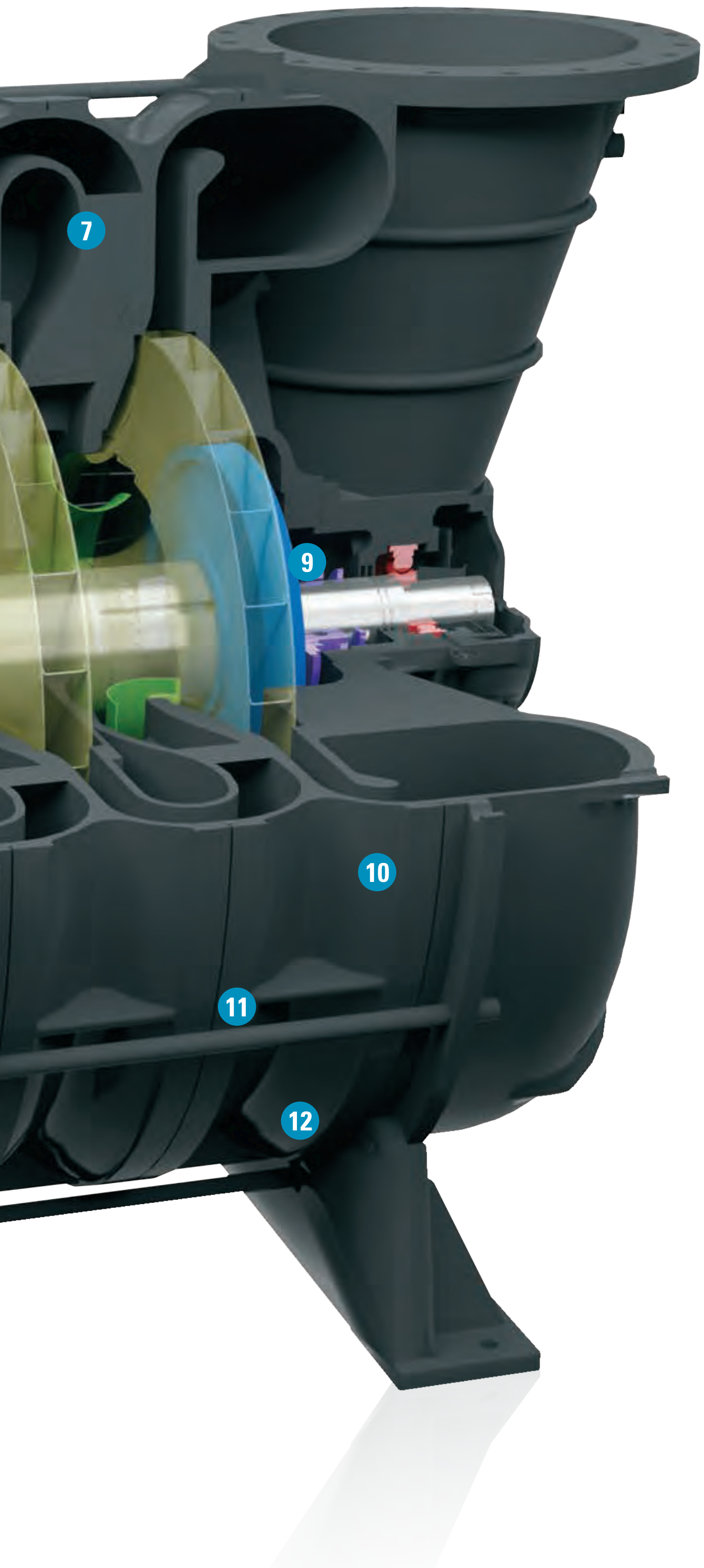
Bearings
10 year L10 minimum life
Less maintenance

5

Shaft
Carbon or stainless steel
Greater reliability is achieved with subcritical speed operations

6

Lubrication
Self lubricated oil, grease, or mist connections
Low preventative maintenance



7

Turning Vanes

Cast intermediate sections

Improved performance

8

Impellers

Aluminum or stainless

Suitable for your application

9

Balance drum

Improves bearing life

10

External coating

Standard 2 coat epoxy

Custom available

Long life

11

Case Drains

Optional

For harsh environments

12

Tie rods

High strength steel

ENGINEERED CONTROL SOLUTIONS FOR ALL YOUR NEEDS

Atlas Copco understands that every application is different, which is why we offer controls that are easy to customize to your specific installation.

LOCAL CONTROL

The pre-engineered local controls for ZM blowers offer many options from standard analog controls to panels with full touch-screen interfaces. These panels protect the blower and motor from unexpected upsets in the system and can alarm or shut down the unit to prevent damage. They can also be programmed to communicate with almost any type of plant master control system.

ZM-IB 1100

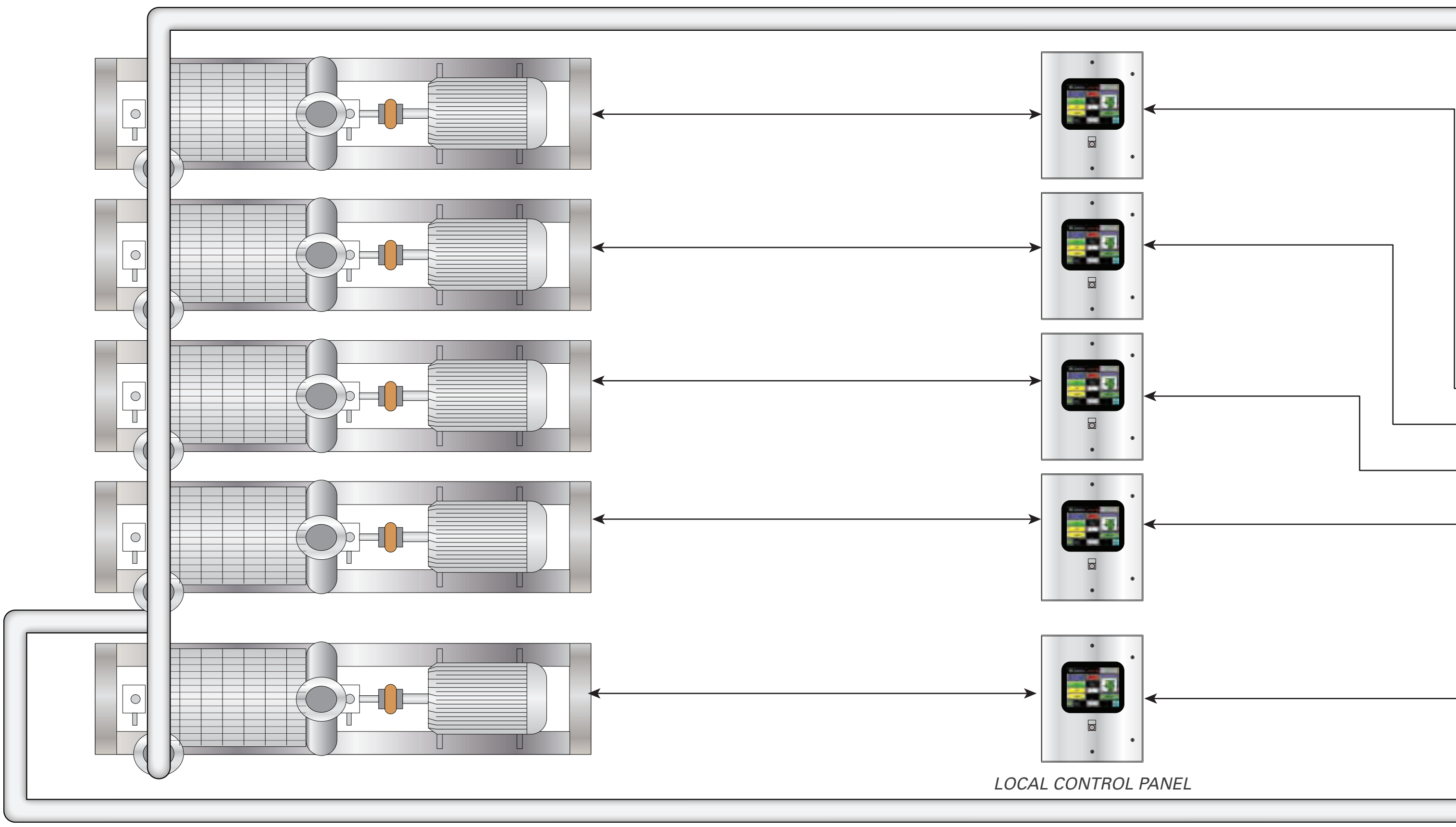
- PLC control
- Basic surge protection
- Bearing temperature and vibration monitoring

ZM-IB 2100

- PLC control with touch screen HMI
- Advanced surge protection
- Bearing temperature and vibration monitoring
- Flow regulation by:
  - inlet throttle valve
  - blow off valve
  - vacuum bleed valve
- Variable process input
  - flow/pressure
  - dissolved oxygen
  - user defined

ZM-IB 3100

- PLC control with touch screen HMI
- Advanced dynamic surge protection
- Bearing temperature and vibration monitoring
- Flow regulation by variable speed drive control
- Variable process input
  - flow/pressure
  - dissolved oxygen
  - user defined
- SCADA interface



PROCESS CONTROL

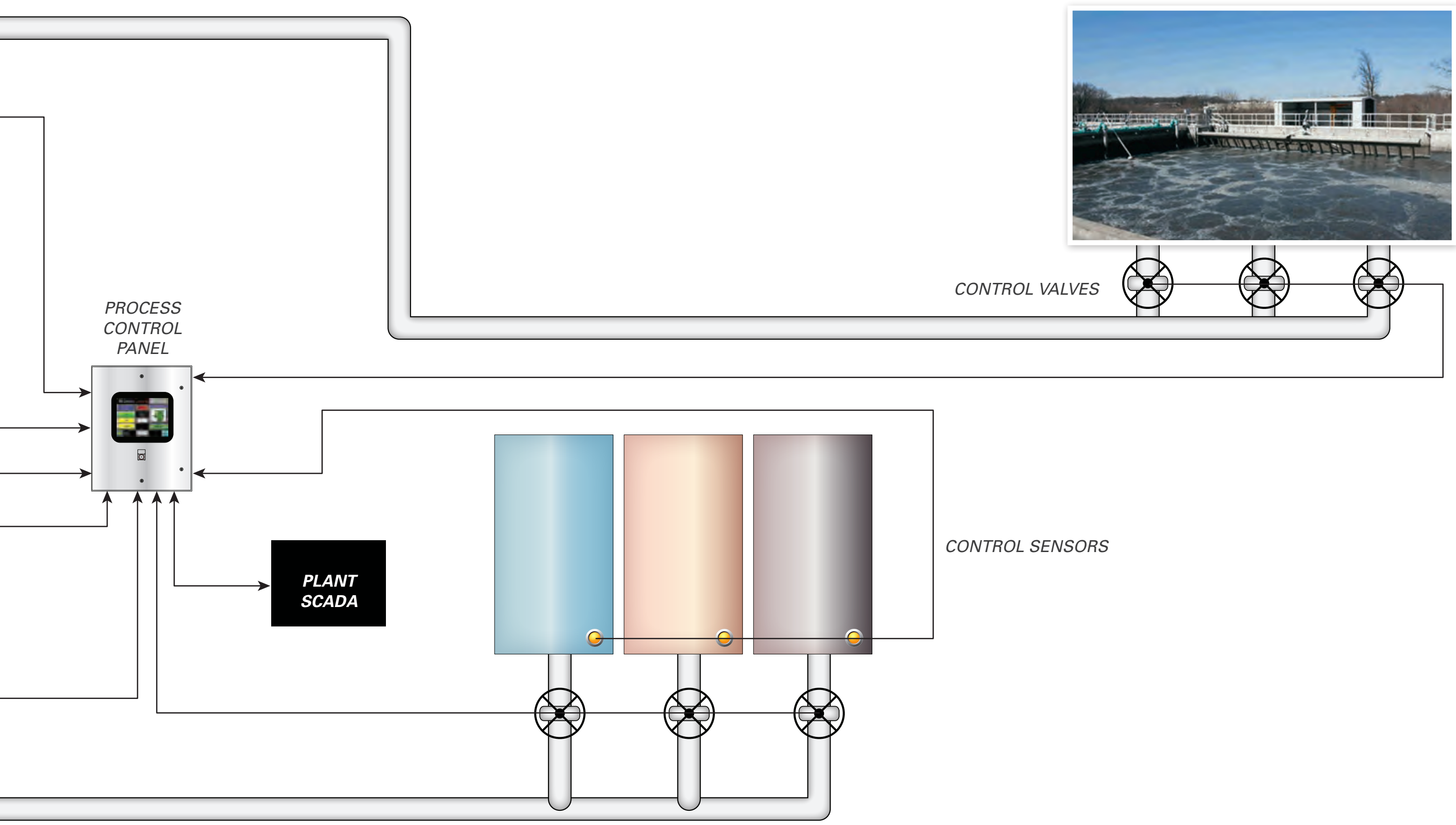
Atlas Copco has developed complete control systems to manage entire processes. Adding a smart sequencer to automate multiple units in operation will both save time in operating, but also improve the efficiency of your entire system. These smart systems are sufficiently advanced to monitor and control your entire process such as wastewater aeration, or virtually any application that requires flow to be matched to the process requirements.

ES 4100 BLOWER SEQUENCER PANEL

- Multiple blower control
- PLC control with touch screen HMI
- Optimizes efficiencies
- Variable process input
  - flow/pressure
  - dissolved oxygen
  - user defined
- Auto sequencing
- System integration
- SCADA interface

ES 5100 PROCESS CONTROL AND BLOWER SEQUENTIAL PANEL

- All ES 4100 functions
- Flow matched to process requirements
- Auxiliary equipment control
- Single point responsibility
- Direct process control
  - automated valves
  - pressure sensors
  - flow meters



ZM DESIGN AND STANDARDS

At Atlas Copco we have made a commitment to be the technical leader in our industry. We have achieved our strong position in this area through continued investment in engineering personnel, the latest design tools, advanced inspection and testing technology, and ongoing R&D projects.

ENGINEERED SOLUTIONS

EXPERIENCE COUNTS

With a global competency center focused on research and development of centrifugal blower technology we are able to provide custom engineered solutions for the ZM product for the most demanding applications. This often includes special materials and testing to accomplish the toughest tasks

TESTING

PROVING GROUNDS

With a world class test facility, we are able to offer comprehensive testing according to industry and customer standards. Every ZM is tested to ensure quality and to make way for a successful start up. We are able to simulate site conditions to ensure that the complete system is tested and ready to go.

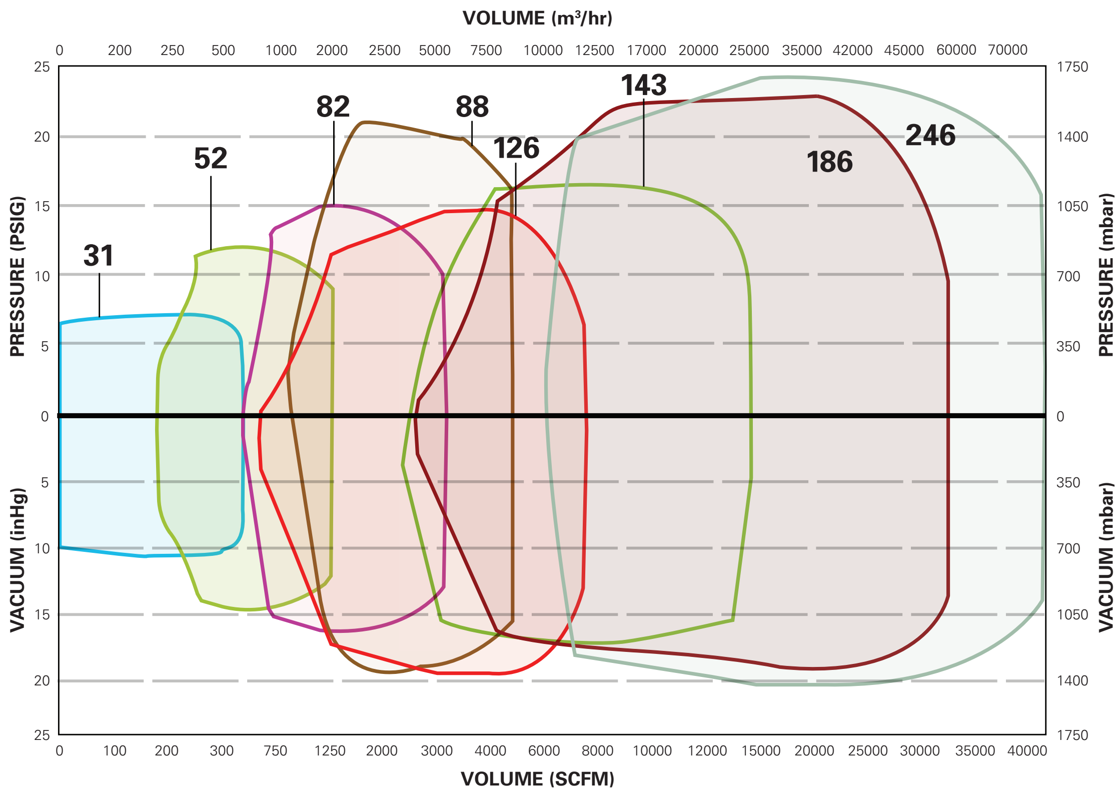
PROJECT MANAGEMENT

TEAMWORK

People make the difference. A project management staff is assigned to larger capital projects that require detailed documentation and testing to ensure the entire project goes smoothly and on time.


MSW

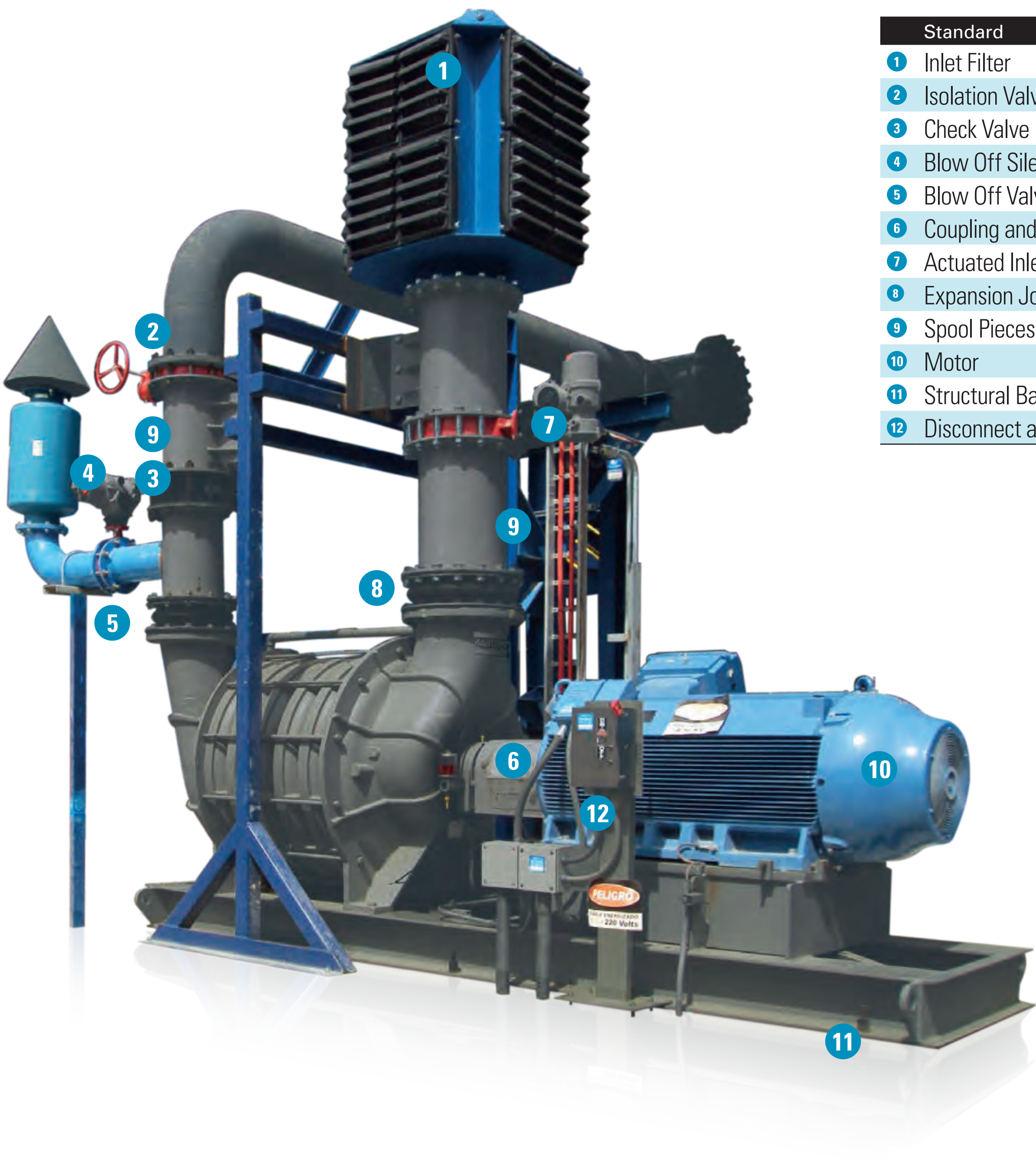
ZM COMPLETE LINE OF CENTRIFUGAL BLOWERS AND EXHAUSTERS



MODEL	NUMBER OF STAGES	INLET FLANGE	DISCHARGE FLANGE	FLOW RANGE	MAXIMUM PRESSURE	MAXIMUM VACUUM	MOTOR POWER
ZM 31	1 to 11	DN80 / 3"	DN80 / 3"	0 – 300 cfm (0 – 510 m³/hr)	7 psi (480 mbar)	10″ hg (339 mbar)	1 – 20 (1 – 15kW)
ZM 52	1 to 10	DN175 / 6"	DN175 / 5"	300-1,300 cfm (510 – 2209 m³/hr)	12 psi (830 mbar)	11″ hg (372 mbar)	5-100 (4 – 75 kW)
ZM 82	1 to 9	DN200/ 8"	DN200/ 8"	750-3,500 cfm (1274 – 5,946 m³/hr)	15 psi (1030 mbar)	19″ hg (644 mbar)	5-250 (4 – 186 kW)
ZM 88	1 to 12	DN250 / 10"	DN250 / 8"	500-4,500 cfm (849 – 7,645 m³/hr)	21psi (1450 mbar)	18″ hg (609 mbar)	10-400 (7 – 298 kW)
ZM 126	1 to 9	DN300 / 12"	DN300 / 12"	1,000 - 8,250 cfm (1,699 – 14,017 m³/hr)	14 psi (970 mbar)	14″ hg (475 mbar)	25-500 (19 – 373 kW)
ZM 143	1 to 8	DN450 / 18"	DN450 / 14"	3,500- 13,500 cfm (5,946 – 22,936 m³/hr)	20 psi (1380 mbar)	17″ hg (576 mbar)	40 – 700 (30 – 522 kW)
ZM 186	1 to 6	DN600 / 24"	DN600 / 18"	2,500-30,000 cfm (4,247 – 50,970 m³/hr)	21psi (1450 mbar)	17″ hg (576 mbar)	200 - 2,500 (149 – 1,864 kW)
ZM 246	1 to 6	DN800 / 30"	DN800 / 24"	3,000-40,000 cfm (5,097 – 67,960 m³/hr)	24 psi (1650 mbar)	19″ hg (644 mbar)	250-3,000 (186 – 2,237 kW)

ZM OPTIONAL PACKAGING AND ACCESSORIES

Let Atlas Copco engineer a complete packaged option to suit your application. Below is a common air blower installation but the accessories and configurations can vary greatly depending on the type of system needed.



	Standard
1	Inlet Filter
2	Isolation Valve
3	Check Valve
4	Blow Off Silencer
5	Blow Off Valve
6	Coupling and Guard
7	Actuated Inlet Valve
8	Expansion Joints
9	Spool Pieces
10	Motor
11	Structural Base
12	Disconnect and/or Motor Starter

Driven by innovation

In 2013, we celebrated 140 years of innovation and experience. Our mission is to continue to bring sustainable productivity through safer, cleaner, more energy efficient, cost-effective compressed air technology. As a result, every compressed air solution we create helps customers operate with greater efficiency, economy, and productivity.

Local interaction

Atlas Copco Compressors LLC is headquartered in Rock Hill, SC. We have major sales, manufacturing, production, and distribution facilities located in California, Illinois, Massachusetts, North Carolina, South Carolina, and Texas. We take the best possible care of our customers through regional customer centers and appointed distributors. Across all of our different business types and brands, we have over 116 locations and approximately 4,800 people in the U.S.

Committed to sustainability

We are among the top 100 sustainable companies in the world and a member of the Dow Jones World Sustainability Index. Atlas Copco has also been recognized by Forbes, Thomson-Reuters and Newsweek, among others, for our commitment to innovation and sustainability. All Atlas Copco Compressors facilities in the United States are triple certified to ISO 14001, ISO 9001 and OHSAS 18001, a set of standards to protect the environment, ensure product quality, and promote our employees' health and occupational safety.

www.atlascopco.us

866-344-4887

MIX
Paper from responsible sources
FSC® C051163
www.fsc.org

COMMITTED TO SUSTAINABLE PRODUCTIVITY

We stand by our responsibilities towards our customers, towards the environment, and the people around us.
We make performance stand the test of time.
This is what we call – Sustainable Productivity.

2935 0624 10 TP 1M 3/15

Appendix J: RAS/WAS Pipeline Calculations

Kennedy/Jenks Consultants
Engineers & Scientists

Project	Rosemond Community Service District WWTP
	Conceptual Design Report
Job #	1844514*01
By	Rachel Druffel-Rodriguez
Date	August 15, 2018
Checked By	Tobie Welgemoed
Date	August 16, 2018

RAS/WAS Distribution Lines

Average Daily Influent Flow (MGD)	1.27
Total RAS/WAS Flow (MGD)	1.91
Total RAS/WAS Flow (gpm)	1323

Note: Allowable pipe velocities are defined in Water Agency Standards (WAS) Section 6.4 "Pressure Systems (Force Mains)". The maximum recommended velocity in the station discharge piping is 8 fps. The minimum discharge velocity in the force main shall be 4 fps at a designed capacity in order to achieve cleansing velocity.

Existing RAS/WAS-1 Line	
RAS/WAS-1 Flow (gpm)	661
Diameter (in)	6
Area (sf)	0.20
Velocity (ft/sec)	7.51

Proposed RAS/WAS-2 Line	
RAS/WAS-2 Flow (gpm)	661
Diameter (in)	6
Area (sf)	0.20
Velocity (ft/sec)	7.51

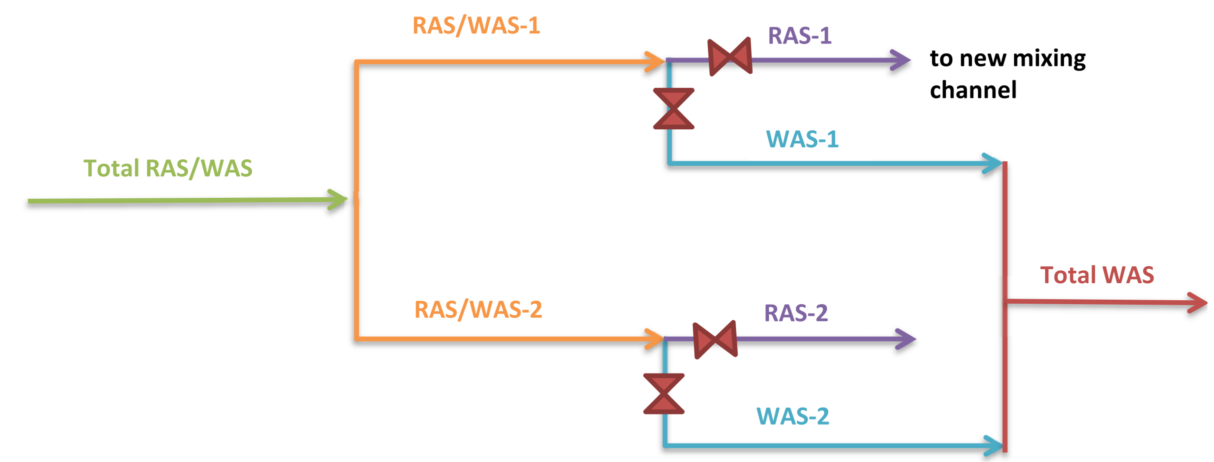
Partially Existing RAS-1 Line	
RAS-1 Flow (gpm)	661
Diameter (in)	6
Area (sf)	0.20
Velocity (ft/sec)	7.51

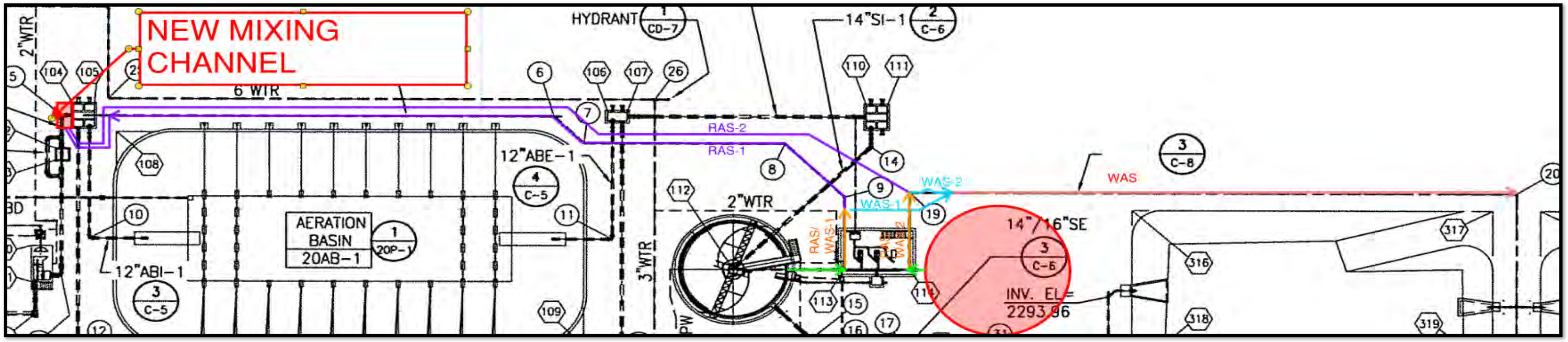
RAS-2 Line	
RAS-1 Flow (gpm)	661
Diameter (in)	6
Area (sf)	0.20
Velocity (ft/sec)	7.51

WAS-1 Line	
WAS-1 Flow (gpm)	661
Diameter (in)	6
Area (sf)	0.20
Velocity (ft/sec)	7.51

WAS-2 Line	
WAS-2 Flow (gpm)	661
Diameter (in)	6
Area (sf)	0.20
Velocity (ft/sec)	7.51

WAS Line	
WAS-1 Flow (gpm)	661
Diameter (in)	6
Area (sf)	0.20
Velocity (ft/sec)	7.51





Source: As-built, Sheet 11, C-4

Appendix K: Sludge Drying Beds

Kennedy/Jenks Consultants
Engineers & Scientists

Project	Rosamond Community Service District (RCSD)
	WWTP Upgrades Project Conceptual Design TM
Job #	1844514*00
By	Rachel Druffel-Rodriguez — Date: August 13,2018
Checked By	Tobie Welgemoed — Date: August 13,2018

WAS/RAS Flows

Concrete Tank

Parameter	Quantity	
Average Daily Influent Flow Rate (MGD)	1.27	
Percent Suspended Solids (%)	0.7%	
Specific Gravity of Sludge	1.05	Metcalf & Eddy, 2014
Specific Weight of Water (lb/gal)	8.345	Metcalf & Eddy, 2014
Solids Concentration (mg/L)	422	
Mass Rate of Dry Solids (lb/MG)	3,522	
Mass of Dry Solids (lb/day)	4,472	
Q_{RAS} (MGD)	1.905	
Q_{WAS} (MGD)	**0.073**	
Q_{WAS} (gpm)	51	
$Q_{Effluent}$ (MGD)	1.20	
Total Required Capacity of RAS Pumps (gpm)	1323	2 existing pumps at 350 gpm capacity

Assumptions:
- Assume 0.7% solids concentration and 1 lb of dry solids per lb of BOD removed (assumption from Parkson)
- Assume RAS Flow = 1.5 x Influent Flow (Parkson)

Assumed Values
Design Values
Calculated Values

Kennedy/Jenks Consultants
Engineers & Scientists

Project	Rosamond Community Service District (RCSD)
	WWTP Upgrades Project Conceptual Design TM
Job #	1844514*00
By	Rachel Druffel-Rodriguez — Date: August 13,2018
Checked By	Tobie Welgemoed — Date: August 13,2018

Proposed Sludge Drying Beds

Concrete Tank

Parameter	Quantity	
Q_{WAS} (MGD)	0.073	
Percent Suspended Solids (%)	0.7%	
Specific Gravity of Dry Solids	1.2	Metcalf & Eddy, 2014
Specific Weight of Water (lb/gal)	8.345	
Mass of Dry Solids (lb/day)	**5,111**	
Number of Existing Beds	6	
Existing Bed Area (sqft)	5,400	
Number of Proposed Beds	6	
Proposed Bed Area (sqft)	5,400	
Proposed Design Bed Loading (lb/sf/yr)	**28.8**	

Assumptions: - Assume 0.7% solids concentration and 1 lb of dry solids per lb of BOD removed (assumption from Parkson)

Assumed Values
Design Values
Calculated Values

Appendix L: Opinion of Probable Construction Cost

KENNEDY/JENKS CONSULTANTS

OPINION OF PROBABLE CONSTRUCTION COST

BASIS OF ESTIMATE

PROJECT INFORMATION

Client:	Rosamond Community Services District
Project:	Wastewater Treatment Plant Expansion
KJ Job No.:	1844514*00
Estimate Date:	8/30/2018
Prepared By:	JLH/RDR
Reviewed By:	DF
Estimate Type:	Conceptual

AACEI Class Level Estimate : 4

PROJECT DESCRIPTION:

Project includes expansion of existing Wastewater Treatment Plant. Project includes addition of a 2nd bioreactor basin, replacement of blowers to serve the new basin and an upgrades to existing aeration basin, addition of a new secondary clarifier, 6 additional sluge drying beds, associated yard piping and electrical, and modifications to Pond 17 to divide it into 3 percolation ponds. An additional item to add a septage recieving station is included.

ESTIMATE DOCUMENTS:

DRAWINGS:

Site Layout drawing updated Aug 2018, May 2007 Existing Plant Construction Plans

DOCUMENTS:

Technical Memo dated July 2018

SOURCE OF COST DATA:

Published estimating material, Means data, similar job data, Major Process equipment vendor budget level quotes provided by Parkson and GMI.

ESTIMATE ASSUMPTIONS:

The followings assumptions were made in the preparation of this estimate:

This project will be design bid build project. Prevailing wage rates will apply.

Project assumes construction of new facilities is similar to existing.
Subgrade is assumed to be suitable for construction of clarifier similar to existing. No special foundations or pilings are anticipated.
Dewatering the below grade excavations is not anticipated to be required and is not included
Electrical and Instrumentation costs have been included at 20% of sum of other disciplines construction costs for Areas 2 and 3; 30% for Area 6; Siting Lighting and SCADA allowances have been included for Area 1

SPECIFIC INCLUSIONS:

The estimate assumes that any excess excavated materials will be retained a place on owners property adjacent to the plant.

Division 1 costs are included at 10% of sum of the other construction costs. These allowance is to cover mobilization, demobilization, construction facilities for contractors use, coordination, startup, and contractors project specific supervisory costs.

Taxes on materials are included at 7.25% of material costs.

Bonds and Insurance are included at 2.5% of sum of the other construction costs.

Contractors Overhead and Profit are included at 15% of sum of the other construction costs.

SPECIFIC EXCLUSIONS:

The estimate does not include the following:

It is assumed that standard foundations can be used, no piling or special foundations are included.

Hazardous or Special Waste removal & disposal, Asbestos/ Lead Abatement, Soil Remediation

Provision of trailers or facilities for Owner's use during construction.

Special Inspections

Real-estate Procurement, Legal, District Administration, Permitting, Finance, Construction Change Orders Costs

Design Engineering, Services during construction, Construction Management costs.

DESIGN & ESTIMATING CONTINGENCY:

A design contingency of 25% has been included.

Note: This allowance is intended to provide a Design Contingency allowance for items that are not fully developed at this stage of design. It is not intended to provide for a Construction Contingency for change orders during construction or to cover unforeseen conditions.

ESCALATION:

Escalation of 3.5% per year is included to a midpoint of construction in approximately 18 months.

ACCURACY:

The level of accuracy is commensurate with levels developed by the AACE, the Association for the Advancement of Cost Engineering International. At increasing levels of design completion, the narrower the range between upper and lower limits and the greater the accuracy of the estimate. This estimate is considered a Class 4 Study or Feasibility Study level estimate in accordance with AACE guidelines. Typically this level of estimate has an expected accuracy range of up to +20 to +50% and -15% to -30% per AACEI 18R-97. This estimate is based upon competitive bidding, which assumes receipt of multiple bids from five or more General Contractors. Without competitive bidding, pricing can vary significantly from the prices assumed in this estimate.

The enclosed Engineer's Estimate of Probable Construction Cost is only an opinion of possible items that maybe considered for budgeting purposes. This Project Estimate is limited to the conditions existing at issuance and is not a guaranty of actual construction cost or schedule. Uncertain market conditions such as, but not limited to, local labor or contractor availability, wages, other work, material market fluctuations, price escalations, force majeure events and developing bidding conditions, etc. may affect the accuracy of this review. Kennedy/Jenks is not responsible for any variance from this Project Estimate or actual prices and conditions obtained.

OPINION OF PROBABLE CONSTRUCTION COST | **KENNEDY/JENKS CONSULTANTS**

Client:	Rosamond Community Services District	**Prepared By:**	JLH/RDR
Project:	Wastewater Treatment Plant Expansion	**Date Prepared:**	30-Aug-18
Location:	Rosamond, CA (93560)	**K/J Proj. No.:**	1844514*00
Estimate Type:	**Conceptual**	Months to Midpoint	18

SUMMARY BY AREA

AREA	ITEM DESCRIPTION		QTY		UNIT Price	TOTAL
1	General Sitework/Site Electrical/Misc		1	LS	357,616	357,616
2	Bioreactors including Mixing Channel Addtion at Headworks		1	LS	2,085,940	2,085,940
3	New Secondary Clarifier and Modification to Sludge Pumping		1	LS	758,912	758,912
4	Sludge Drying Beds (6)		1	LS	507,494	507,494
5	Effluent Flow Distribution Structure and Percolation Ponds (modified Pond 17)		1	LS	1,223,853	1,223,853
6	Septage Receiving Dump Station/ Pond		1	LS	497,514	497,514
	Subtotals					5,431,329
	Division 1 Costs @	10%	0		0	543,133
	Subtotals		0		0	5,974,462
	Taxes - Materials @	7.25%				216,574
	Subtotals		0		0	6,191,036
	Taxes - Labor @	0.00%			0	0
	Subtotals		0		0	6,191,036
	Bonds & Insurance @	2.5%	0		0	154,776
	Subtotals		0		0	6,345,812
	Contractor OH&P @	15%				951,872
	Subtotals					7,297,684
	Estimate Contingency @	25%	0		0	1,824,421
	Subtotal					9,122,105
	Escalate to Midpt. of Const. Per year @	3.5%				478,911
	Estimated Bid Price					9,601,016
	Total Opinion of Probable Construction Cost					**9,600,000**

Estimate Accuracy		
+50%	Total Est.	-30%
$14,400,000	**$9,600,000**	**$6,720,000**

OPINION OF PROBABLE CONSTRUCTION COST **KENNEDY/JENKS CONSULTANTS**

Client: Rosamond Community Services District **Prepared By:** JLH/RDR
Project: Wastewater Treatment Plant Expansion **Date Prepared:** 30-Aug-18
Location: Rosamond Community Services District **K/J Proj. No.** 1844514*00
Estimate Type: Conceptual **MISC SITEWORK**

Area / Bldg	CSI Spec. Division			Description	Qty	Units	Materials		Installation		Sub-contractor			Source
							$/Unit	Total	$/Unit	Total	$/Unit	Total	Total	
				Effluent Flow Meter Station:										
				Vault	1	EA	6,000.00	6,000	3,000.00	3,000			9,000	allowance
				Flow Meter	1	EA	15,000.00	15,000	5,000.00	5,000			20,000	allowance
				Yard Piping: (process piping with individual process tabs)										
				Misc Water service piping	1	LS	10,000.00	10,000	10,000.00	10,000			20,000	allowance
				Hose Stanchions	9	EA	500.00	4,500	500.00	4,500			9,000	
				Misc Drainage improvements	1	LS	20,000.00	20,000	20,000.00	20,000			40,000	allowance
				Abandon or remove 12" TE Pipe (At location of new Basin)	300	LF			5.00	1,500			1,500	
				Abandon 12" Plant Drain Pipe (at location of new Basin)	450	LF			5.00	2,250			2,250	
				Cut and Cap 10" PD from Existing MH7	1	EA	100.00	100	500.00	500			600	
				Trenching for Relocated PD Piping	730	LF			15.00	10,950			10,950	
				SDRL PVC Pipe (PD from existing MH 7 to new Drain MH)	230	LF	60.00	13,800	30.00	6,900			20,700	
			8"	SDRL PVC Pipe (new drawing MH to existing MH 2)	500	LF	16.45	8,225	15.26	7,628			15,853	
			6"	RAS (including trenching/bedding)(From RAS pumping to new Mixing Channel)	400	LF	27.51	11,004	17.51	7,004			18,008	
				Site Exterior Improvements:										
				Aggregate Base Road to Sludge Beds (6")	939	CY	30.00	28,167	10.00	9,389			37,556	26' wide , 1500 LF
				Assumes no new asphalt paving, fencing, landscaping										
				Grit System Upgrades										
				Contingency for any required grit system upgrades- to be confirmed pending condition assesement in 30% design	1	LS	40,000.00	40,000					40,000	Aquadyne Associates
				Recycled Water Pump Station										
				Planned additional utility water pump	1	EA	10,000.00	10,000	2,200.00	2,200			12,200	
				Overall Site Electrical & I&C System Expansion:										
				Site lighting expansion (minor -for egress only)	1	LS					50,000	50,000	50,000	allowance
				SCADA programming upgrades	1	LS					50,000	50,000	50,000	
				Subtotal									**357,616**	

OPINION OF PROBABLE CONSTRUCTION COST **KENNEDY/JENKS CONSULTANTS**

Client: Rosamond Community Services District
Project: Wastewater Treatment Plant Expansion
Location: Rosamond Community Services District
Estimate Type: Conceptual

Prepared By: JLH/RDR
Date Prepared: 30-Aug-18
K/J Proj. No. 1844514*00

Area / Bldg	CSI Spec. Division			Description	Qty	Units	Materials $/Unit	Materials Total	Installation $/Unit	Installation Total	Sub-contractor $/Unit	Sub-contractor Total	Total	Source
				BIOREACTOR										
				New Mixing Channel										
				Base Slab 14" Thick	4	CY	300.00	1,300	350.00	1,517			2,817	
				Concrete Walls 12"	7	CY	450.00	3,066	600.00	4,088			7,154	
				Cover (Grating)	31	SF	75.00	2,324	50.00	1,550			3,874	
				Pipe sleeves	3	EA	500.00	1,500	500.00	1,500			3,000	
				Piping Inlet / Outlet Modifications	1	LS	2,500.00	2,500	5,000.00	5,000			7,500	
				Existing distribution box 1 modifications :										
				Cut and Cap Ras Inlet	1	LS	500.00	500	2,000.00	2,000			2,500	allowance
				Retrofit Existing Basin:										
				New Motor Operated Valves 6"	-	EA	2,624.00		480.00					being completed already
				New Diffuser membranes and hoses	10	LS			880.00	8,800			8,800	included in Parkson proposal
				DO analyzer and probe	1	EA			880.00	880			880	
				Blower Room:										
				Blower Equipment Pad	1	EA	500.00	500	500.00	500			1,000	allowance
			16"	3rd Blower Discharge Piping & Valves (includes removing existing 10" spool)	1	LS	5,000.00	5,000	7,500.00	7,500			12,500	allowance
				New Basin:										
				Excavation Basin Bottom (including 2' overexcavation)	7,393	CY			5.00	36,966			36,966	
				Place Engineered Fill for Basin Subgrade 12" (Compacted Clay)	1,613	CY	25	40,315	15	24,189			64,504	
				Compact Basin Bottom	3,568	CY			3.5	12,487			12,487	
				Import Fill for Basin Berms (2 Sides)	8,724	CY	25.00	218,109	5.00	43,622			261,731	
				Compact Berms	8,724				3.50	30,535			30,535	
				Grading Bottoms and Slopes	5,668	SY			0.50	2,834			2,834	
				Aggregate Base Around Basins 6"	328	CY	30.00	9,850	10.00	3,283			13,133	
				HDPE Liner	51,012	SF					2	102,024	102,024	
				Influent/Effluent Distrubution Structure Concrete	13	CY	250.00	3,356	250.00	3,356			6,713	
				Drain Structure Concrete	2	CY	250.00	417	250.00	417			833	
			14"	Inlet Piping	100	LF	65.05	6,505	30.00	3,000			9,505	
			14"	Effluent Piping	75	LF	65.05	4,879	30.00	2,250			7,129	
			8	ADB	50	LF	40.30	2,015	25.90	1,295			3,310	
			12"	Aeration Piping Header SST	347	LF	165.00	57,255	145.83	50,603			107,858	
			4"	Aeration Piping Branch Piping SST	340	LF	84.48	28,723	26.50	9,010			37,733	
			4"	SST 90	34	EA	105.00	3,570	499.00	16,966			20,536	
				Aeration Anchorage Concrete	34	CY	300.00	10,200	300.00	10,200			20,400	
				Aeration Anchorage Posts	34	EA	350.00	11,900	200.00	6,800			18,700	
				Aeration Bioreactor System including:	1	LS	705,000.00	705,000					705,000	Parkson proposal - 8/9/2018 inclu
				Chain aeration system install and anchoring	17	EA			880.00	14,960			14,960	included in Parkson proposal
				Blower Package including accessories discharge valves, pressure gages, etc. (175 H	1	EA	102,000.00	102,000	7,920.00	7,920			109,920	MCAA/ GMI 8/27/18 +$20k
				Blower Spares	1	EA	17,000.00	17,000	7,920.00	7,920			24,920	MCAA, GMI Quote 8/27/18
			4"	Electric Actuated Valves (install only) supply included with Aeration system package	17	EA			330.00	5,610			5,610	MCAA
				Blower control Panel	1	EA	14,650.00	14,650					14,650	GMI quote 8/27/18
			12"	Modulating Butterfly Valves (on Headers)	2	EA			660.00	1,320			1,320	included in Parkson proposal
				NEW DO analyzer and probe	1	EA			880.00	880			880	included in Parkson proposal
				Mass Air flow Meters	2	EA			660.00	1,320			1,320	included in Parkson proposal
				Electrical & I&C	1	20%					336,403	336,403	336,403	control system supplied with packa
				Wave Ox PLUS Control panel and nutriet analyzer system Upgrade	1	Ea	64,000.00	64,000					64,000	Parkson proposal - Aug 2018
				Subtotal									**2,085,940**	

OPINION OF PROBABLE CONSTRUCTION COST **KENNEDY/JENKS CONSULTANTS**

Client: Rosamond Community Services District
Project: Wastewater Treatment Plant Expansion
Location: Rosamond Community Services District
Estimate Type: Conceptual

Prepared By: JLH/RDR
Date Prepared: 30-Aug-18
K/J Proj. No. 1844514*00

Area / Bldg	CSI Spec. Division			Description	Qty	Units	Materials $/Unit	Materials Total	Installation $/Unit	Installation Total	Sub-contractor $/Unit	Sub-contractor Total	Total	Source
				New Clarifier :										
				Excavation	2,864	CY			5.00	14,318			14,318	assumes sloped excavation
				Base course 12"	348	CY	30.00	10,450	10.00	3,483			13,933	
				Backfill w/native	550	CY			10.00	5,503			5,503	
				Concrete Base Slab 12"	119	CY	300.00	35,726	300.00	35,726			71,452	
				Concrete Wall - 12"	112	CY	400.00	44,658	400.00	44,658			89,316	
				Concrete Pipe Encasement	9	CY	250.00	2,222	250.00	2,222			4,444	
				Grout Bottom	2,826	SF	0.75	2,120	1.75	4,946			7,065	
				Exterior Guardrail	188	LF	75.00	14,130	50.00	9,420			23,550	
				Stairs	1	LS	4,000.00	4,000	1,000.00	1,000			5,000	
				360' Clarifier Mechanism including half bridge walkway with scum skimmer, scum trou	1	LS	175,000.00	175,000	31,200.00	31,200			206,200	Parkson udpated quote 8/9/18
				FRP Eff Weir	333	LF			70.00	23,299			23,299	
				Scum Baffle	333	LF			110.00	36,612			36,612	
			14"	Influent Piping (from Process Dist Box)	100	LF	65.05	6,505	30.00	3,000			9,505	
			14"	Effluent Piping (to Pump station)	40	LF	65.05	2,602	30.00	1,200			3,802	
			6"	Scum Piping (to existing Sludge Pump station)	40	LF	27.51	1,100	17.51	700			1,801	
			8	WAS Piping (to existing Sludge Pump station)	50	LF	40.30	2,015	25.90	1,295			3,310	
			1" CPVC	NaOCL Feed Piping from Pulll box 3	50	LF	5.00	250	10.00	500			750	
				1" NPW to Spray water and hose bibs	120	LF	5.00	600	10.00	1,200			1,800	allowance
				Hose Bibb & Rack	2	EA	500.00	1,000	250.00	500			1,500	
				Existing Sludge Pump Station :										
				Sludge Pump - (additional)	1	EA	8,000.00	8,000	2,200.00	2,200			10,200	
			8"	Inlet Plug Valve (actuated)	1	EA	4,300.00	4,300	800.00	800			5,100	
				8" Tee	1	EA	400.00	400	250.00	250			650	
				8" Pipe Spool	1	EA	300.00	300	200.00	200			500	
			6"	Plug Valve	1	EA	500.00	500	250.00	250			750	
			4"	Check Valve	1	EA	250.00	250	150.00	150			400	
			4"	Plug Valve	1	EA	250.00	250	150.00	150			400	
			4"	Fittings	4	EA	250.00	1,000	150.00	600			1,600	
				Seal Water Panel	1	EA	500.00	500	250.00	250			750	
				VFD	1	EA	3,500.00	3,500					3,500	
				Existing WAS Pump Station :										
				Scum Chopper Pump - (additional)	2	EA	5,000.00	10,000	2,200.00	4,400			14,400	
				Discharge Piping and Valves	2	EA	1,500.00	3,000	1,000.00	2,000			5,000	Includes lifting rails
				New Motor Operated Valves 6"	4	EA	2,624.00	10,496	480.00	1,920			12,416	allowance
				Flowmeter	2	EA	15,000.00	30,000	5,000.00	10,000			40,000	allowance
				Existing Process Distribution Box Modifications :										
				Modifications to Existing Box	1	LS	2,500.00	2,500	5,000.00	5,000			7,500	allowance
				Remove Pea Gravel & Cap	1	LS			2,000.00	2,000			2,000	allowance
				Add 14" Gate with Actuator	1	EA	2,500.00	2,500	1,600.00	1,600			4,100	
				Electrical & I&C	1	20%					126,485	126,485	126,485	
				Subtotal									**758,912**	

OPINION OF PROBABLE CONSTRUCTION COST **KENNEDY/JENKS CONSULTANTS**

Client: Rosamond Community Services District
Project: Wastewater Treatment Plant Expansion
Location: Rosamond, CA
Estimate Type: Conceptual

Prepared By: JLH
Date Prepared: 27-Aug-18
K/J Proj. No. 1844514*00

							Materials		Installation		Sub-contractor			Source
Area / Bldg	CSI Spec. Division			Description	Qty	Units	$/Unit	Total	$/Unit	Total	$/Unit	Total	Total	
				Sludge Drying Beds										
				Excavation and Place Adjacent to Beds (on site)	8,608	CY			5.00	43,040			43,040	
				Overexcavation Basin Bottom 24" Deep	4,594	CY			5.00	22,969			22,969	
				Backfill and Recompact with native 12"	2,986	CY			3.50	10,451			10,451	
				Grading Lagoon Bottoms and Slopes	6,891	SY			0.50	3,445			3,445	
				HDPE Liner 60 mil	80,621	SF					2	161,242	161,242	31 05 19.53
				12" Soil Cement Liner	6,891	SY	7.20	49,613	10.75	74,102			123,715	31 32 13.13 (assumed 9% mix)
				Influent Distrubution Structure Concrete	28	CY	250.00	6,889	250.00	6,889			13,778	
				Effluent Distrubution Structure Concrete	56	CY	250.00	14,111	250.00	14,111			28,222	
				Drain Manholes	3	EA	3,000.00	9,000	2,000.00	6,000			15,000	
			2"	Influent Sludge Pipe WAS (including trenching/bedding)	394	LF	27.51	10,839	17.51	6,899			17,738	
			2	45 El	18	EA	303.60	5,465	157.30	2,831			8,296	
			2	Plug Valves	6	EA	500.00	3,000	250.00	1,500			4,500	
			2	Pipe Support Stanchion	6	EA	150.00	900	100.00	600			1,500	
			8"	SDRL PVC Pipe	946	LF	16.45	15,562	15.26	14,431			29,993	
			6'	45 El	6	EA	71.00	426	73.45	441			867	
			6'	90 El	6	EA	23.00	138	73.45	441			579	
			8	Red Wye	6	EA	300.00	1,800	283.40	1,700			3,500	
			8"	Cleanout	4	EA	500.00	2,000	325.00	1,300			3,300	
				Decant Valve w/ Actuator	6	EA	1,500.00	9,000	660.00	3,960			12,960	
				Decant Valve Support Bracket	6	EA	200.00	1,200	200.00	1,200			2,400	
				Electrical & I&C		%								
				Subtotal									**507,494**	

OPINION OF PROBABLE CONSTRUCTION COST **KENNEDY/JENKS CONSULTANTS**

Client: Rosamond Community Services District
Project: Wastewater Treatment Plant Expansion
Location: Rosamond Community Services District
Estimate Type: Conceptual

Prepared By: JLH
Date Prepared: 30-May-18
K/J Proj. No. 1844514*00

							Materials		Installation		Sub-contractor			Source
Area / Bldg	CSI Spec. Division			Description	Qty	Units	$/Unit	Total	$/Unit	Total	$/Unit	Total	Total	
				Percolation Ponds- 3 -ponds in location of existing Pond 17										
				Excavation of Pond bottom (5' below existing)	100,051	CY			4.00	400,204			400,204	
				Place Excavated Material into New Berms and Compact	23,696	CY			3.50	82,936			82,936	
				Place Excess Excavated Material on property nearby	76,355	CY			2.00	152,710			152,710	
				Grading	8,006	SY			0.50	4,003			4,003	
				Geoweb on Slopes	147,000	SF			1.00	147,000			147,000	
				Plant Effluent Flow Distrubution Structure	1	EA	30,000.00	30,000	20,000.00	20,000			50,000	allowance
				Pond Influent Distrubution Structure Concrete	3	EA	5,000.00	15,000	5,000.00	15,000			30,000	
			14"	Perc Ponds Influent Pipes (including trenching/bedding)	800	LF	210.00	168,000	210.00	168,000			336,000	
				Slide Gates	3	EA	5,000.00	15,000	2,000.00	6,000			21,000	
				Electrical & I&C		%								
				Subtotal									**1,223,853**	

OPINION OF PROBABLE CONSTRUCTION COST **KENNEDY/JENKS CONSULTANTS**

Client: Rosamond Community Services District
Project: Wastewater Treatment Plant Expansion
Location: Rosamond Community Services District
Estimate Type: Conceptual

Prepared By: JLH/RDR
Date Prepared: 30-Aug-18
K/J Proj. No. 1844514*00

							Materials		Installation		Sub-contractor			Source
Area / Bldg	CSI Spec. Division			Description	Qty	Units	$/Unit	Total	$/Unit	Total	$/Unit	Total	Total	
				Septage Receiving Station										
				Truck Dump Station:										
				Truck Dump Station Concrete Structure (Excavation)	271	CY			20.00	5,413			5,413	
				Truck Dump Station Concrete Structure (Backfill)	147	CY			15.00	2,204			2,204	
				Truck Dump Station Concrete Structure (Base Course)	18	CY	250.00	4,389	250.00	4,389			8,778	
				Truck Dump Station Concrete Structure Truck Delivery Slab	16	CY	250.00	3,889	250.00	3,889			7,778	
				Truck Dump Station Concrete Structure - Grit Dumpster Slab	11	CY	250.00	2,778	250.00	2,778			5,556	
				Truck Dump Station Concrete Structure (base Slab)	26	CY	300.00	7,900	300.00	7,900			15,800	
				Truck Dump Station Concrete Structure (Walls)	24	CY	450.00	11,000	450.00	11,000			22,000	
				Truck Dump Station Concrete Structure (Channel Walls)	22	CY	450.00	10,000	450.00	10,000			20,000	
				Truck Dump Station Concrete Structure (Grating Top)	414	SF	50.00	20,700	25.00	10,350			31,050	
				Dump Station Manual Screen	1	EA	25,000.00	25,000	12,500.00	12,500			37,500	
				Automatic Sampler	1	EA	15,000.00	15,000	7,500.00	7,500			22,500	
				Septage Receiving Pond:										
				Excavation and Place (on site)	1,651	CY			5.00	8,257			8,257	
				Overexcavation Basin Bottom 24" Deep	830	CY			5.00	4,148			4,148	
				Backfill and Recompact with native 12"	539	CY			3.50	1,887			1,887	
				Grading Lagoon Bottoms and Slopes	1,244	SY			0.50	622			622	
				HDPE Liner 60 mil Double	14,560	SF					3.50	50,960	50,960	31 05 19.53
				Leak Detection Systems	1	LS	20,000.00	20,000	20,000.00	20,000			40,000	
				Aeration Anchorage Concrete	6	CY	300.00	1,800	300.00	1,800			3,600	
				Aeration Anchorage Posts	6	EA	350.00	2,100	200.00	1,200			3,300	
				Floating Aerators 2HP	3	EA	8,366.67	25,100	4,183.33	12,550			37,650	Aquajet quote
				Influent Distribution Structure	1	EA	5,000.00	5,000	5,000.00	5,000			10,000	allowance
				Effluent Distribution Structure	1	EA	5,000.00	5,000	5,000.00	5,000			10,000	allowance
			6"	Influent/ Effluent Pipe (including trenching/bedding)	200	LF	27.51	5,502	17.51	3,502			9,004	
				Electrical & I&C	1	30%					107,402	107,402	107,402	
				New Motor Operated Valve 6"	1	EA	2,624.00	2,624	480.00	480			3,104	
				Effluent Flowmeter Station:										
				Vault	1	EA	6,000.00	6,000	3,000.00	3,000			9,000	allowance
				Flow Meter	1	EA	15,000.00	15,000	5,000.00	5,000			20,000	allowance
				Subtotal									**497,514**	

Kennedy/Jenks Consultants

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Pasadena, CA 91101
626-568-4304
FAX: 626-683-8938

Rosamond Community Service District Wastewater Treatment Plant Rehabilitation

Technical Report
Volume 2
Amendment No. 1

5 November 2018

Prepared for

Rosamond Community Services District
3179 35th Street West
Rosamond, CA 93560

K/J Project No. 1844514.01

Volume 2

Amendment No. 1 – Rosamond Community Services District Wastewater Treatment Plant and Associated Groundwater Impacts (Groundwater Modeling TM)

2 October 2018

Technical Memorandum

To: David Ferguson, PhD, P.E.

From: Walt McNab, PhD, P.G.

Subject: Rosamond Community Services District Wastewater Treatment Plant and Associated Groundwater Impacts
K/J 1844514*01

This technical memorandum addresses groundwater flow and water quality patterns associated with operation of the Rosamond Community Services District wastewater treatment plant (RCSD WWTP), along with potential changes in those patterns that could stem from planned design modifications to the plant as part of the WWTP Rehab project. The RCSD WWTP consists of 16 lined wastewater holding ponds, approximately 160 acres in total area. Monitoring well data depicting groundwater mounding and potential water quality impacts is indicative of leakage through the lined ponds. This current assessment entailed reviewing historic operations at the RCSD WWTP and calibrating pond and groundwater models to those data. The resulting models were then used to estimate future groundwater impacts under design modifications that entail discharge of the entirety of the treated wastewater flux to Pond 17 (approximately 19 acres) modified into three 5-acre percolation ponds.

1.0 Calibration to Prior Operating History

The groundwater modeling approach for the RCSD WWTP consisted of (1) a spreadsheet-based model for estimating water balance components – including treatment plant effluent, precipitation, evaporation, and infiltration – and pond water salt concentrations in response to seasonal climatological conditions, and (2) numerical simulation of flow and transport in underlying groundwater in response to infiltrating pond water. The latter entailed combining local aquifer properties from the USGS's MODFLOW model for the Antelope Valley (Siade et al., 2014) and source terms developed from the spreadsheet model to represent the influence of the ponds on a larger spatial scale.

1.1 Ponds

The pond spreadsheet model entailed calculation of water balances on a monthly time scale (i.e., the temporal resolution for which evaporation and precipitation data are available for the area – GEI Consultants, 2017: Table 1-1), in response to an influx of some 1.3 MGD of wastewater, accounting for the area presented by the lined ponds available for evaporation. An effective average pond liner hydraulic conductivity of approximately 0.013 ft/day was calibrated by maintaining a stable water depth each month, with the shallowest depth in the summer months and the deepest during winter months. The hydraulic gradient driving infiltration was constrained by the pond water depth plus a posited wetting front depth beneath the ponds (e.g., approximately 8 feet), yielding a vertical gradient slightly exceeding that for purely gravitationally-driven flow. Solute concentration history was modeled based on the total dissolved solids (TDS) concentration of the secondary wastewater treatment TDS effluent of approximately 500 mg/L (RWQCB, 2015: Table - Treatment Plant Effluent Quality) as input. Solute balance was then tracked, with pond concentration based on TDS mass divided by pond water volume at any given time, and with infiltration multiplied by concentration used as a sink term.

Modeled time histories for average pond depth and pond water TDS concentration are shown on Figure 1. Modeled maximum TDS concentrations approach 2,500 mg/L during the summer months under the parameterizations used in the spreadsheet model. This number is consistent with the 3,000 mg/L reported TDS concentration measured in Pond 8 in July 2015 (RWQCB, 2015: Table – Pond Effluent Quality), indicating substantial seasonal evapo-concentration.

Water balance components associated with the spreadsheet pond model are summarized on Figure 2. The time-averaged infiltration rate of approximately 0.015 ft/day represents only about fifty percent of the discharged plant effluent, with the remainder being lost to evaporation.

1.2 Groundwater

The USGS MODFLOW model for the Antelope Valley (MODFLOW model) encompasses the area surrounding the RCSD WWTP, extending north to the Rosemond Hills, which define the boundary of the groundwater basin. The Rosemond Hills are generally represented in the model as a no-flow boundary, except for a small notch located near Rosemond where groundwater enters the basin as specified mountain front recharge (Siade et al., 2014: Figure 6).

The simulated water table elevation produced by the MODFLOW model for its calibration period, ending in 2005, is shown on Figure 3. The boundary condition to the north of Rosemond is evident, with simulated groundwater elevation contours suggesting flow parallel to the boundary in both directions away from a small mound (i.e., the mountain front recharge boundary). Flow is subsequently directed eastward towards Edwards Air Force Base, as well as to the west. Mounding beneath the RCSD WWTP is not represented. A comparison of modeled groundwater elevations directly beneath the pond network with local surface elevation implies a depth to groundwater of approximately 30 feet at model calibration time.

Interpolated groundwater elevations measured more recently in environmental monitoring wells and water supply wells are shown on Figure 4. These data were obtained from the California State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment (GAMA) online database and reflect temporally-averaged groundwater elevations measured since the beginning of 2010. Interpolations of the sparse data presented on the figure include ordinary kriging as well as a local polynomial technique (both generated using the Surfer data visualization package by Golden Software, LLC), the latter to provide more extensive smoothing to assist in identifying broad spatial trends.

Similarities between the observation set and the MODFLOW results include the clear presence of a flow boundary to the north, as well as a similar depth to groundwater beneath the ponds. Mounding beneath the RCSD WWTP is not captured by the well network, although this is likely a reflection of the sparse data set. However, unlike the MODFLOW results, the hydraulic gradient to the east is considerably flatter and contrasts with the more pronounced gradient further to the west in the map area. This may indicate changing pumping patterns and recharge in the area. Nonetheless, despite inconsistencies between the MODFLOW results and the more recent observations, both suggest a lack of appreciable westward groundwater flow for two or three kilometers to the west of the RCSD WWTP. This condition is important as it constrains the size of the groundwater mound beneath the pond network, as discussed below.

To specifically simulate groundwater mounding in response to RCSD WWPT historic operations, a local-scale numerical model was constructed using the aquifer property parameterization defined in the MODFLOW model. This local scale model was developed using the USGS's PHAST simulator (Parkhurst et al., 2010), a finite difference-based groundwater flow and transport model that also includes a multispecies reactive geochemistry modeling capability. PHAST was selected specifically to allow potential future model runs to evaluate water quality-parameter specific simulations entailing dissolution of salts in the vadose zone. In the interim, its mathematical framework produces flow and (unreactive) transport results that are equivalent to those of MODFLOW.

Aquifer property distributions used in the MODFLOW model shown on Figure 5 (layer thicknesses) and Figure 6 (hydraulic conductivity). The PHAST model simplified the MODFLOW model by employing uniform layer aquifer thickness and hydraulic conductivities, based on those values directly underneath the RCSD WWTP. An exception was made for the hydraulic conductivity of Layer 1, which indicates a distinct boundary that runs north-south through the center of the pond network; both hydraulic conductivity regions were preserved in the PHAST model. Other modifications included an initially flat hydraulic gradient, with boundary conditions set as specified heads to the south, east, and west, and as a no-flow condition to the north at the Rosemond Hills.

The 19.5 kilometer (east-west) by 8.5-kilometer (north-south) was discretized into a 60 by 25 grid (325 meters by 340 meters) at a coarse scale, with a finer 55-meter by 58-meter grid (30 by 35 grid cells) employed in the area encompassing the pond network. Variable grid spacing was employed in the vertical direction to represent layer boundaries. A time-averaged constant water flux and associated solute concentration, representing output from the pond spreadsheet model, was applied to a digitized outline of the pond network, adjusted slightly to reflect the actual cumulative pond surface areas.

The simulation was run for a total of 20 years. The simulated groundwater mound, above baseline, is shown on Figure 7. The modeled extent of mounding over select distances is consistent with groundwater elevation data collected in RCSD WWTP monitoring wells in April 2018, the latter extrapolated from very limited regional hydrological data. As noted, there is no evidence of a significant groundwater gradient immediately to the west of the RCSD WWTP, so the inferred groundwater elevation changes in the vicinity of the pond network extending several kilometers to the west plausibly reflect the influence of recharge from the ponds. This demonstrates some consistency between the pond model, the MODFLOW model parameterization, as expressed in the PHAST model, and groundwater elevation observations, providing a basis for applying the calibrated model to the future redesigned RCSD WWTP operation.

The simulated TDS concentration distribution at 20 years of pond leakage is shown on Figure 8. Maximum concentrations approach 1,100 mg/L, which is a large fraction of the pond effluent concentration from the spreadsheet model (approximately 970 mg/L, multiplied by a factor of 1.5 to account for salt dissolution in the vadose zone). The model results represent some degree of dilution via spreading in the vertical direction. Measured concentrations match these concentrations in some monitoring wells (e.g., 1,000 mg/L in MW-1, 1,500 mg/L in MW-2, and 1,100 mg/L in MW-3 in September 2014) and but significantly exceed those in others (e.g., 2,200 mg/L in MW-4), according to RWQCB, 2015 (Table – Current Groundwater Quality). These results suggest that dissolution of salts in the vadose zone may significantly impact water quality beneath the pond network (RWQCB, 2015).

2.0 Impacts of Design Changes

Planned design changes to the RCSD WWTP include abandonment of the lined ponds (Ponds 1-15), the application of denitrification to control nitrate concentrations in the wastewater effluent, and discharge of the totality of the 1.3 MGD wastewater flux into unlined Pond 17, which will be subject to modifications. The proposed modifications involve removal of approximately 5 feet of existing liner/soil material and construction of three 5-acre percolation ponds. Both the pond model and the groundwater model, as described in Section 1, were applied to the new proposed configuration to estimate impacts to both solute concentrations and groundwater mounding.

2.1 Pond

The pond spreadsheet model was applied directly to the unlined pond discharge scenario simply by changing the pond surface area to reflect only that of the current Pond 17, and to adjust the (minimum) hydraulic conductivity of the pond bottom so that water does not pond to an unsupported depth. The resultant modeled water depth and TDS concentration histories for a posited pond bottom with a hydraulic conductivity of approximately 0.15 ft/day are shown on Figure 9. This is a tenfold increase in hydraulic conductivity when compared to the lined (but leaking) evaporation ponds. The corresponding cumulative water balance over the 20-year simulation history is shown on Figure 10. This hydraulic conductivity produces a pond depth that is some four feet higher, on average, than the calibration case. Higher pond bottom hydraulic conductivity values will reduce the depth or eliminate standing water altogether but will not appreciably alter the water balance.

It should be noted that a 1.0-acre infiltration test basin has been constructed in the southeast corner of Pond 17 in preparation for a proposed 3-month infiltration test (November 2018 – January 2019) to determine the infiltration rate and potential leaching of TDS or nitrate from the vadose zone. While an infiltration rate of 1.5 to 2.0 ft/day is expected, the long-term recharge rate (due in part to surface clogging) after one or two years is often half of the initial rate. A long-term infiltration rate of 0.8 ft/day would require one 5-acre percolation pond (ignoring evaporation); thus, leaving two spare 5-acre percolation ponds for operational rotation. The model assumes a uniform recharge across all of Pond 17.

The modeled time-averaged TDS concentration in the pond water is approximately 530 mg/L, when accounting for a small amount of evaporation. This future recharge TDS level is significantly less than the calibration TDS average concentration of 970 mg/L given an estimated 50% evaporation for past operation of the evaporation ponds.

2.2 Groundwater

The modeled groundwater mound above baseline groundwater elevation associated with the redesigned discharge plan is shown on Figure 11. The modeled peak mounding is approximately 60 feet. Intuitively, the area of greatest mounding (50 feet or greater) is located immediately underneath Pond 17. Much of the increase in mounding is attributable simply to the approximate doubling of the infiltration rate over current/historic operating conditions, owing to a substantial reduction in evaporative losses.

Current depth to groundwater in the center of the pond area is approximately 65 feet. Groundwater modeling under current/historic operating constraints indicates a maximum extent of mounding of approximately 25 feet. Correction of this current mounding to baseline conditions suggests that approximately 90 vertical feet of unsaturated material is available to accommodate mounding under proposed new operating conditions. The average mound under Pond 17 of approximately 50 feet should therefore approach within approximately 40 feet of the surface. This estimate is, of course, based on a number of parameterization assumptions reflecting limited data and is therefore subject to uncertainty.

The elevated TDS groundwater plume associated with discharge under the planned design modification is constrained not to exceed the 530 mg/L average pond composition calculated by the pond model (Figure 12). Given the potential for additional salt leaching from the unsaturated zone, the observed TDS distribution could be higher than simulated groundwater flow and transport model output. The proposed 3-month infiltration test to be run from November 2018 through January of 2019 (with 0.5 mgd of undisinfected de-nitrified secondary effluent from the existing treatment train applied to an excavated 1.0-acre test basin in the southeast corner of Pond 17) will have water level and water quality sampled in Monitoring Well No. 12 just south of the test basin. This should provide some indication if salt leaching from the unsaturated zone increases the TDS above the level recharged (recharge TDS = effluent TDS increased slightly to account for evaporation).

References

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Parkhurst, D.L., K.L. Kipp, and S.R. Charlton, 2010. PHAST Version 2—A Program for Simulating Groundwater Flow, Solute Transport, and Multicomponent Geochemical Reactions, Techniques and Methods 6–A35, U.S. Geological Survey, 249 p.

Siade, JA, T Nishikawa, D. Rewis, P Martin, and SP Phillips, 2014. Groundwater-Flow and Land-Subsidence Model of Antelope Valley, California, U.S. Geological Survey, Scientific Investigations Report 2014–5166, 154 p.

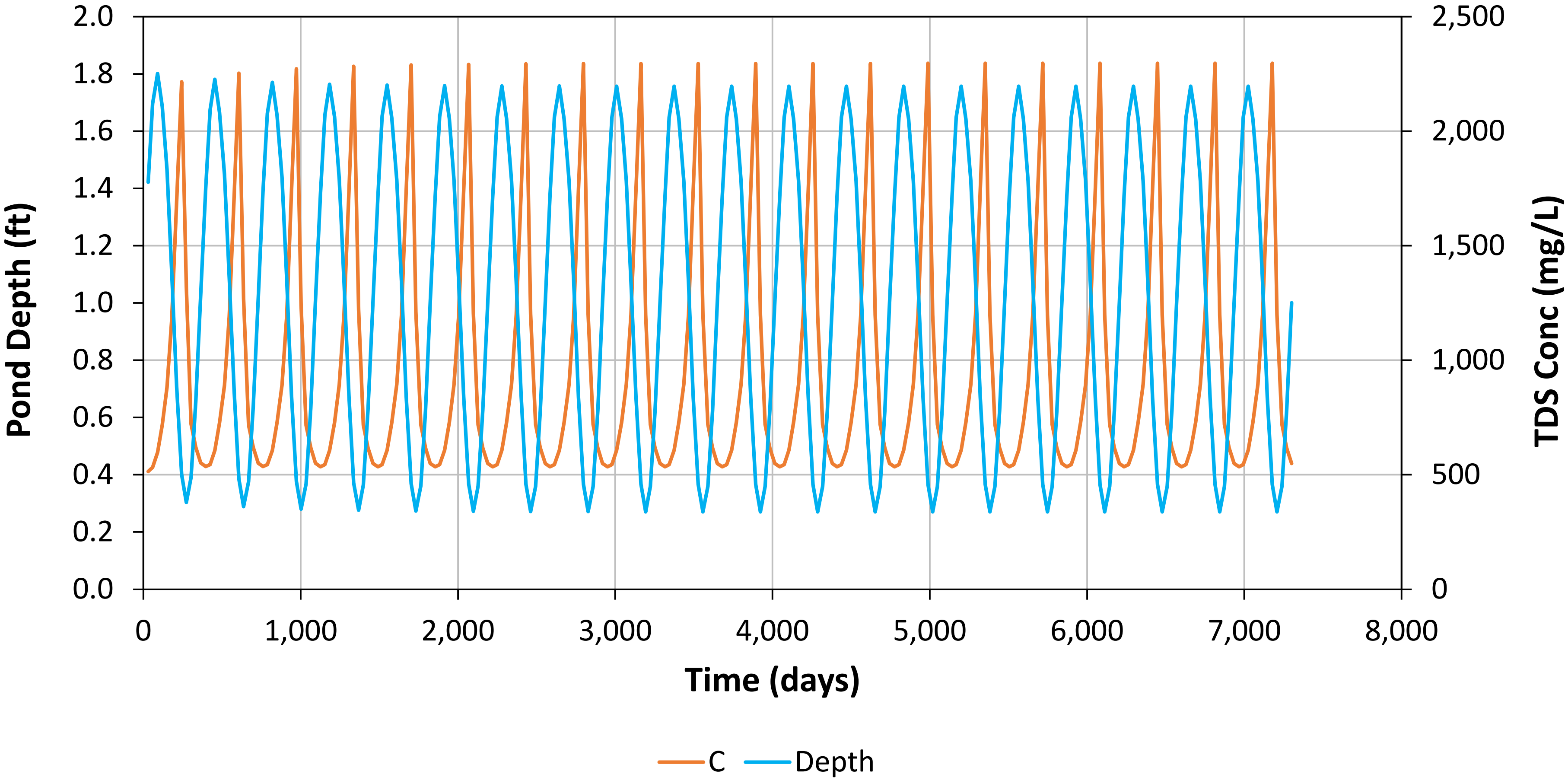


Figure 1: Modeled Seasonal Variability in Average Pond Depth and Total Dissolved Solids Concentration

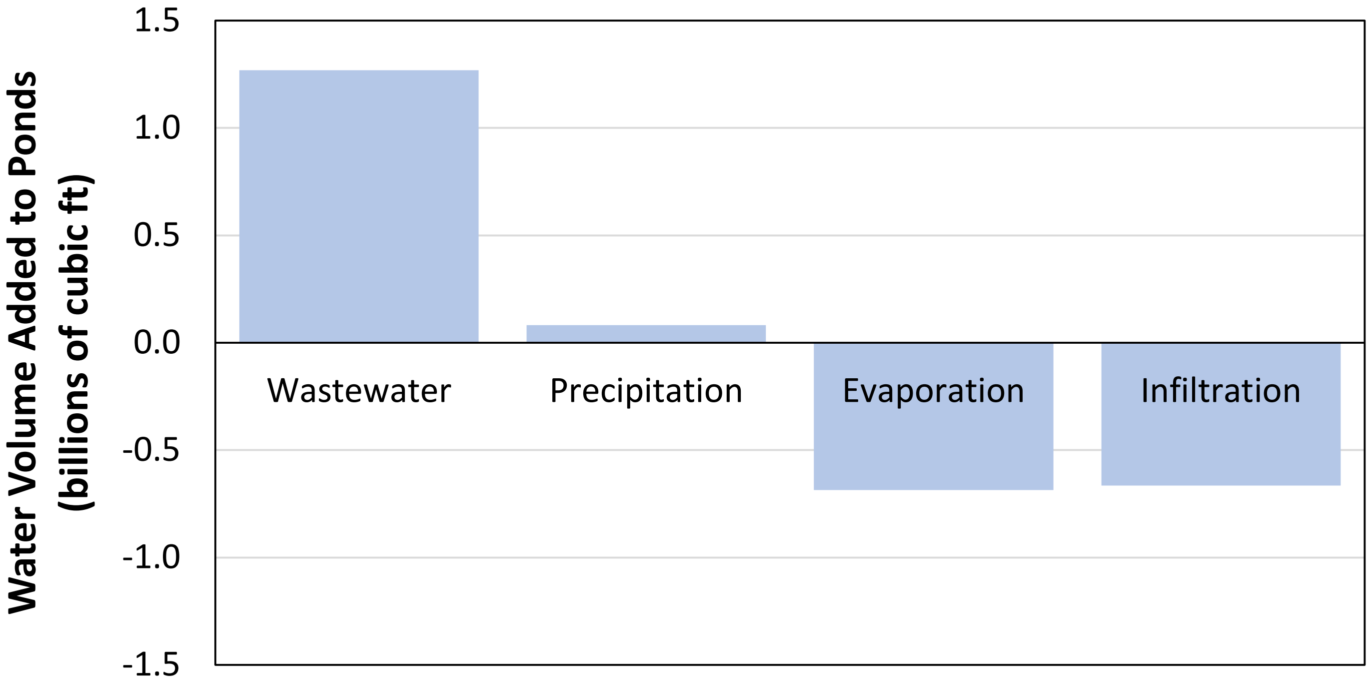


Figure 2: Modeled Cumulative Water Balance Over 20 Year Simulation Period for Ponds 1-15

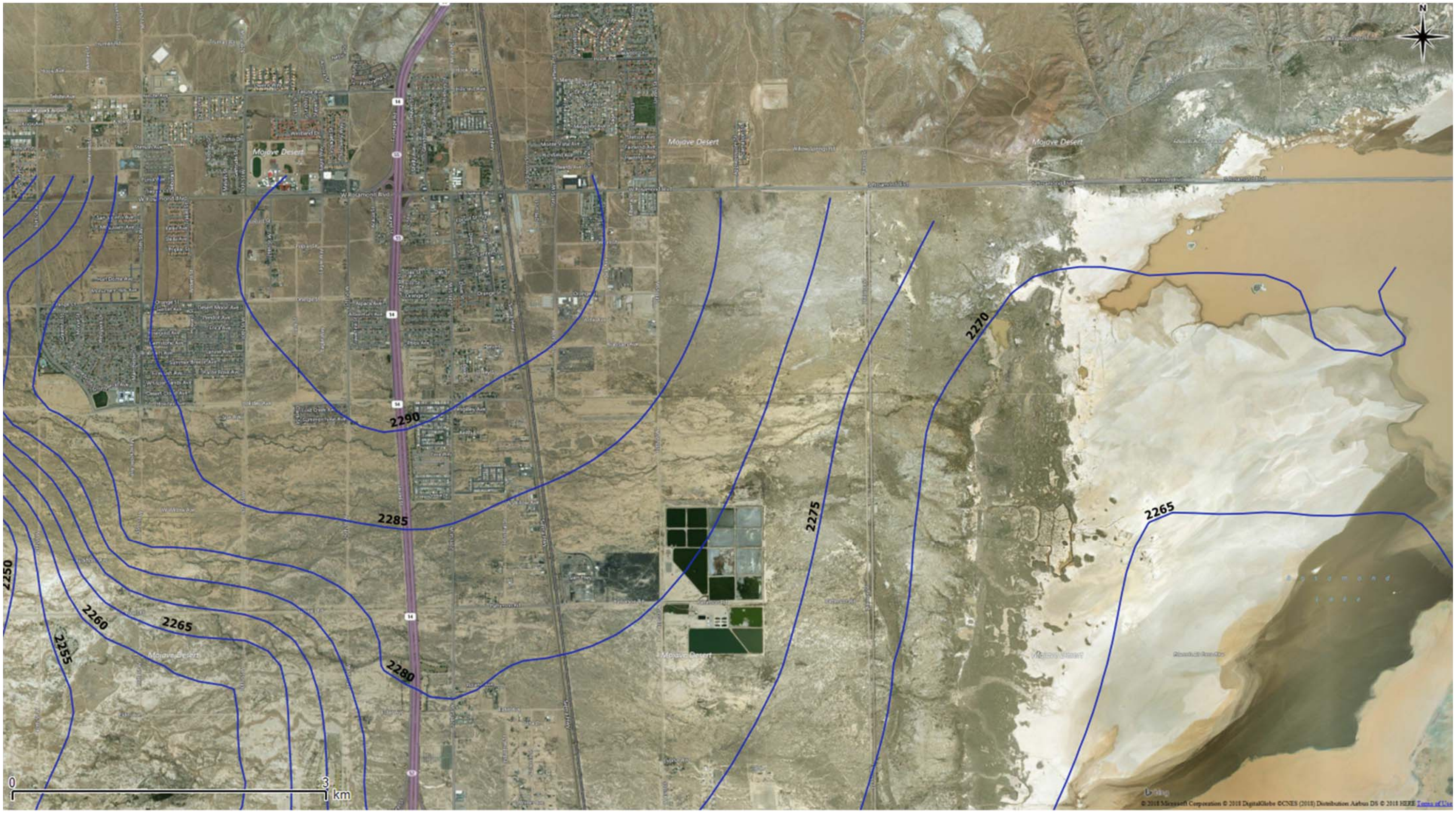


Figure 3: Simulated Water Table Elevation (ft above MSL) in USGS MODFLOW Model for the Antelope Valley at End of Calibration Period (2005)

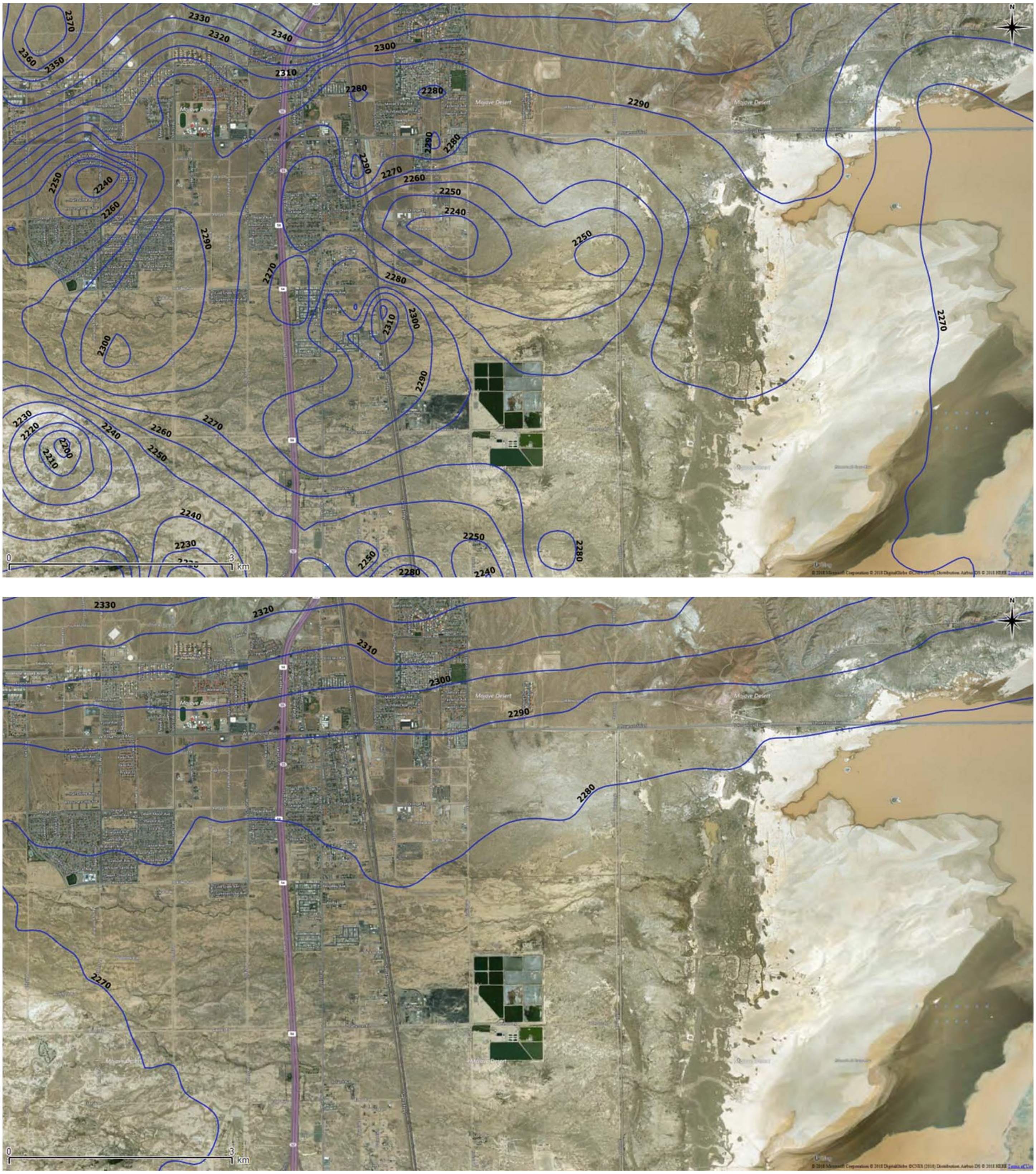
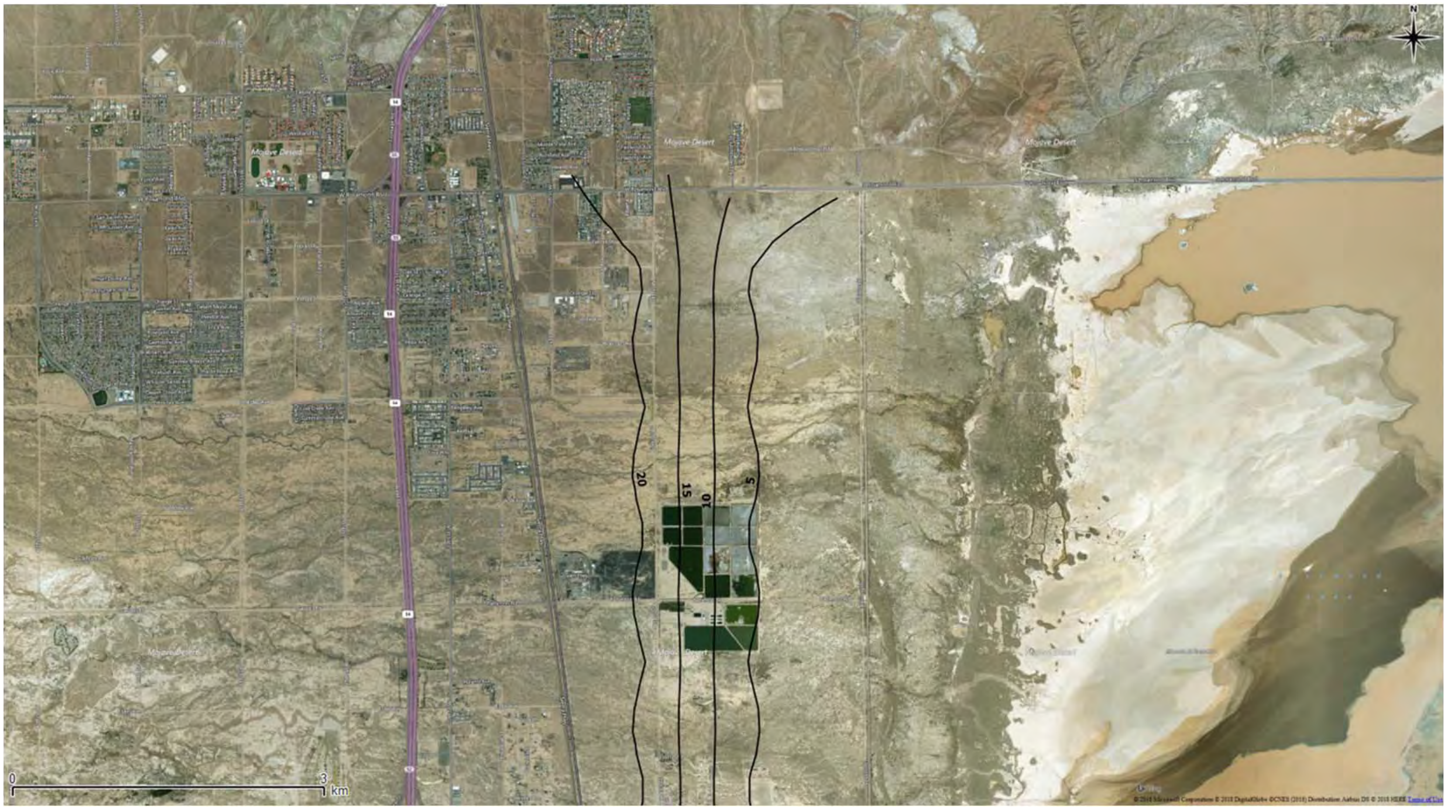


Figure 4: Reported Water Table Elevations (ft above MSL), Averaged Since 2010, in Area Environmental Monitoring and Water Supply Wells, GAMA Database: Interpolated by Kriging (top) and Local Polynomial (bottom)

Figure 5: Layer Thicknesses (ft) in USGS MODFLOW Model for the Antelope Valley for Top Two Layers



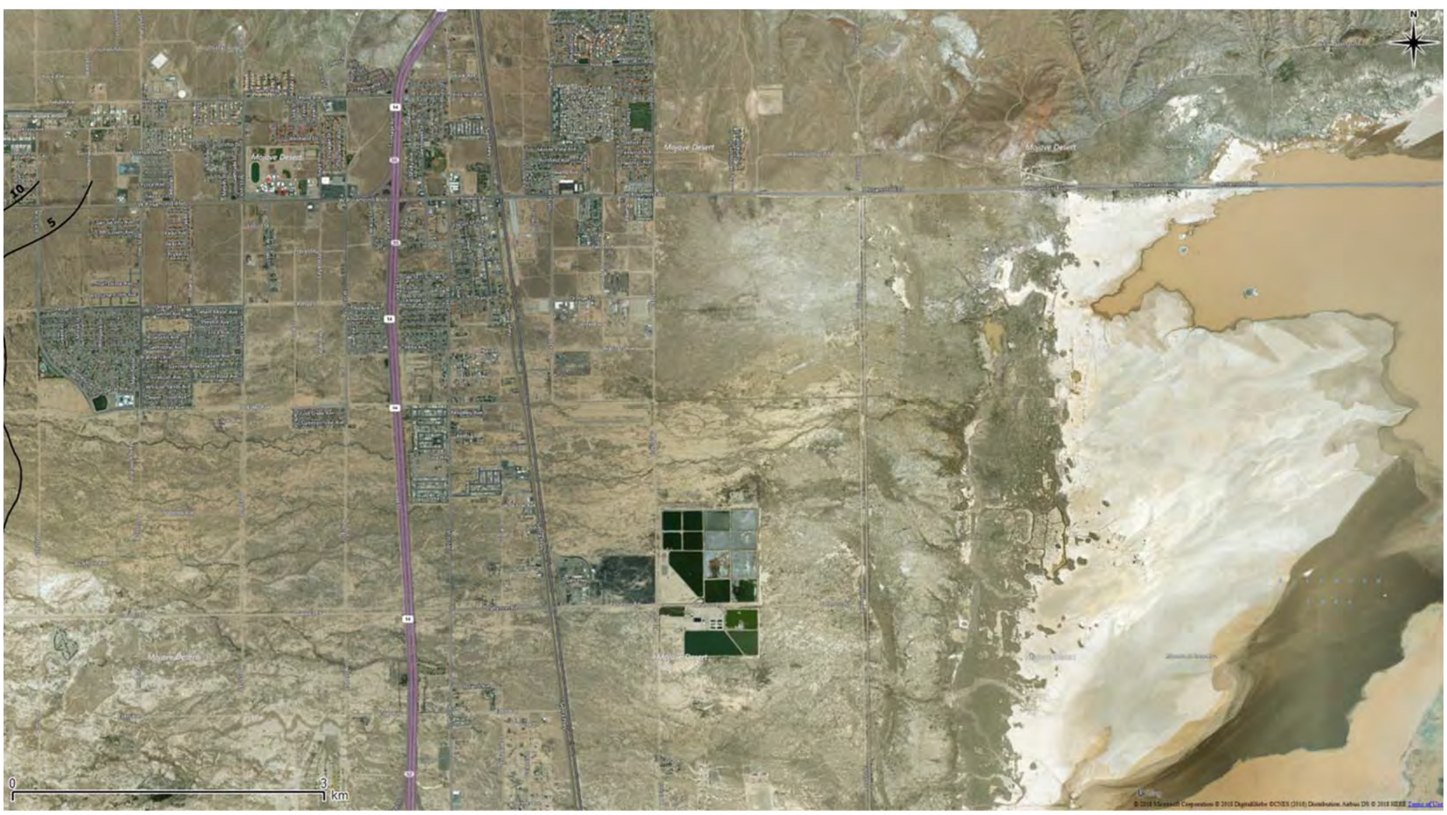


Figure 6: Hydraulic Conductivity Distributions (ft/day) in USGS MODFLOW Model for the Antelope Valley for Top Two Layers

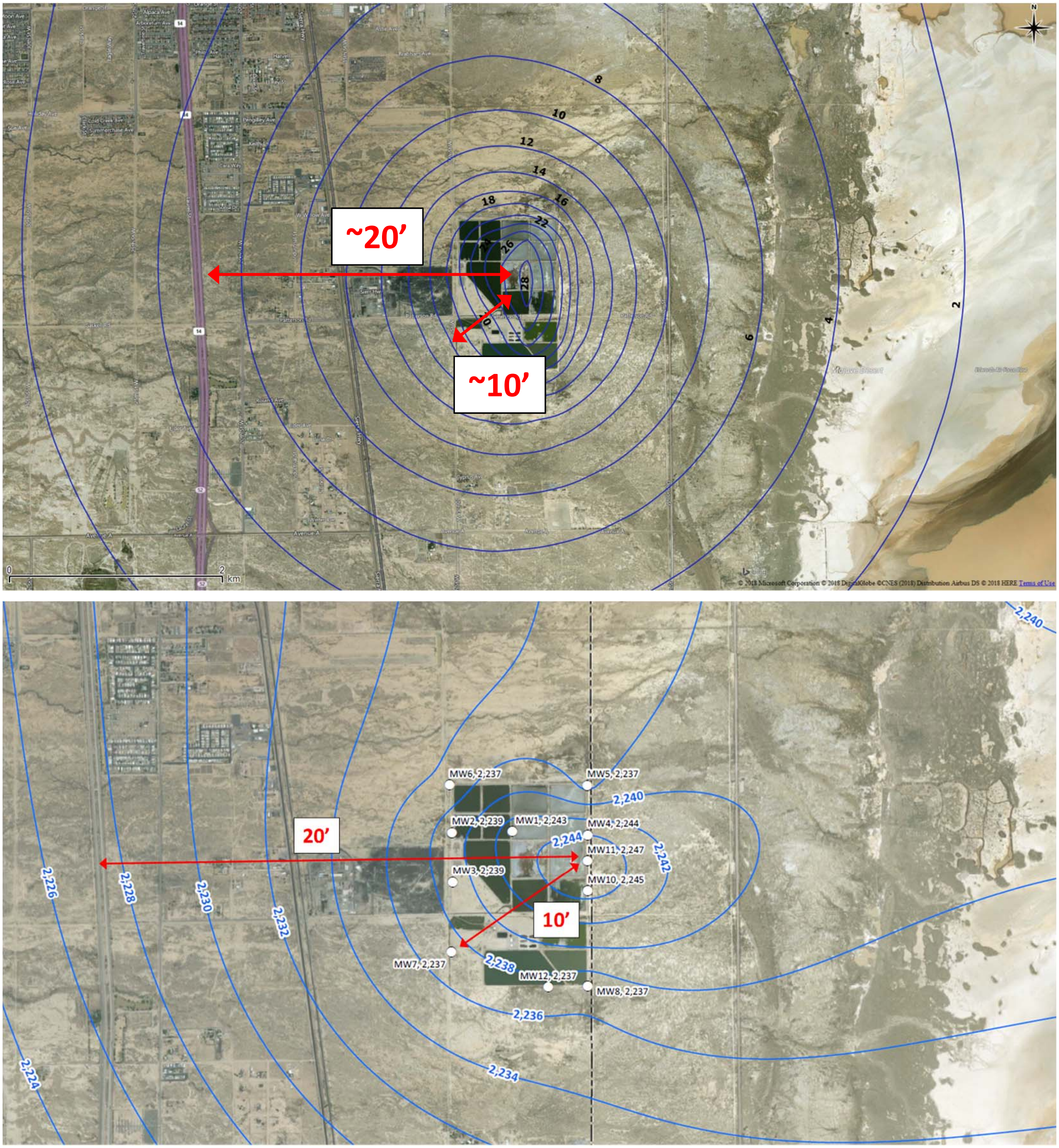


Figure 7: Groundwater Mounding and Elevation Differences: Simulated (top; ft) and Observations published April 2018 (bottom; ft above MSL)

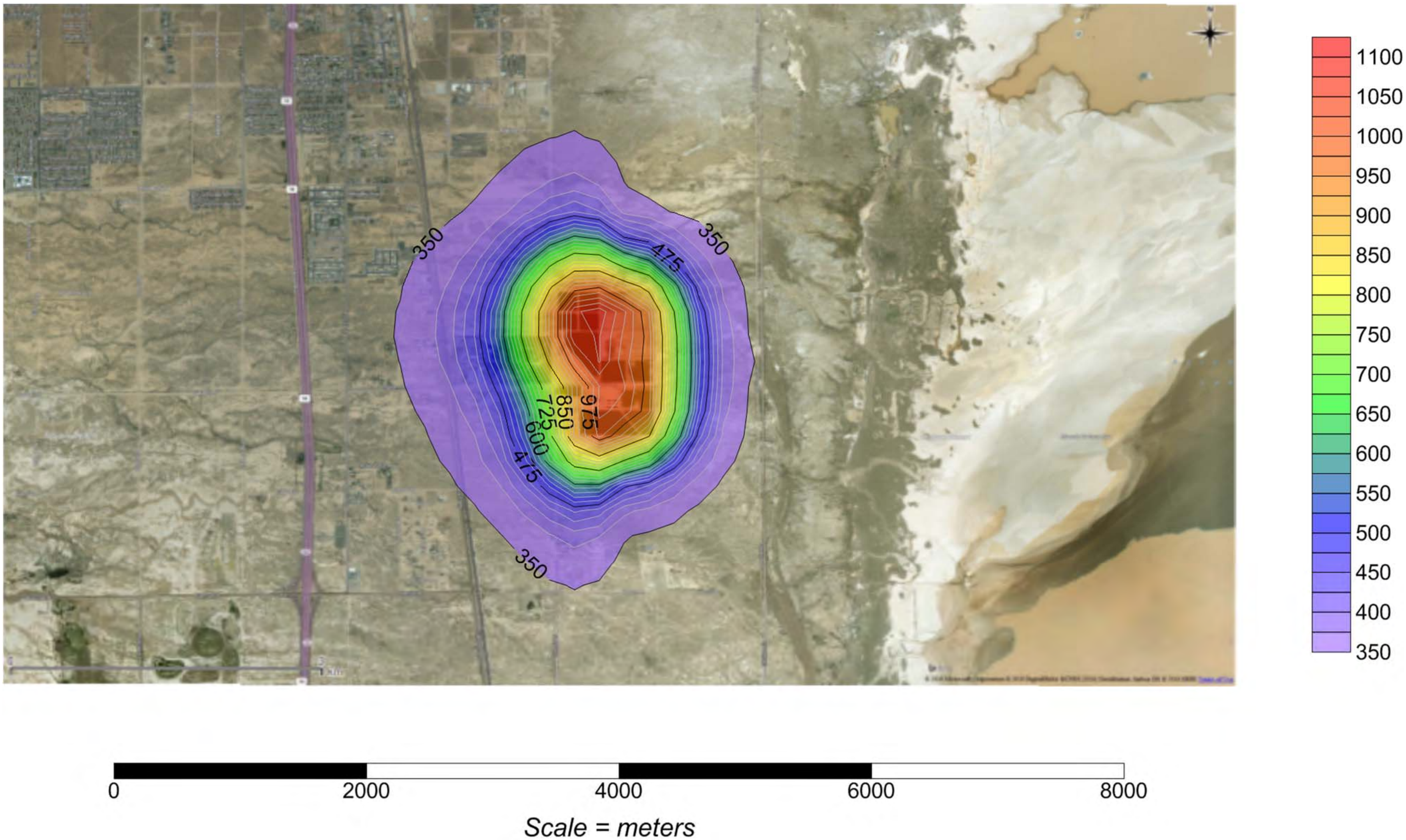


Figure 8: Modeled Distribution of Current TDS Concentrations (mg/L) in Groundwater

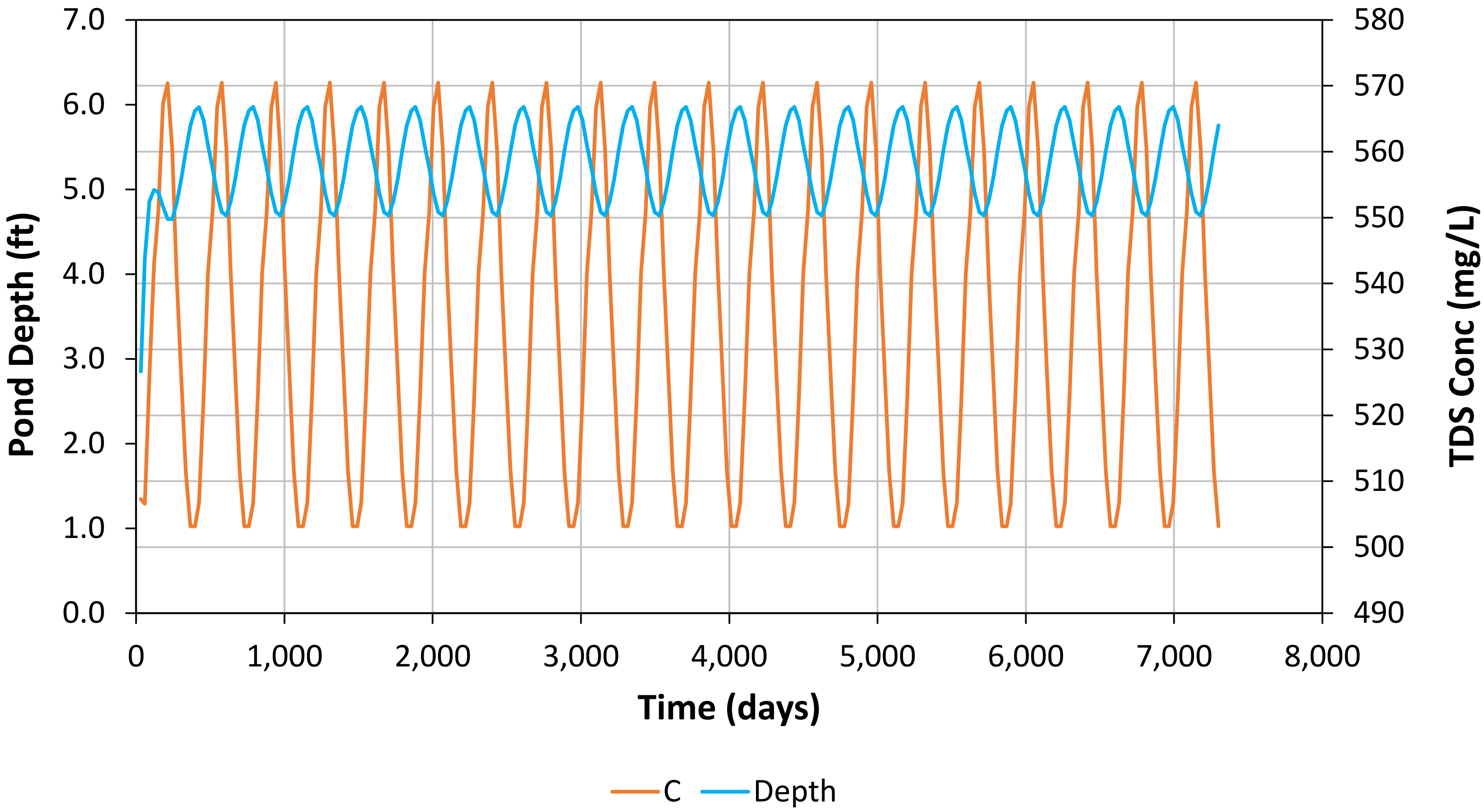


Figure 9: Modeled Seasonal Variability in Average Pond Depth and Total Dissolved Solids Concentration Under Discharge to a Single Unlined Pond (Pond 17)

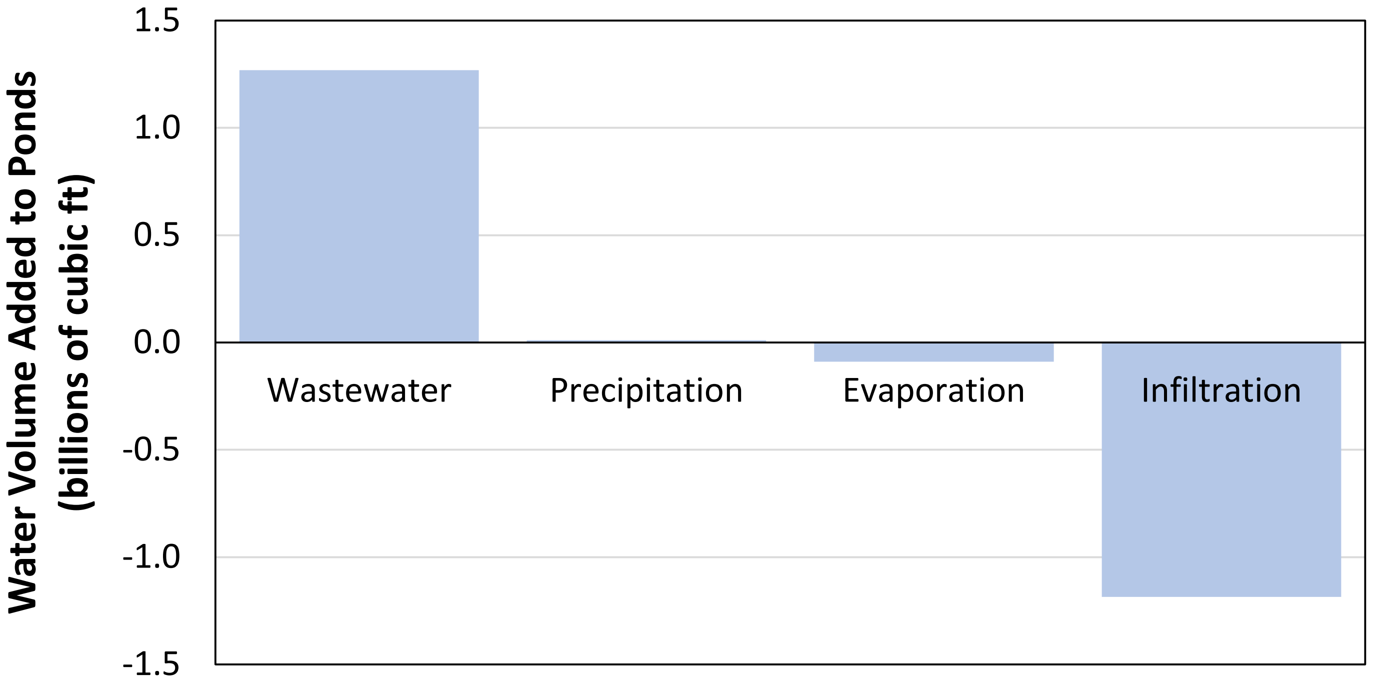


Figure 10: Modeled Cumulative Water Balance Over 20 Year Simulation Period for Unlined Pond Operating Scenario

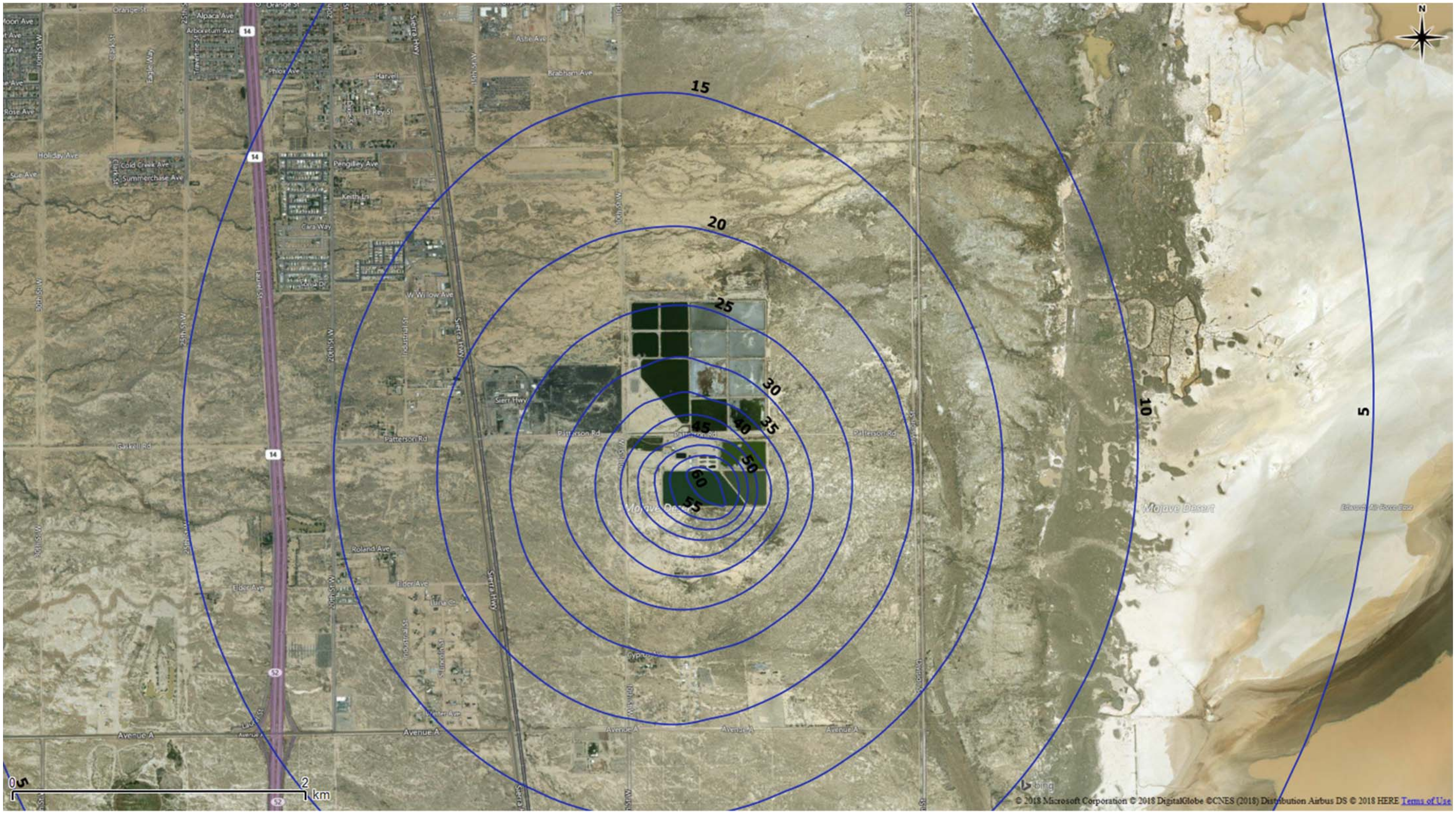


Figure 11: Groundwater Mounding Above Baseline (ft) Under Planned Design Changes for the RCSD WWTP

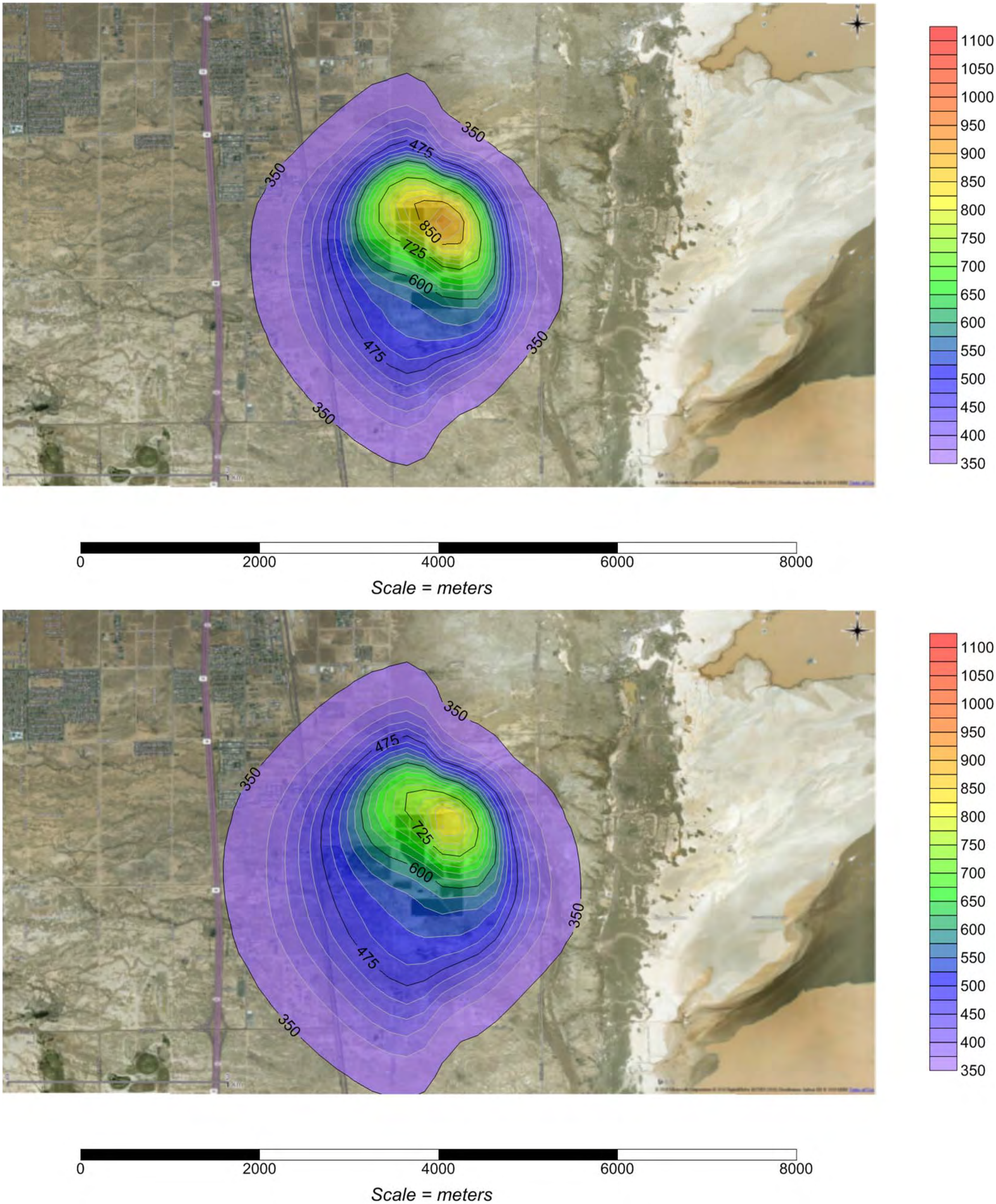


Figure 12: Modeled Distribution of TDS Concentrations (mg/L) in Groundwater Under Planned Design Changes for the RCSD WWTP – After 10 Years (top) and 20 Years (bottom) Beyond Current Conditions

Kennedy/Jenks Consultants

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Rosamond Community Service District Wastewater Treatment Plant Rehabilitation

Technical Report
Volume 3
Amendment No. 2

5 November 2018

Prepared for

Rosamond Community Services District
3179 35th Street West
Rosamond, CA 93560

K/J Project No. 1844514.01

Volume 3

Amendment No. 2 to Final Concept Design Report for Rosamond Community Services District Wastewater Treatment Plant Rehabilitation

5 November 2018

Technical Memorandum

To: Jahiel Cass, P.E.

Cc: Sergio Alonso, P.E.

From: David Ferguson, PhD, P.E. and Thomas Welgemoed, P.E.

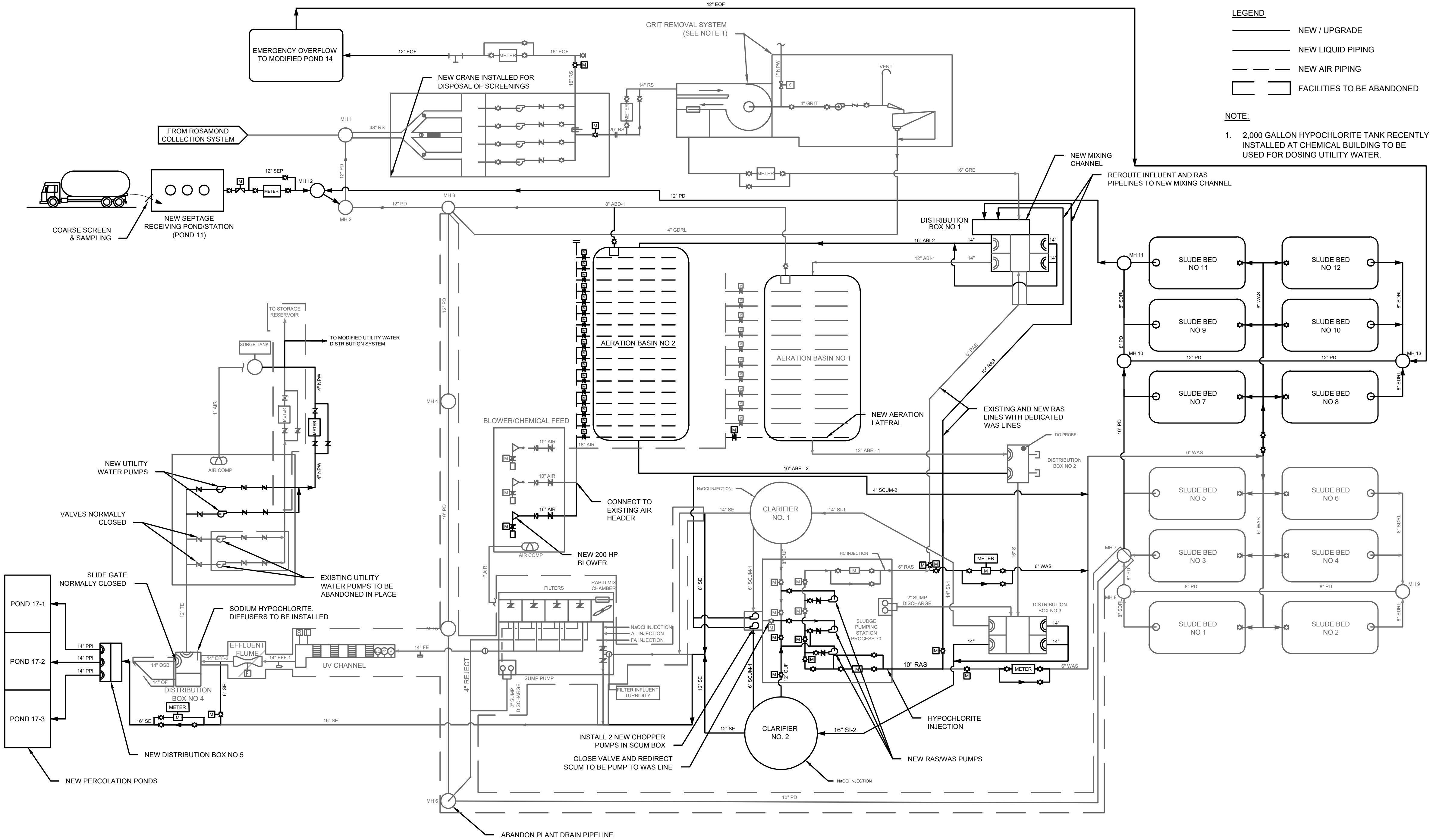
Subject: RCSD Wastewater Treatment Plant Rehabilitation – Amendment No. 2 to Final Concept Design Report
K/J 1844514*01

This document serves as an amendment to the Final Concept Design Report for the Rosamond Community Service District (RCSD) Wastewater Treatment Plant (WWTP) Rehabilitation Project (dated August 31, 2018), which was submitted by the Rosamond Community Services District (RCSD) to the Lahontan Regional Water Quality Control Board (Regional Board) on September 6, 2018. Comments were received during a meeting on September 6th and on a conference call between Kennedy/Jenks Consultants and the Regional Board on September 13, 2018. These comments were incorporated into the 30% design, which will be submitted to the Regional Board on November 5th. In addition, the 30% design includes several design clarifications and additions since the Concept Design (i.e., 10% design). Major changes and updates are described in the following sections:

- Section 1 – Updated Process Flow Diagram
- Section 2 – Added Emergency Storage Pond
- Section 3 – Re-Sized Septage Receiving Station
- Section 4 – Revised Site Facility Liners
- Section 5 – DI Wet Extraction Analytical Testing Results for Pond 17
- Section 6 – Updated Project Implementation Schedule

1.0 Updated Process Flow Diagram

The updated Process Flow Diagram is shown on Figure 1. The updates include the integration of an emergency storage pond and other minor revisions.



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Kennedy/Jenks Consultants

ROSAMOND WWTP REHABILITATION
AMENDMENT NO. 2 TO CONCEPT DESIGN

PROCESS FLOW DIAGRAM

1844514.01
NOVEMBER 2018
FIGURE 1

2.0 Added Emergency Storage Pond

An emergency storage pond was added during the development of 30% design to accommodate upsets to either of the two treatment trains or the entire plant. This emergency storage pond will be constructed within Pond 14 and lined with 12 inches of soil cement on top of a 60 mil high density polyethylene (HDPE) liner. Table 1 shows the design criteria used for sizing the emergency storage pond.

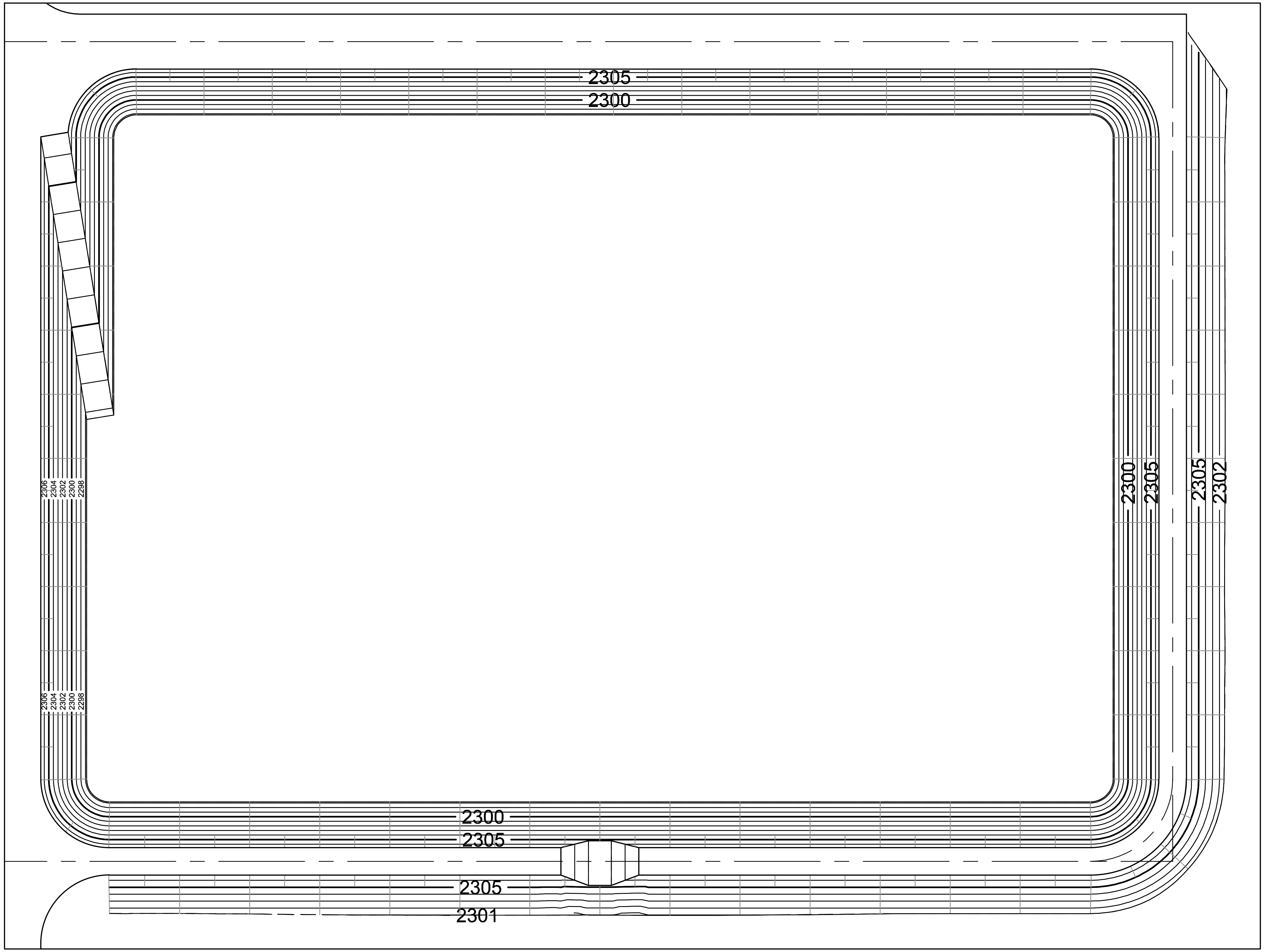
Table 1 Design Criteria for Emergency Storage

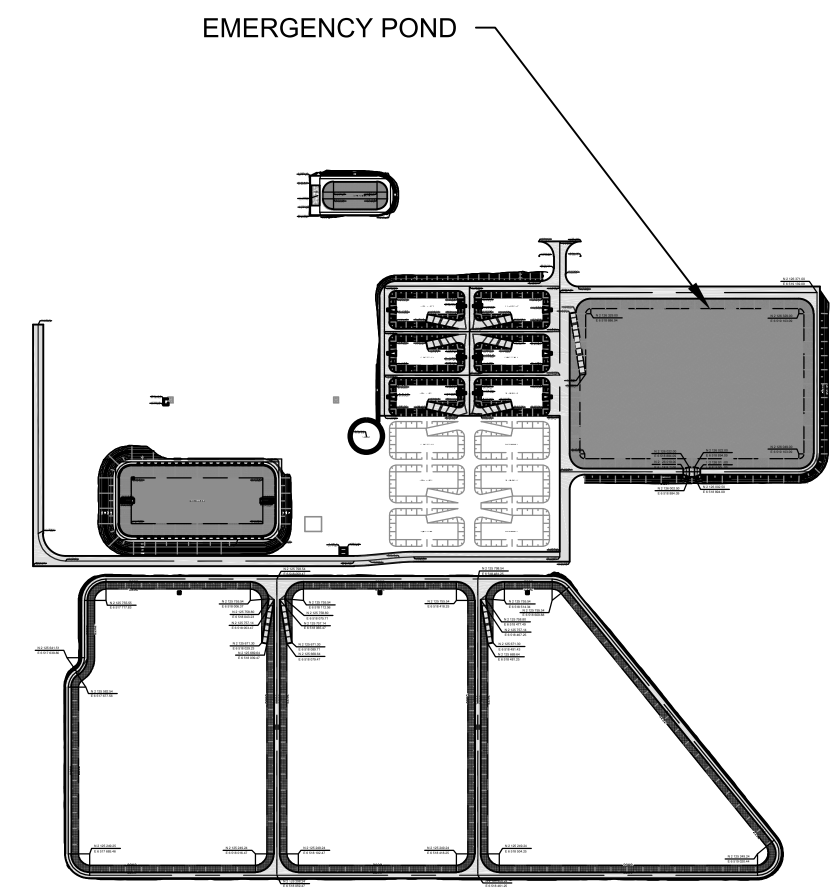
Duration	Flows	Storage Volume
7 days	1.27 MGD (Full Plant Capacity)	8.9 MG
10 days	0.92 MGD (Larger Treatment Train Capacity)	9.2 MG
26 days	0.35 MGD (Smaller Treatment Train Capacity)	9.1 MG
	Design Capacity	***9.2 MG***

As shown, the capacity of 9.2 million gallons (MG) will be able to store flows of full WWTP capacity, the larger train capacity, and the smaller train capacity for 7 days, 10 days, and 26 days, respectively. This emergency storage pond with a top area of 3.8 acres will be located inside the existing 8-acre Pond 14 (see Figure 2).

3.0 Re-Sized Septage Receiving Pond/Station

Figure 3 depicts the grading plan and section view of the re-sized septage receiving pond. Comparing to the 10% design in the Final Concept Design Report, a greater width dimension was included in the 30% design for better floor drainage and cleaning.





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EMERGENCY POND GRADING PLAN

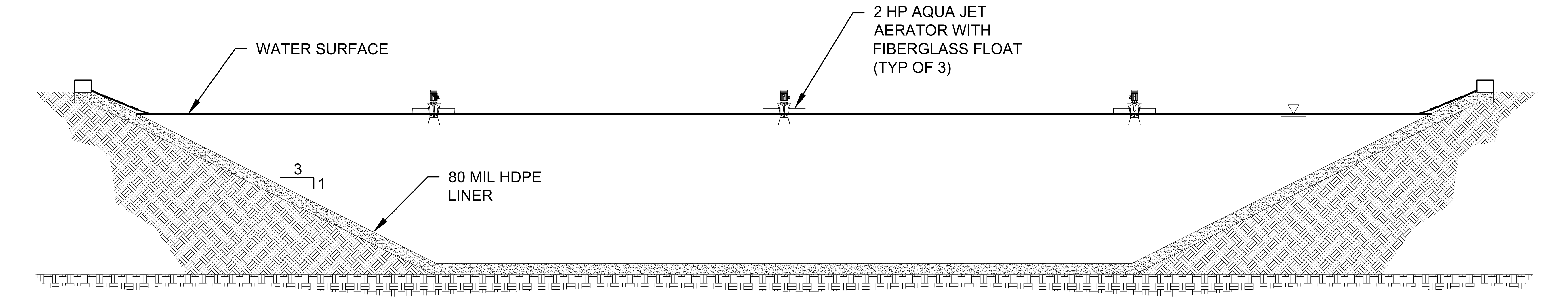
0 50 100
1"=50'

Kennedy/Jenks Consultants

ROSAMOND WWTP REHABILITATION
AMENDMENT NO. 2 TO CONCEPT DESIGN

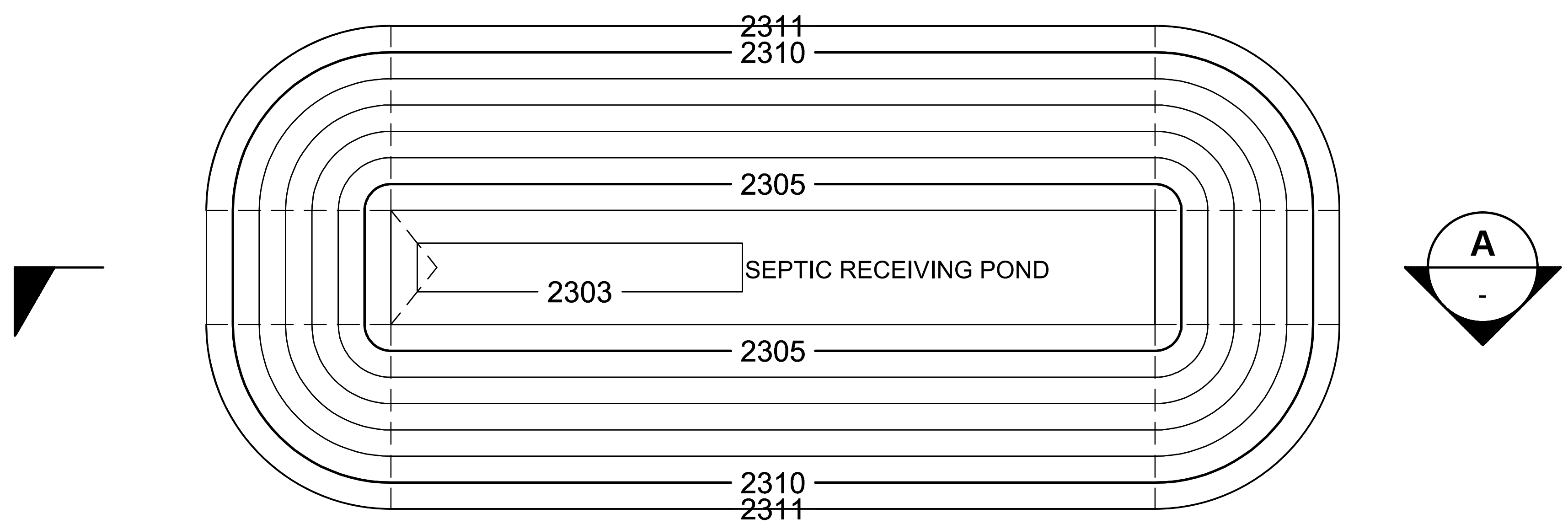
EMERGENCY POND

1844514.01
NOVEMBER 2018
FIGURE 2



SEPTAGE RECIEVING POND SECTION A -

0 10 20
1"=10'



SEPTAGE RECEIVING POND GRADING PLAN

0 10 20 30
1"=20'

Kennedy/Jenks Consultants

ROSAMOND WWTP REHABILITATION
AMENDMENT NO. 2 TO CONCEPT DESIGN

SEPTAGE RECEIVING
POND/STATION

1844514.01
NOVEMBER 2018
FIGURE 3

4.0 Revised Site Facility Liners

The facility liners were revised during the 30% design in accordance with the Regional Board's comments on the 10% Concept Design. Table 2 lists the revised materials for fabric liners and project layers that will be employed for the septage receiving pond, aeration basin no. 2, sludge drying beds and the emergency storage pond.

Table 2 Revised Site Facility Liners

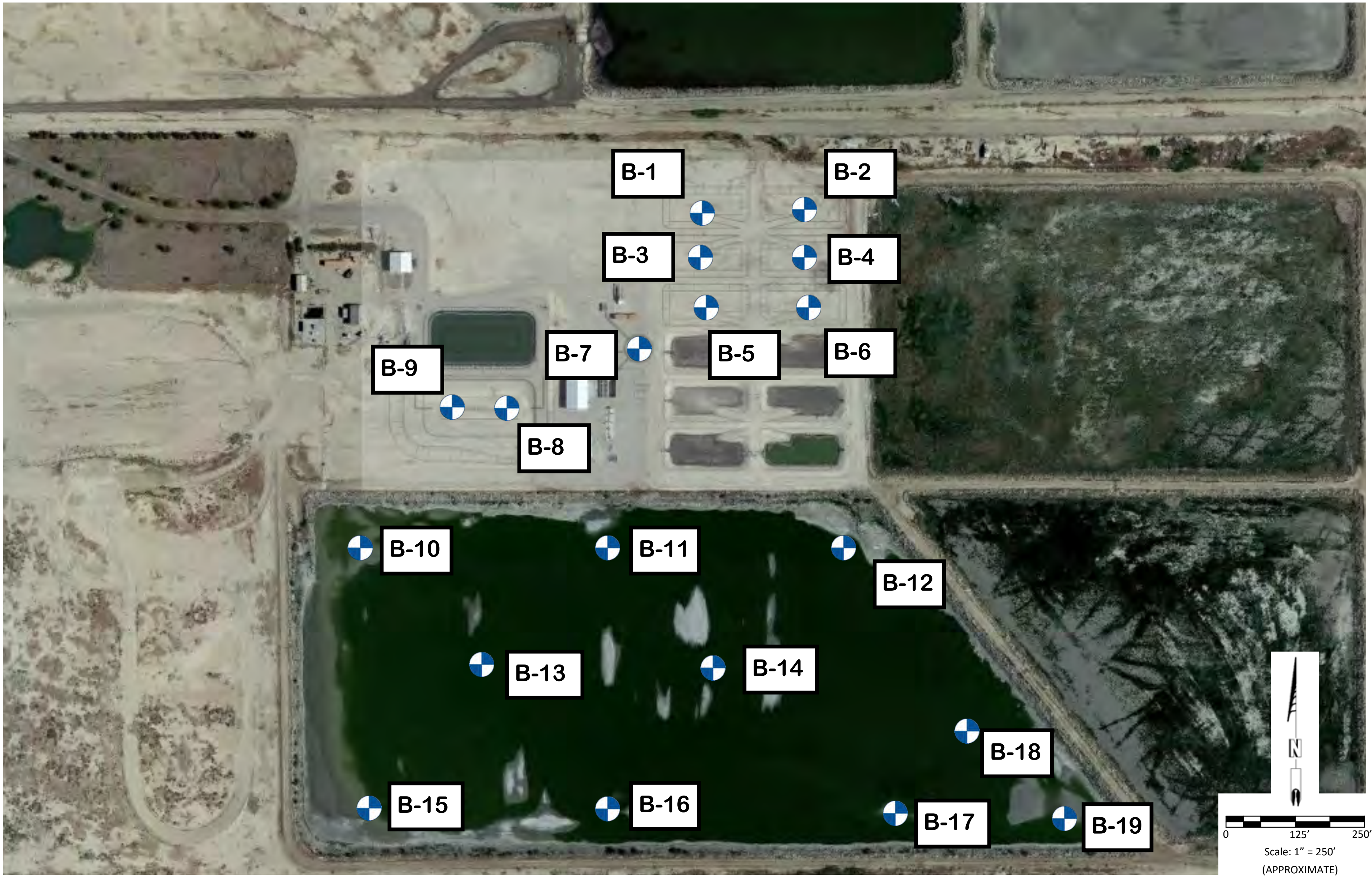
Facility	Fabric Liner	Projection Layer
Septage Receiving Pond	80 mil HDPE	N/A
Aeration Basin No. 2	80 mil HDPE	N/A
Sludge Drying Beds	60 mil HDPE	12-inch Soil Cement
Emergency Storage Pond	60 mil HDPE	12-inch Soil Cement

5.0 DI Wet Extraction Analytical Testing Results for Pond 17

At the suggestion of the Regional Board, six DI Wet Extraction tests were performed on three of the ten borings drilled in the bottom for Pond 17. Figure 4 illustrates the boring locations. To evaluate the feasibility for percolation disposal, analytical tests were performed on samples collected at two depths from Borings B-13, B-14, and B-18 to evaluate Total Nitrogen by EPA 351.2, Nitrate by EPA 300, Nitrate by EPA 300, and TDS by SM2540C. The analytical testing results are summarized in Table 3 below and attached at the end of this document as Appendix A.

Table 3 DI Wet Extraction Analytical Test Results

Analyte	Boring B-13		Boring B-14		Boring B-18	
	6 feet	18 feet	6 feet	18 feet	6 feet	18 feet
Nitrate as N, mg/L	ND	ND	ND	ND	ND	ND
Nitrite as N, mg/L	ND	ND	ND	ND	ND	ND
Total Dissolved Solids, mg/L	41	62	37	76	100	70
Total Kjeldahl Nitrogen, mg/L	1.2	1.4	1.2	1.4	2.1	1.3
Total Nitrogen, IC, mg/L	1.2	1.4	1.2	1.4	2.1	1.3



REFERENCE IMAGE: Site Map

LEGEND:

APPROXIMATE BORING LOCATION B-1

BSK ASSOCIATES
700 22nd Street
Bakersfield, California 93301
Tel. (661) 327-0671

BORING LOCATION MAP

RCSD WWTP Rehabilitation Project
Rosamond, California

FIGURE 4

JOB NO.	G18-169-11B
DATE	August 2018
DR. BY	VS
CH. BY	AXT
SHEET NO.	1
OF	1 SHEETS

SCALE AS SHOWN

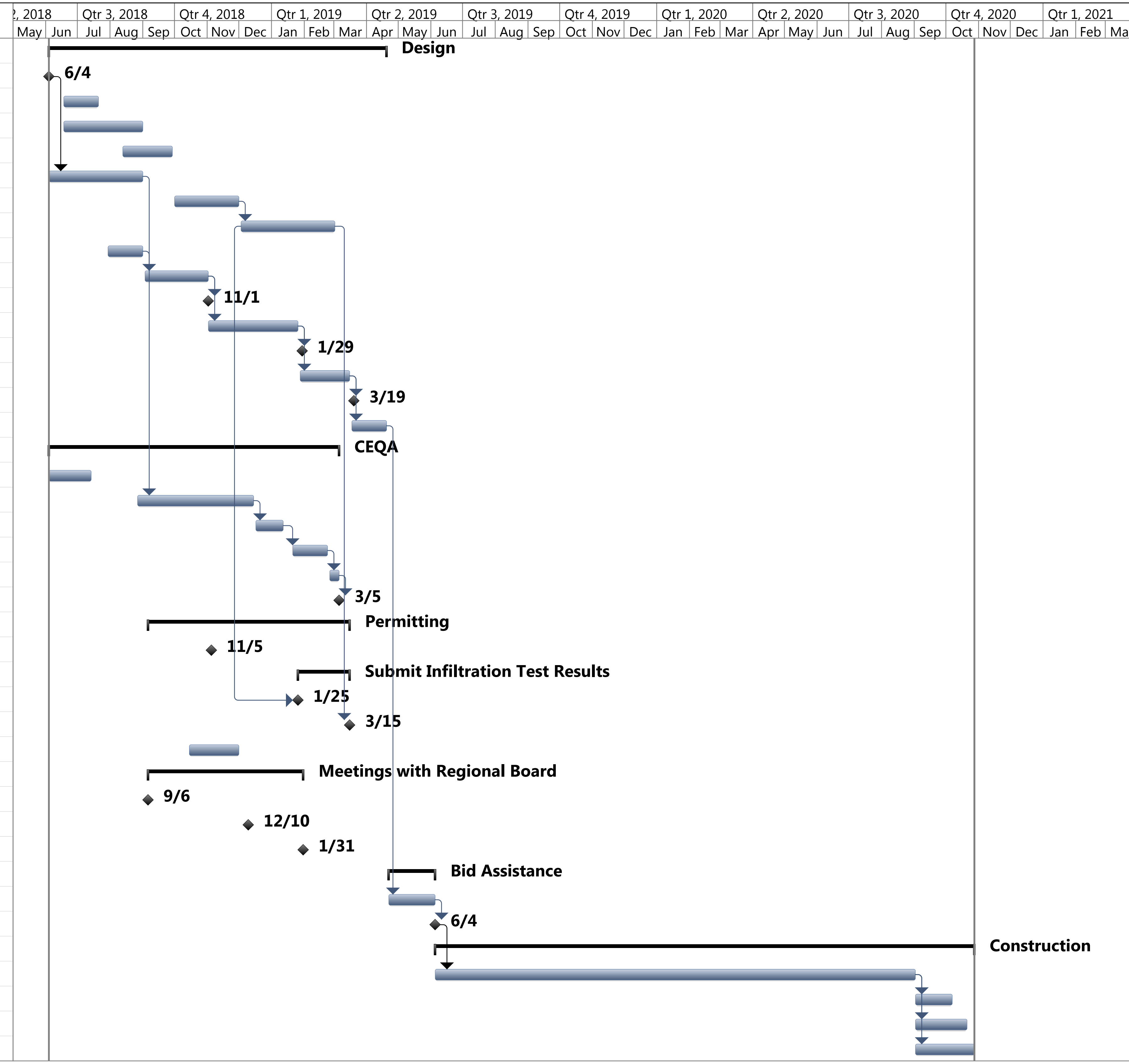
6.0 Updated Project Implementation Schedule

The updated project implementation schedule is provided as Figure 5 below. The Technical Report and 30% design drawings are being submitted to the Regional Board on November 5, 2018. A Draft Report of Waste Discharge will be submitted on November 30, 2018. The Draft Final CEQA Initial Study will be submitted for the Regional Board review on about December 17, 2018 with the public comment period to follow in January 2019.

Other project milestones can be found on the schedule. The project is on tract to be completed and operational in the fall of 2020.

RCSD WWTP REHAB PROJECT - IMPLEMENTATION SCHEDULE

ID	Task Name	Duration	Start	Finish	Predecessors
1	**Design**	**230 days**	**Mon 6/4/18**	**Fri 4/19/19**	
2	Draft Concept Design Report	0 days	Mon 6/4/18	Mon 6/4/18	
3	Topo survey	25 days	Mon 6/18/18	Fri 7/20/18	
4	Geotech Investigation	55 days	Mon 6/18/18	Fri 8/31/18	
5	Groundwater Model Development	35 days	Mon 8/13/18	Fri 9/28/18	
6	Final Concept Design Report	65 days	Mon 6/4/18	Fri 8/31/18	2
7	Plant Startup and Run	45 days	Mon 10/1/18	Fri 11/30/18	
8	Infiltration Test	65 days	Mon 12/3/18	Fri 3/1/19	7
9	10% Preliminary Design	25 days	Mon 7/30/18	Fri 8/31/18	
10	30% Design	44 days	Mon 9/3/18	Thu 11/1/18	9
11	30% Review Workshop	0 days	Thu 11/1/18	Thu 11/1/18	10
12	60% Design	61 days	Fri 11/2/18	Fri 1/25/19	10
13	60% Review Workshop	0 days	Tue 1/29/19	Tue 1/29/19	12FS+2 days
14	90% Design	35 days	Mon 1/28/19	Fri 3/15/19	12
15	90% Review Workshop	0 days	Tue 3/19/19	Tue 3/19/19	14FS+2 days
16	100% Design	25 days	Mon 3/18/19	Fri 4/19/19	14
17	**CEQA**	**197 days**	**Mon 6/4/18**	**Tue 3/5/19**	
18	Complete Bio Suveys	30 days	Mon 6/4/18	Fri 7/13/18	
19	Initial Study	80 days	Mon 8/27/18	Fri 12/14/18	6FS-5 days
20	Regional Board Review	20 days	Mon 12/17/18	Fri 1/11/19	19
21	Public Review	25 days	Mon 1/21/19	Fri 2/22/19	20FS+5 days
22	Review/Summarize Comments	7 days	Mon 2/25/19	Tue 3/5/19	21
23	Adopt MND	0 days	Tue 3/5/19	Tue 3/5/19	22
24	**Permitting**	**137 days**	**Thu 9/6/18**	**Fri 3/15/19**	
25	Submit Tech. Rep. & 30% Drawings	0 days	Mon 11/5/18	Mon 11/5/18	
26	**Submit Infiltration Test Results**	**35 days**	**Fri 1/25/19**	**Fri 3/15/19**	
27	Submit Prelim. Infiltration Test Results	0 days	Fri 1/25/19	Fri 1/25/19	8SS+40 days
28	Submit Final Infiltration Test Results	0 days	Fri 3/15/19	Fri 3/15/19	8FS+10 days
29	Report of Waste Discharge	35 days	Mon 10/15/18	Fri 11/30/18	
30	**Meetings with Regional Board**	**105 days**	**Thu 9/6/18**	**Thu 1/31/19**	
31	Meeting 1 with Regional Board	0 days	Thu 9/6/18	Thu 9/6/18	
32	Meeting 2 with Regional Board	0 days	Mon 12/10/18	Mon 12/10/18	
33	Meeting 3 with Regional Board	0 days	Thu 1/31/19	Thu 1/31/19	
34	**Bid Assistance**	**32 days**	**Mon 4/22/19**	**Tue 6/4/19**	
35	Bid Support	32 days	Mon 4/22/19	Tue 6/4/19	16
36	Award	0 days	Tue 6/4/19	Tue 6/4/19	35
37	**Construction**	**365 days**	**Wed 6/5/19**	**Tue 10/27/20**	
38	Construction	325 days	Wed 6/5/19	Tue 9/1/20	36
39	Startup Support	25 days	Wed 9/2/20	Tue 10/6/20	38
40	Record Drawings	35 days	Wed 9/2/20	Tue 10/20/20	38
41	O&M Manual	40 days	Wed 9/2/20	Tue 10/27/20	38



Project: RCSD WWTP REHAB PR
Date: Wed 10/31/18

Task | Milestone | Summary

Figure 5

Appendix A

DI Wet Extraction Analytical Testing Results

BSK ASSOCIATES
700 22nd Street
Bakersfield CA 93301
P 661.327.0671
F 661.324.4218
www.bskassociates.com

Sent via email: davidferguson@kennedyjenks.com

November 1, 2018 BSK Project #: G18-169-11B

Mr. David Ferguson
Kennedy/Jenks Consultants
300 North Lake Avenue, Suite 1020
Pasadena, California 91101

SUBJECT: Analytical Testing
RCSD WWTP Rehabilitation Project
Rosamond, California

Dear Mr. Ferguson

BSK Associates (BSK) has completed analytical testing of the soil samples for the RCSD WWTP Rehabilitation Project located in Rosamond, California. The analytical soils testing includes field sampling in the area of Pond 17, analytical testing, and preparation of this report. BSK's work was performed in accordance with Change Order #3 dated October 2, 2018 to BSK Proposal GB18-16869.

FIELD EXPLORATION

BSK drilled ten (10) borings at the site on June 29, 2018 using a 6625 Track Rig provided by Choice drilling.

ANALYTICAL TESTING

BSK performed analytical tests on samples collected from Borings B-13, B-14, and B-18 from our previous field exploration to evaluate Total Nitrogen by EPA 351.2, Nitrate by EPA 300, Nitrate by EPA 300, and TDS by SM2540C in the soil samples collected by BSK. The soil samples were prepared by DISTLC Extraction (CA WET-DI). BSK has included the test results in the attachment of this report.

BSK appreciates the opportunity to be of service to you on this project. If you have any questions, or would like additional information, please call us at (661) 327-0671.

Respectfully submitted,
BSK Associates

Adam Terronez, PE, GE
Bakersfield Branch Manager

REGISTERED PROFESSIONAL ENGINEER ADAM X. TERRONEZ No. 2709 Exp. 09/30/19 GEOTECHNICAL STATE OF CALIFORNIA

On Man Lau, PE, GE
South Valley Regional Manager

REGISTERED PROFESSIONAL ENGINEER ON MAN LAU No. 2644 Exp. 12-31-19 GEOTECHNICAL STATE OF CALIFORNIA

Attachment: Report for A8J1390 RCSD WWTP Rehab Project 2018

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

A8J1390
10/26/2018
Invoice: A832145

On-Man Lau
BSK Associates - Bakersfield
700 22nd Street
Bakersfield, CA 93301

RE: Report for A8J1390 RCSD WWTP Rehab Project 2018

Dear On-Man Lau,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 10/9/2018. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an “as received” basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Heather S. White , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Heather S. White, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021-009

Case Narrative

Project and Report Details		Invoice Details	
Client:	BSK Associates - Bakersfield	**Invoice To:**	BSK Associates - Bakersfield
Report To:	On-Man Lau	**Invoice Attn:**	On-Man Lau
Project #:	G18-169-11B Ph 7	**Project PO#:**	-
Received:	10/09/2018 - 16:26		
Report Due:	10/23/2018		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 8.5

Containers Intact
COC/Labels Agree
Received On Blue Ice
Packing Material - Other
Sample(s) were received in temperature range.
Initial receipt at BSK-Bakersfield

Detailed Narrative

Case Narrative

Date: 10/25/2018
Initials: JMS
Comment: Samples were prepared by the DI Wet extraction method using 50g of sample into 500mL of DI Water. Per the WET method, the results of the analytes are reported as found in the extracted leachate (in mg/L) and are not back-calculated to represent the initial soil mass.

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

X See case narrative.

Report Distribution

Recipient(s)	Report Format	CC:
On-Man Lau	FINAL.RPT	

Certificate of Analysis

Sample ID: A8J1390-01
Sampled By: Client
Sample Description: B-13 @ 6'

Sample Date - Time: 06/29/18 - 00:00
Matrix: Solid
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	A815639	10/17/18 13:52	10/17/18	X
Nitrite as N	EPA 300.0	ND	0.050	mg/L	1	A815639	10/17/18 13:52	10/17/18	X
Total Dissolved Solids, DI WET	SM 2540C	**41**	5.0	mg/L	1	A815716	10/17/18	10/24/18	X
Total Kjeldahl Nitrogen	EPA 351.2	**1.2**	1.0	mg/L	1	A815962	10/23/18	10/24/18	
Total Nitrogen, IC	CALC	**1.2**	1.0	mg/L					

Certificate of Analysis

Sample ID: A8J1390-02
Sampled By: Client
Sample Description: B-13 @ 18'

Sample Date - Time: 06/29/18 - 00:00
Matrix: Solid
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	A815639	10/17/18 14:38	10/17/18	X
Nitrite as N	EPA 300.0	ND	0.050	mg/L	1	A815639	10/17/18 14:38	10/17/18	X
Total Dissolved Solids, DI WET	SM 2540C	**62**	5.0	mg/L	1	A815716	10/17/18	10/24/18	X
Total Kjeldahl Nitrogen	EPA 351.2	**1.4**	1.0	mg/L	1	A815962	10/23/18	10/24/18	
Total Nitrogen, IC	CALC	**1.4**	1.0	mg/L					

Certificate of Analysis

Sample ID: A8J1390-03
Sampled By: Client
Sample Description: B-14 @ 6'

Sample Date - Time: 06/29/18 - 00:00
Matrix: Solid
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	A815639	10/17/18 14:49	10/17/18	X
Nitrite as N	EPA 300.0	ND	0.050	mg/L	1	A815639	10/17/18 14:49	10/17/18	X
Total Dissolved Solids, DI WET	SM 2540C	**37**	5.0	mg/L	1	A815716	10/17/18	10/24/18	X
Total Kjeldahl Nitrogen	EPA 351.2	**1.2**	1.0	mg/L	1	A815962	10/23/18	10/24/18	
Total Nitrogen, IC	CALC	**1.2**	1.0	mg/L					

Certificate of Analysis

Sample ID: A8J1390-04
Sampled By: Client
Sample Description: B-14 @ 18'

Sample Date - Time: 06/29/18 - 00:00
Matrix: Solid
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	A815639	10/17/18 15:01	10/17/18	X
Nitrite as N	EPA 300.0	ND	0.050	mg/L	1	A815639	10/17/18 15:01	10/17/18	X
Total Dissolved Solids, DI WET	SM 2540C	**76**	5.0	mg/L	1	A815716	10/17/18	10/24/18	X
Total Kjeldahl Nitrogen	EPA 351.2	**1.4**	1.0	mg/L	1	A815962	10/23/18	10/24/18	
Total Nitrogen, IC	CALC	**1.4**	1.0	mg/L					

BSK ASSOCIATES

Certificate of Analysis

Sample ID: A8J1390-05
Sampled By: Client
Sample Description: B-18 @ 6'

Sample Date - Time: 06/29/18 - 00:00
Matrix: Solid
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	A815639	10/17/18 15:12	10/17/18	X
Nitrite as N	EPA 300.0	ND	0.050	mg/L	1	A815639	10/17/18 15:12	10/17/18	X
Total Dissolved Solids, DI WET	SM 2540C	**100**	5.0	mg/L	1	A815716	10/17/18	10/24/18	X
Total Kjeldahl Nitrogen	EPA 351.2	**2.1**	1.0	mg/L	1	A815962	10/23/18	10/24/18	
Total Nitrogen, IC	CALC	**2.1**	1.0	mg/L					

Certificate of Analysis

Sample ID: A8J1390-06
Sampled By: Client
Sample Description: B-18 @ 18'

Sample Date - Time: 06/29/18 - 00:00
Matrix: Solid
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	A815639	10/17/18 15:24	10/17/18	X
Nitrite as N	EPA 300.0	ND	0.050	mg/L	1	A815639	10/17/18 15:24	10/17/18	X
Total Dissolved Solids, DI WET	SM 2540C	**70**	5.0	mg/L	1	A815716	10/17/18	10/24/18	X
Total Kjeldahl Nitrogen	EPA 351.2	**1.3**	1.0	mg/L	1	A815962	10/23/18	10/24/18	
Total Nitrogen, IC	CALC	**1.3**	1.0	mg/L					

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 300.0 - Quality Control

Batch: A815639 Prepared: 10/17/2018
Prep Method: Method Specific Preparation Analyst: BRA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (A815639-BLK1)											
Nitrate as N	ND	0.23	mg/L							10/17/18	
Nitrite as N	ND	0.050	mg/L							10/17/18	
Blank Spike (A815639-BS1)											
Nitrate as N	22	0.23	mg/L	23	ND	96	90-110			10/17/18	
Nitrite as N	0.92	0.050	mg/L	1.0	ND	92	90-110			10/17/18	
Duplicate (A815639-DUP1), Source: A8J1390-01											
Nitrate as N	ND	0.23	mg/L		ND					10/17/18	
Nitrite as N	ND	0.050	mg/L		ND					10/17/18	
Matrix Spike (A815639-MS1), Source: A8J1390-01											
Nitrate as N	12		mg/L	11	0.10	106	80-120			10/17/18	
Nitrite as N	0.058		mg/L	0.050	0.024	68	50-110			10/17/18	
Matrix Spike Dup (A815639-MSD1), Source: A8J1390-01											
Nitrate as N	12		mg/L	11	0.10	107	80-120	1	20	10/17/18	
Nitrite as N	0.059		mg/L	0.050	0.024	70	50-110	2	20	10/17/18	

EPA 351.2 - Quality Control

Batch: A815962 Prepared: 10/23/2018
Prep Method: Digestion Analyst: CEG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (A815962-BLK1)											
Total Kjeldahl Nitrogen	ND	1.0	mg/L							10/24/18	
Blank Spike (A815962-BS1)											
Total Kjeldahl Nitrogen	10	1.0	mg/L	10	ND	103	90-110			10/24/18	
Blank Spike Dup (A815962-BSD1)											
Total Kjeldahl Nitrogen	10	1.0	mg/L	10	ND	103	90-110	0	10	10/24/18	
Matrix Spike (A815962-MS1), Source: A8J1390-01											
Total Kjeldahl Nitrogen	11	1.0	mg/L	10	1.2	102	90-110			10/24/18	
Matrix Spike Dup (A815962-MSD1), Source: A8J1390-01											
Total Kjeldahl Nitrogen	12	1.0	mg/L	10	1.2	104	90-110	2	10	10/24/18	

SM 2540C - Quality Control

Batch: A815716 Prepared: 10/17/2018
Prep Method: Method Specific Preparation Analyst: DEH

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (A815716-BLK1)											
Total Dissolved Solids, DI WET	ND	5.0	mg/L							10/24/18	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2540C - Quality Control											
Batch: A815716										Prepared: 10/18/2018	
Prep Method: Method Specific Preparation										Analyst: DEH	
Blank Spike (A815716-BS1)											
Total Dissolved Solids, DI WET	990	5.0	mg/L	1000	ND	99	70-130			10/24/18	
Duplicate (A815716-DUP1), Source: A8J1390-01											
Total Dissolved Solids, DI WET	44	5.0	mg/L		41			7	20	10/24/18	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit		

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:
Total Dissolved Solids, DI WET

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

EPA - UCMR4	CA00079	Los Angeles CSD	9254479	NELAP certified	4021-010
State of California - ELAP	1180	State of Hawaii	4021	State of Nevada	CA000792019-1
State of Oregon - NELAP	4021-010	State of Washington	C997-18		

Sacramento

State of California - ELAP	2435

San Bernardino

Los Angeles CSD	9254478	NELAP certified	4119-003	State of California - ELAP	2993
State of Oregon - NELAP	4119-003				

Vancouver

NELAP certified	WA100008-011	State of Oregon - NELAP	WA100008-011	State of Washington	C824-18b

A8J1390

10092018

BSKAs0671

Turnaround: Standard
Due Date: 10/23/2018

BSK Associates - Bakersfield

BSK Associates
Engineers & Laboratories

www.bskassociates.com

8.5°C #55

BSKAs0671 10

*Required Fields

Company/Client Name*: BSK Associates-Bakersfield

Report Attention*: On Man Lau (olau@bskassociates.com)

Temp:

Invoice To*: G18.169.11B, Ph.7

Phone*: (661)477-9119

Fax*:

Additional cc's: Ashley Rios (arios@bskassociates.com)

PO#:

E-mail*:

Address*: 700 22ND St. City*: Bakersfield State*: CA Zip*: 93311

Project: G18.169.11B, Ph.7 - RCSD WWTP

Project #:

Regulatory Carbon Copies: ☐ CDPH ☐ Fresno Co ☐ Merced Co ☐ Tulare Co ☐ Madera Co ☐ Other: ____

Reporting Options: ☐ Trace (J-Flag) ☐ Swamp ☐ EDD Type: ____

How would you like your completed results sent?* ☒ E-Mail ☐ Fax ☐ Mail

Regulatory Compliance: ☐ EDT to California DPH System Number*: ____

Sampler Name (Printed/Signature)*:

TAT* ☐ Standard - 10 Business Days ☐ **Rush: Date Needed ____ **Surcharge

☐ Geotracker #: ____

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	DISTiLC Extraction *	Nitrogen *	Solids, TDS *	*See attached quote for TCH Au					
1	B-13 @ 6'	6/29/18				/	/	/						
2	B-13 @ 18'					/	/	/						
3	B-14 @ 6'					/	/	/						
4	B-14 @ 18'					/	/	/						
5	B-18 @ 6'					/	/	/						
6	B-18 @ 18'					/	/	/						

DR 10/9/18

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
A. Rios	BSK-B	10.9.18	10:32		

Received for Lab by: (Signature and Printed Name) Daisy Ramirez — Date 10/9/18 Time 1626

Payment Received at Delivery: Date: Amount: PIA#: Check / Cash Init.

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: DMS

Cooling Method: Wet Blue None

Custody Seal: Y / N

Chilling Process Begun: Y N

BSK ASSOCIATES

A8J1390 10/09/2018
BSKAs0671 10

Analytical Services Quotation

RCSD WWTP Rehab Project 2018

On Man Lau
BSK Associates - Fresno
550 West Locust Avenue
Fresno, CA 93650

Printed: 10/01/2018
Effective: 10/01/2018
Expires: 10/01/2019

Pricing Summary

Parameter	Method	Quantity	TAT (Days)	Unit Price	Extended Price
Solid					
DISTLC Extraction	CA WET - DI	6	10	$50.00	$300.00
Nitrogen, Total by Ion Chromatography	[See Details]	6	10	$70.00	$420.00
Solids, Total Dissolved (TDS) on DISTLC Extract	SM 2540C	6	10	$20.00	$120.00
Additional Items					
Special Sample Preparation-WetChemistry	Standard	6		$25.00	$150.00
				Bid Total:	$990.00

Quotation Prepared by...

Stephane Maupas
Project Manager

BSK Associates SR-FL-0002-19

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TCP/TTHM)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received — "–" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)	Checks	Passed?	1-6				
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—					
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—				DR	
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—				10/9/18	
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass 250mL / 500mL / 1 Liter	—	—					
Solids: Brass / Steel / Plastic Bag (Clear glass jar)		—	1B				

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

✓ **Indicates Blanks Received**

504 __ 524.2 __ TCP __ TTHM __ 537 __

8260/624 __

Labeled by: LL @ 1001 Labels checked by: [illegible] @ 1407 RUSH Paged by:______@______

Appendix B

Air Quality/GHG Data

On-Site Dirt Hauling and Stockpiling
Vehicle Movement Particulate (Fugitive Dust) Emissions

Vehicle Dust Emissions Factor Input[1]		
	PM10	PM2.5
a, empirical constant	0.9	0.9
b, empirical constant	0.45	0.45
k, empirical constant	1.5	0.15
s, surface material silt content (%)	7.1	7.1
W, average vehicle weight (tons)	-	-

Work Days Per Year	
2019 (Start 6/5) Grading	147
2020 Grading	53
2020 Building Construction (finish 9/1)	125
Total	325

On-Site Haul Road Vehicles on Unpaved Surfaces[2]

					Daily Emissions (pounds)				Annual Emissions (tons)			
					PM10		PM2.5		PM10		PM2.5	
Source	Weight (tons)	Average Speed (MPH)	Hours	Miles	Emission Factor (lb/VMT)	Max Daily (lb)	Emission Factor (lb/VMT)	Max Daily	2019	2020	2019	2020
Off-Road Haul Trucks	60.3	15	10	150	3.609099682	180.455	0.360909968	18.05	13.26	4.78	1.33	0.48
Loaders	56.2	5	10	50	3.496531369	19.425	0.349653137	1.94	1.43	0.51	0.14	0.05
Subtotal						**199.88**		**19.99**	**14.69**	**5.30**	**1.47**	**0.53**
Water unpaved travel surfaces 2x daily, or every 2 hours (55% Reduction)[3]						**89.95**		**8.99**	**6.61**	**2.38**	**0.66**	**0.24**

Notes:
1. Emissions factor equation from EPA AP-42 Fifth Edition: 13.2.2 Unpaved Roads. EF = k * (s/12)^a * (W/3)^b
2. Calculations include reductions for vehicle speeds below 45 mph: Dust control on unpaved roads from Western Regional Air Partnership Fugitive Dust Handbook. 45 MPH = uncontrolled, % emissions reduction below 45 mph = speed/45.

KJC-28

Kern-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	50.60	Acre	50.60	2,204,136.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Contruction schedule estimated from RCSD WWTP Rehabilitation Technical Report Volume 3.

Off-road Equipment - Contruction equipemnt estimated from RCSD WWTP Rehabilitation Technical Report Volume 1.

Off-road Equipment - Contruction equipemnt estimated from RCSD WWTP Rehabilitation Technical Report Volume 1.

Trips and VMT - Building Construction Haul Trips = 461 CY of concrete.

Grading - 3,047 CY aggregate and clay imported.

Consumer Products - Construction only this model.

Area Coating - Construction only this model.

Construction Off-road Equipment Mitigation - Dust mitigation per EKAPCD.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	1,110.00	125.00
tblConstructionPhase	NumDays	110.00	200.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblGrading	AcresOfGrading	200.00	250.00
tblGrading	MaterialImported	0.00	3,047.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00

tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	92.00
tblTripsAndVMT	VendorTripNumber	361.00	10.00
tblTripsAndVMT	WorkerTripNumber	25.00	23.00
tblTripsAndVMT	WorkerTripNumber	926.00	30.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2019	3.2098	34.8859	19.8801	0.0502	3.1690	1.3850	4.5539	1.0602	1.2742	2.3344	0.0000	4,979.4151	4,979.4151	1.4523	0.0000	5,015.7230
2020	2.9963	31.6601	18.8882	0.0501	3.2361	1.2459	4.4820	1.0767	1.1463	2.2229	0.0000	4,868.4146	4,868.4146	1.4502	0.0000	4,904.6699
Maximum	**3.2098**	**34.8859**	**19.8801**	**0.0502**	**3.2361**	**1.3850**	**4.5539**	**1.0767**	**1.2742**	**2.3344**	**0.0000**	**4,979.4151**	**4,979.4151**	**1.4523**	**0.0000**	**5,015.7230**

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	lb/day										lb/day					
2019	3.2098	34.8859	19.8801	0.0502	1.6106	1.3850	2.9955	0.5261	1.2742	1.8003	0.0000	4,979.4151	4,979.4151	1.4523	0.0000	5,015.7230
2020	2.9963	31.6601	18.8882	0.0501	1.6778	1.2459	2.9237	0.5426	1.1463	1.6889	0.0000	4,868.4146	4,868.4146	1.4502	0.0000	4,904.6699
Maximum	**3.2098**	**34.8859**	**19.8801**	**0.0502**	**1.6778**	**1.3850**	**2.9955**	**0.5426**	**1.2742**	**1.8003**	**0.0000**	**4,979.4151**	**4,979.4151**	**1.4523**	**0.0000**	**5,015.7230**

	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**	**48.66**	**0.00**	**34.49**	**49.99**	**0.00**	**23.44**	**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	lb/day										lb/day					
Area	4.8000e-004	5.0000e-005	5.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0111	0.0111	3.0000e-005		0.0118
Energy	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
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
Total	**4.8000e-004**	**5.0000e-005**	**5.1900e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0111**	**0.0111**	**3.0000e-005**	**0.0000**	**0.0118**

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	lb/day										lb/day					
Area	4.8000e-004	5.0000e-005	5.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0111	0.0111	3.0000e-005		0.0118
Energy	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
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
Total	**4.8000e-004**	**5.0000e-005**	**5.1900e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0111**	**0.0111**	**3.0000e-005**	**0.0000**	**0.0118**

	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	Grading	Grading	6/5/2019	3/10/2020	5	200	
2	Building Construction	Building Construction	3/11/2020	9/1/2020	5	125	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 250

Acres of Paving: 50.6

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	1.00	158	0.38
Grading	Graders	1	2.00	187	0.41
Grading	Off-Highway Trucks	2	5.00	402	0.38
Grading	Rollers	1	2.00	80	0.38
Grading	Rubber Tired Dozers	1	2.00	247	0.40
Grading	Rubber Tired Loaders	2	5.00	203	0.36
Grading	Scrapers	1	7.00	367	0.48
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	0	0.00	231	0.29
Building Construction	Forklifts	1	4.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	1	1.00	46	0.45

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
Grading	10	23.00	0.00	381.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	30.00	10.00	92.00	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 Grading - 2019

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					lb/day									lb/day		
Fugitive Dust					2.8334	0.0000	2.8334	0.9710	0.0000	0.9710			0.0000			0.0000
Off-Road	3.0453	34.2159	18.8661	0.0458		1.3808	1.3808		1.2704	1.2704		4,532.6264	4,532.6264	1.4341		4,568.4783
Total	**3.0453**	**34.2159**	**18.8661**	**0.0458**	**2.8334**	**1.3808**	**4.2142**	**0.9710**	**1.2704**	**2.2414**		**4,532.6264**	**4,532.6264**	**1.4341**		**4,568.4783**

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					lb/day									lb/day		
Hauling	0.0165	0.5623	0.0859	1.5300e-003	0.0418	2.0900e-003	0.0439	0.0112	2.0000e-003	0.0132		160.5492	160.5492	0.0103		160.8068
Vendor	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
Worker	0.1480	0.1077	0.9281	2.8700e-003	0.2938	2.0100e-003	0.2958	0.0779	1.8500e-003	0.0798		286.2395	286.2395	7.9400e-003		286.4380
Total	**0.1645**	**0.6700**	**1.0139**	**4.4000e-003**	**0.3356**	**4.1000e-003**	**0.3397**	**0.0891**	**3.8500e-003**	**0.0930**		**446.7887**	**446.7887**	**0.0182**		**447.2447**

3.2 Grading - 2019

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	lb/day										lb/day					
Fugitive Dust					1.2750	0.0000	1.2750	0.4370	0.0000	0.4370			0.0000			0.0000
Off-Road	3.0453	34.2159	18.8661	0.0458		1.3808	1.3808		1.2704	1.2704	0.0000	4,532.6264	4,532.6264	1.4341		4,568.4783
Total	**3.0453**	**34.2159**	**18.8661**	**0.0458**	**1.2750**	**1.3808**	**2.6559**	**0.4370**	**1.2704**	**1.7074**	**0.0000**	**4,532.6264**	**4,532.6264**	**1.4341**		**4,568.4783**

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	lb/day										lb/day					
Hauling	0.0165	0.5623	0.0859	1.5300e-003	0.0418	2.0900e-003	0.0439	0.0112	2.0000e-003	0.0132		160.5492	160.5492	0.0103		160.8068
Vendor	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
Worker	0.1480	0.1077	0.9281	2.8700e-003	0.2938	2.0100e-003	0.2958	0.0779	1.8500e-003	0.0798		286.2395	286.2395	7.9400e-003		286.4380
Total	**0.1645**	**0.6700**	**1.0139**	**4.4000e-003**	**0.3356**	**4.1000e-003**	**0.3397**	**0.0891**	**3.8500e-003**	**0.0930**		**446.7887**	**446.7887**	**0.0182**		**447.2447**

3.2 Grading - 2020

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	lb/day										lb/day					
Fugitive Dust					2.8334	0.0000	2.8334	0.9710	0.0000	0.9710			0.0000			0.0000
Off-Road	2.8463	31.0399	17.9812	0.0458		1.2422	1.2422		1.1428	1.1428		4,432.680 8	4,432.680 8	1.4336		4,468.521 3
Total	**2.8463**	**31.0399**	**17.9812**	**0.0458**	**2.8334**	**1.2422**	**4.0756**	**0.9710**	**1.1428**	**2.1139**		**4,432.680 8**	**4,432.680 8**	**1.4336**		**4,468.521 3**

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	lb/day										lb/day					
Hauling	0.0153	0.5255	0.0815	1.5100e-003	0.1090	1.7400e-003	0.1107	0.0277	1.6700e-003	0.0294		158.6364	158.6364	9.6900e-003		158.8788
Vendor	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
Worker	0.1348	0.0947	0.8255	2.7800e-003	0.2938	1.9600e-003	0.2957	0.0779	1.8000e-003	0.0797		277.0974	277.0974	6.9000e-003		277.2698
Total	**0.1501**	**0.6202**	**0.9070**	**4.2900e-003**	**0.4027**	**3.7000e-003**	**0.4064**	**0.1056**	**3.4700e-003**	**0.1091**		**435.7338**	**435.7338**	**0.0166**		**436.1486**

3.2 Grading - 2020

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	lb/day										lb/day					
Fugitive Dust					1.2750	0.0000	1.2750	0.4370	0.0000	0.4370			0.0000			0.0000
Off-Road	2.8463	31.0399	17.9812	0.0458		1.2422	1.2422		1.1428	1.1428	0.0000	4,432.680 8	4,432.680 8	1.4336		4,468.521 3
Total	**2.8463**	**31.0399**	**17.9812**	**0.0458**	**1.2750**	**1.2422**	**2.5172**	**0.4370**	**1.1428**	**1.5798**	**0.0000**	**4,432.680 8**	**4,432.680 8**	**1.4336**		**4,468.521 3**

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	lb/day										lb/day					
Hauling	0.0153	0.5255	0.0815	1.5100e-003	0.1090	1.7400e-003	0.1107	0.0277	1.6700e-003	0.0294		158.6364	158.6364	9.6900e-003		158.8788
Vendor	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
Worker	0.1348	0.0947	0.8255	2.7800e-003	0.2938	1.9600e-003	0.2957	0.0779	1.8000e-003	0.0797		277.0974	277.0974	6.9000e-003		277.2698
Total	**0.1501**	**0.6202**	**0.9070**	**4.2900e-003**	**0.4027**	**3.7000e-003**	**0.4064**	**0.1056**	**3.4700e-003**	**0.1091**		**435.7338**	**435.7338**	**0.0166**		**436.1486**

3.3 Building Construction - 2020

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	lb/day										lb/day					
Off-Road	0.9328	8.5341	9.0760	0.0139		0.5217	0.5217		0.4965	0.4965		1,324.521 7	1,324.521 7	0.2574		1,330.956 8
Total	**0.9328**	**8.5341**	**9.0760**	**0.0139**		**0.5217**	**0.5217**		**0.4965**	**0.4965**		**1,324.521 7**	**1,324.521 7**	**0.2574**		**1,330.956 8**

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	lb/day										lb/day					
Hauling	5.9000e-003	0.2030	0.0315	5.8000e-004	0.0129	6.7000e-004	0.0136	3.5400e-003	6.4000e-004	4.1800e-003		61.2894	61.2894	3.7500e-003		61.3831
Vendor	0.0394	1.1683	0.2485	2.6400e-003	0.0613	6.3200e-003	0.0676	0.0177	6.0400e-003	0.0237		275.7773	275.7773	0.0258		276.4213
Worker	0.1758	0.1235	1.0767	3.6200e-003	0.3832	2.5500e-003	0.3858	0.1016	2.3500e-003	0.1040		361.4313	361.4313	9.0000e-003		361.6563
Total	**0.2212**	**1.4947**	**1.3567**	**6.8400e-003**	**0.4574**	**9.5400e-003**	**0.4670**	**0.1228**	**9.0300e-003**	**0.1319**		**698.4981**	**698.4981**	**0.0385**		**699.4607**

3.3 Building Construction - 2020

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	lb/day										lb/day					
Off-Road	0.9328	8.5341	9.0760	0.0139		0.5217	0.5217		0.4965	0.4965	0.0000	1,324.5217	1,324.5217	0.2574		1,330.9568
Total	**0.9328**	**8.5341**	**9.0760**	**0.0139**		**0.5217**	**0.5217**		**0.4965**	**0.4965**	**0.0000**	**1,324.5217**	**1,324.5217**	**0.2574**		**1,330.9568**

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	lb/day										lb/day					
Hauling	5.9000e-003	0.2030	0.0315	5.8000e-004	0.0129	6.7000e-004	0.0136	3.5400e-003	6.4000e-004	4.1800e-003		61.2894	61.2894	3.7500e-003		61.3831
Vendor	0.0394	1.1683	0.2485	2.6400e-003	0.0613	6.3200e-003	0.0676	0.0177	6.0400e-003	0.0237		275.7773	275.7773	0.0258		276.4213
Worker	0.1758	0.1235	1.0767	3.6200e-003	0.3832	2.5500e-003	0.3858	0.1016	2.3500e-003	0.1040		361.4313	361.4313	9.0000e-003		361.6563
Total	**0.2212**	**1.4947**	**1.3567**	**6.8400e-003**	**0.4574**	**9.5400e-003**	**0.4670**	**0.1228**	**9.0300e-003**	**0.1319**		**698.4981**	**698.4981**	**0.0385**		**699.4607**

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	lb/day										lb/day					
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
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

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.478390	0.030777	0.167800	0.120556	0.019513	0.006321	0.020235	0.145317	0.001626	0.001724	0.005916	0.000950	0.000877

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	lb/day										lb/day					
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
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

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	lb/day										lb/day					
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
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**

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	lb/day										lb/day					
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
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**

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	lb/day										lb/day					
Mitigated	4.8000e-004	5.0000e-005	5.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0111	0.0111	3.0000e-005		0.0118
Unmitigated	4.8000e-004	5.0000e-005	5.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0111	0.0111	3.0000e-005		0.0118

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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.8000e-004	5.0000e-005	5.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0111	0.0111	3.0000e-005		0.0118
Total	**4.8000e-004**	**5.0000e-005**	**5.1900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0111**	**0.0111**	**3.0000e-005**		**0.0118**

6.2 Area by SubCategory

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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.8000e-004	5.0000e-005	5.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0111	0.0111	3.0000e-005		0.0118
Total	**4.8000e-004**	**5.0000e-005**	**5.1900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0111**	**0.0111**	**3.0000e-005**		**0.0118**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

KJC-28

Kern-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	50.60	Acre	50.60	2,204,136.00	0

1.2 Other Project Characteristics

Urbanization Rural **Wind Speed (m/s)** 2.7 **Precipitation Freq (Days)** 32

Climate Zone 10 **Operational Year** 2021

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 702.44 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Contruction schedule estimated from RCSD WWTP Rehabilitation Technical Report Volume 3.

Off-road Equipment - Contruction equipemnt estimated from RCSD WWTP Rehabilitation Technical Report Volume 1.

Off-road Equipment - Contruction equipemnt estimated from RCSD WWTP Rehabilitation Technical Report Volume 1.

Trips and VMT - Building Construction Haul Trips = 461 CY of concrete.

Grading - 3,047 CY aggregate and clay imported.

Consumer Products - Construction only this model.

Area Coating - Construction only this model.

Construction Off-road Equipment Mitigation - Dust mitigation per EKAPCD.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	1,110.00	125.00
tblConstructionPhase	NumDays	110.00	200.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblGrading	AcresOfGrading	200.00	250.00
tblGrading	MaterialImported	0.00	3,047.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00

tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	92.00
tblTripsAndVMT	VendorTripNumber	361.00	10.00
tblTripsAndVMT	WorkerTripNumber	25.00	23.00
tblTripsAndVMT	WorkerTripNumber	926.00	30.00

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					
2019	0.2398	2.6160	1.4936	3.7700e-003	0.2704	0.1039	0.3743	0.0830	0.0956	0.1786	0.0000	339.7517	339.7517	0.0988	0.0000	342.2214
2020	0.1458	1.4181	1.1266	2.5600e-003	0.2084	0.0643	0.2727	0.0452	0.0603	0.1054	0.0000	226.6685	226.6685	0.0496	0.0000	227.9078
Maximum	**0.2398**	**2.6160**	**1.4936**	**3.7700e-003**	**0.2704**	**0.1039**	**0.3743**	**0.0830**	**0.0956**	**0.1786**	**0.0000**	**339.7517**	**339.7517**	**0.0988**	**0.0000**	**342.2214**

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					
2019	0.2398	2.6160	1.4936	3.7700e-003	0.1353	0.1039	0.2391	0.0410	0.0956	0.1365	0.0000	339.7513	339.7513	0.0988	0.0000	342.2211
2020	0.1458	1.4181	1.1266	2.5600e-003	0.1146	0.0643	0.1790	0.0259	0.0603	0.0862	0.0000	226.6683	226.6683	0.0496	0.0000	227.9076
Maximum	**0.2398**	**2.6160**	**1.4936**	**3.7700e-003**	**0.1353**	**0.1039**	**0.2391**	**0.0410**	**0.0956**	**0.1365**	**0.0000**	**339.7513**	**339.7513**	**0.0988**	**0.0000**	**342.2211**

	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**	**47.81**	**0.00**	**35.37**	**47.83**	**0.00**	**21.59**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**6-5-2019**	**9-4-2019**	1.2509	1.2509
2	**9-5-2019**	**12-4-2019**	1.2379	1.2379
3	**12-5-2019**	**3-4-2020**	1.1595	1.1595
4	**3-5-2020**	**6-4-2020**	0.4171	0.4171
5	**6-5-2020**	**9-4-2020**	0.3545	0.3545
		Highest	1.2509	1.2509

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	4.0000e-005	0.0000	4.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-004	9.0000e-004	0.0000	0.0000	9.6000e-004
Energy	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
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	**4.0000e-005**	**0.0000**	**4.7000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**9.0000e-004**	**9.0000e-004**	**0.0000**	**0.0000**	**9.6000e-004**

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	4.0000e-005	0.0000	4.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-004	9.0000e-004	0.0000	0.0000	9.6000e-004
Energy	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
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	**4.0000e-005**	**0.0000**	**4.7000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**9.0000e-004**	**9.0000e-004**	**0.0000**	**0.0000**	**9.6000e-004**

	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	Grading	Grading	6/5/2019	3/10/2020	5	200	
2	Building Construction	Building Construction	3/11/2020	9/1/2020	5	125	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 250

Acres of Paving: 50.6

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	1.00	158	0.38
Grading	Graders	1	2.00	187	0.41
Grading	Off-Highway Trucks	2	5.00	402	0.38
Grading	Rollers	1	2.00	80	0.38
Grading	Rubber Tired Dozers	1	2.00	247	0.40
Grading	Rubber Tired Loaders	2	5.00	203	0.36
Grading	Scrapers	1	7.00	367	0.48
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	0	0.00	231	0.29
Building Construction	Forklifts	1	4.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	1	1.00	46	0.45

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
Grading	10	23.00	0.00	381.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	30.00	10.00	92.00	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 Grading - 2019

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					0.2457	0.0000	0.2457	0.0764	0.0000	0.0764	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2284	2.5662	1.4150	3.4300e-003		0.1036	0.1036		0.0953	0.0953	0.0000	308.3947	308.3947	0.0976	0.0000	310.8340
Total	**0.2284**	**2.5662**	**1.4150**	**3.4300e-003**	**0.2457**	**0.1036**	**0.3493**	**0.0764**	**0.0953**	**0.1717**	**0.0000**	**308.3947**	**308.3947**	**0.0976**	**0.0000**	**310.8340**

3.2 Grading - 2019

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	1.2100e-003	0.0422	5.9700e-003	1.2000e-004	3.0800e-003	1.6000e-004	3.2300e-003	8.3000e-004	1.5000e-004	9.8000e-004	0.0000	11.0787	11.0787	6.6000e-004	0.0000	11.0951
Vendor	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
Worker	0.0102	7.5800e-003	0.0726	2.2000e-004	0.0216	1.5000e-004	0.0218	5.7400e-003	1.4000e-004	5.8800e-003	0.0000	20.2783	20.2783	5.6000e-004	0.0000	20.2923
Total	**0.0114**	**0.0498**	**0.0786**	**3.4000e-004**	**0.0247**	**3.1000e-004**	**0.0250**	**6.5700e-003**	**2.9000e-004**	**6.8600e-003**	**0.0000**	**31.3570**	**31.3570**	**1.2200e-003**	**0.0000**	**31.3874**

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					0.1106	0.0000	0.1106	0.0344	0.0000	0.0344	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2284	2.5662	1.4150	3.4300e-003		0.1036	0.1036		0.0953	0.0953	0.0000	308.3944	308.3944	0.0976	0.0000	310.8337
Total	**0.2284**	**2.5662**	**1.4150**	**3.4300e-003**	**0.1106**	**0.1036**	**0.2141**	**0.0344**	**0.0953**	**0.1297**	**0.0000**	**308.3944**	**308.3944**	**0.0976**	**0.0000**	**310.8337**

3.2 Grading - 2019

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	1.2100e-003	0.0422	5.9700e-003	1.2000e-004	3.0800e-003	1.6000e-004	3.2300e-003	8.3000e-004	1.5000e-004	9.8000e-004	0.0000	11.0787	11.0787	6.6000e-004	0.0000	11.0951
Vendor	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
Worker	0.0102	7.5800e-003	0.0726	2.2000e-004	0.0216	1.5000e-004	0.0218	5.7400e-003	1.4000e-004	5.8800e-003	0.0000	20.2783	20.2783	5.6000e-004	0.0000	20.2923
Total	**0.0114**	**0.0498**	**0.0786**	**3.4000e-004**	**0.0247**	**3.1000e-004**	**0.0250**	**6.5700e-003**	**2.9000e-004**	**6.8600e-003**	**0.0000**	**31.3570**	**31.3570**	**1.2200e-003**	**0.0000**	**31.3874**

3.2 Grading - 2020

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					0.1704	0.0000	0.1704	0.0350	0.0000	0.0350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0712	0.7760	0.4495	1.1400e-003		0.0311	0.0311		0.0286	0.0286	0.0000	100.5315	100.5315	0.0325	0.0000	101.3444
Total	**0.0712**	**0.7760**	**0.4495**	**1.1400e-003**	**0.1704**	**0.0311**	**0.2015**	**0.0350**	**0.0286**	**0.0636**	**0.0000**	**100.5315**	**100.5315**	**0.0325**	**0.0000**	**101.3444**

3.2 Grading - 2020

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	3.7000e-004	0.0131	1.8900e-003	4.0000e-005	2.6700e-003	4.0000e-005	2.7100e-003	6.8000e-004	4.0000e-005	7.2000e-004	0.0000	3.6492	3.6492	2.1000e-004	0.0000	3.6543
Vendor	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
Worker	3.1000e-003	2.2200e-003	0.0216	7.0000e-005	7.2000e-003	5.0000e-005	7.2500e-003	1.9100e-003	5.0000e-005	1.9600e-003	0.0000	6.5436	6.5436	1.6000e-004	0.0000	6.5477
Total	**3.4700e-003**	**0.0154**	**0.0235**	**1.1000e-004**	**9.8700e-003**	**9.0000e-005**	**9.9600e-003**	**2.5900e-003**	**9.0000e-005**	**2.6800e-003**	**0.0000**	**10.1928**	**10.1928**	**3.7000e-004**	**0.0000**	**10.2021**

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					0.0767	0.0000	0.0767	0.0158	0.0000	0.0158	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0712	0.7760	0.4495	1.1400e-003		0.0311	0.0311		0.0286	0.0286	0.0000	100.5314	100.5314	0.0325	0.0000	101.3442
Total	**0.0712**	**0.7760**	**0.4495**	**1.1400e-003**	**0.0767**	**0.0311**	**0.1077**	**0.0158**	**0.0286**	**0.0443**	**0.0000**	**100.5314**	**100.5314**	**0.0325**	**0.0000**	**101.3442**

3.2 Grading - 2020

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	3.7000e-004	0.0131	1.8900e-003	4.0000e-005	2.6700e-003	4.0000e-005	2.7100e-003	6.8000e-004	4.0000e-005	7.2000e-004	0.0000	3.6492	3.6492	2.1000e-004	0.0000	3.6543
Vendor	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
Worker	3.1000e-003	2.2200e-003	0.0216	7.0000e-005	7.2000e-003	5.0000e-005	7.2500e-003	1.9100e-003	5.0000e-005	1.9600e-003	0.0000	6.5436	6.5436	1.6000e-004	0.0000	6.5477
Total	**3.4700e-003**	**0.0154**	**0.0235**	**1.1000e-004**	**9.8700e-003**	**9.0000e-005**	**9.9600e-003**	**2.5900e-003**	**9.0000e-005**	**2.6800e-003**	**0.0000**	**10.1928**	**10.1928**	**3.7000e-004**	**0.0000**	**10.2021**

3.3 Building Construction - 2020

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	0.0583	0.5334	0.5673	8.7000e-004		0.0326	0.0326		0.0310	0.0310	0.0000	75.0991	75.0991	0.0146	0.0000	75.4640
Total	**0.0583**	**0.5334**	**0.5673**	**8.7000e-004**		**0.0326**	**0.0326**		**0.0310**	**0.0310**	**0.0000**	**75.0991**	**75.0991**	**0.0146**	**0.0000**	**75.4640**

3.3 Building Construction - 2020

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	3.6000e-004	0.0127	1.8300e-003	4.0000e-005	7.9000e-004	4.0000e-005	8.3000e-004	2.2000e-004	4.0000e-005	2.6000e-004	0.0000	3.5247	3.5247	2.0000e-004	0.0000	3.5297
Vendor	2.3900e-003	0.0734	0.0142	1.7000e-004	3.7700e-003	3.9000e-004	4.1600e-003	1.0900e-003	3.7000e-004	1.4600e-003	0.0000	15.9824	15.9824	1.3600e-003	0.0000	16.0166
Worker	0.0101	7.2400e-003	0.0704	2.4000e-004	0.0235	1.6000e-004	0.0237	6.2400e-003	1.5000e-004	6.3900e-003	0.0000	21.3379	21.3379	5.3000e-004	0.0000	21.3512
Total	**0.0129**	**0.0933**	**0.0864**	**4.5000e-004**	**0.0281**	**5.9000e-004**	**0.0286**	**7.5500e-003**	**5.6000e-004**	**8.1100e-003**	**0.0000**	**40.8451**	**40.8451**	**2.0900e-003**	**0.0000**	**40.8974**

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	0.0583	0.5334	0.5673	8.7000e-004		0.0326	0.0326		0.0310	0.0310	0.0000	75.0990	75.0990	0.0146	0.0000	75.4639
Total	**0.0583**	**0.5334**	**0.5673**	**8.7000e-004**		**0.0326**	**0.0326**		**0.0310**	**0.0310**	**0.0000**	**75.0990**	**75.0990**	**0.0146**	**0.0000**	**75.4639**

3.3 Building Construction - 2020

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	3.6000e-004	0.0127	1.8300e-003	4.0000e-005	7.9000e-004	4.0000e-005	8.3000e-004	2.2000e-004	4.0000e-005	2.6000e-004	0.0000	3.5247	3.5247	2.0000e-004	0.0000	3.5297
Vendor	2.3900e-003	0.0734	0.0142	1.7000e-004	3.7700e-003	3.9000e-004	4.1600e-003	1.0900e-003	3.7000e-004	1.4600e-003	0.0000	15.9824	15.9824	1.3600e-003	0.0000	16.0166
Worker	0.0101	7.2400e-003	0.0704	2.4000e-004	0.0235	1.6000e-004	0.0237	6.2400e-003	1.5000e-004	6.3900e-003	0.0000	21.3379	21.3379	5.3000e-004	0.0000	21.3512
Total	**0.0129**	**0.0933**	**0.0864**	**4.5000e-004**	**0.0281**	**5.9000e-004**	**0.0286**	**7.5500e-003**	**5.6000e-004**	**8.1100e-003**	**0.0000**	**40.8451**	**40.8451**	**2.0900e-003**	**0.0000**	**40.8974**

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.478390	0.030777	0.167800	0.120556	0.019513	0.006321	0.020235	0.145317	0.001626	0.001724	0.005916	0.000950	0.000877

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	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	4.0000e-005	0.0000	4.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-004	9.0000e-004	0.0000	0.0000	9.6000e-004
Unmitigated	4.0000e-005	0.0000	4.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-004	9.0000e-004	0.0000	0.0000	9.6000e-004

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
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-004	9.0000e-004	0.0000	0.0000	9.6000e-004
Total	**4.0000e-005**	**0.0000**	**4.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.0000e-004**	**9.0000e-004**	**0.0000**	**0.0000**	**9.6000e-004**

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
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-004	9.0000e-004	0.0000	0.0000	9.6000e-004
Total	**4.0000e-005**	**0.0000**	**4.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.0000e-004**	**9.0000e-004**	**0.0000**	**0.0000**	**9.6000e-004**

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 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix C

Biological Resources Technical Report

Rosamond Wastewater Treatment Plant Evaporation Ponds

Biological Technical Report

February 4, 2019 | KJC-28

Prepared for:

Kennedy/Jenks Consultants
300 N. Lake Avenue, Suite 1020
Pasadena, CA 91101

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

Rosamond Wastewater Treatment Plant Evaporation Ponds

Biological Technical Report

Prepared for:

Kennedy/Jenks Consultants
300 N. Lake Avenue, Suite 1020
Pasadena, CA 91101

Prepared by:

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February 4, 2019 | KJC-28

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ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AMSL	Above Mean Sea Level
BUOW	Burrowing owl
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFG	California Fish and Game
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DRECP	Desert Renewable Energy Conservation Plan
EPA	Environmental Protection Agency
FESA	Federal Endangered Species Act
GPS	Global Positioning System
HELIX	Helix Environmental Planning, Inc.
MBTA	Migratory Bird Treaty Act
MGD	Million gallons per day
MGS	Mohave ground squirrel
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
OHWM	Ordinary High Water Mark
RCSD	Rosamond Community Services District
RPW	Relatively Permanent Water
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SWRCB	State Water Resources Control Board
TNW	Traditional Navigable Water
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

USGS	U.S. Geological Survey
WWTP	Wastewater Treatment Plant

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1.0 INTRODUCTION

This Biological Technical Report presents the results of biological resources studies conducted by HELIX Environmental Planning, Inc. (HELIX) for the proposed Rosamond Wastewater Treatment Plant Evaporation Ponds Project (proposed Project). The studies were conducted to provide the Rosamond Community Services District (RCSD), resource agencies, and the public with current biological data to satisfy review of the proposed Project under the California Environmental Quality Act (CEQA) and to demonstrate compliance with federal, state, and local regulations.

This report 1) describes the current biological conditions in the proposed Project impact area, which includes all areas that would be subject to direct, physical disturbance as a result of proposed Project implementation; 2) describes the vegetation communities/land uses and plant and animal species observed or detected during proposed Project surveys; and 3) identifies those resources that are sensitive. It also identifies sensitive species with potential to occur in the proposed Project impact area. Additionally, proposed Project impacts are assessed and mitigation is provided to offset the proposed Project's unavoidable, significant impacts to sensitive biological resources.

1.1 PROJECT LOCATION

The Rosamond Wastewater Treatment Plant Evaporation Ponds Project (project) is located in Rosamond, in southwestern Kern County (Figure 1, *Regional Location*). The project is located north of Avenue A, east of 10th Street West, west of Division Street, and south of Patterson Road within Section 34 of Township 9 North, Range 12 West, on the U.S. Geological Survey (USGS) 7.5' Rosamond quadrangle (Figure 2, *USGS Topography*). The approximately 69.38-acre Project site is located on the southern portion of the RCSD's existing Wastewater Treatment Plant (WWTP) just west of the western base boundary for Edwards Air Force Base (AFB; Figure 3, *Aerial Photograph*). For the purpose of this report the Project area is defined as the current project location within the limits of the existing WWTP (Figure 4, *Project Plans*), and the "previous alternative location" refers to the 80 acres adjacent to the south side of the WWTP. This alternative location was at one time considered for use on this project but is no longer part of the project and is not the focus of the report.

1.2 PROJECT DESCRIPTION

The project proposes to expand the existing 0.5 million gallons per day (MGD) WWTP to 1.27 MGD by duplicating the existing Biolac/clarifier system, activated sludge system, secondary clarifier, and sludge drying beds. The expansion would provide a new, larger Biolac/clarifier system and would duplicate the existing six sludge drying beds. Once completed, the new components would receive 75 percent of the incoming wastewater flow, while 25 percent of the effluent would go through the existing system. This 75/25 flow split approach would eliminate the need for major upgrades to the existing process units (i.e., Biolac and secondary clarifiers). Refer to the proposed Project site plan below (Figure 4).

The existing WWTP contains a series of evaporation ponds (see Figure 3). Ponds 15 and 17 would be converted to percolation ponds to make use of existing piping and infrastructure, and de-nitrified; undisinfected secondary effluent would be discharged to these percolation ponds for disposal. An Infiltration Test Basin was conducted to address the potential for Pond 17 to leach nitrate and total dissolved solids into the groundwater from untreated effluent that may have found its way into the soil matrix from leaking evaporation ponds during former operation. The leaching tests have indicated that infiltration is feasible, but that the infiltration rate necessitates use of Pond 15 to provide additional percolation capacity for treated effluent. Therefore, Ponds 15 and 17 are both proposed to be reconfigured into three ponds, and the top 5 to 10 feet of the existing pond bottoms would be excavated and removed to convert the evaporation pond to a percolation pond system. Access ramps would be included for operation and maintenance. The pond design includes a Distribution Box with three slide gates for 14-inch pipeline outlets to distribute the effluent to one or more of the three percolation ponds. The vacant, approximately 20-acre area immediately west of Pond 17 would be utilized as a soil stockpiling or construction staging area, including soil storage for up to approximately 220,000 cubic yards of excavated soil from Ponds 15 and 17 on the southern two-thirds of the area, and construction equipment staging, material storage, construction worker parking, and other temporary activities occurring within the remaining northern portion of the area (see Figure 4).

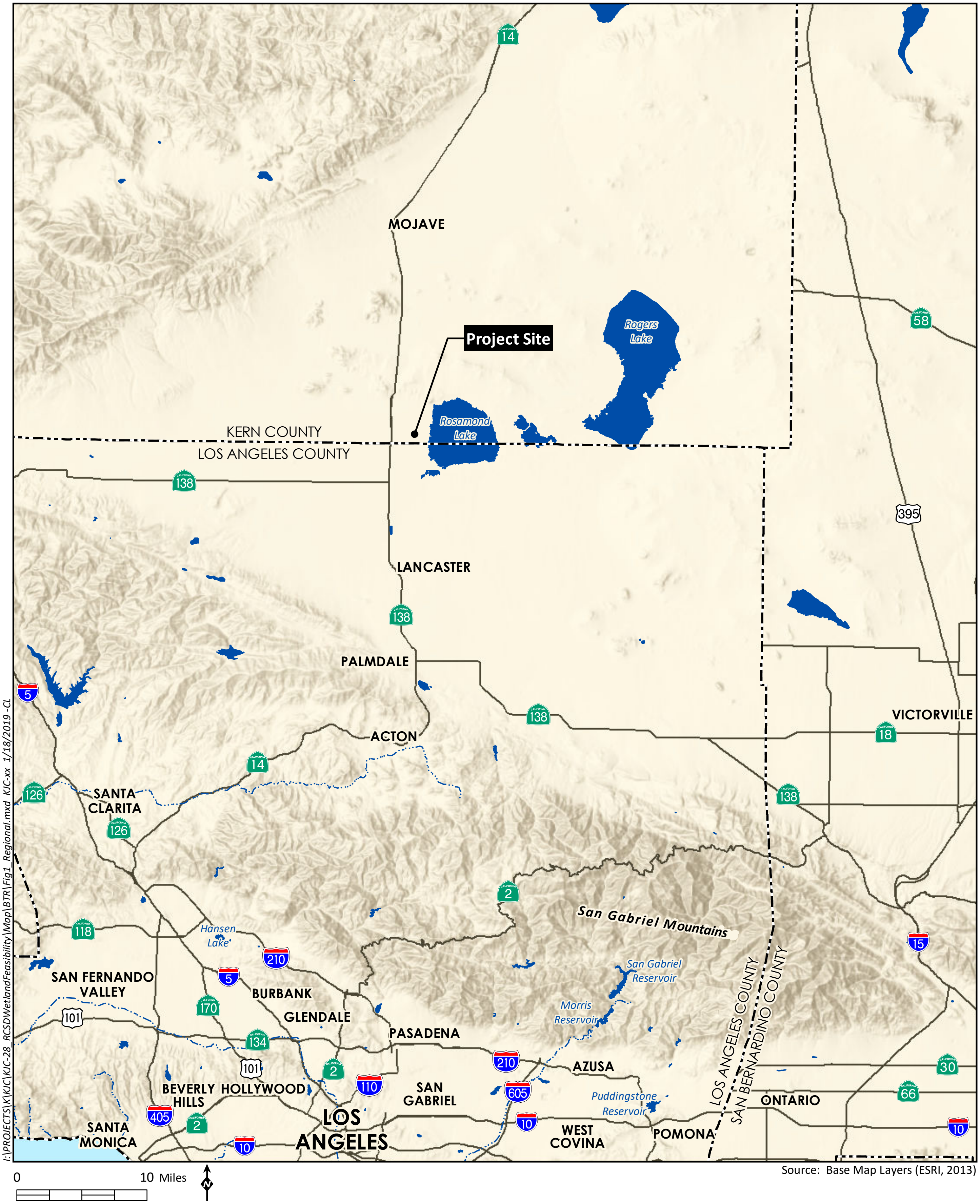
The WWTP would continue to accept and process septage (i.e., waste removed from septic tanks) from commercial septage haulers that service residential sources, small restaurants, and other domestic customers. A new septage receiving station would be installed north of the WWTP on the southwest side of existing Pond 11 (see Figure 4). Sewage is anticipated to be discharged from the septage hauler truck into a septage receiving station involving a concrete tank with sloped floors leading to a channel with a manual-cleaned coarse screen to remove large solids before proceeding to a lined septage holding pond. Manual raking of the screens would be required, and materials would be disposed of in the screenings bin adjacent to the channel. Additionally, an automated refrigerated sampler would be installed at the receiving station to sample the septage influent.

The septage would flow out of the channel and spill into a septage holding pond. Flows from the septage pond are anticipated to bleed into the system upstream of the pretreatment screen during low flow through a six-inch effluent pipeline. Diurnal data for the WWTP are not currently available; however, it is assumed that low flows occur at night. An additional carbon source (associated with septage addition) during low flow periods may also be used to assist with optimum denitrification.

Construction of the new septage holding pond would consist of rehabilitating the southwest corner of Pond 11. The proposed septage pond would be approximately 117 feet long by 39 feet wide with a water surface area of 4,800 square feet (SF) and an embankment slope ratio of 1 to 3 per typical septage pond design. The pond is anticipated to hold approximately 90,000 gallons of septage, allowing for three days of retention time, with a working depth of five feet and minimum freeboard of two feet. As noted above, construction of the proposed improvements would result in the excavation and storage of up to approximately 220,000 cubic yards of soil on site to the west of existing Pond 17. However, no substantial off-site soil transport, either import or export, is proposed as part of the project. Construction activities are anticipated to begin in mid-2019, with operation of the newly expanded WWTP anticipated to occur by the end of 2020.

2.0 METHODS

Project evaluation included a review of project plans, a literature review of biological resources occurring on the Project area and surrounding vicinity, a general habitat assessment, a jurisdictional assessment, and a focused survey for desert tortoise (*Gopherus agassizii*). A trapping survey for Mohave ground squirrel (*Xerospermophilus mohavensis*; MGS) was conducted on the previous alternative location. Focused surveys for sensitive plant species and burrowing owl (*Athene cunicularia*; BUOW) are



Source: Base Map Layers (ESRI, 2013)

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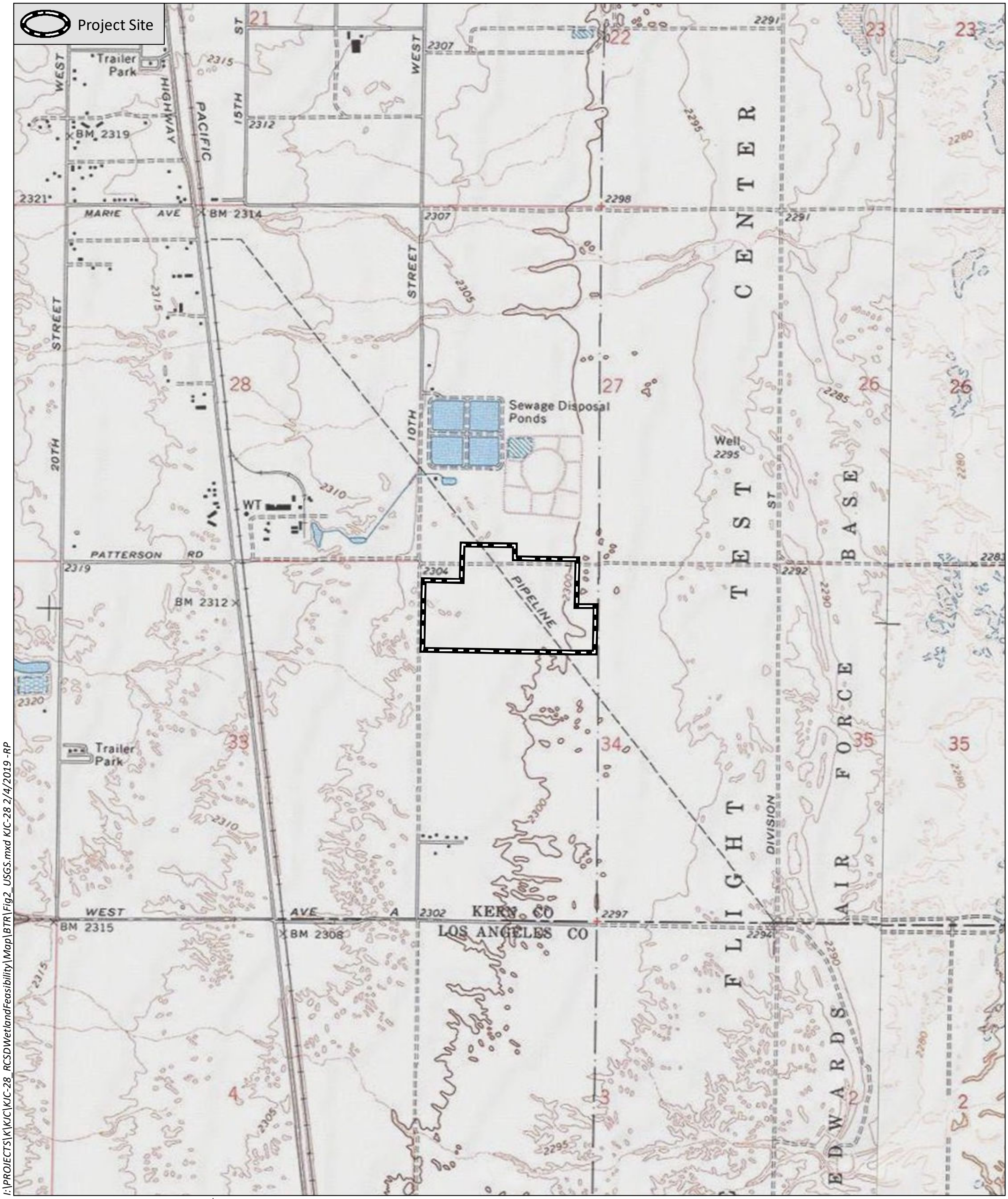
Regional Location

Figure 1



Source: Rosamond 7.5' Quad (USGS)

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HELIX Environmental Planning

USGS Topography

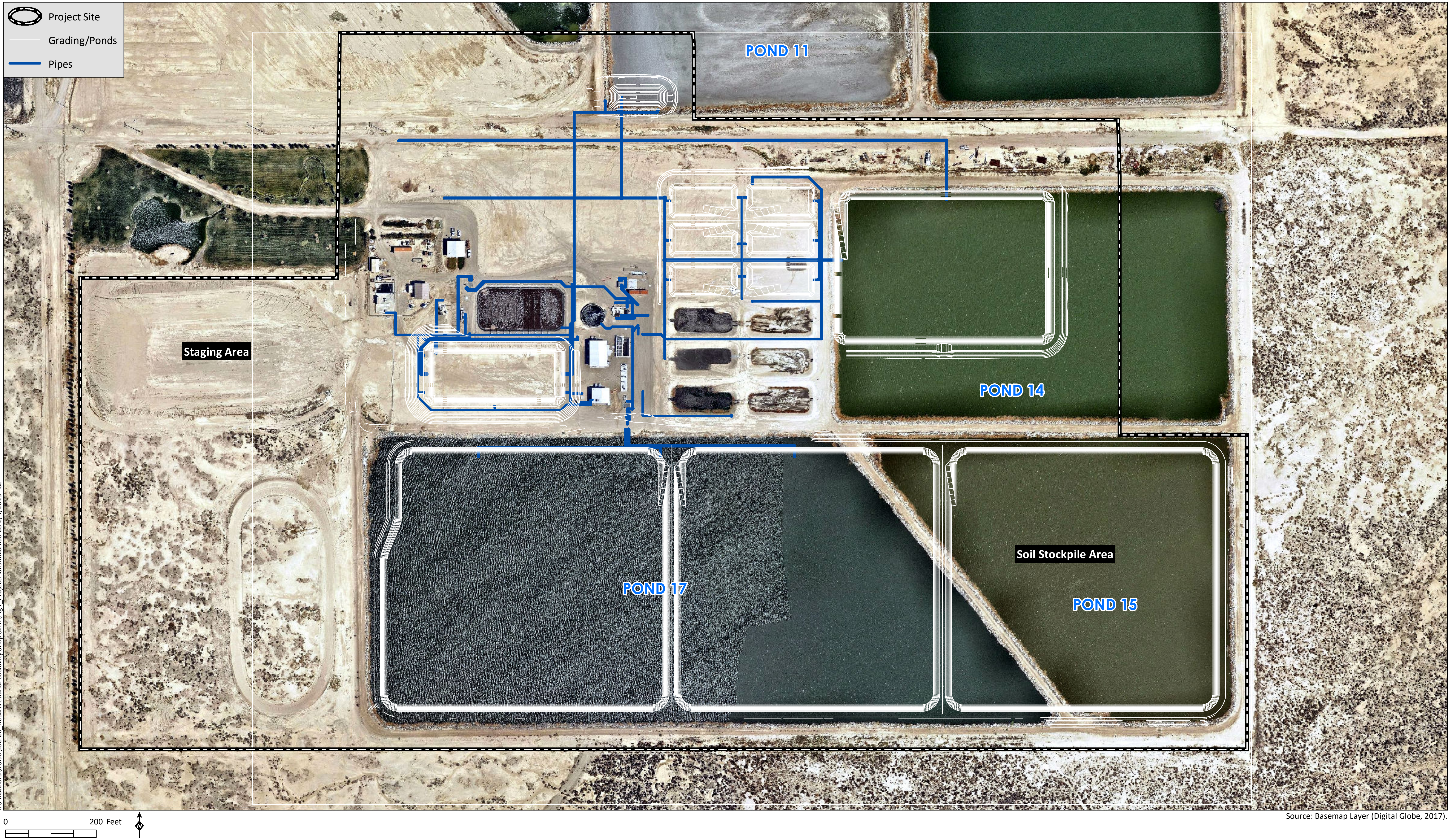
Figure 2

Source: Aerial (Nearmap 2014)

HELIX Environmental Planning

Aerial Photograph

Figure 3



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Source: Basemap Layer (Digital Globe, 2017).

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Project Plans

Figure 4

scheduled for spring 2019. The methods used to evaluate the biological resources present on the Project area are discussed on this section.

2.1 NOMENCLATURE

Animal nomenclature follows Emmel and Emmel (1973) for butterflies, Center for North American Herpetology (Taggart 2018) for reptiles and amphibians, American Ornithologists' Union (2018) for birds, and Baker et al. (2003) for mammals. Rare plant and sensitive animal statuses are from the Inventory of Rare and Endangered Plants of California (California Native Plant Society [CNPS] 2018) and the California Natural Diversity Database (CNDDB; California Department of Fish and Wildlife [CDFW] 2018). Rare plant species' habitats and flowering periods are from the Jepson Manual (Baldwin et al. 2012), the Inventory of Rare and Endangered Plants of California (CNPS 2018), and CNDDB (CDFW 2018). Soil classifications were obtained from the Web Soil Survey (Natural Resources Conservation Service [NRCS] 2018). Vegetation community names and descriptions were obtained from A Manual of California Vegetation (Sawyer et al. 2009) and Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986).

2.2 LITERATURE REVIEW

Prior to conducting the site visit, HELIX reviewed regional planning documents, aerial photographs (Historic Aerials 2018), Web Soil Survey (NRCS 2018), and sensitive species database records, including the Inventory of Rare and Endangered Plants of California (CNPS 2018), CNDDB (CDFW 2018), and critical habitat maps for endangered and threatened species (U.S. Fish and Wildlife Service [USFWS] 2018a). A nine-quadrangle database search was conducted on CNDDB and California Native Plant Society (CNPS), which included the following quadrangles: Bissell, Del Sur, Lancaster East, Lancaster West, Little Buttes, Rosamond, Rosamond Lake, Soledad Mountain, and Willow Springs.

2.3 FIELD SURVEYS

Field surveys were conducted to document the existing condition of the Project area and surrounding lands. List of plant and animal species observed and/or detected during the field surveys are provided as Appendix A, *Plant Species Observed* and Appendix B, *Animal Species Observed and/or Detected*. Noted animal species were identified by direct observation, vocalizations, or the observance of scat, tracks, or other signs. However, the list of animal species identified is not necessarily a comprehensive account of all species that use the Project area, as species that are nocturnal, secretive, or seasonally restricted may not have been observed. A jurisdictional assessment was also conducted to determine the existing jurisdictional limits regulated by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW). A focused survey for desert tortoise was conducted. Surveys for rare plant species and BUOW are scheduled to occur in spring/summer 2019 for the current proposed Project area.

2.3.1 Jurisdictional Delineation

Prior to beginning fieldwork, aerial photographs (1 inch = 200 feet), topographic maps (1 inch = 200 feet), USGS quadrangle maps, and National Wetlands Inventory maps (USFWS 2018c) were reviewed to assist in determining the location of potential jurisdictional waters and wetlands in the Project area. HELIX Biologists Ezekiel Cooley and Robert Hogenauer conducted the jurisdictional delineation field work on January 9, 2019. The delineation was conducted to identify and map water and wetland recourses potentially subject to USACE jurisdiction pursuant to Section 404 of the Clean Water Act (CWA), RWQCB jurisdiction pursuant to Section 401 of the CWA, and streambed habitats potentially subject to CDFW jurisdiction pursuant to Sections 1600 et seq. of the California Fish and Game Code (CFG Code). Data collection was targeted in areas that were deemed to have the potential to support jurisdictional resources, such as the presence of an ordinary high water mark (OHWM) and/or other surface indications of wetland hydrology.

The USACE waters of the U.S. were determined using current USACE guidelines (Environmental Laboratory 1987, U.S. Army Corps of Engineers [USACE] 2008a). Areas were determined to be waters of the U.S. if there was evidence of regular surface flow (e.g., bed and bank). Jurisdictional limits for these areas were measured according to the presence of a discernible OHWM, which is defined in 33 Code of Federal Regulations Section 329.11 as “that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas.” The USACE has issued further guidance on the OHWM (Riley 2005; USACE 2008b), which also was considered in this jurisdictional assessment.

The jurisdictional delineation was conducted in accordance with court decisions (i.e., Rapanos v. United States, Carabell v. United States, and Solid Waste Agency of Northern Cook County v. USACE), as outlined and applied by the USACE (USACE 2007; Grumbles and Woodley 2007); and USACE and U.S. Environmental Protection Agency (EPA; 2007). These publications explain that the EPA and USACE will assert jurisdiction over traditional navigable waters (TNW) and tributaries to TNWs that are a relatively permanent water body (RPW), which has year-round or continuous seasonal flow. For water bodies that are not RPWs, a significant nexus evaluation is used to determine if the non-RPW is jurisdictional. As an alternative to the significant nexus evaluation process, a preliminary jurisdictional delineation may be submitted to the USACE. The preliminary jurisdictional delineation treats all waters and wetlands on a site as if they are jurisdictional waters of the U.S. (USACE 2008a). A significant nexus evaluation or preliminary jurisdictional delineation are typically only required for projects that propose impacts to potentially jurisdictional features and, therefore, require a Section 404 permit from the USACE.

The RWQCB asserts regulatory jurisdiction over activities affecting wetland and non-wetland waters of the State pursuant to Section 401 of the CWA and the State Porter-Cologne Water Quality Control Act. Potential RWQCB jurisdiction found within the Project area that are considered isolated waters of the State are subject to the State Porter-Cologne Water Quality Control Act.

The CDFW jurisdictional boundaries were determined based on the presence of a defined bed and bank. Streambeds within CDFW jurisdiction were delineated based on the definition of streambed as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses with surface or subsurface flow that supports riparian vegetation” (Title 14, Section 1.72). This definition for CDFW jurisdictional habitat allows for a wide variety of habitat types to be jurisdictional, including some that do not include wetland species (e.g., oak woodland and alluvial fan sage scrub). Jurisdictional limits for CDFW streambeds were defined by the top of bank.

2.3.2 Rare Plant Species Surveys

Rare plants investigated include those that are listed as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) or the CDFW and those afforded a California Rare Plant Rank (CRPR) of 1 through 4 by CNPS. HELIX biologists are scheduled to conduct rare plant surveys on April 25 and May 16, 2019, on the Project site. The surveys will be conducted in accordance with published agency guidelines (CDFW 2009, CDFW 2000, and USFWS 2000) and during the appropriate flowering period to maximize the detection of those rare plant species with the potential to occur on the Project area. Survey methods will incorporate a combination of meandering transects and focused searches in areas with the greatest potential to support rare plant species with the potential to occur on the Project area. If observed, individual rare plants will be mapped using a handheld Global Positioning System (GPS) unit. Rare plant species incidentally encountered during other field surveys will also be recorded.

2.3.3 Burrowing Owl

A habitat assessment was conducted on the Project area by Mr. Hogenauer and HELIX Biologist Lauren Singleton on October 29, 2018, to identify areas with potential BUOW habitat and eliminate those areas that did not contain habitat suitable to support the species. A focused burrow survey was conducted concurrently with the habitat assessment. All suitable burrows (i.e., greater than approximately four inches [11 centimeters] in height and width and greater than approximately 59 inches [50 centimeters] in depth) and burrow surrogates within the project impact area were recorded using a handheld GPS unit. The assessment was conducted on the Project area and included an approximately 500-foot (150-meter) buffer zone around the periphery of the Project area (Figure 5, *Burrowing Owl Survey Area*). The Project area was determined to support potentially suitable BUOW habitat and included debris piles that could be used for burrows; therefore, a four-visit focused BUOW survey is scheduled to occur on March 5, April 25, May 16, and June 18, 2019. This schedule is designed to meet the requirement of the 2012 CDFW Staff Report with one survey occurring between February 15 and April 15, one survey being conducted between June 15 and July 15, and having at least three weeks between each survey (CDFW 2012). Per the protocol guidelines, biologists will walk transects spaced no greater than 20 meters apart through areas of potential habitat visually searching for BUOW sign and BUOW individuals with the aid of binoculars. Fence posts, rocks, and other possible perching locations, as well as mammal burrows (especially those of California ground squirrel [*Otospermophilus beecheyi*]) potentially suitable for use by BUOW are to be inspected. Burrows will be inspected for sign of recent BUOW occupation including pellets with regurgitated fur, bones, and insect parts; white wash (excrement); tracks; and feathers. If observed, BUOW sign and/or BUOW individuals will be recorded with a handheld GPS unit.

2.3.4 Mohave Ground Squirrel

The MGS is found in a variety of desert scrub habitats, which is present in a disturbed form in the western portion of the Project area. The desert scrub is highly disturbed from activities related to the operation of the active WWTP. MGS often occurs in sandy soils in or near alluvial fans, but also in gravelly soils. The soils in the proposed Project survey area may be suitable for this species.

The closest CNDDB record for MGS occurs approximately two miles northwest of the Study Area and is from 1973. The next closest occurrences to the Study Area in the CNDDB data base are from 1994 and 2005, and are located approximately nine miles away to the northeast and south, respectively.

The CDFW requires a trapping survey for the MGS for projects that propose impacts to habitat with potential to support the species and are within or adjacent to the species' known range (CDFW 2003). MGS biologist, Mike McGovern, Ph.D., conducted a visual survey of the previous alternative location adjacent to the WWTP on March 26, 2018. Dr. McGovern completed a CDFW protocol trapping survey previous alternative location situated adjacent to the south side of the WWTP. The trapping occurred adjacent to the WWTP and not on the treatment plant as the adjacent land was being considered as an alternative location for expansion of the existing WWTP at the time of the survey. This alternative is no longer being considered. Trapping was conducted on three separate weeks with the weeks beginning on March 27, May 1, and June 19, 2018. The trapping effort utilized 100 Sherman live traps in a 10 by 10 grid. The full report is included as Appendix C, *Mohave Ground Squirrel Report*.

2.3.5 Desert Tortoise

The proposed Project is located within the southwest edge of the area that has been modeled as being within the current range of the desert tortoise and as potentially having habitat to support desert tortoise (USFWS 2018b). The USFWS requires protocol surveys for desert tortoise for projects that are within the range of the species and contain suitable habitat (USFWS 2010). In the Mojave Desert, typical desert tortoise habitat consists of creosote bush scrub with a high diversity of perennials along with other desert scrub habitats. Based on the vegetation mapping, it was determined that desert scrub is present on the Project area and on the previous alternative location, and a protocol survey was conducted for the desert tortoise in accordance with the most current USFWS survey guidance (USFWS 2010) as follows. The desert tortoise survey was conducted in two parts covering the current Project site within the existing WWTP (Figure 6a, *Desert Tortoise Survey Area [October 2018]*) and on the previous alternative location situated adjacent to the south side of the WWTP (Figure 6b, *Desert Tortoise Survey Area [April 2018]*).

Prior to conducting fieldwork, HELIX performed a search of the CDFW's CNDDB (CDFW 2018a) for locations of desert tortoise that might occur within or near the vicinity of the survey area. The project occurs within the current range of the desert tortoise and has potential to support desert tortoise (USFWS 2011). The nearest records of desert tortoise observations occur 12 kilometers to the northeast on Edwards AFB and 17.5 kilometers to the northwest. The USFWS requires protocol surveys for desert tortoise for projects that are within the range of the species and contain suitable habitat (USFWS 2010). In the Mojave Desert, typical desert tortoise habitat consists of creosote bush scrub with a high diversity of perennials. Although Mojave creosote bush scrub is not present on the Project site or on the previous alternative location, desert scrub habitat does occur in both locations and the areas were determined to have low potential to support desert tortoise.

The May 2018 survey was conducted on the previous alternative site because it was the primary alternative at the time of the survey. This location was later dismissed as a potential project site and the current Project site within the limits of the existing WWTP was selected. A survey was conducted on the current Project site in October of 2018. The belt transects conducted during the May 2018 survey on Edwards AFB Property were not repeated during the October 2018 survey as access was not obtained prior to conducting the October survey and the area was considered adequately covered in May 2018.

Surveys were conducted according to the USFWS current protocol methods (USFWS 2009, 2010). The surveys were conducted during the tortoise's most active periods (April thru May and September thru October) and when air temperatures were below 104°F (40°C). The survey effort included searching for above-ground tortoises (both out of burrows and within burrows but still visible), as well as tortoise

Rosamond Waste Water Treatment Plant

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Source: Aerial (Nearmap 2014)

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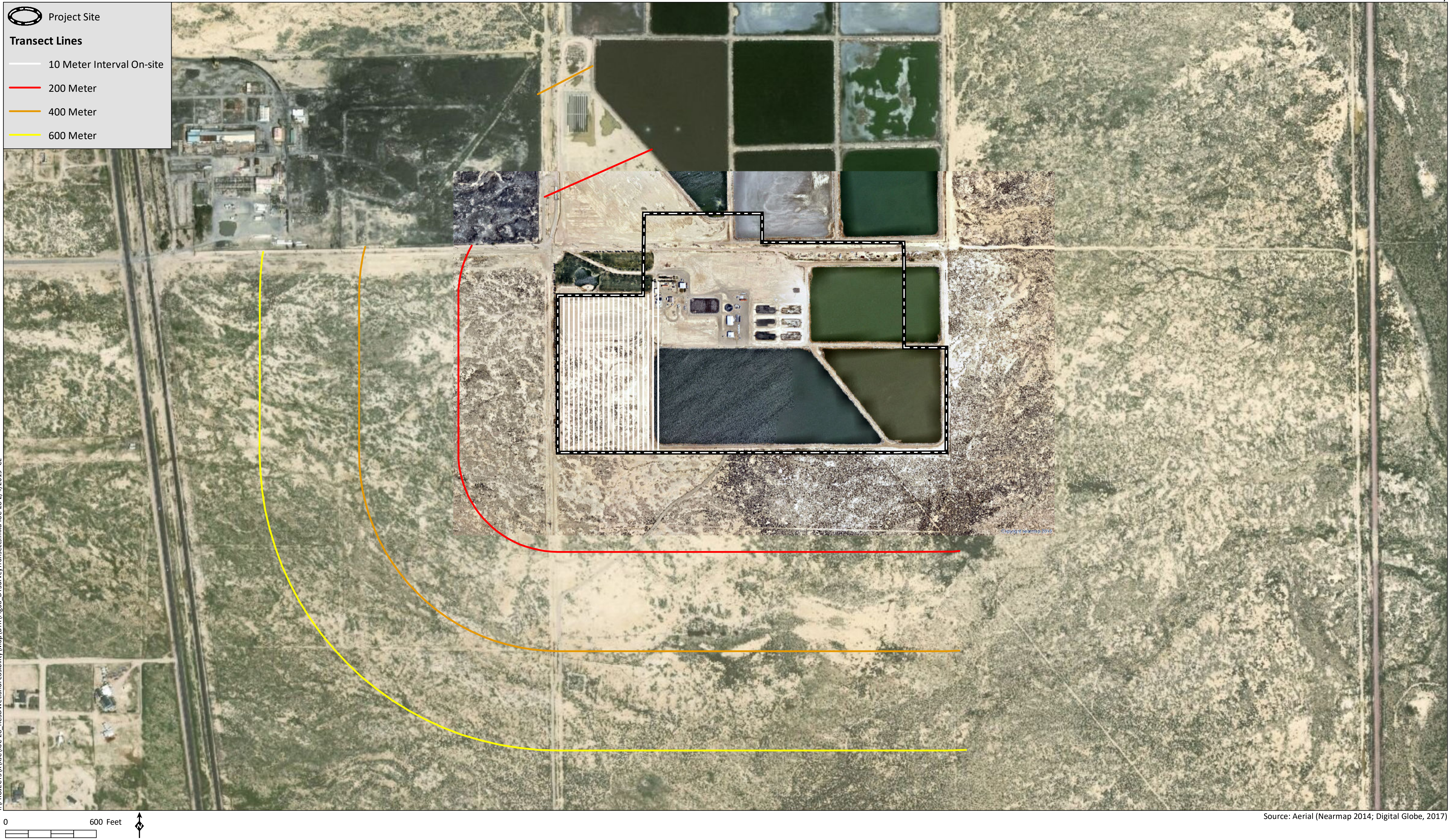
Burrowing Owl Survey Area

Figure 5



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Source: Aerial (Nearmap 2014; Digital Globe, 2017)

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Desert Tortoise Survey Area (October 2018)

Figure 6a

Source: Aerial (Nearmap 2014, Digital Globe 2016)

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Desert Tortoise Survey Area (April 2018)

Figure 6b

signs (burrows, scat carcasses, etc.) within Project impact area, previous alternative site, and along belt transects that were established around the survey areas. Private properties and unsuitable habitat (e.g., active water treatment facilities, ponds) were excluded from the survey area.

Mr. Hogenauer and Ms. Singleton conducted the surveys on May 15, 2018 for the previous alternative site, and October 29, 2018, for the current Project area within the existing facility. Mr. Hogenauer has been previously authorized to independently survey for desert tortoise, and has been assisting on and conducted desert tortoise surveys since 2008. Mr. Hogenauer and Ms. Singleton have attended the Desert Tortoise Council Surveying, Monitoring, and Handling Techniques Workshop.

HELIX biologist surveyed the potential habitat within the Project site and the previous alternative location using parallel transects approximately 10 meters apart to achieve 100 percent cover. During the October 2018 survey, the biologist also surveyed the areas within the WWTP in which desert tortoise habitat was deemed to not be present by walking along the treatment ponds and throughout the remainder of the WWTP. Belt transects were surveyed at 200, 400, and 600 meters parallel to the Project area (Figure 6a) and within the previous alternative area (Figure 6b). Areas not accessible by foot and private properties that supported potential desert tortoise habitat were surveyed from the perimeter via binoculars. As mentioned above, belt transects west of the Project site on Edwards AFB were surveyed during the May 15, 2018 survey, and were not surveyed again during the October 29, 2018 survey. The belt transects surveyed in May and October combine to cover the potential desert tortoise habitat adjacent to the Project site (Figures 6a and 6b). Full details and survey area are included in the desert tortoise survey report (Appendix D, *Desert Tortoise Survey Report*). An iPad connected to a Trimble R1 GPS unit that allows for sub-meter accuracy was used to maintain the accuracy of transects and to precisely locate desert tortoise sign that may be observed during the survey. A summation of the field survey information is provided in Table 1, *2018 Desert Tortoise Survey Information for the Rosamond Wastewater Treatment Plant Evaporation Ponds Project*.

Table 1
2018 DESERT TORTOISE SURVEY INFORMATION FOR THE ROSAMOND WASTEWATER TREATMENT PLANT EVAPORATION PONDS PROJECT

Date	Survey Times	Personnel	Weather Conditions*
May 15, 2018 (Previous Alternative Location)	0620 – 1330	Lauren Singleton Rob Hogenauer	Start: 58°F, winds 1-4 mph. 0% cloud cover End: 78°F, winds 4-8 mph, 0% cloud cover
October 29, 2018 (Project Site)	0830 – 1255	Lauren Singleton Rob Hogenauer	Start: 60°F, winds 5-8 mph, 20% cloud cover End: 75°F, winds 3-5 mph, 20% cloud cover

3.0 RESULTS

3.1 PROJECT SETTING

The proposed Project area occurs within the limits of the existing WWTP (Figure 4). The Project site is comprised primarily of lands that have been significantly disturbed from the construction and operation of the WWTP. The western side of the Project site is less disturbed that the remainder of the site. Representative site photographs are included as Appendix E, *Representative Site Photos*.

3.2 SOILS

Soils mapped on the Project site are within the Pond-Oban complex, which includes Pond, Oban, Tray, and an unnamed soil component (Figure 7, *Soils*). The typical soil profile consists of sandy and clay loam soils that are saline to strongly saline. This complex is alluvial derived from granite.

The proposed project is located in a relatively level topographic profile. Elevations in the proposed Project area range from 2,300 feet above mean sea level (AMSL) on the southern part of the Project area to 2,311 feet AMSL on the existing facility.

3.3 VEGETATION COMMUNITIES

The Project site is dominated by developed and disturbed habitat associated with the existing WWTP facility (Table 2, *Vegetation Communities on the Rosamond Wastewater Treatment Plant Evaporation Ponds Project*). Additional vegetation communities observed include desert scrub-disturbed, along with a small patch of southern willow scrub-disturbed within Treatment Pond 17 (Figure 8, *Vegetation Communities and Land Uses*). The southern willow scrub observed within Pond 17 totals 0.03 acre, as observed in October 2018, and is supported by an outfall pipe that discharges into the pond. The outfall pipe creates and artificial water supply that resulted in the growth of this habitat. This habitat would not persist without artificial flow. A windrow made up of pines (*Pinus* sp.) not naturally occurring in the desert form the western border of the WWTP.

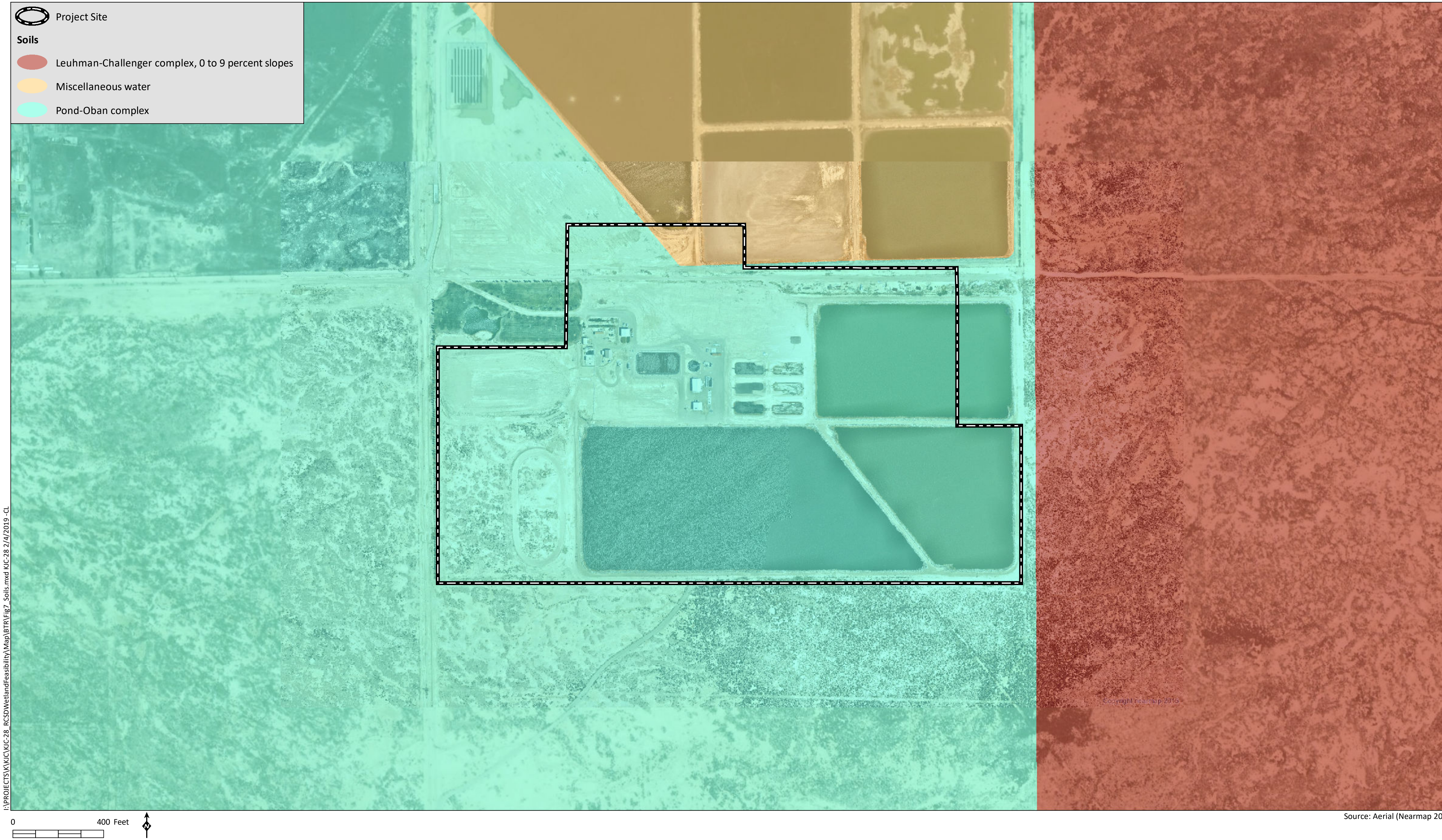
Table 2
VEGETATION COMMUNITIES ON THE ROSAMOND WASTEWATER TREATMENT PLANT EVAPORATION PONDS PROJECT

Community	Acres	Impacts	
	Existing	Temporary	Permanent
Southern willow scrub-disturbed	0.03		0.03
Desert Scrub-disturbed	11.2	0.3	10.9
Disturbed	50.9	19.2	31.7
Developed	14.1	7.6	4.7
TOTAL	**76.2**	**27.1**	**47.3**

3.3.1 Southern Willow Scrub–Disturbed

Southern willow scrub habitat consists of dense, broad-leaved, winter-deciduous stands of trees dominated by shrubby willows in association with mule fat. This habitat occurs on loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. Frequent flooding maintains this early seral community, preventing succession to a riparian woodland or forest (Holland 1986).

Water Treatment Pond 17 includes 0.03 acre of southern willow scrub that is supported by an outfall pipe that discharges into the pond. Species observed in this habitat include red willow (*Salix laevigata*), mule fat (*Baccharis salicifolia*), swamp smartweed (*Polygonum hydropiperoides*), Mexican sprangletop (*Leptochloa univernia*), and annual beard grass (*Polypogon monspeliensis*). The outfall pipe creates an



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Soils

Figure 7

Rosamond Waste Water Treatment Plant

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Vegetation Communities and Land Uses

Figure 8

artificial water supply that resulted in the growth of this habitat. This habitat would not persist without the introduced flow. This habitat was first observed in October 2018. When observed in January 2019, this habitat was stressed from an apparent lack of water from the outfall pipe. This habitat is not considered a sensitive habitat because the southern willow scrub is dependent on an artificial water source that has been discontinued. As a result, it is not included in the habitat mapped.

3.3.2 Desert Scrub–Disturbed

Desert scrub is a generic desert habitat characterized by xeric shrub species. This habitat is characterized by open scattered broad-leaf evergreen or deciduous microphyll shrubs between one and sox feet in height. This habitat generally has a total cover of 50 percent or less. This habitat can occur as several different sub classifications such as creosote series, ambrosia series, rabbitbrush series, and others that are based on dominant species. The habitat on site is disturbed and does not meet the descriptions of the sub classifications.

Disturbed desert scrub habitat occurs on the western portion of the Project site. This habitat is disturbed as a result of various activities related to the operation of the existing WWTP. This portion of the site has been utilized for soil stockpiles, equipment storage, or other uses in the past. Vegetation in this habitat is sparse relative to the adjacent desert scrub habitat that occurs adjacent to the WWTP. Species observed in this habitat include white bur sage (*Ambrosia dumosa*), annual bur sage (*Ambrosia acanthicarpa*), broom snakeweed (*Gutierrezia sarothrae*), spineflower (*Chorizanthe* sp.), shadscale saltbush (*Atriplex confertifolia*), saltgrass (*Distichlis spicata*), cheatgrass (*Bromus tectorum*), and Mediterranean bunch grass (*Schismus barbatus*).

3.3.3 Disturbed

Disturbed habitat is made up of areas that have been modified from their native status typically by human actions. Disturbed habitat has potential to return to its native habitat if the disturbance is not maintained. This habitat can be made up of dirt roads, agricultural areas, basins, staging areas, or other similar habitats. Disturbed habitat occurs within and around the treatment ponds. The treatment ponds are cleared of vegetation annually. Vegetation that was currently observed within the treatment ponds was made up of a near monoculture of fivehook bassia (*Bassia hyssopifolia*). Scattered individual mule fat and salt cedar shrubs occur along the edges of the ponds. Vegetation cover within the ponds ranges from no cover to 100 percent cover. Species observed within the disturbed habitat include white bur sage, annual bur sage, cheatgrass, Russian thistle (*Salsola tragus*), salt cedar (*Tamarix chinensis*), Mediterranean bunch grass, and pineapple weed (*Matricaria discoidea*).

3.3.4 Developed Land

Developed land is made up of habitat that have been modified to include buildings, structures, roads, parking lots, or other uses that result in land that no longer supports native vegetation. On-site developed land is made up of buildings, parking lot, pumps, concrete basins, and similar parts of the water treatment facility. Vegetation within the developed land on site is made up of a few ornamental plants along with a few scattered non-native weeds similar to those in the disturbed areas.

3.4 JURISDICTIONAL WATERS AND WETLANDS

The Project site includes a drainage that runs west to east along the unimproved road that is located in the WWTP. This drainage travels along the south side of the road between Ponds 11 and 14. Although this drainage may have been created during the construction of the existing WWTP, it is now considered the current natural condition. The drainage is considered jurisdictional to the RWQCB and CDFW. The constructed treatment ponds are not part of the WWTP and are not considered waters jurisdictional to the USACE, RWQCB, or CDFW.

The National Wetlands Inventory shows two wetland types on the Project site: PUBK and L2USJ. PUBK is classified as Palustrine Unconsolidated Bottom Artificially flooded. This habitat is described as artificially flooded and was used to describe the constructed "ponds" that are part of the WWTP. L2USJ is classified as Lacustrine Littoral Unconsolidated Shore Intermittently flooded. This habitat is mapped as occurring in the desert scrub that is adjacent to the south side of the facility and extending onto the western portion of the Project site. The flood period of this habitat is without a detectable seasonal periodicity. The L2USJ habitat type has been excluded from the Project site via the berm that forms the project boundary, and was not detectable on site.

3.4.1 U.S. Army Corps of Engineers

The general Project area does not include drainages or water courses that connect to or are tributary to a TNW or an RPW. Streams in the area of the WWTP drain to Rosamond Dry Lake that was determined by the USACE to not be waters of the U.S. The drainage on site does not connect to waters of the U.S. and is, therefore, classified as isolated. Additionally, the drainage lacked a consistent OHWM. The drainage on site was determined to be "other waters" and is not waters of the U.S. No waters of the U.S. occur on the Project site.

3.4.2 Regional Water Quality Control Board

The drainage along the northern edge of the Project site was determined to be a water of the state jurisdictional to the RWQCB under the Porter Cologne Act (Figure 9, *RWQCB Jurisdictional Waters*). The Project area includes0.06 acre and 2,186 linear feet waters of the state jurisdictional to the RWQCB.

3.4.3 California Department of Fish and Wildlife

The drainage along the northern edge of the site was determined to be an unvegetated streambed that is jurisdictional per CDFW definition of streambed (Figure 10, *RWQCB Jurisdictional Waters*). The Project area includes 0.19 acre of streambed that is unvegetated or has vegetation similar to the adjacent upland habitat.

The southern willow scrub on site occurs within an isolated constructed basin functioning as part of the WWTP, and is supported by a pipe that has flows controlled via an installed valve. A review of historic aerials does not show this patch of habitat. The occurrence of the patch of southern willow scrub is likely recent and was observed on site in October 2018 and again in January 2019. The flow or leak from the pipe appears to have stopped and the habitat is stressed, indicating a likely dependence upon the artificial flow. This habitat was determined to only exist due to the pipe flows and will cease to exist with a lack of water from the pipe. As such, this feature was determined to not include jurisdictional habitat.

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HELIX Environmental Planning

RWQCB Jurisdictional Waters

Figure 9

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0 200 Feet

Source: Aerial (Nearmap 2014)

HELIX Environmental Planning

CDFW Jurisdictional Waters

Figure 10

3.5 PLANTS

HELIX identified a total of 58 plant species within or immediately adjacent to the Project area during surveys to date, of which 13 (22 percent) are non-native species (Appendix A). The most common plant on the Project site is the non-native fivehook bassia. Mojave spineflower (*Chorizanthe spinosa*) was observed on the western side of the WWTP (Figure 11, *Sensitive Plants*). Alkali mariposa lily (*Calochortus striatus*) was observed immediately adjacent to the south side of the WWTP but was not observed within the proposed Project area. Focused rare plant surveys are scheduled to be conducted in spring/summer 2019.

3.6 ANIMALS

A total of 36 animal species were identified on the Project area during biological surveys, including four invertebrate species, three reptile species, 25 bird species, and four mammal species (Appendix B). Four of the animal species observed are sensitive: prairie falcon (*Falco mexicanus*), white-faced ibis (*Plegadis chihi*), California horned lark (*Eremophila alpestris actia*), and BUOW (Figure 9).

The BUOW is a CDFW Species of Special Concern and is also protected as bird of prey (raptor) under CFG Code 3503. The BUOW is also a USFWS Bird of Conservation Concern and is a Bureau of Land Management sensitive species. A single BUOW was observed perched on a block of concrete on the southeast corner of Pond 17 during the October 2018 site visit. The location was examined for sign of burrow use such as a burrow, pellets, whitewash, prey remains, and feathers, but none were found. The BUOW was not observed during any other visits. This single BUOW is believed to have been a migratory individual passing through and not utilizing the site for nesting.

White face ibis, California horned lark, and prairie falcon were observed on site in October 2018 and are believed to be utilizing the site primarily for foraging. A single white face ibis was observed on the edge of Pond 11 and a single prairie falcon was observed perched on a power line pole along the north side of the Project area. The California horned lark was observed as a small flock of approximately a dozen birds foraging in the southwest corner of the site and was observed moving off site. All three of these species are listed as CDFW watch list species. The CDFW watch list is made up of species that were formerly Species of Special Concern but no longer merit that status, or species that do not yet meet the criteria to be a Species of Special Concern but there is concern and additional data is needed to clarify the species status. The three species, along with BUOW, are also International Union for Conservation of Nature species of least concern.

3.7 HABITAT AND WILDLIFE CORRIDOR EVALUATION

Wildlife corridors connect otherwise isolated pieces of habitat and allow movement or dispersal of plants and animals. Corridors can be local or regional in scale; their functions may vary temporally and spatially based on conditions and species presence. Local wildlife corridors allow access to resources such as food, water, and shelter within the framework of their daily routine. Animals use these corridors, which are often hillsides or tributary drainages, to move between different habitats. Regional corridors provide these functions over a larger scale and link two or more large habitat areas, allowing the dispersal of organisms and the consequent mixing of genes between populations.

The Project area is located within a relatively broad, alluvial plain and exhibits a generally level topographic profile. It is located along the western edge of Rosamond Lake among desert scrub communities with some scattered rural residential uses in the vicinity. The Project area itself is made up of land that has been modified for use as a WWTP and is no longer in its native condition. The majority of the land in the vicinity remains undeveloped, so it is unlikely that the Project area provides a critical linkage to animals accessing Piute Ponds or other habitats to the east of the Project area.

The draft Desert Renewable Energy Conservation Plan (DRECP; California Energy Commission et al. 2014), in which the boundaries discussed include the Project area, considered wildlife movement in the general region of the Project area. The draft DRECP mapped several important wildlife linkages and landscape blocks in the region, but these areas do not occur within or adjacent to the Project area (California Energy Commission et al. 2014). The closest of these linkages to the Project area are located approximately 11 miles to the north, near the intersection of California State Routes 14 and 58.

3.8 SENSITIVE BIOLOGICAL RESOURCES

3.8.1 Sensitive Vegetation Communities/Habitats

Sensitive vegetation communities/habitats are considered either rare within the region or sensitive by CDFW (CDFW 2018b). Communities are given a Global (G) and State (S) ranking on a scale of 1 to 5. Communities afforded a rank of 5 are most common while communities with a rank of 1 are considered highly periled. The CDFW considers sensitive communities as those with a rank between S1 and S3. The Project area supports one plant community that is typically considered sensitive: southern willow scrub with a rank of S3. The southern willow scrub in the Study Area occurs within Pond 17 and is support by artificial flow from a pipe that is part of the existing WWTP. As a habitat supported by a pipe or valve that can be turned off, this habitat is not considered sensitive. The 0.03 acre of southern willow scrub in Pond 17 is not jurisdictional and, therefore, not sensitive. Additionally, information on this habitat is included in the jurisdictional water discussion above.

3.8.2 Rare Plant Species

Rare plant species are uncommon or limited in that they: (1) are only found in the region; (2) are a local representative of a species or association of species not otherwise found in the region; or (3) are severely depleted within their ranges or within the region. Rare plant species include those species listed by CNPS with a CRPR of 1, 2, or 3 or federally and state listed endangered and threatened species.

A total of 19 rare plant species were recorded within the nine-quadrangle database search conducted on CNDDB (CDFW 2018a) and CNPS (CNPS 2018). These species are included in Plant Potential to occur Table (Appendix F, *Rare Plant Species Potential to Occur*). Of the 19 rare plant species recorded within the vicinity of the Project area, nine species were considered to have no potential to occur on the Project area based on geographic range, elevation range, and/or lack of suitable habitat on the Project area. The remaining 10 species were considered to have a potential to occur on the Project area, primarily based on the presence of alkaline and clay soils, dry lake margin habitat, and chenopod scrub. These species include Horn's milk-vetch (*Astragalus hornii* var. *hornii*), Lancaster milk-vetch (*Astragalus preussii* var. *laxiflorus*), alkali mariposa lily, Mojave spineflower, recurved larkspur (*Delphinium recurvatum*), Rosamond eriastrum (*Eriastrum rosamondense*), Barstow wooly sunflower (*Eriophyllum mohavense*), golden goodmania (*Goodmania luteola*), sagebrush loeflingia (*Loeflingia squarrosa* var. *artemisiarum*), and California alkali grass (*Puccinellia simplex*). A spring rare plant survey is scheduled to occur on April 25 and May 16, 2019.

Source: Aerial (Nearmap 2014)

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HELIX
Environmental Planning

Sensitive Plants

Figure 11

3.8.3 Sensitive Animal Species

Sensitive animal species include federally and state listed endangered and threatened species, candidate species for listing by USFWS or CDFW, and/or Species of Special Concern pursuant to CDFW.

A total of 23 sensitive animal species were recorded within the nine-quad database search conducted on CNDDB (CDFW 2018a). These species are included in Appendix G, *Sensitive Animal Species Potential to Occur.* An evaluation of each sensitive animal species' potential to occur on the Project area is also provided in Appendix G.

Seven species (northern legless lizard [*Anniella pulchra*], short-eared owl [*Asio flammeus*], golden eagle [*Aquila chrysaetos*], mountain plover [*Charadrius alexandrines nivosus*],western snowy plover [*Charadrious alexandrines nivosus*), least Bell's vireo [*Vireo bellii pusillus*], and Tehachapi pocket mouse [*Perognathus alticola inexpectatus*]) are not expected to occur due to lack of suitable habitat for residence and/or breeding. The aforementioned avian species have potential to disperse or migrate across the Project area. Two additional species, desert tortoise and MGS, are not expected to occur on the Project site due to negative survey results and a lack of recent observations.

A total of nine species (Crotch bumble bee [*Bombus crotchii*], Mojave shoulderband [*Helminthoglypta greggi*], coast horned lizard [*Phrynosoma blainvillii*], Ferruginous hawk [*Buteo regalis*], Swainson's hawk [*Buteo swainsoni*], merlin [*Falco columbarius*], Le Conte's thrasher [*Toxostoma lecontei*], Townsend's big-eared bat [*Corynorhinus townsendii*], and American badger [*Taxidea taxus*]),were determined to have a low potential to occur on the Project area based on the presence of low-quality habitat, limited acreage of habitat, and lack of recent observations within the immediate vicinity of the Project area. One of these species, Swainson's hawk, is state threatened. One of the species with low potential to occur only one is federal or state listed as threatened or endangered, the State threatened species (Swainson's hawk). Four species are state species of concern (coast horned lizard, Townsends big-eared bat, American badger, and Le Conte's thrasher), two are watchlist species (ferruginous hawk and merlin), and two lack a state or federal listing status (Crotch bumble bee and Mohave shoulderband).

One species (loggerhead shrike [*Lanius ludovicianus*], State Species of Concern) was determined to have a moderate potential to occur based on the presence of habitat that was either low quality or limited in size, and based on documented occurrence in the vicinity of the Project area.

Three of the species were observed on site, white-faced ibis and prairie falcon (both watch list species), and BUOW (State Species of Concern). A single white-faced ibis was observed foraging in Pond 11. A single prairie falcon was observed perch on a power pole along the north edge of the project. The BUOW was observed perched on the concrete on the southeast corner of Pond 17. Additional details on the BUOW are provided below.

Burrowing Owl

A single BUOW was observed on the bank of the southwest corner of Pond 17. Based on further examination of the Project area, it was determined that this single BUOW was not associated with a burrow. The BUOW was hiding among the broken concrete that lines the banks of the pond. No white wash, pellets, feathers, or prey remains were observed on the site. The single BUOW was observed during the October 29, 2018, habitat assessment. This BUOW is believed to be a migrating owl and not a resident BUOW.

Protocol BUOW surveys are scheduled to occur in 2019 (See Section 2.3.3 above for more details). Potential burrow locations on the property are primarily made up of broken concrete and similar materials that line the interior slopes of the wastewater treatment ponds on site (Figure 12, *Potential Burrowing Owl Burrows*).

Mohave Ground Squirrel

The MGS trapping was conducted in 2018 within the desert scrub adjacent to the Project site (McGovern 2018). No MGS was observed or captured. The habitat on the Project site is disturbed and is of significantly lower quality than the adjacent habitat in which the trapping survey was conducted. Based on the low quality of on-site habitat and negative results of the trapping survey conducted adjacent to the site, MGS is not expected to occur on site.

Desert Tortoise

The spring survey concentrated on the desert scrub within the lands adjacent to the south side of the existing facility, along with belt transects to the east on Edwards Air Force land. The fall survey concentrated on the disturbed desert scrub within the limits of the water treat facility along with belt transect to the north and west. High amounts of trash and human disturbance were noted in the belt transect surveys to the west and south.

No desert tortoise or signs of desert tortoise were observed during the spring and fall 2018 survey efforts. Burrows observed on site were almost exclusively limited to small rodents or other animals using burrows less than three centimeters in diameter. A few large (possibly coyote) burrows were observed within the desert scrub habitat south of the Project site. Desert tortoise scat, scutes, track, and other signs were absent from the survey area and the adjacent habitat to the south.

4.0 REGULATORY CONTEXT

Biological resources located within the Project area are subject to regulatory review by federal, state, and local agencies. Biological resources-related laws and regulations that apply to the project include the Federal Endangered Species Act (FESA), Migratory Bird Treaty Act (MBTA), CWA, California Endangered Species Act (CESA), and CFG Code.

4.1 FEDERAL REGULATIONS

4.1.1 Endangered Species Act

The FESA designates threatened and endangered animals and plants and provides measures for their protection and recovery. “Take” of federal listed animal species and of federal listed plant species in areas under federal jurisdiction is prohibited without obtaining a federal permit. Take is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” Harm includes any act that actually kills or injures fish or wildlife, including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife. Activities that damage (i.e., harm) the habitat of listed wildlife species require approval from the USFWS for terrestrial species. The FESA also generally requires determination of critical habitat for listed

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Source: Aerial (Nearmap 2014)

HELIX
Environmental Planning

Potential Burrowing Owl Burrows

Figure 12

species. If a project would involve a federal action potentially affecting critical habitat, the federal agency would be required to consult with the USFWS.

Federal Endangered Species Act (FESA) Section 7 and Section 10 provide two pathways for obtaining authority to take federal listed species. Under Section 7 of the FESA, a federal agency that authorizes, funds, or carries out a project that “may affect” a listed species or its critical habitat must consult with the USFWS. Under Section 10 of the FESA, private parties with no federal nexus (i.e., no federal agency will authorize, fund, or carry out a project) may obtain an Incidental Take Permit to harm listed species incidental to the lawful operation of a project.

4.1.2 Migratory Bird Treaty Act

The MBTA (16 U.S. Code Sections 703–711) includes provisions for protection of migratory birds, including the non-permitted take of migratory birds. The MBTA regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 Code of Federal Regulations Section 10.13. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, and many others. Direct impacts resulting in nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered a “take.” The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country and is enforced in the United States by the USFWS. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors).

4.1.3 Clean Water Act (Section 404)

Under Section 404 of the CWA, the USACE is charged with regulating the discharge of dredge and fill materials into jurisdictional waters of the U.S. The terms “waters of the U.S.” and “jurisdictional waters” have a broad meaning that includes special aquatic sites, such as wetlands. Waters of the U.S., as defined by regulation and refined by case law, include: (1) the territorial seas; (2) coastal and inland waters, lakes, rivers, and streams that are navigable waters of the U.S., including their adjacent wetlands; (3) tributaries to navigable waters of the U.S., including adjacent wetlands; and (4) interstate waters and their tributaries, including adjacent isolated wetlands and lakes, intermittent and ephemeral streams, prairie potholes, and other waters that are not a part of a tributary system to interstate waters or navigable waters of the U.S., the degradation or destruction of which could affect interstate commerce.

4.1.4 Clean Water Act (Section 401)

Section 401 of the CWA requires that any applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. must obtain a Water Quality Certification, or a waiver thereof, from the state in which the discharge originates. In California, the RWQCB and State Water Resources Control Board (SWRCB) issue Water Quality Certifications.

4.1.5 Critical Habitat

As described by the FESA, critical habitat is the geographic area occupied by a threatened or endangered species essential to species conservation that may require special management considerations or protection. Critical habitat also may include specific areas not occupied by the species but that have been determined to be essential for species conservation.

4.2 STATE REGULATIONS

4.2.1 California Environmental Quality Act

Primary environmental legislation in California is found in the CEQA and its implementing guidelines (State CEQA Guidelines), requiring that projects with potential adverse effects or impacts on the environment undergo environmental review. Adverse impacts to the environment are typically mitigated as a result of the environmental review process, in accordance with existing laws and regulations.

4.2.2 California Endangered Species Act

The California Endangered Species Act (CESA) established that it is state policy to conserve, protect, restore, and enhance State endangered species and their habitats. Under state law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the California Fish and Game Commission. The CESA authorizes that private entities may “take” plant or wildlife species listed as endangered or threatened under the FESA and CESA, pursuant to a federal Incidental Take Permit if the CDFW certifies that the incidental take is consistent with CESA (Fish and Game Code Section 2080.1[a]). For state-only listed species, Section 2081 of the CESA authorizes the CDFW to issue an Incidental Take Permit for state listed threatened and endangered species if specific criteria are met.

4.2.3 Native Plant Protection Act

Sections 1900–1913 of the CFG Code (Native Plant Protection Act [NPPA]) direct the CDFW to carry out the State Legislature’s intent to “…preserve, protect, and enhance endangered or rare native plants of this state.” The NPPA gives the California Fish and Game Commission the power to designate native plants as “endangered” or “rare” and protect endangered and rare plants from take.

4.2.4 California Desert Native Plant Act

The California Desert Native Plants Act (Division 23 of the California Food and Agriculture Code) was established to protect California desert native plants from unlawful harvesting on both public and private lands. The act also provides information necessary to legally harvest native plants so as to ultimately transplant those plants with the greatest possible chance of survival. The Act further encourages public participation in implementing the safeguards established by this division and in evaluating the effectiveness and desirability of the safeguards.

4.2.5 California Fish and Game Code

The CFG Code provides specific protection and listing for several types of biological resources. Section 1600 of Fish and Game Code requires a Streambed Alteration Agreement (SAA) for any activity that would alter the flow of, change, or use any material from the bed, channel, or bank of any perennial, intermittent, or ephemeral river, stream, and/or lake (i.e., waters of the State). Typical activities that require an SAA include excavation or fill placed within a channel, vegetation clearing, structures for diversion of water, installation of culverts and bridge supports, cofferdams for construction dewatering, and bank reinforcement. Notification is required prior to any such activities, and CDFW will issue an SAA with any necessary mitigation to ensure protection of the State’s fish and wildlife resources.

Pursuant to CFG Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Raptors and owls and their active nests are protected by CFG Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA (see Section 3.1.2). These regulations could require that construction activities (particularly vegetation removal or construction near nests) be reduced or eliminated during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds will not be disturbed, subject to approval by CDFW and/or USFWS.

4.2.6 Porter-Cologne Water Quality Control Act of 1970

The Porter-Cologne Water Quality Control Act of 1970 grants the SWRCB and its regional offices power to protect water quality and is the primary vehicle for implementation of the State's responsibilities under Section 401 of the CWA (see Section 3.1.3). The Porter-Cologne Act grants the SWRCB authority and responsibility to adopt plans and policies, regulate discharges to surface and groundwater, regulate waste disposal sites, and require cleanup of discharges of hazardous materials and other pollutants. Typically, the SWRCB and RWQCB act in concert with the USACE under Section 401 of the CWA in relation to permitting fill of federal jurisdictional waters.

5.0 PROJECT EFFECTS

This section describes potential direct and indirect impacts associated with the proposed project. Direct impacts immediately alter the affected biological resources such that those resources are eliminated temporarily or permanently. Indirect impacts consist of secondary effects of a project, including noise, decreased water quality (e.g., through sedimentation, urban contaminants, or fuel release), fugitive dust, colonization of non-native plant species, animal behavioral changes, and night lighting. The magnitude of an indirect impact can be the same as a direct impact; however, the effect usually takes a longer time to become apparent.

The significance of impacts to biological resources present or those with potential to occur was determined based upon the sensitivity of the resource and the extent of the anticipated impacts. For certain highly sensitive resources (e.g., a federally listed species), any impact would be significant. Conversely, other resources that are of low sensitivity (e.g., species with a large, locally stable population in the region but declining elsewhere) could sustain some impact with a less than significant effect. The Project will result in impacts to 74.4 acres, made up of 27.1 acres of temporary impacts and 47.3 acres of permanent impacts (Table 2; Figure 13, *Project Impacts*).

Critical habitat does not occur on the Project area. The nearest critical habitat to the Project area is desert tortoise critical habitat, which is approximately 15 miles to the southeast (USFWS 2018a).

5.1 SENSITIVE SPECIES

5.1.1 Rare Plant Species

Less than Significant Impact

A total of nine of the 19 rare plant species, documented in the nine-quadrangle CNDDB and CNPS database searches, were not considered to have a potential to occur based on geographic range, elevation range, and/or lack of suitable habitat (see Appendix F). The remaining 10 species were considered to have a potential to occur on the Project area based on the presence of desert scrub habitat. Rare plant surveys are scheduled for April and May 2019.

The rare plant species with potential to occur were not observed on the Project area during the habitat assessment and other surveys on site; however, Mohave spineflower and alkali mariposa lily were both observed adjacent to the site. An unidentified spineflower was observed on site and it is expected that the unidentified spineflower is Mohave spineflower. The alkali mariposa lily was observed immediately adjacent to the Project site and has potential to occur on site. The other eight species are presumed absent from the Project area. The spineflower, expected to be Mohave spineflower, was observed within the southern and western portions of the disturbed desert scrub located on the western side of the Project site. Mohave spineflower is a CNPS rank 4.2 species and does not carry a federal or state listing as threatened or endangered. Impacts to a small population of Mohave spineflower is not considered significant; however, impacts to a large isolated population would be significant. A population of Mohave spineflower was observed on the previous alternative location; therefore, a population of this species on site would not be considered a large isolated population. Impacts to spineflower would not be considered significant. Alkali mariposa lily is a CNPS rank 1B.2 species and does not carry a federal or state listing as threatened or endangered. Impacts to alkali mariposa lily would be significant. The area in which the species potentially occurs is proposed for use as long-term soil storage. Implementation of mitigation measure BIO-1 will result in a less than significant impact.

5.1.2 Sensitive Animal Species

Less than Significant Impacts with Mitigation Incorporated

Of the 23 animal species recorded within the nine-quadrangle search, three species where observed on site. Of the remaining 20 species, 10 species are not expected to occur, nine species have a low potential to occur, and one species have a moderate potential to occur. These 10 species with low or moderate potential to occur on site along with the three species observed on site are discussed in further detail below.

5.1.2.1 Low and Moderate Potential Species

A total of nine species were determined to have a low potential to occur on the Project area based on the presence of low quality habitat, limited acreage of habitat, and amount of disturbance and development within the Project area. These species include Swainson's hawk, coast horned lizard, crotch bumblebee, Mohave shoulderband, Ferruginous hawk, Le Conte's thrasher, Townsend's big-eared bat, American badger, and merlin.

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Source: Aerial (Nearmap 2014)

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Project Impacts

Figure 13

In addition to having low potential to occur, these species, if present, would most likely only be utilizing the site for foraging. The project would result in impacts to approximately 11 acres of native habitat (disturbed desert scrub) on the site. The majority of the site is part of the constructed WWTP and the project will result in the reconfiguration of the WWTP. The majority of the impacts will result in a reconfiguring of the disturbed habitats on the WWTP facility. The project primarily consists of the reconfiguration of Ponds 14, 15, and 17 into three percolation ponds and one emergency pond. This reconfiguration of the ponds will result in the pond habitat still existing on the site for use by the animals currently using the habitat. The Project and associated construction activities on site would not result in a significant impact to these species.

A single species (loggerhead shrike, a state Species of Concern) was determined to have a moderate potential to occur based on the presence of small areas of low-quality suitable habitat and documented observations within the vicinity of the Project area.

5.1.2.2 Presumed Absent Species

Focused surveys for desert tortoise (federally and state threatened species) were conducted in 2018. Survey results were negative (Appendix D), and desert tortoise is presumed absent from the Project area. Therefore, no direct or indirect impacts are anticipated to this species.

A focused trapping survey was conducted in 2018 for MGS (federally and state endangered species) adjacent to the south side of the site in higher quality desert scrub habitat. The results of the trapping survey were negative (Appendix C).

5.1.2.3 Presumed Present Species

The BUOW is a state species of concern and focused surveys are proposed to occur in 2019. A single BUOW was observed migrating through the Project site in October 2018, and was not observed during other site visits. The area in which the BUOW was observed was inspected for sign of BUOW use. No whitewash, feathers, prey remains, or pellets were observed.

Since the Project area supports suitable habitat, both protocol and a take avoidance survey are required prior to ground disturbance, in accordance with CDFW's Staff Report on Burrowing Owl Mitigation (2012). An avoidance and minimization measure is included as BIO-2 in Section 6.0 below, which requires a focused survey and a take avoidance survey and avoidance of active nests and/or relocation of BUOW (if BUOW are observed).

A single prairie falcon was observed perched on a power pole on the northside of the Project area. The power poles along the site are single post wooden poles and do not present nesting habitat. This solo bird was believed to be foraging in the desert scrub that surrounds the WWTP. A single white-faced ibis was observed using one of the wastewater ponds. The ponds on the WWTP represent foraging habitat for the species. The project primarily consists of the reconfiguration of Ponds 14, 15, and 17 into three percolation ponds and one emergency pond. This reconfiguration of the ponds will result in the pond habitat still existing on the site for use as potential foraging habitat. The project will not impact the desert scrub surrounding the site WWTP used by the prairie falcon and other raptors. The project will not have a significant impact on the prairie falcon or white-faced ibis.

5.2 SENSITIVE VEGETATION COMMUNITIES

5.2.1 California Department of Fish and Wildlife Sensitive Vegetation Communities/Habitats

Less than Significant Impacts with Mitigation Incorporated

The Project area supports disturbed native vegetation totaling 11.2 acres, made up of disturbed desert scrub. The remainder of the Project site is made up of developed land and disturbed habitats that are part of the WWTP.

No permanent impacts are proposed to native vegetation. The disturbed desert scrub on site is proposed for temporary impacts. The west side of the project on which the disturbed desert scrub occurs will be utilized for staging area, construction parking, or similar purposes. Implementation of mitigation measure BIO-1 will result in less than significant impact.

5.2.2 California Department of Fish and Wildlife Riparian Habitat and Streambed

Less than Significant Impacts with Mitigation Incorporated

The Project area supports a single drainage that is considered a jurisdictional streambed pursuant to Section 1602 of the CFG Code, as regulated by CDFW. This drainage was created by the initial construction of the WWTP and is not naturally occurring. The project will result in 0.13 acre of temporary and 0.02 acre permanent impacts to the drainage from the installation of pipes and grading occurring adjacent to the drainage. Generally, CDFW will require restoration of drainages that have minor temporary impacts to artificially created ephemeral drainages.

Permanent impacts to the drainage are associated with grading of both slopes and the access ramp for the sludge beds. Temporary disturbance to CDFW jurisdiction is anticipated to occur associated with trenching, vehicle crossing, and installation of pipes, along with potential impacts from grading of pond slopes in proximity of the drainage. The drainage would be recreated on site at or as close to its original position as feasible. The project would offset impacts to CDFW jurisdiction through compensatory mitigation if determined necessary in the permitting process. Compensatory mitigation for temporal loss of CDFW jurisdiction is outlined in BIO-3 included in Section 6.0 below.

Additionally, the avoidance and minimization measures are included in BIO-4 (Section 6.0).

5.3 REGIONAL WATER QUALITY CONTROL BOARD JURISDICTION

Less than Significant Impacts with Mitigation Incorporated

The Project area supports a drainage that is considered a jurisdictional streambed pursuant to the Porter Cologne Act as RWQCB. However, the project was designed to avoid permanent impacts to RWQCB jurisdiction. The project will result in 0.05 acre of temporary and 0.005 acre of permanent impacts to the RWQCB drainage. This drainage was created by the initial construction of the WWTP and is not naturally occurring. The impacts to the drainage are from the installation of pipes and grading occurring adjacent to the drainage. Generally, RWQCB will require restoration of drainages that have minor temporary impacts to artificially created ephemeral drainages. In addition, the RWQCB will require measures to ensure water quality of the drainage and related resources.

The impacts would be to non-wetland waters that were artificially created. Impacts to RWQCB jurisdiction are associated with pipe installation along with grading of sludge ponds. The drainage would be restored on site as close to its original location as possible following completion of the project. Additional compensatory mitigation beyond restoration of temporary impacts is not proposed.

The avoidance and minimization measure BIO-3 included in Section 6.0 below includes measures that would prevent any inadvertent impacts to RWQCB jurisdictional areas during construction activities.

5.4 WILDLIFE MOVEMENT AND MIGRATORY SPECIES

5.4.1 Wildlife Movement

Less than Significant

The Project area is not part of a regional corridor and does not serve as a nursery site. The Project area is not identified as being part of a local or regional corridor or linkage by the DRECP. The Project area is made up of the existing WWTP and includes limited native habitat. Native habitat that is present is disturbed from activities related to the operation of the WWTP. The Project area does support treatment ponds, which provide habitat for local and migratory birds passing through the Project area. Birds may fly over existing development to access the Project area for foraging and/or nesting. The project would not permanently impact local wildlife movement since only temporary disturbance to native vegetation would occur, which would be allowed to return to pre-project conditions and the treatment ponds will continue to exist during the post construction. Although implementation of the project may result in some temporary disturbance to local wildlife movement from construction noise, the project would have a less than significant impact to wildlife movement. As such, no mitigation measures would be required.

5.4.2 Migratory Species

Less than Significant Impacts with Mitigation Incorporated

The Project area has the potential to support songbird and raptor nests due to the presence of shrubs and ground cover, along with ornamental trees along the west border and adjacent to the northwest corner. Project activities could disturb or destroy active migratory bird nests including eggs and young. Disturbance to or destruction of migratory bird eggs, young, or adults is in violation of the MBTA and CFG code and is considered a potentially significant impact. The nesting season is generally defined as February 15 through August 31 for songbirds and January 15 to August 31 for raptors. Some suitable nesting habitat occurs within the vegetation within the ponds and in the disturbed desert scrub, along with in the aforementioned ornamental trees. These areas offer nesting habitat for protected nesting bird species. An avoidance and minimization measure is provided as BIO-4 in Section 6.0 below, which would ensure the project is in compliance with MBTA regulations and CFG code.

5.5 LOCAL POLICIES AND ORDINANCES

No Impacts

The project does not conflict with any local policies or ordinances protecting biological resources, such as tree preservations or local ordinances.

5.6 ADOPTED HABITAT CONSERVATION PLANS

No Impacts

The Project site is not within an adopted habitat conservation plan area. Additionally, the Project site occurs within the existing WWTP, and the project will result in continued operation of the WWTP resulting in the same habitats to persist that are currently on site. No impact to an adopted habitat conservation plan is proposed.

6.0 MITIGATION MEASURES

The following provides recommended measures intended to minimize or avoid impacts to biological resources:

BIO-1 Sensitive Plants: Surveys are to be conducted in the spring/summer 2019 to map Mohave spineflower and alkali mariposa lily if they occur on site. If present, these species are anticipated to only occur on the western side of the project site within the disturbed desert scrub. This area is proposed to be used for long term soil storage.

If alkali mariposa lily or a significant population of Mohave spineflower is present the project will avoid impacts if possible. If a significant population of Mohave spineflower and/or alkali mariposa lily occur and avoidance is not feasible the project will implement one of the following options. (1) Collect the topsoil to preserve the seed base for the species present. The top soil will be stored on the WWTP and covered with vis-queen or similar material to protect the seed base from wind and rain based erosion. Following the completion of the project, under the direction of the biologist, salvaged top soil is to be spread on areas of temporary impacts or (2) Place a restrictive covenant on an equal amount of land that includes the impacted species, not to exceed 10 acres. If land preserve is selected, the land from the previous alternative location that is known to include both of the aforementioned species is proposed.

BIO-2 **Burrowing Owl**: In compliance with the CDFW *Staff Report on Burrowing Owl Mitigation* (2012), a protocol four-visit survey will occur on March 5, April 25, May 16, and June 18, 2019. In addition to conducting a protocol survey, a take avoidance survey shall be conducted on the Project area within 14 days prior to ground disturbance to determine presence of BUOW. If both the protocol four-visit survey and the take avoidance survey are negative and BUOW is confirmed to be absent, then ground-disturbing activities shall be allowed to commence, and no further mitigation would be required.

If BUOW are observed during the four-visit survey and/or take avoidance survey, active burrows shall be avoided by the project, in accordance with the CDFW's Staff Report (2012). The CDFW shall be immediately informed of any BUOW observations. A Burrowing Owl Protection and Relocation Plan (plan) shall be prepared by a qualified biologist, which must be sent for approval by CDFW prior to initiating ground disturbance. The plan shall detail avoidance measures that shall be implemented during construction and passive or active relocation methodology. Relocation shall only occur outside of the nesting season for BUOW (February 1 through August 31).

BIO-3 **Jurisdictional Resources**: Prior to impacts to jurisdictional resources, RCSD shall obtain regulatory permits from RWQCB and CDFW. Jurisdictional resources impacted shall be replaced on site at the original location or as close as is feasible once the project has been completed. The drainage will enter and exit the project site at the same location as prior to construction. Compensatory mitigation for temporary impacts to jurisdictional waters is proposed to include enhancement/restoration of the unvegetated streambed on site. If additional mitigation is required by the resource agencies, preservation of land with appropriate resources or purchase of off-site mitigation enhancement credits may be included.

The following minimization measures will be implemented during construction:

- Use of standard Best Management Practices (BMPs) to minimize the impacts during construction.
- Construction-related equipment will be stored in developed areas, outside of drainages.
- Source control and treatment control BMPs will be implemented to minimize the potential contaminants that are generated during and after construction. Water quality BMPs will be implemented throughout the project to capture and treat potential contaminants.
- To avoid attracting predators during construction, the project shall be kept clean of debris to the extent possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from site.
- Employees shall strictly limit their activities, vehicles, equipment, and construction material to the proposed project footprint, staging areas, and designated routes of travel.
- The drainage will be clearly marked to aid in avoidance of impacts.
- Designated crossings location shall be implemented to minimize impacts to the drainage from construction vehicles.

BIO-4 **Nesting Birds**: Construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) shall occur outside of the general bird nesting season for migratory birds, which is February 15 through August 31 for songbirds and January 15 to August 31 for raptors.

If construction activities (i.e., earthwork, clearing, grubbing, pipeline installation, etc.) must occur during the general bird nesting season for migratory birds and raptors (January 15 through August 31), RCSD shall retain a qualified biologist to perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds and raptors afforded protection under the MBTA and CFG Code. The pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities. The results of the pre-construction survey shall be documented by the qualified biologist and submitted to MNWD.

If the qualified biologist determines that no active migratory bird or raptor nests are present, the activities shall be allowed to proceed without any further requirements. If the qualified biologist determines that an active migratory bird or raptor nest is present, no impacts within 300 feet (500 feet for raptors) of the active nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, or as determined by the qualified biologist. The biological monitor may modify the buffer or propose other recommendations in order to minimize disturbance to nesting birds.

7.0 CERTIFICATION/QUALIFICATION

The following individuals contributed to the fieldwork and/or preparation of this report:

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Appendix A

Plant Species Observed

Appendix A
PLANT SPECIES OBSERVED

Family	Scientific Name	Common Name
Asteraceae	*Ambrosia acanthicarpa*	annual bur sage
Asteraceae	*Ambrosia dumosa*	white bur sage
Asteraceae	*Artemisia spinescens*	bud sage
Asteraceae	*Artemisia tridentata*	Great Basin sagebrush
Fabaceae	*Astragalus lentiginosus* var. *variabilis*	freckled milkvetch
Chenopodiaceae	*Atriplex canescens*	fourwing saltbush
Chenopodiaceae	*Atriplex confertifolia*	shadscale saltbush
Chenopodiaceae	*Atriplex polycarpa*	cattle saltbush (allscale)
Asteraceae	*Baccharis salicifolia*	mule fat
Chenopodiaceae	*Bassia hyssopifolia**	fivehook bassia
Poaceae	*Bromus beteroanus**	Chilean chess
Poaceae	*Bromus madritensis* ssp. *rubens**	foxtail chess
Poaceae	*Bromus tectorum**	cheatgrass
Liliaceae	*Calochortus striatus*†	alkali mariposa lily
Onagraceae	*Camissonia boothii*	Booth's evening primrose
Brassicaceae	*Caulanthus lasiophyllus*	California mustard
Asteraceae	*Centaurea* sp.*	knapweed
Asteraceae	*Chaenactis fremontii*	desert pincushion
Polygonaceae	*Chorizanthe spinosa*†	Mojave spineflower
Euphorbiaceae	*Croton setiger*	dove weed
Boraginaceae	*Cryptantha barbigera*	bearded cryptantha
Poaceae	*Cynodon dactylon**	Bermuda grass
Cyperaceae	*Cyperus* sp.	sedge
Solanaceae	*Datura wrightii*	jimson weed
Poaceae	*Distichlis spicata*	saltgrass
Poaceae	*Elymus condensatus*	giant wild rye
Poaceae	*Elymus elymoides*	squirreltail
Ephedraceae	*Ephedra* sp.	jointfir
Asteraceae	*Ericameria nauseosa*	rubber rabbitbrush
Polygonaceae	*Eriogonum maculatum*	spotted buckwheat
Geraniaceae	*Erodium cicutarium**	redstem filaree
Brassicaceae	*Erysimum capitatum*	western wallflower
Euphorbiaceae	*Euphorbia albomarginata*	rattlesnake weed
Oleaceae	*Forestiera pubescens*	desert olive
Asteraceae	*Gutierrezia sarothrae*	broom snakeweed
Boraginaceae	*Heliotropium curassavicum*	Chinese pulsey/salt heliotrope
Poaceae	*Hordeum jubatum*	foxtail barley
Juncaceae	*Juncus* sp.	Rush
Asteraceae	*Lactuca serriola**	wild lettuce
Asteraceae	*Lasthenia californica*	California goldfields
Brassicaceae	*Lepidium fremontii*	desert pepperweed
Poaceae	*Leptochloa fusca* ssp. *univernia*	Mexican sprangletop
Solanaceae	*Lycium andersonii*	water jacket
Asteraceae	*Malacothrix coulteri*	snake's head
Asteraceae	*Matricaria discoidea**	pineapple weed
Boraginaceae	*Pectocarya setosa*	moth combseed
Plantanaceae	*Platanus racemosa*	western sycamore
Polygonaceae	*Polygonum hydropiperoides*	swamp smartweed

Appendix A (cont.)
PLANT SPECIES OBSERVED

Family	Scientific Name	Common Name
Poaceae	*Polypogon monspeliensis**	annual beard grass
Asteraceae	*Pseudognaphalium* sp.	cudweed
Salicaceae	*Salix laevigata*	red willow
Chenopodiaceae	*Salsola tragus**	Russian thistle
Poaceae	*Schismus barbatus**	Mediterranean grass
Cypereceae	*Schoenoplectus* sp.	bulrush
Poaceae	*Sporobolus airoides*	alkali sacaton
Asteraceae	*Stephanomeria pauciflora*	desert straw
Chenopodiaceae	*Suaeda nigra*	bush seepweed
Tamaricaceae	*Tamarix ramosissima**	saltcedar, tamarisk
Asteraceae	*Tetradymia glabrata*	little leaf horsebrush

*Non-native species
†Sensitive species

Appendix B

Animal Species Observed

Appendix B
ANIMAL SPECIES OBSERVED OR DETECTED

Family	Scientific Name	Common Name
Invertebrates		
Formicidae	*Pogonomyrex* spp.	harvester ant
Polyommatinae	*Brephidium exilis*	western pygmy blue butterfly
Pompilidae	*Pepsis* spp.	tarantula hawk wasp
Tenebrionidae	*Eleodes* spp.	darkling beetle
Reptiles		
Phrynosomatidae	*Callisaurus draconoides*	zebra tail lizard
	Uta stansburiana	common side-blotched lizard
Teiidae	*Aspidocelis tigris*	western whiptail
Birds		
Accipitridae	*Buteo jamaicensis*	red-tailed hawk
Accipitridae	*Circus cyaneus*	northern harrier
Alaudidae	*Eremophila alpestris actia*†	California horned lark
Anatidae	*Anas clypeata*	Northern shoveler
Anatidae	*Anas platyrhyncos*	mallard duck
Ardeidae	*Ardea Herodias*	great blue heron
Caprimulgidae	*Chordeiles acutipennis*	lesser nighthawk
Charadriidae	*Charadrius vociferus*	killdeer
Columbidae	*Streptopelia decaocto*	Eurasian collared dove
Columbidae	*Zenaida macroura*	mourning dove
Corvidae	*Corvus brachyrhynchos*	American crow
Corvidae	*Corvus corax*	common raven
Emberizidae	*Amphispiza bilineata*	black throated sparrow
Emberizidae	*Zonotrichia leucophyrys*	white-crowned sparrow
Falconidae	*Falco mexicanus*†	prairie falcon
Icteridae	*Agelaius phoeniceus*	red-winged black bird
Icteridae	*Sturnella neglecta*	western meadowlark
Mimidae	*Mimus polyglottos*	northern mockingbird
Passeridae	*Passer domesticus*	house sparrow
Rallidae	*Fulica Americana*	American coot
Regulidae	*Regulus calendula*	Ruby-crowned kinglet
Strigidae	*Athene cunicularia*†	burrowing owl
Threkiornithidae	*Plegadis chihi*†	white-faced ibis
Troglodytidae	*Thryomanes bewickii*	Bewick's wren
Tyrannidae	*Sayornis saya*	Say's phoebe
Mammals		
Canidae	*Canis latrans*	coyote
Leporidae	*Lepus californicus*	black-tailed jack rabbit
Sciuridae	*Ammospermophilus leucurus*	white tailed antelope ground squirrel
Sciuridae	*Spermophilus beecheyi*	California ground squirrel

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Appendix C

Mohave Ground Squirrel Report

SURVEY FOR MOHAVE GROUND SQUIRRELS
AT
ROSAMONDS COMMUNITY SERVICES DISTRICT
TREATMENT WETLANDS PROJECT
ROSAMOND, KERN COUNTY, CALIFORNIA

June 25, 2018

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SUMMARY

Rosamond Community Services District proposes to develop an 80-acre site as a wetland for the treatment of waste water and to have as open space and a wildlife sanctuary. The property in question is within the range for mohave ground squirrels; a listed species. A survey, therefore, for the presence or absence of this species was conducted by live trapping in March, May, and June of 2018. Each of the three sessions consumed five days of trapping utilizing 100 Sherman live traps set in a square grid. This effort failed to discover mohave ground squirrels on the property in question. This suggests that none are on the site and that the proposed development will not cause significant impact to this protected species.

INTRODUCTION

The purpose of this report is solely to report the results of trapping for the presence of mohave ground squirrels at the proposed expansion of the Rosamond Community Services District waste water treatment plant. The project site is comprised of an approximately 80-acre parcel (Figure 1) immediately south and adjacent to its present site off of Paterson Road at the south end of Rosamond, California. The adjacent property for the proposed expansion is owned by the Services District. The vegetation community is dominated by Salt bush (*Atriplex sp*.) and Mormon Tea (*Ephedra sp*.) that is sparsely spaced on an ancient lake bed. The terrain is flat and the soils have significant clay components. At the time of my first visit there was standing water in depressions and ditches. No water was observed on subsequent visits.

This property is also immediately adjacent to the western boundary of Edwards Air Force Base. To the east is Rosamond Dry Lake, to the north of the property is the present functioning facility, and to the west is similar vegetation as on the site in question. To the south are a few homes and areas that appear to be utilized as storage for old vehicles and the vegetation is similar to that of the site also.

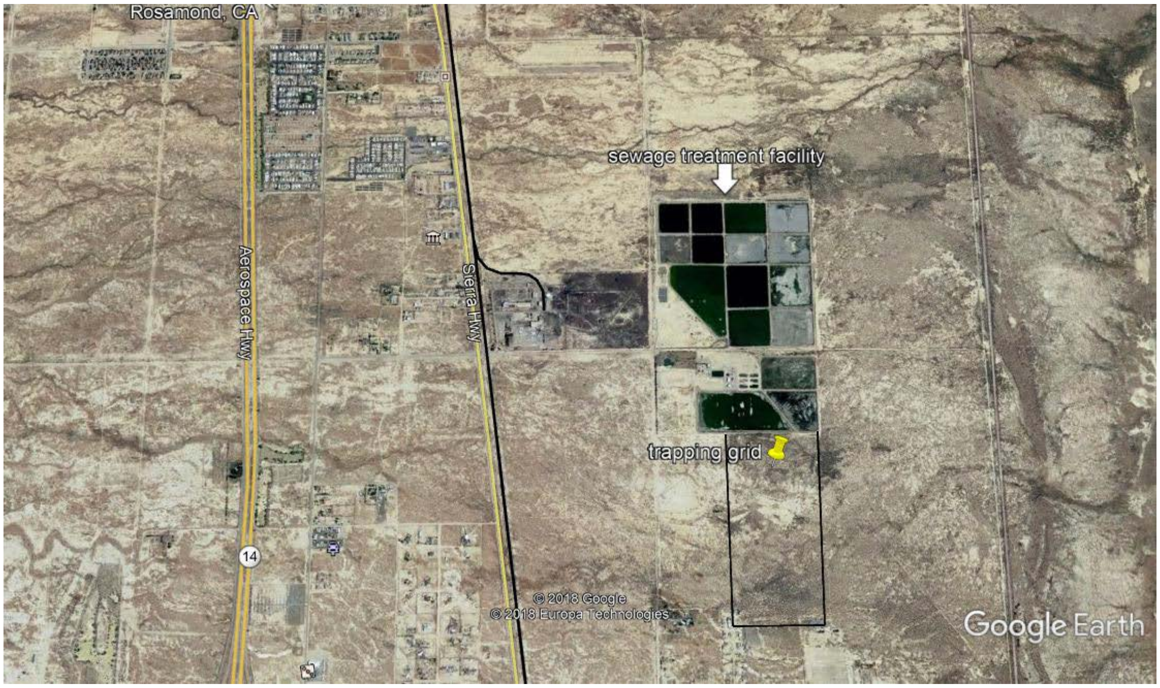

Figure 1: The study site is outlined in black. It is south and adjacent to the present operating facility with Rosamond, California to the north.

The property that is presently proposed for development is 80 acres in a rectangle as noted in Figure 1. The facility has had a problem with the nitrogen levels in its treated product. In order to ameliorate the problem, it is proposed to turn the 80 acres into settling ponds with emergent vegetation. The vegetation acts as a method of uptake of the nitrogen. Other benefits are also anticipated. It is envisioned that the ponds will offer habitat for wildlife and for an area of open space.

In order to accomplish the desired proposal, it is necessary to go through a permitting process. Part of this process is to have a biological evaluation. The trapping conducted on the property for Mohave ground squirrels is part of this biological process.

METHODS

Prior to trapping the author of this report conducted a visual survey of the property for a total time of approximately three hours in order to assess the habitat and observe for mohave ground squirrels. The sky was clear and the temperature was in the mid to high 70's degrees Fahrenheit. During this time on March 26, 2018 I wondered randomly throughout the parcel and often stopped to observe and to listen. At no time did I observe or hear a mohave ground squirrel. Later in the afternoon I deployed traps.

Trapping was conducted on the property in question on March 27 through March 31, 2018 for the first survey. It was also trapped on May 1, through May 5, 2018 for the second survey and again on the 19 through the 23 of June 2018.

The trapping for this project was conducted with the protocol as prescribed by the California Department of Fish and Wildlife (CDFG 2003). Traps used were clean Sherman Live Traps 3 X 3 X 12 inches and placed in a cardboard sleeve of approximately 5 X 5 X 15 inches. The sleeves served as shade. Each trap was placed on the north side of a large shrub to help to provide additional shade. Traps were baited with a bird see mixture of feed that was mixed with peanut oil. They were replenished with bait as needed. Traps were checked at three to four-hour intervals throughout the day and opened after sunrise and closing began about 1.5 hours before sundown. They were open only if the temperatures were between 50 and 90 degrees Fahrenheit and if the wind was not strong nor rain present.

The trapping array consisted of 100 Sherman live traps arranged in a 10 X 10 grid in the northern half of the site under study. Each trap was spaced approximately 35 meters from all others in the grid array as directed by the aid of a GPS unit.

RESULTS

Visual Survey:

The visual survey that was conducted on March 26, 2018 revealed no sign or signal of Mohave ground squirrel. It was, therefore, determined that a trapping survey was to be conducted.

Trapping:

The Mohave ground squirrel is designated as a threatened species by the State of California. It has a limited range relative to other ground squirrels in the Mojave Desert. Its range includes the Western Mojave Desert from the Lucern Valley area (Victorville, CA) west along the base of the San Gabriel Mountains then north to the Tehachapi Mountains and into southern Inyo County. Within its range it can occupy a variety of desert habitats including salt bush scrub, creosote bush scrub, sagebrush scrub, blackbush scrub, and Joshua tree woodland. It appears to be a generalist that includes in its diet annual grasses and forbs, the flowers, seeds, and fruits of these annuals, the seeds of Joshua trees, leaves of shrubs, and arthropods (Gustafson 1993). They may range from the desert floor up to approximately 5000 feet in elevation. The populations of this species have been in decline for a few decades which may be a function of habitat destruction or removal due to development by agriculture, grazing pressure, industry, cities, and pursuit of recreation. The three trapping sessions conducted as outlined in the methods section of this report produced no captures of Mohave ground squirrels.

During the three sessions of trapping other vertebrate species were captured and they are presented in Table 1. Table 1 also illustrates the total number of hours that traps were open per session and the total trap days (one trap open for one day equals a trap day) per session. Other animals observed on or near the subject property are presented in Table 2.

TABLE 1: Animals captured

First Session : March 27-31, 2018 Trap hours = 41.00 Trap days = 500	Antelope ground squirrel – *Ammospermophilis leucurus*
Second session:May 1-5, 2018 Trap hours = 57.75 Trap days = 500	Deer mouse (*Peromyscus maniculatus*)
	Desert cotton tail (*Sylvilagus audubonii*)
	Antelope ground squirrel – *Ammospermophilis leucurus*
Third session June19-23, 2018 Trap hours = 22.25 Trap days = 500	Antelope ground squirrel – *Ammospermophilis leucurus*

TABLE 2: Animals observed on the property under review

Common name	Binomial
Red-winged blackbird	***Agelaius phoeniceus***
Sage sparrow	***Amphisiza belli***
Mallard duck	***Anas platyrhynchos***
Western whiptail lizard	***Cnemidophorus tigris***
Rock dove	***Columba livia***
Raven	***Corvax corax***
Canada geese	***Branta Canadensis***
Barn swallow	***Hirundo rustica***
Snowy egret	***Egretta thula***
Mourning dove	***Zenaida macroura***
Road runner	***Geococcyx californianus***
Prairie falcon	***Falco mexicanus***
White crowned sparrow	***Zonotrichia leucophrys***
Jack rabbit	***Lepus californicus***
California ground squirrel	***Spermopholis becheii***
Desert cottontail rabbit	***Sylvilagus auduboni***
Western whiptail	***Cnemidophorus trgris***
Side blotched lizard	***Uta stansburiana***
Desert kangaroo rat	***Dipodomys desertii***
Antelope ground squirrel	***Spermophilis leucurus***

DISCUSSION

The Rosamond Community Services District has an operating facility located on Patterson Street in Rosamond, California. It proposes to expand and improve its facility to better and more efficiently treat waste water. One alternative to do this is by expanding onto an adjacent land immediately adjacent to the south of the present facility. By doing this it plans to create a wetland environment to help with the water treatment. It was, therefore, necessary to assess the biological components of the property in question. Part of this process was the trapping for the presence of Mohave ground squired. During the months of March, May, and June of 2018 I conducted a protocol survey for Mohave ground squirrel; a listed species. During the survey no Mohave ground squirrels were captured or otherwise detected.

The area trapped is within the range of the mohave ground squirrel although there are no records discovered of trapping success of this species with in the Palmdale – Lancaster - Rosamond area in the last ten years. The project is adjacent to Edwards Air Force Base which has evidence of trapping of this species relatively recently. Jose Lopez presented information at the mohave ground squirrel Technical Advisory Group (TAG) meeting held this spring in Ridgecrest, California that he found the presence of mohave ground squirrels west of the dry lake on Edwards Air Force Base but none to the far west side. These populations would probably be the closest to the area that is under consideration for expansion. Dr. Phil Leitner (TAG meeting) also noted that the populations of this species are down this year. It is my experience and with talking to other biologists who work with mohave ground squirrels that most are found from Red Rock Canyon north into the Coso Range. Also, farther east around Harper Lake and north of Kramer Junction. It appears that, possibly, the development of the Antelope Valley in the areas of Lancaster, Palmdale, Victorville and other nearby areas may have helped to discourage this species from maintaining populations in these areas.

Although the absence of evidence of mohave ground squirrels via trapping methods suggests that none of this species is on the property it must be recognized that this does not offer definitive proof that this species is absent. It is reasonable to believe so, however, due to the negative results from trapping and from the lack of other populations In the southern Antelope Valley.

It is my conclusion, therefore, that the project proposed will have no significant affect on the mohave ground squirrel.

Literature Cited

California Department of Fish and Game (CDFG). 2003. Mohave ground squirrel survey guidelines. Sacramento, Calif. 5 pp.

Gustafson, J. R. 1993. A status review of the Mohave ground squirrel (*Spermophilus mohavensis*). Nongame Bird and Mammal Section Report 93-9. Department of Fish and Game, Wildlife Management Division. Sacramento, Calif. 104 pp. + appendices.

Leitner, Dr. Phil. (pers. Com.)

APPENDIX 1:

MOHAVE GROUND SQUIRREL (MGS) SURVEY AND TRAPPING FORM

PART 1 – PROJECT INFORMATION
Project Name: ROSAMONDS COMMUNITY SERVICES DISTRICT TREATMENT WETLANDS PROJECT
Developer: Rosamond Community Services District
Location (Township, Range, Section):
Kern County,
Quad Map/Series:, 7.5 Minute Series Rosamond
UTM Coordinates of Trapping Grid Corners: (NAD 27) 0395400 / 3854770 ; 0395720 / 3854770 ; 0395720 / 3854450 ; 0395400 / 3854450

Acreage of Project Site: 80.0 acres **Acreage of Potential MGS Habitat on Site:** 80.0 acres
Total Acreage Visually Surveyed on Project Site: 80.0 acres **Date of Visual Survey:** 26 March 2018
Visual Survey Conducted By: Mike McGovern
Total Acres Trapped: 40 acres **Number of Sampling Grids:** 1
Trapping Conducted By: Mike McGovern
Dates of Sampling Term(s): FIRST 27 – 31 March 2018 **SECOND** May 1-5, 2018
THIRD – June 19 - 23, 2018

PART II – GENERAL HABITAT DESCRIPTION

Vegetation Type: salt bush

Dominant Perennials: salt bush

Other Perennials morman tea

Dominant Annuals: brome grass

Other Annuals: alkalai miraposa lilly

Land Form: flood plain / old lake bed
Soils Description: silt / clay
Elevation: 680 m (2250 ft) **Slope Aspect:** N/A **Percent Slope:** 0%

APPENDIX 2: WEATHER DATA

First session trapping weather data: temperature in degrees F. Wind speed in M.P.H.

3/27/18	Value	Time
Trap hours 9.25		
Air temp. open	50	0845
Air temp. close	71	1800
Wind speed	0	AM
Wind speed	0	PM
Cloud cover	0 %	AM
Cloud cover	0 %	AM

3/28/18	Value	Time
Trap hours 9.50		
Air temp. open	50	0830
Air temp. close	70	1800
Wind speed	0	AM
Wind speed	3-5	PM
Cloud cover	0 %	AM
Cloud cover	0 %	AM

3/29/18	Value	Time
Trap hours 10.0		
Air temp. open	50	0800
Air temp. close	76	1800
Wind speed	0	AM
Wind speed	1-2	PM
Cloud cover	0 %	AM
Cloud cover	0 %	PM

3/30/18	Value	Time
Trap hours 10.25		
Air temp. open	50	0745
Air temp. close	76	1800
Wind speed	0	AM
Wind speed	2-3	PM
Cloud cover	0 %	AM
Cloud cover	0 %	PM

3/31/18	Value	Time
Trap hours 11.0		
Air temp. open	50	0700
Air temp. close	70	1600
Wind speed	2-3	AM
Wind speed	2-5	PM
Cloud cover	0 %	AM
Cloud cover	0 %	PM

Second session trapping weather data:

5/1/2018	Value	Time
Trap hours 10.25		
Air temp. open	50	0745
Air temp. close	59	1800
Wind speed	25	AM
Wind speed	25	PM
Cloud cover	70%	AM
Cloud cover	80%	PM

5/2/2018	Value	Time
Trap hours 10.75		
Air temp. open	50	0745
Air temp. close	72	1830
Wind speed	10	AM
Wind speed	26	PM
Cloud cover	70%	AM
Cloud cover	50%	PM

5/3/2018	Value	Time
Trap hours 11.75		
Air temp. open	50	0645
Air temp. close	77	1830
Wind speed	calm	AM
Wind speed	calm	PM
Cloud cover	0%	AM
Cloud cover	0%	PM

5/4/2018	Value	Time
Trap hours 12.5		
Air temp. open	52	0600
Air temp. close	84	1830
Wind speed	calm	AM
Wind speed	calm	PM
Cloud cover	0%	AM
Cloud cover	40%	PM

5/5/2018	Value	Time
Trap hours 12.25		
Air temp. open	50	0615
Air temp. close	86	1830
Wind speed	calm	AM
Wind speed	14	PM
Cloud cover	0%	AM
Cloud cover	25%	PM

Third session trapping weather data:

6/19/2018	Value	Time
Trap hours 6.5		
Air temp. open	62	0600
Air temp. close	90	1230
Wind speed	5	AM
Wind speed	5	PM
Cloud cover	0 %	AM
Cloud cover	0 %	PM

6/20/2018	Value	Time
Trap hours 4.25		
Air temp. open	65	0600
Air temp. close	90	1015
Wind speed	calm	AM
Wind speed	calm	PM
Cloud cover	0%	AM
Cloud cover	0%	PM

6/21/2018	Value	Time
Trap hours 4.0		
Air temp. open	67	0600
Air temp. close	90	1000
Wind speed	5	AM
Wind speed	calm	PM
Cloud cover	0 %	AM
Cloud cover	0 %	PM

6/22/2018	Value	Time
Trap hours 3.75		
Air temp. open	67	0545
Air temp. close	90	0930
Wind speed	5	AM
Wind speed	calm	PM
Cloud cover	0%	AM
Cloud cover	0%	PM

6/23/2018	Value	Time
Trap hours 3.75		
Air temp. open	68	0545
Air temp. close	90	0930
Wind speed	calm	AM
Wind speed	5	PM
Cloud cover	0%	AM
Cloud cover	0%	PM

APPENDIX 3: PHOTOS OF THE SURVEY SITES


Clay pan withing the trapping grid.

Appendix D

Desert Tortoise Survey Report

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La Mesa, CA 91942
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January 31, 2019 KJC-28

Ms. Stacey Love
U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

Subject: Results of the 2018 Desert Tortoise Presence/Absence Survey for the Rosamond Wastewater Treatment Plant Evaporation Ponds

Dear Ms. Love:

At the request of the Rosamond Community Services District (RCSD), HELIX Environmental Planning, Inc. (HELIX) conducted a U.S. Fish and Wildlife Service (USFWS) protocol desert tortoise (*Gopherus agassizii*) presence/absence survey for the Rosamond Wastewater Treatment Plant Evaporation Ponds (Project). This report describes survey methods and results and is being submitted to the USFWS in accordance with required protocol (U.S. Fish and Wildlife Service [USFWS] 2009, 2010, 2011). This report documents the survey conducted on the Project site and the previously considered alternative site situated adjacent to the south side of the Project

PROJECT LOCATION/DESCRIPTION

The Project is located in Rosamond, in southwestern Kern County (Figure 1, *Regional Location*). The project is situated north of Avenue A, east of 10th Street West, west of Division Street, and south of Patterson Road within Section 34 of Township 9 North, Range 12 West, on the U.S. Geological Survey (USGS) 7.5' Rosamond quadrangle (Figure 2, *USGS Topography*). The approximately 69-acre Project site is made up of land within an existing wastewater treatment plant (WWTP; Figure 3, *Aerial Photograph*). An alternative location made up of 80 acres situated adjacent to the south side of the existing facility was initially considered for the project (Figure 4a). This location was included in the desert tortoise survey but is no longer being considered for the project. The southern 80 acres are made up of sparse to moderately dense desert scrub habitat.

The project is for the expansion of an existing WWTP. The expansion would provide a new, larger Biolac/clarifier system that would eliminate the need for major upgrades to the existing process units. The improvements would include construction of additional percolation ponds, a new septage receiving station, and a septage holding pond. The proposed Project is within the southwest edge of the area that has been modeled as being within the current range of the desert tortoise and as potentially having habitat to support desert tortoise (USFWS 2018).

TARGET SPECIES BIOLOGY

The desert tortoise distribution is often split into sub-regions, including the Sonoran desert, the eastern and western portions of the Mojave Desert, and the Sinaloa region. The western Mojave Desert tortoise is a herbivorous reptile that is typically active during the day. Desert tortoises are also more active when annual plants are most abundant during spring and early summer. They are also known to become more active during unseasonably warm periods during fall and winter or following rain events. The tortoises escape the extreme weather conditions of the Mojave Desert by spending part of the year in burrows or shelter sites. Shelter sites include soil burrows, caliche caves, lava tubes, pallets, rock caves, rodent or other animal burrows, shrubs, or man-made structures such as equipment or vehicles. Tortoises may emerge from their burrows to drink if rain events occur at night. The Mojave population of the desert tortoise generally occurs below 4,500 feet elevation within the creosote bush-bursage vegetation community. Dominant plant species within this vegetation community include creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*); it may also include cacti species (*Opuntia* spp.), saltbush (*Atriplex* spp.) scrub, and Joshua tree (*Yucca brevifolia*) (USFWS 2010).

METHODS

Prior to conducting fieldwork, HELIX performed a search of the California Department of Fish and Wildlife's California Natural Diversity Database (California Department of Fish and Wildlife 2018) for locations of desert tortoise that might occur within or near the vicinity of the survey area. The project occurs within the current range of the desert tortoise and has potential to support desert tortoise (USFWS 2011). The nearest records of desert tortoise observations occur 12 kilometers to the northeast on Edwards Air Force Base and 17.5 kilometers to the northwest. The USFWS requires protocol surveys for desert tortoise for projects that are within the range of the species and contain suitable habitat (USFWS 2010). In the Mojave Desert, typical desert tortoise habitat consists of creosote bush scrub with a high diversity of perennials. Although Mojave creosote bush scrub is not present in either of the proposed Project areas, desert scrub habitat does occur in the project areas, and was determined to have low potential to support desert tortoise.

Surveys were conducted according to the USFWS current protocol methods (USFWS 2009, 2010). The surveys were conducted during the tortoise's most active periods (April thru May and September thru October) and when air temperatures were below 40°C. The survey effort included searching for above-ground tortoises (both out of burrows and within burrows but still visible), as well as tortoise signs (burrows, scat carcasses, etc.) within proposed project impact areas and along belt transects that were established around the proposed impact areas. Private properties and unsuitable habitat (e.g., active water treatment facilities, ponds) were excluded from the survey area. Belt transects on Edwards Air Force Base property were conducted during the spring 2018 survey for the previous alternative site (Figure 4a). The Air Force Base property access was not secured for the fall survey as this area was considered adequately covered during the spring survey. Belt transects for the fall survey excluded the Air Force Base property (Figure 4b). HELIX biologists Rob Hogenauer and Lauren Singleton conducted the surveys on May 15, 2018, for the southern 80 acres (previous alternative site), and October 29, 2018, for the current project within the existing WWTP. Mr. Hogenauer has been previously authorized to independently survey for desert tortoise and has been assisting on and conducted desert tortoise surveys since 2008. Mr. Hogenauer and Ms. Singleton have attended the Desert Tortoise Council Surveying, Monitoring, and Handling Techniques Workshop.

HELIX biologist surveyed the potential habitat within the proposed project alternative site using parallel transects approximately 10 meters apart to achieve 100 percent cover (Figure 4). Additional belt transect were surveyed at 200, 400, and 600 meters parallel to the project and previous alternative areas (Figures 4a and b). Areas not accessible by foot and private properties that supported potential desert tortoise habitat were surveyed from the perimeter via binoculars. An iPad connected to a Trimble R1 GPS unit that allows for sub-meter accuracy was used to maintain the accuracy of transects and to locate precisely desert tortoise sign that may be observed during the survey. A summation of the field survey information is provided in Table 1.

Table 1
2018 DESERT TORTOISE SURVEY INFORMATION

Date	Survey Times	Personnel	Weather Conditions*
May 15, 2018 (80-acre alternative that is no longer part of project)	0620 – 1330	Lauren Singleton Rob Hogenauer	Start: 58°F, winds 1-4 mph. 0% cloud cover End: 78°F, winds 4-8 mph, 0% cloud cover
October 29, 2018 (Current 69-acre project site on existing wastewater treatment plant)	0830 – 1255	Lauren Singleton Rob Hogenauer	Start: 60°F, winds 5-8 mph, 20% cloud cover End: 75°F, winds 3-5 mph, 20% cloud cover

The survey areas were specifically inspected for desert tortoise signs, including:

- live tortoises;
- shells, bones, scutes, and limbs;
- scat;
- burrows and pallets;
- tracks;
- eggshell fragments;
- courtship rings; and
- drinking sites and mineral licks.

Mirrors were used to direct sunlight into holes, rock crevices, and other shaded areas to assist in determining the shape, depth, and other characteristics of potential desert tortoise burrows. When a potential desert tortoise sign was found, it was examined to determine whether it was desert tortoise sign, possible desert tortoise sign, or not desert tortoise sign.

Survey Limitations

The survey covered potential habitat within the Project impact area (i.e., 100 percent coverage) and within the previous alternative location. Portions of the 200-, 400-, and 600-meter transects that occurred within private land to which access was not granted or developed land that does not include potential desert tortoise habitat were not surveyed (Figure 4a and b).

RESULTS

Habitat Assessment

During the initial habitat assessment, the habitat within the survey areas was considered to include a mix of land with marginal habitat and habitat not suitable for desert tortoise based on vegetation communities, elevation, and location within the current and historic range of the species. Vegetation within the current project area on the WWTP is made up of disturbed desert scrub, disturbed habitat, and developed land. Habitat within the alternative location that is no longer part of the project and the land adjacent to the project (within the belt transects) is mostly made up of desert scrub (including disturbed) with a composition similar to shadscale and allscale scrub along with patches that are similar to alkali sink (playa) habitat. Adjacent habitat that was partially excluded from belt transects also includes disturbed habitat and developed land. Dominant plant species observed during the survey include allscale (*Atriplex polycarpa*), shadscale saltbush (*Atriplex confertifolia*), cheatgrass (*Bromus tectorum*), and broom snakeweed (*Gutierrezia sarothrae*). The developed land is made up of an existing water treatment facility that includes buildings, gravel parking areas, roads, and active treatment basins. Disturbed habitat in the project area is made up primarily of inactive treatment basins. The treatment basins slopes are covered with broken concrete that precludes access to the basin by desert tortoise. The elevation within the survey area ranges from 2,300 feet above sea level (amsl) to 2,311 feet amsl.

Protocol Survey

The spring survey included walking 10 meter transects for 100 coverage of the 80-acre alternative site (that is no longer part of the project) located adjacent to the south side of the existing facility, along with belt transects that included those on Edwards Air Force land. The fall survey concentrated on the disturbed desert scrub within the limits of the WWTP along with belt transect to the north, south, and west. A high amount of trash and human disturbance was noted during both spring and fall surveys in the belt transects to the west and south.

The fall survey included walking the entire wastewater treatment facility to search for signs of desert tortoise and conduct a habitat assessment. It was determined that habitat with low potential to support desert tortoise occurred on approximately 15 acres (11 acres of disturbed desert scrub habitat and 4 acres of disturbed habitat) on the western side of the WWTP. The remainder of the site was determined to have no potential to support desert tortoise due to the disturbance from the existing WWTP. Ten meter survey transects were conducted within the 15 acres of potential habitat on the western side of the project site that was previously determined to have low potential for desert tortoise.

No desert tortoise or signs of desert tortoise were observed during the spring and fall 2018 survey efforts. Burrows observed on site were almost exclusively limited to small rodents or other animals using burrows less than three centimeters in diameter. A few large (possibly coyote) burrows were observed within the desert scrub habitat south of the Project site. Desert tortoise scat, scutes, track, and other signs were absent from the survey area, and the adjacent habitat to the south.

CONCLUSION

Based on the lack of burrows, low quality of the habitat, and the fact that no desert tortoise or tortoise sings were observed during the 2018 protocol surveys, desert tortoise is presumed to be absent from the survey area that includes the WWTP (project site) and the adjacent 80 acres (previous alternative site). With the human disturbance, development, and trash adjacent to the site it is unlikely that desert tortoise would occur on the site in the near future.

I certify that the information contained in this survey report and the attached exhibits fully and accurately represent our work.

If you have any questions regarding this report or the survey, please call me at 562-537-2426 or Andrea Bitterling at 619-462-1515.

Sincerely,

Rob Hogenauer
Senior Scientist

Attachments:

Figure 1: Regional Location
Figure 2: USGS Topography
Figure 3: Aerial Photograph
Figure 4a: Desert Tortoise Survey Area (October 2018)
Figure 4b: Desert Tortoise Survey Area (April 2018)

REFERENCES

California Department of Fish and Wildlife. 2018. California Natural Diversity Database and Rarefind. California Department of Fish and Wildlife: Sacramento, California. Retrieved from: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed March 13 and October 23.

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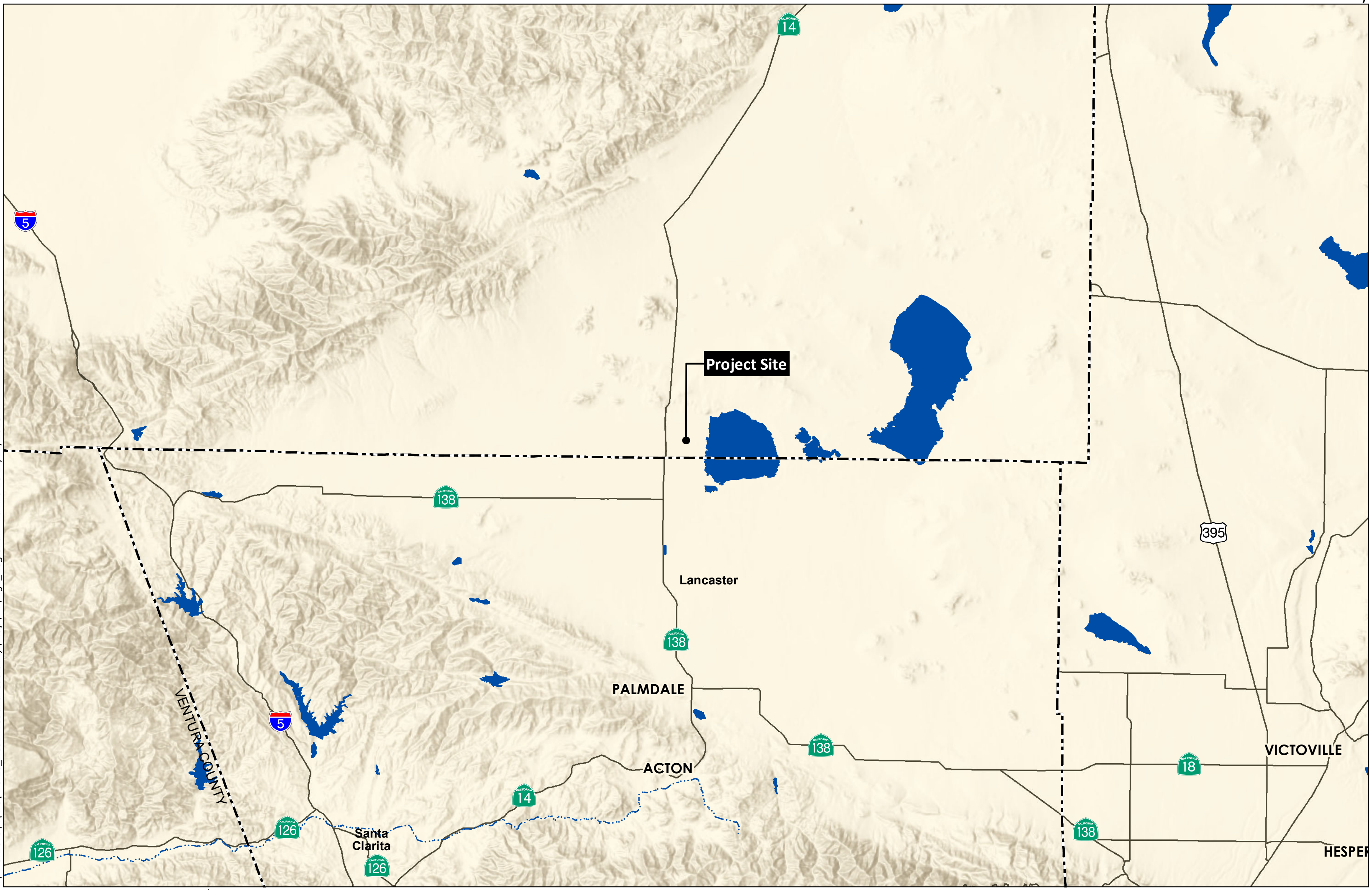
2011. Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherus agassizii*). May 6. Retrieved from: http://ecos.fws.gov/docs/recovery_plan/RRP%20for%20the%20Mojave%20Desert%20Tortoise%20-%20May%202011_1.pdf

2010. Preparing for any Action that may Occur within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*). Retrieved from: http://www.fws.gov/carlsbad/PalmSprings/DesertTortoise/DT%20Pre-project%20Survey%20Protocol_2010%20Field%20Season.pdf

2009. Preparing for any Action that may Occur within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*). April.



Source: Base Map Layers (ESRI, 2013)

0 10 Miles

N

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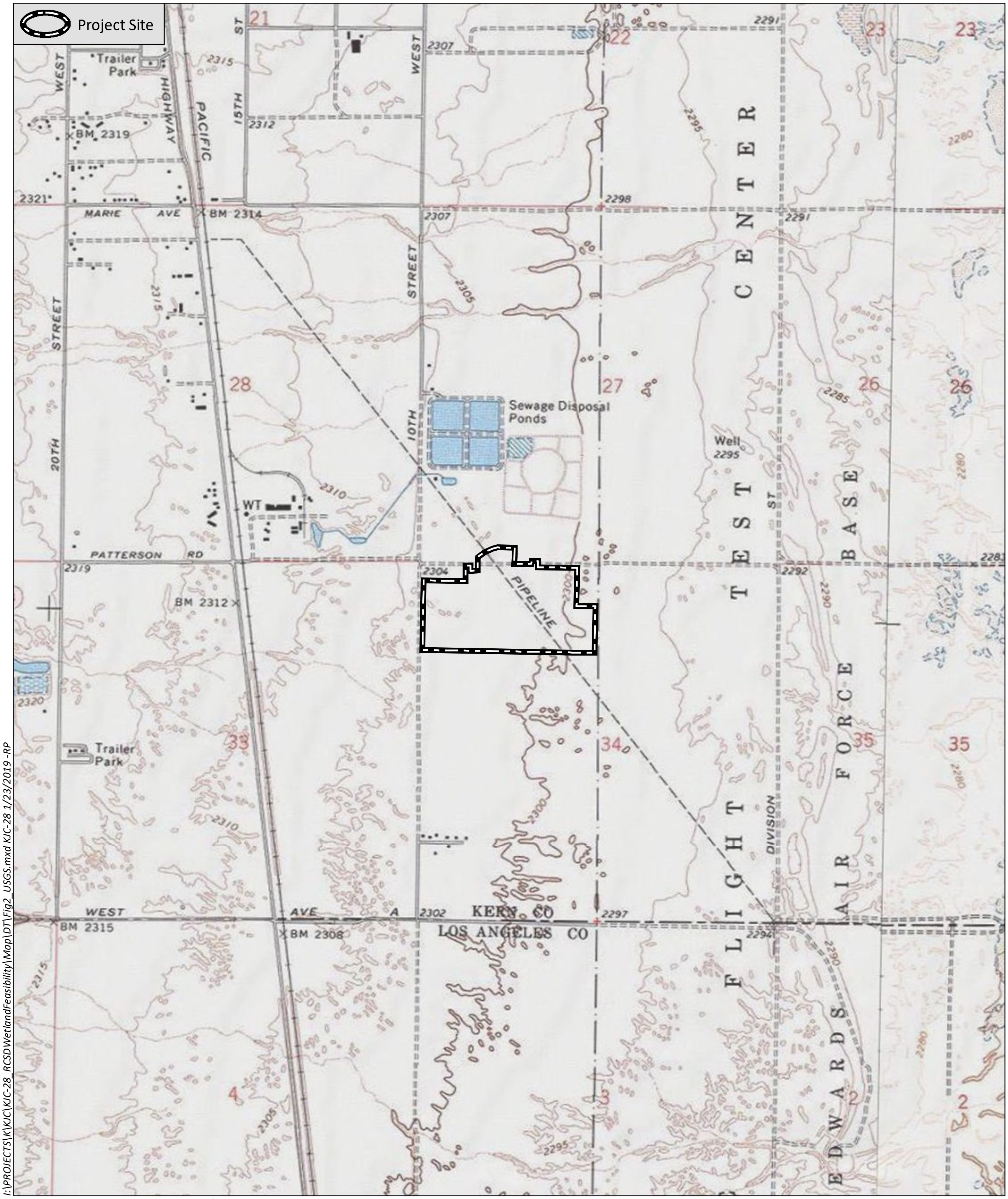
Regional Location

Figure 1



Source: Rosamond 7.5' Quad (USGS)

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USGS Topography

Figure 2

0 200 Feet

Source: Aerial (Nearmap 2014)

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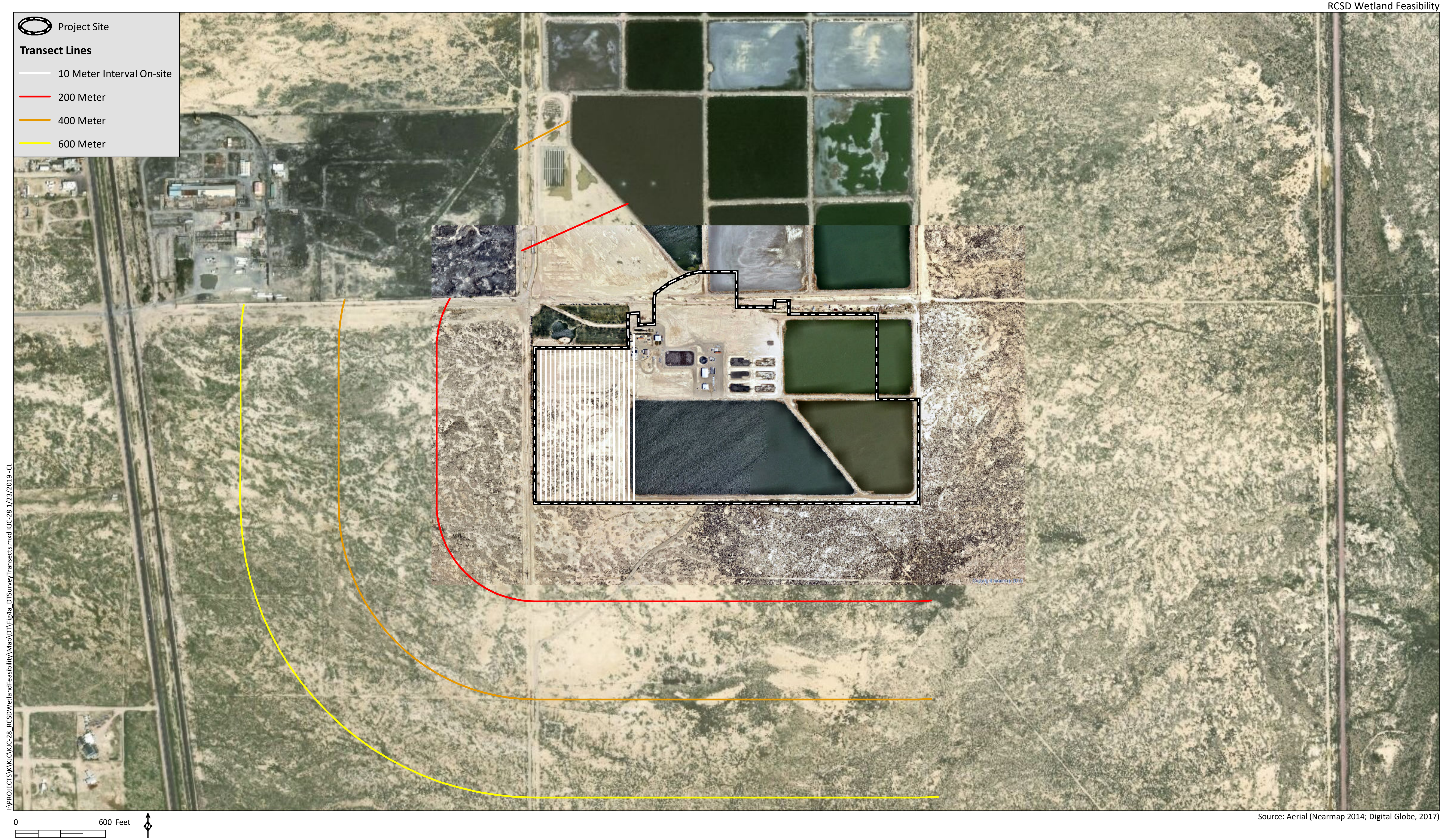
HELIX
Environmental Planning

Aerial Photograph

Figure 3



Source: Aerial (Nearmap 2014; Digital Globe, 2017)

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Desert Tortoise Survey Area (October 2018)

Figure 4a

Source: Aerial (Nearmap 2014, Digital Globe 2016)

0 600 Feet

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Desert Tortoise Survey Area (April 2018)

Figure 4b

Appendix E

Representative Site Photos

Photo 1. View west from center of project area at existing sludge beds and buildings.

Photo 2. View southwest from south side of Pond 11 showing development on site.

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Representative Site Photos

Photo 3. View south showing Pond 14 with a near monoculture of five hook bassia.

Photo 4. View northeast showing Pond 15 and concrete chunks that line slopes of the ponds.

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Photo 5. View northeast from south side of project showing Pond 17 with scattered mule fat along slopes.

Photo 6. View south from northwest side of project showing disturbed habitat.

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Photo 7. View of disturbed desert scrub in southwest corner of project site.

Photo 8. View west from northeast corner of project showing drainage location in disturbed habitat.

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Photos 9. View west showing unvegetated drainage between road and development.

Photo 10. Close up view of drainage along northern edge of project.

Photo 11. View of southern willow scrub patch with pipe on north edge of Pond 17.

Photo 12. View south from southern edge of project site showing previous alternative location.

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Appendix F

Rare Plant Species Potential to Occur

Appendix F
Rare Plant Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Astragalus hornii var. *hornii*	Horn's milk-vetch	CNPS 1B.1	Medium annual herb. Occurs on salty flats, alkaline areas, dry lake margins, meadows, and seeps. Elevation range 60-300 m. Flowering period May-Sep.	**Low.** The project site supports suitable habitat for this species. This species was not observed during habitat assessment and other surveys. The nearest observation recorded in CNDDB was in 1931, approximately 8.5 miles to the northwest of the project site, adjacent to Willow Springs Butte.
Astragalus preussii var. *laxiflorus*	Lancaster milk-vetch	CNPS 1B.1	Medium perennial herb. Occurs in alkaline clay flats or gravelly sandy washes within chenopod scrub. Elevation range around 700 m. Flowering period Mar-May.	**Low.** The project site supports suitable habitat for this species. This species was not observed during habitat assessment and other surveys. The nearest observation recorded in CNDDB was in 1992, approximately 14 miles to the east of the project site within Rosamond Lake.
Calochortus striatus	alkali mariposa lily	CNPS 1B.2	Small perennial herb. Occurs in alkaline meadows within chaparral, chenopod scrub, and Mojavean desert scrub in addition to seeps and moist areas within creosote bush scrub. Elevation range 800-1400 m. Flowering period Apr-Jun.	**Moderate.** This species was observed adjacent to the site, but not within the WWTP project area. There are multiple observations of this species recorded in 2015 and 2017 in CNDDB, directly adjacent to the project site.

Appendix F (cont.)
Rare Plant Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Calystegia peirsonii	Peirson's morning-glory	CNPS 4.2	Small perennial herb. Occurs in disturbed or open areas within chaparral, coastal scrub, chenopod scrub, cismontane woodland, lower montane coniferous forest, and grasslands. Elevation range 1000-1500 m. Flowering period May-Jun.	**None.** The project site is below the elevation range for this species.
Canbya candida	White pygmy-poppy	CNPS 4.2	Very small annual herb. Occurs in gravelly, sandy, granitic places within Joshua tree woodland, Mojavean desert scrub, and pinyon/juniper woodland. Elevation range 600-1350 m. Flowering period Apr-May.	**None.** The project site does not support Joshua tree woodland, Mojavean desert scrub, or pinyon/juniper woodland.
Castilleja plagiotoma	Mojave paintbrush	CNPS 4.3	Medium perennial herb. Occurs on alluvial fans within Great Basin scrub, Joshua tree woodlands, lower montane coniferous forest, and pinyon/juniper woodlands. Elevation range 300-2500 m. Flowering period Apr-Jun.	**None.** The project site does not support Great Basin scrub, Joshua tree woodlands, lower montane coniferous forest, or pinyon/juniper woodlands.
Chorizanthe parryi var. *parryi*	Parry's spineflower	CNPS 1B.1	Small annual herb. Occurs on dry slopes and flats within coastal scrub, chaparral, cismontane woodland, and grassland. Elevation range 90-800 m. Flowering period May-Jun.	**None.** The project site does not support coastal scrub, chaparral, cismontane woodland, or grassland.
Chorizanthe spinosa	Mojave spineflower	CNPS 4.2	Small annual herb. Occurs within alkali playas, chenopod scrub, Joshua tree woodland, and Mojave desert scrub. Elevation range 600-1300 m. Flowering period Apr-Jul.	**Presumed present**. This species was observed adjacent to the property in significant numbers. An unidentified spineflower was observed on site and has high potential to be this species. Identification of the species will be confirmed during the 2019 plant survey.

Appendix F (cont.)
Rare Plant Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Cryptantha clokeyi	Clokey's cryptantha	CNPS 1B.2	Small annual herb. Occurs on sandy or gravelly soils on slopes and ridge crests within Mojavean desert scrub and desert woodland. Elevation range 850-1650 m or more. Flowering period Apr-May.	**None.** The project site does not support slopes or ridges, or Mojavean desert scrub and desert woodland.
Cymopterus deserticola	desert cymopterus	CNPS 1B.2	Medium perennial herb. Occurs on loose sandy soil of flats in old dune areas within Joshua tree woodland and Mojavean desert scrub. Elevation range 700-1500 m. Flowering period Apr.	**None.** The project site does not support loose sandy soil or Joshua tree woodland and Mojavean desert scrub.
Delphinium recurvatum	recurved larkspur	CNPS 1B.2	Medium perennial herb. Occurs on alkaline soils within saltbush scrub, chenopod scrub, grasslands, and cismontane woodlands. Elevation range 30-600 m. Flowering period Mar-Jun.	**Low.** The project site supports suitable habitat for this species. This species was not observed during habitat assessment and other surveys. The nearest observation recorded in CNDDB was in 2011, approximately 8 miles to the north of the project site, along California State Route 14.
Eriastrum rosamondense	Rosamond eriastrum	CNPS 1B.1	Small annual herb. Occurs in alkali pool beds separated by low hummocks within chenopod scrub and vernal pools. Elevation range below 710 m. Flowering period May.	**Low.** The project site supports suitable habitat for this species. This species was not observed during habitat assessment and other surveys. The nearest observation recorded in CNDDB was in 2010, approximately 0.5 mile to the southwest of the project site.

Appendix F (cont.)
Rare Plant Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Eriophyllum mohavense	Barstow woolly sunflower	CNPS 1B.2	Very small annual herb. Occurs in open, silty, or sandy areas within saltbush scrub, chenopod scrub, Mojavean desert scrub, and desert playas. Elevation range 500-800 m. Flowering period Apr-May.	**Low.** The project site supports suitable habitat for this species. This species was not observed during habitat assessment and other surveys. The nearest observation recorded in CNDDB was in 1995, approximately 11 miles to the east of the project site within Rosamond Lake.
Goodmania luteola	golden goodmania	CNPS 4.2	Small annual herb. Occurs on alkaline or clay soils within playas, meadows, seeps, Mojavean desert scrub, and grasslands. Elevation range 70-2200 m. Flowering period Apr-Aug.	**Low.** The project site supports suitable habitat for this species. This species was not observed during habitat assessment and other surveys. The nearest observation recorded by the Consortium of California Herbaria was in 2010, approximately 1.5 miles to the southwest of the project site along Sierra Highway.
Loeflingia squarrosa var. *artemisiarum*	sagebrush loeflingia	CNPS 2B.2	Very small annual herb. Occurs in sandy flats and dunes, and sandy areas around clay slicks with *Sarcobatus* spp., *Atriplex* spp., and *Tetradymia* sp. Also occurs within Great Basin scrub, Sonoran desert scrub, and desert dunes. Elevation range below 1200 m. Flowering period April-May.	**Low.** The project site supports suitable habitat for this species. This species was not observed during habitat assessment and other surveys. The nearest observation recorded in CNDDB was in 1992, approximately 4 miles to the southeast of the project site adjacent to Piute Ponds.
Opuntia basilaris var. *brachyclada*	short-joint beavertail	CNPS 1B.2	Medium succulent. Occurs on sandy or coarse granitic soil within chaparral, Joshua tree woodland, and oak/pine woodland. Elevation range 1200-1800 m. Flowering period Apr-Jun.	**None.** The project site is below the elevation range for this species.

Appendix F (cont.)
Rare Plant Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Perideridia pringlei	adobe yampah	CNPS 4.3	Medium perennial herb. Occurs on serpentine or clay soils and seasonally-wet sites within chaparral, cismontane woodland, pinyon/juniper woodland, coastal scrub, and grasslands. Elevation range 300-800 m. Flowering period Apr-Jun.	**None.** The project site does not support chaparral, cismontane woodland, or pinyon/juniper woodland.
Puccinellia simplex	California alkali grass	CNPS 1B.2	Small annual grass. Occurs in alkaline, vernally-mesic sinks, flats, dry lake margins, as well as around mineral springs within chenopod scrub and grasslands. Elevation range below 900 m. Flowering period Mar-May.	**Low.** The project site supports suitable habitat for this species. T This species was not observed during habitat assessment and other surveys. There is a cluster of observations recorded in CNDDB in 1995, approximately 9.5 miles to east of the project site within Rosamond Lake.
Syntrichopappus lemmonii	Lemmon's syntrichopappus	CNPS 4.3	Small annual herb. Occurs in open, sandy to gravelly areas within chaparral, Joshua tree woodland, and pinyon/juniper woodland. Elevation range 900-1500 m. Flowering period Apr-May.	**None.** The project site does not support chaparral, Joshua tree woodland, or pinyon/juniper woodland.

Appendix F (cont.)
Rare Plant Species Potential to Occur[1]

Source: California Native Plant Society. 2018. Inventory of Rare and Endangered Plants. (online edition, v8-03 0.39). Rare Plant Program. Retrieved from: http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi. Updated quarterly. Accessed October 23

California Natural Diversity Database (CNDDB). 2018. RareFind 5 https://map.dfg.ca.gov/rarefind/view/RareFind.aspx California Department of Fish and Wildlife version date September 30, 2018. Accessed October 23.

[1] Sensitive species reported within a nine-quadrangle database search on CNDDB and CNPS, which included the following quadrangles: Willow Springs, Soledad Mtn., Bissell, Little Buttes, Rosamond, Rosamond Lake, Del Sur, Lancaster West, and Lancaster East.

[2] Listing is as follows: F = Federal; S = State of California; E = Endangered; T = Threatened.
CNPSR = California Native Plant Society Rank: 1A – presumed extinct; 1B – rare, threatened, or endangered in California and elsewhere; 2A – rare, threatened, or endangered in California and elsewhere; 2B – rare, threatened, or endangered in California but more common elsewhere; 3 – more information on distribution, endangerment, ecology, and/or taxonomic validity is needed. Extension codes: .1 – seriously endangered; .2 – moderately endangered; .
3 – not very endangered.

[3] Potential to Occur is assessed as follows: **None**: Habitat suitable for species survival does not occur on the study area, the study area is not within geographic range of the species, and/or the study area is not within the elevation range of the species; **Low**: Suitable habitat is present on the study area but of low quality and/or small extent. The species has not been recorded recently on or near the study area. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **Moderate**: Suitable habitat is present on the study area and the species was recorded recently near the study area; however, the habitat is of moderate quality and/or small extent. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **High**: Suitable habitat of sufficient extent is present on the study area and the species has been recorded recently on or near the study area, but was not observed during surveys for the current project. However, focused/protocol surveys are not required or have not been completed; **Presumed Present**: The species was observed during focused surveys for the current project and is assumed to occupy the study area; **Presumed Absent**: Suitable habitat is present on the study area but focused surveys for the species were negative.

Appendix G

Sensitive Animal Species Potential to Occur

Appendix G
Sensitive Animal Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat Requirements	Potential to Occur[3]
Invertebrates				
Bombus crotchii	Crotch bumble bee	--/--	Scrub and grassland habitats. Uses sage, sunflowers, and similar species for nectar.	**Low**. Scrub habitat widespread adjacent to site. Disturbed scrub habitat on site.
Helminthoglypta greggi	Mojave shoulderband	--/--	Terrestrial, Mojave Desert. Little other information available on species.	**Low.** Highly disturbed site with limited desert habitat in natural condition.
Reptiles				
Anniella pulchra	Northern California legless lizard	SSC	Moist litter on warm moist soil in sparsely vegetated dunes, chaparral, washes, stream terraces.	**Not expected**. Dunes, moist soils, do not occur on site.
Gopherus agassizii	desert tortoise	FT/ST	Variety of desert scrub habitats, sandy flats, alluvial fans, rocky foothills, washes and canyons.	**Presumed absent.** Potential habitat occurs in study area but is disturbed. Species not detected in 2018 focused surveys.
Phrynosoma blainvillii	coast horned lizard	SSC	Coastal sage scrub and open areas in chaparral, oak (*Quercus* sp.) woodlands, and coniferous forests with sufficient basking sites, adequate scrub cover, and areas of loose soil; require native ants, especially harvester ants (*Pogonomyrmex* spp.), and are generally excluded from areas invaded by Argentine ants (*Linepithema humile*).	**Low.** Desert scrub on site is disturbed and of low potential habitat, loose soils present. Limited supply of native ants observed. No CNDDB records within 5 miles of project location.
Birds				
Agelaius tricolor	tricolored blackbird	SCE/SSC	Breeds in dense stands of cattails (*Typha* sp.) or bulrushes (*Schoenoplectus* sp./*Scirpus* sp.) located within large freshwater marshes. Forages in adjacent open habitats, such as agricultural fields, pastures, or grasslands.	**Not expected.** The WWTP ponds do not have habitat for this species. CNDDB record of species approximately 2 miles from project site.

Appendix G (cont.)
Sensitive Animal Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat Requirements	Potential to Occur[3]
Birds (cont.)				
Aquila chrysaetos	golden eagle	SFP	Typical foraging habitat includes grassy and open, shrubby habitats. Generally, nests on remote cliffs; require areas of solitude at a distance from human habitation.	**Not expected**. The study area does not support suitable nesting habitat. Nesting habitat does not occur close to site. Foraging habitat is present.
Asio flammeus	short-eared owl	SSC	Large open habitat with low vegetation including meadows, grasslands, agriculture, savanna, and praries. Nests places on dry ground among grasses.	**Not expected.** Habitat on site is mostly developed and disturbed, not typical for the species.
Athene cunicularia	burrowing owl	SSC	Typical habitat is grasslands, open scrublands, agricultural fields, and other areas where there are ground squirrel burrows or other areas in which to burrow.	**Present.** The study area includes a mix of disturbed and developed land with an area of disturbed desert scrub. A migratory individual was observed once in October 2018. Species not believed to be wintering or breeding on site.
Buteo regalis	Ferruginous hawk	WL	Large areas of open grassland or shrub with elevated nest sites.	**Low.** Open grassland not present. Open shrub land is present, but disturbed. Elevated nest sites limited to power poles.
Buteo swainsoni	Swainson's hawk	ST	Open desert, sparse scrub with large trees.	**Low.** Disturbed desert scrub present. Trees limited to landscaping.
Charadrius alexandrines nivosus	Western snowy plover	FT/SSC	Coastal beaches, sand dune beaches, river mouths, estuaries.	**None.** Species habitat does not occur on site. Known from nearby Lake Rosamond.
Charadrius montanus	mountain plover	SSC	Breeds on open plains, winters in short grass plains, plowed fields, and sandy deserts.	**Not expected.** Open habitat limited to disturbed areas within facility.
Falco columbarius	merlin	WL	Breeds in open and semiopen habitat, use schoolyards, parks, grasslands, open forests, other habitats.	**Low.** Open habitat limited to disturbed areas within facility.

Appendix G (cont.)
Sensitive Animal Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat Requirements	Potential to Occur[3]
Birds (cont.)				
Falco mexicanus	prairie falcon	WL	Prefers open grassland with cliffs for nesting	**Present.** A single falcon was observed roosting on a power pole. Open shrub land serves as foraging habitat. Nesting habitat not present.
Lanius ludovicianus	loggerhead shrike	SSC	Open grassland or shrubland with trees, utility poles, fence post or other perch sites.	**Moderate**. Appropriate habitat occurs on site in form of utility poles and disturbed desert scrub.
Plegadis chihi	white-faced ibis	WL	Shallow marshes, spoils banks, meadows, marshes.	**Present.** Species observed foraging near pond 11.
Toxostoma lecontei	Le Conte's thrasher	SSC	Desert flats, washes, alluvial with sandy alkali soils. In Antelope Valley known only to nest in allscale (*atriplex polycarpa*)	**Low**. Disturbed desert scrub occurs. Allscale limited a few shrubs on edge of site. Species not observed and habitat is disturbed.
Vireo bellii pusillus	least Bell's vireo	FE	Inhabits riparian woodland and is most frequent in areas that combine an understory of dense, young willows or mule fat with a canopy of tall willows.	**None.** Riparian habitats with potential to support this species do not occur in Study Area.
Mammals				
Corynorhinus townsendii	Townsend's big eared bat	SSC	Roosts in cave and similar cover with open dark areas. Uses a variety of habitats including desert scrub and pine forests.	**Low.** Caves and similar cover does not occur on site. Foraging habitat does occur on site.
Perognathus alticolus inexpectatus	Tehachapi pocket mouse	SSC	Native and non-native grasslands, joshua tree woodland, pine woodland, and oak savannah. Loose sandy soils. Elevations from 3,500 feet to 6,000 feet amsl.	**None.** Habitat for species not present on project site. Elevations on site approximately 2,300 amsl.

Appendix G (cont.)
Sensitive Animal Species Potential to Occur[1]

Species Name	Common Name	Status[2]	Habitat Requirements	Potential to Occur[3]
Mammals (cont.)				
Xerospermophilus mohavensis	Mohave ground squirrel	FE/SE	Desert with deep sandy or gravelly soils, abundance of annual herbaceous vegetation. Flat terrain with desert scrub.	**Presumed absent.** habitat for species does occur on project site. Site at edge of species historic range. CNDDB record from 1973 located 2 miles north of project. Recent trappings in vicinity were negative (Leitner 2008).
Taxidea taxus	American badger	SSC	Dry, open shrublands, forest, and grasslands with friable soils.	**Low.** Shrubland occur in study area. Appropriate burrows not observed.

Source: California Native Plant Society. 2018. Inventory of Rare and Endangered Plants. (online edition, v8-03 0.39). Rare Plant Program. Retrieved from: http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi. Updated quarterly. Accessed October 23

California Natural Diversity Database (CNDDB). 2018. RareFind 5 https://map.dfg.ca.gov/rarefind/view/RareFind.aspx California Department of Fish and Wildlife version date September 30, 2018. Accessed October 23.

LEITNER, Phillip. 2009. Current Status of the Mohave Ground Squirrel. California State University-Stanislaus, Endangered Species Recovery Program, 1900 N. Gateway Boulevard, #101, Fresno, CA 93727, USA. May 5

[1] Sensitive species reported within a nine-quadrangle database search on CNDDB and CNPS, which included the following quadrangles: Willow Springs, Soledad Mtn., Bissell, Little Buttes, Rosamond, Rosamond Lake, Del Sur, Lancaster West, and Lancaster East.

[2] Listing is as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; CE = Candidate Endangered; CT = Candidate Threated; FP = Fully Protected; SSC = State Species of Special Concern, WL=watch list, --/-- = species sensitive but does not have one of the aforementioned statuses.

[3] Potential to Occur is assessed as follows. **None**: Species is so limited to a particular habitat that it cannot disperse across unsuitable habitat (*e.g.* aquatic organisms), and habitat suitable for its survival does not occur on the study area; **Not Expected**: Species moves freely and might disperse through or across the study area, but suitable habitat for residence or breeding does not occur on the study area (includes species recorded during surveys but only as transients); **Low**: Suitable habitat is present on the study area but of low quality and/or small extent. The species has not been recorded recently on or near the study area. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **Moderate**: Suitable habitat is present on the study area and the species was recorded recently near the study area; however, the habitat is of moderate quality and/or small extent. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **High**: Suitable habitat of sufficient extent for residence or breeding is present on the study area and the species has been recorded recently on or near the study area, but was not observed during surveys for the current project. However, focused/protocol surveys are not required or have not been completed; **Presumed Present**: The species was observed during biological surveys for the current project and is assumed to occupy the study area; **Presumed Absent**: Suitable habitat is present on the study area but focused/protocol surveys for the species were negative.

Appendix D

Draft Cultural Resources Assessment

HELIX
Environmental Planning

Rosamond Wastewater Treatment Plant Evaporation Ponds Kern County, California

Draft Cultural Resources Assessment

April 2019 | KJC-28

Prepared for:

Kennedy/Jenks Consultants, Inc.
300 N. Lake Avenue, Suite 1020
Pasadena, CA 91101

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

Rosamond Wastewater Treatment Plant Evaporation Ponds Kern County, California

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La Mesa, CA 91942

April 2019 | KJC-28

National Archaeological Database Information

Authors:	Catherine A. Wright, Julie Roy, and Mary Robbins-Wade, RPA
Firm:	HELIX Environmental Planning, Inc.
Client/Project:	Kennedy Jenks Consultants, Inc. / Rosamond Wastewater Treatment Plant Evaporation Ponds Project
Report Date:	April 2019
Report Title:	Cultural Resources Assessment for the Rosamond Wastewater Treatment Plan Evaporation Ponds, Kern County, CA
Submitted to:	Rosamond Community Services District
Type of Study:	Cultural Resources Survey and Testing/Evaluation
New Sites:	None
Updated Sites:	P-15-008766 (CA-KER-5558); P-15-009401 (CA-KER-5731); P-15-009402 (CA-KER-5732H); P-15-009403
USGS Quad:	Rosamond 7.5' Quadrangle
Acreage:	Approximately 71.12 acres
Key Words:	Archaeological site testing and significance evaluation; Rosamond; Antelope Valley; Kern and Los Angeles counties; lithic scatter, isolate; CA-KER-5558 (P-15-008766), CA-KER-5731 (P-15-009401), P-15-009402 (CA-KER-5732H), P-15-009403; Traditional Cultural Resource landscape; no significant archaeological resources

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
AFB	Air Force Base
amsl	above mean sea level
APE	Area of Potential Effects
BLM	Bureau of Land Management
B.P.	Before Present
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHRIS	California Historical Resources Information System
cmbs	centimeters below ground surface
CRHR	California Register of Historical Resources
cy	cubic yards
DPR	Department of Parks and Recreation
EAFB	Edwards Air Force Base
GLO	General Land Office
PRC	Public Resources Code
SCCIC	South Central Coastal Information Center
SSJVIC	Southern San Joaquin Valley Information Center
HELIX	HELIX Environmental Planning, Inc.
MGD	million gallons per day
mya	million years ago
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
SHPO	State Historic Preservation Officer
SLF	Sacred Lands File
SMBMI	San Manuel Band of Mission Indians
SPRR	Southern Pacific Railroad
STP	Shovel Test Pit
TCRs	Tribal Cultural Resources
THPO	Tribal Historic Preservation Officer
USGS	U.S. Geological Survey
WWTP	Wastewater Treatment Plant

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EXECUTIVE SUMMARY

HELIX Environmental Planning, Inc. (HELIX) was contracted by Kennedy Jenks Consultants, Inc. to provide cultural resources services for the proposed Rosamond Wastewater Treatment Plant (WWTP) Evaporation Ponds Project (project), located in southeastern Kern County. The Rosamond Community Services District (RCSD; District) proposes to upgrade the existing WWTP to produce de-nitrified undisinfected secondary effluent discharged to percolation ponds and disinfected secondary effluent utilized as onsite plant utility water. A cultural resources study including a records search, Sacred Lands File (SLF) search, Native American outreach, a review of historic aerial imagery (photographs and maps), site visit, site form update, and testing of two prehistoric resources, was completed for the project Area of Potential Effects (APE). This report details the methods and results of the cultural resources study and has been prepared to comply with the cultural resources requirements of the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act (NHPA).

Two records searches were performed for the study area and a one-mile radius surrounding it. A records search was conducted at the South Central Coastal Information Center (SCCIC) on April 17, 2018 for the Los Angeles County portion of the search area. The search by SCCIC indicated that 23 previous cultural resources studies have been conducted within one mile of the project in Los Angeles County, none of which covered the APE, as the APE is not within Los Angeles County. The records search results from SCCIC also indicated that a total of 11 cultural resources have been previously recorded within one mile of the project, within the Los Angeles County portion of the search radius. A records search conducted at the Southern San Joaquin Valley Information Center (SSJVIC) for the portion of the search radius in Kern County was completed on April 18, 2018 and identified 15 previous studies completed within a one-mile radius of the Kern County portion of the project, three of which overlap the project APE (Norwood 2000a and 2000b; O'Brien 2001), and one adjacent to it (Demos-Petropoulous, et al. 1999). The records search results from SSJVIC indicated that a total of 32 cultural resources have been previously recorded in Kern County within one mile of the project APE, four of which are located within the APE itself. It should be noted that some of the previous studies covered both counties.

The field investigations included a site visit by HELIX archaeologists on November 13, 2018 and completion of a site evaluation program on January 11 and 12, 2019. The site visit resulted in the reidentification of two previously recorded prehistoric archaeological sites within the APE, P-15-008766 (CA-KER-5558) and P-15-009401 (CA-KER-5731). Two additional resources identified by the records search, a prehistoric isolate (P-15-009403) and a historic archaeological site (P-15-009402/CA-KER-5732H), were not reidentified within the APE during the site visit and are presumed to have been destroyed.

The site evaluation program was completed to determine if CA-KER-5558 and CA-KER-5731 are historical resources, per CEQA, or historic properties, per NHPA, prior to ground disturbances related to project development. The sites were determined to be sparse lithic scatters, and subsurface testing failed to recover any subsurface cultural evidence; as such, it was determined that no impacts to significant cultural resources or historic properties will be incurred. Site form updates for the four previously recorded resources within the APE have been submitted to the SSJVIC.

Government-to-government consultation in compliance with California Assembly Bill (AB) 52 was performed by RCSD and resulted in the identification by the San Manuel Band of Mission Indians (SMBMI) of a TCR landscape that includes the project area. Sites CA-KER-5558, CA-KER-5731, and isolate P-15-009403 fall within this landscape and are considered by SMBMI to be contributing elements to a TCR. AB 52 consultation resulted in an agreement between SMBMI and RCSD to reinter the artifacts recovered during the testing program in a dedicated conservation easement in proximity to the project. Additional mitigation measures for the TCR are provided herein.

1.0 INTRODUCTION

1.1 PROJECT LOCATION

The Rosamond Wastewater Treatment Plant (WWTP) Evaporation Ponds Project (project) is located in Rosamond, in southeastern Kern County (Figure 1, *Regional Location*). The project site is located approximately four miles northeast of the intersection of State Route 138 (SR-138) and SR-14 in the community of Rosamond near the southern boundary of Kern County, immediately north of Los Angeles County (Figure 1, *Regional Location*). The project site is located within sections 27 and 34 of Township 9 North, Range 12 West of the Rosamond Canyon, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 2, *USGS Topography*). Specifically, the project site is located east of the intersection of Patterson Road and 10th Street West (Figure 3, *Aerial Photograph*), near the western edge of Rosamond Lake, a natural dry lake bed.

1.2 PROJECT DESCRIPTION

The project proposes to expand the existing 0.5 MGD WWTP to 1.27 MGD by duplicating the existing Biolac/clarifier system, activated sludge system, secondary clarifier, and sludge drying beds. The expansion would provide a new, larger Biolac/clarifier system and would duplicate the existing six sludge drying beds. Once completed, the new components would receive 75 percent of the incoming wastewater flow, while 25 percent of the influent would go through the existing system. This 75/25 flow split approach would eliminate the need for major upgrades to the existing process units (i.e., Biolac and secondary clarifiers). Refer to the proposed project site plan below (Figure 4, Project Plans).

The existing WWTP contains a series of evaporation ponds (see Figure 3). Ponds 15 and 17 would be converted to percolation ponds to make use of existing piping and infrastructure, and de-nitrified, undisinfected secondary effluent would be discharged to these percolation ponds for disposal. An Infiltration Test Basin was conducted to address the potential for Pond 17 to leach nitrate and total dissolved solids (TDS) into the groundwater from untreated effluent that may have found its way into the soil matrix from leaking evaporation ponds during former operation. The leaching tests have indicated that infiltration is feasible, but that the infiltration rate necessitates use of Pond 15 to provide additional percolation capacity for treated effluent. Therefore, Ponds 15 and 17 are both proposed to be reconfigured into three ponds, and the top 5 to 10 feet of the existing pond bottoms would be excavated and removed to convert the evaporation pond to a percolation pond system. Access ramps would be included for operation and maintenance. The pond design includes a Distribution Box with three slide gates for 14-inch pipeline outlets to distribute the effluent to one or more of the three percolation ponds. The vacant, approximately 20-acre area immediately west of Pond 17 would be utilized as a soil stockpiling or construction staging area, including soil storage for up to approximately 220,000 cubic yards of excavated soil from Ponds 15 and 17 on the southern two-thirds of the area, and construction equipment staging, material storage, construction worker parking, and other temporary activities occurring within the remaining northern portion of the area (see Figure 4).

The WWTP would continue to accept and process septage (i.e., waste removed from septic tanks) from commercial septage haulers that service residential sources, small restaurants, and other domestic customers. A new septage receiving station would be installed north of the WWTP on the southwest side of existing Pond 11 (see Figure 4). Sewage is anticipated to be discharged from the septage hauler truck into a septage receiving station involving a concrete tank with sloped floors leading to a channel with a manual-cleaned coarse screen to remove large solids before proceeding to a lined septage holding pond. Manual raking of the screens would be required, and materials would be disposed of in the screenings bin adjacent to the channel. Additionally, an automated refrigerated sampler would be installed at the receiving station to sample the septage influent.

The septage would flow out of the channel and spill into a septage holding pond. Flows from the septage pond are anticipated to bleed into the system upstream of the pretreatment screen during low flow through a 6-inch effluent pipeline. Diurnal data for the WWTP are not currently available; however, it is assumed that low flows occur at night. An additional carbon source (associated with septage addition) during low flow periods, may also be used to assist with optimum denitrification.

Construction of the new septage holding pond would consist of rehabilitating the southwest corner of Pond 11. The proposed septage pond would be approximately 117-feet long by 39-feet wide with a water surface area of 4,800 square feet (SF) and an embankment slope ratio of 1 to 3 per typical septage pond design. The pond is anticipated to hold approximately 90,000 gallons of septage, allowing for 3 days of retention time, with a working depth of 5 feet and minimum freeboard of 2 feet. As noted above, construction of the proposed improvements would result in the excavation and storage of up to approximately 220,000 cubic yards of soil on-site to the west of existing Pond 17. However, no substantial off-site soil transport, either import or export, is proposed as part of the project. Construction activities are anticipated to begin in mid-2019, with operation of the newly expanded WWTP anticipated to occur by the end of 2020.

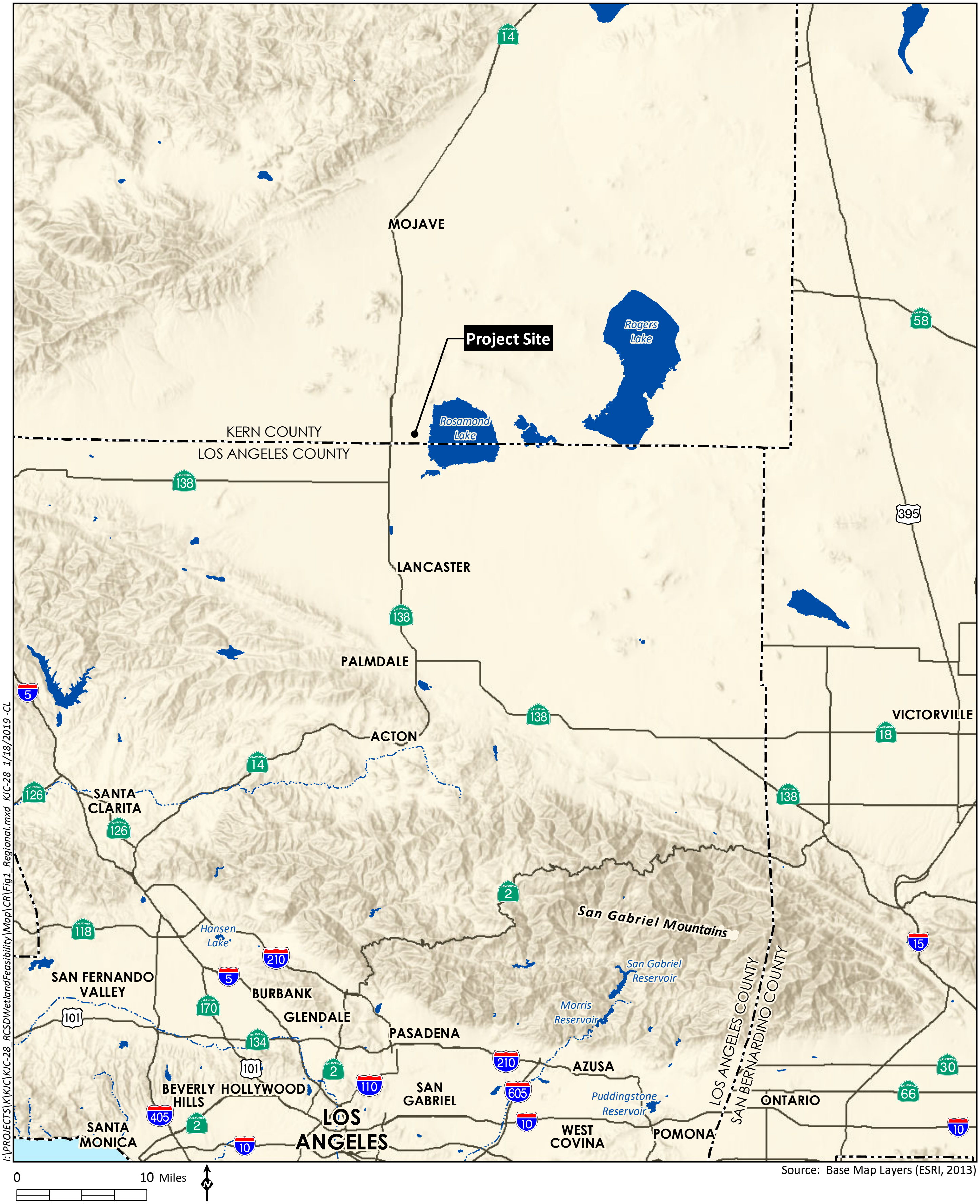
HELIX Environmental Planning, Inc. (HELIX) was contracted to conduct a site assessment program for the project. HELIX performed a site visit in November 2018 that reidentified two previously recorded cultural resources within the area proposed for direct impacts. As such, an archaeological site evaluation program was performed to determine if the resources meet the criteria of historical resources under the California Environmental Quality Act (CEQA) or historic properties under the National Historic Preservation Act (NHPA). RCSD will serve as lead agency for CEQA compliance. Federal regulations that would be applicable to the project if there is a federal nexus consist of the NHPA. This report has been prepared to fulfill both CEQA and NHPA compliance.

1.3 AREA OF POTENTIAL EFFECT

Pursuant to 36 CFR 800.4(a)(1), the area of potential effects (APE) is the geographic area within which an undertaking may directly or indirectly alter the character or use of historic properties. The APE for the project consists of the project property, totaling approximately 71.12 acres (see Figure 3).

1.4 REGULATORY FRAMEWORK

Resource importance is assigned to districts, sites, buildings, structures, and objects that possess exceptional value or quality illustrating or interpreting the heritage of the region in history, architecture, archaeology, engineering, and culture. Several criteria are used in demonstrating resource importance. Specifically, criteria outlined in the NHPA and CEQA provide the guidance for making such a determination. This section details the criteria that a resource must meet in order to be determined significant.

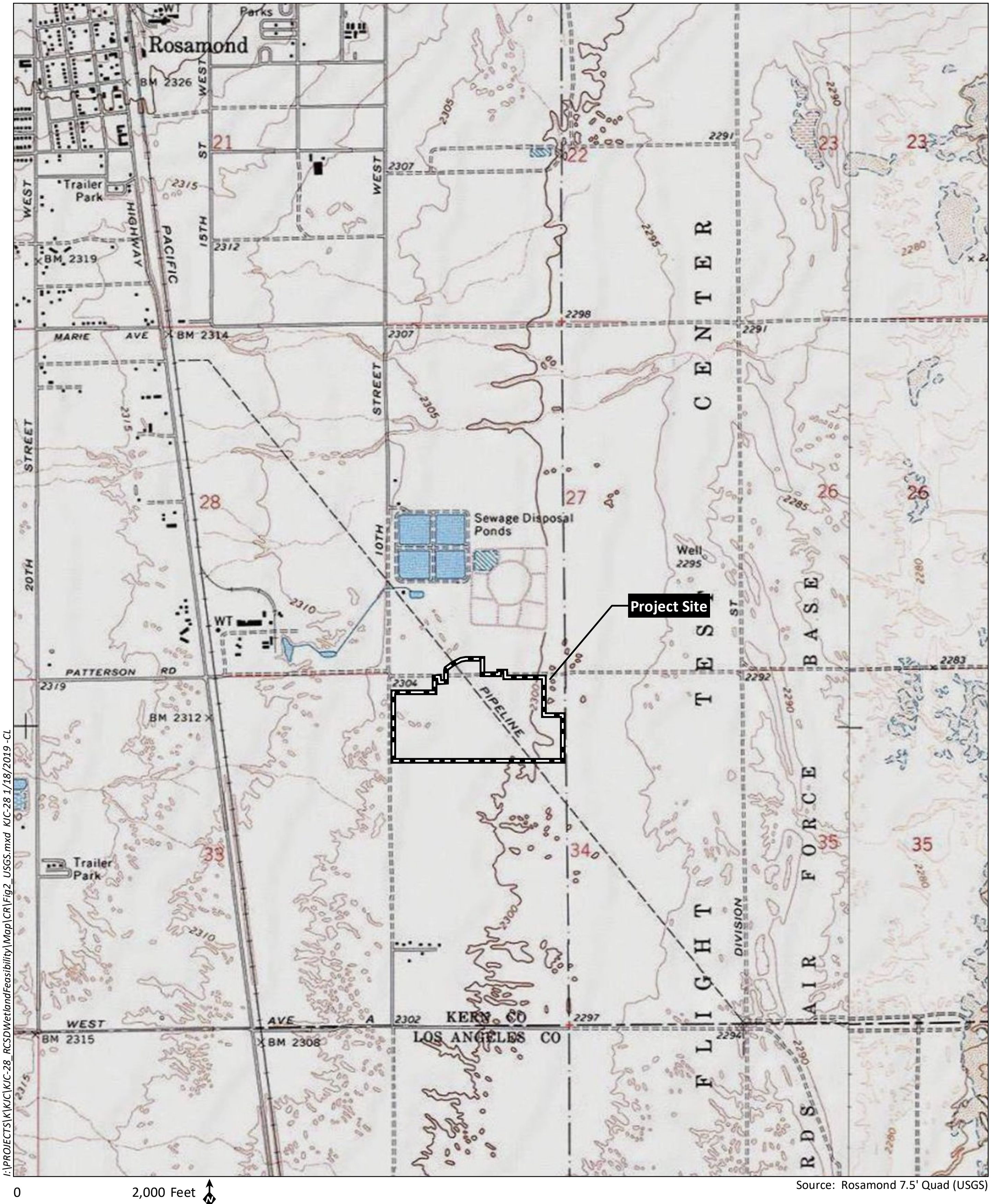


Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Figure 1



Source: Rosamond 7.5' Quad (USGS)

I:\PROJECTS\K\KJC\KJC-28_RCSDWetlandFeasibility\Map\CR\Fig2_USGS.mxd KJC-28 1/18/2019 -CL

HELIX Environmental Planning

USGS Topography

Figure 2

Source: Aerial (Digital Globe 2016).

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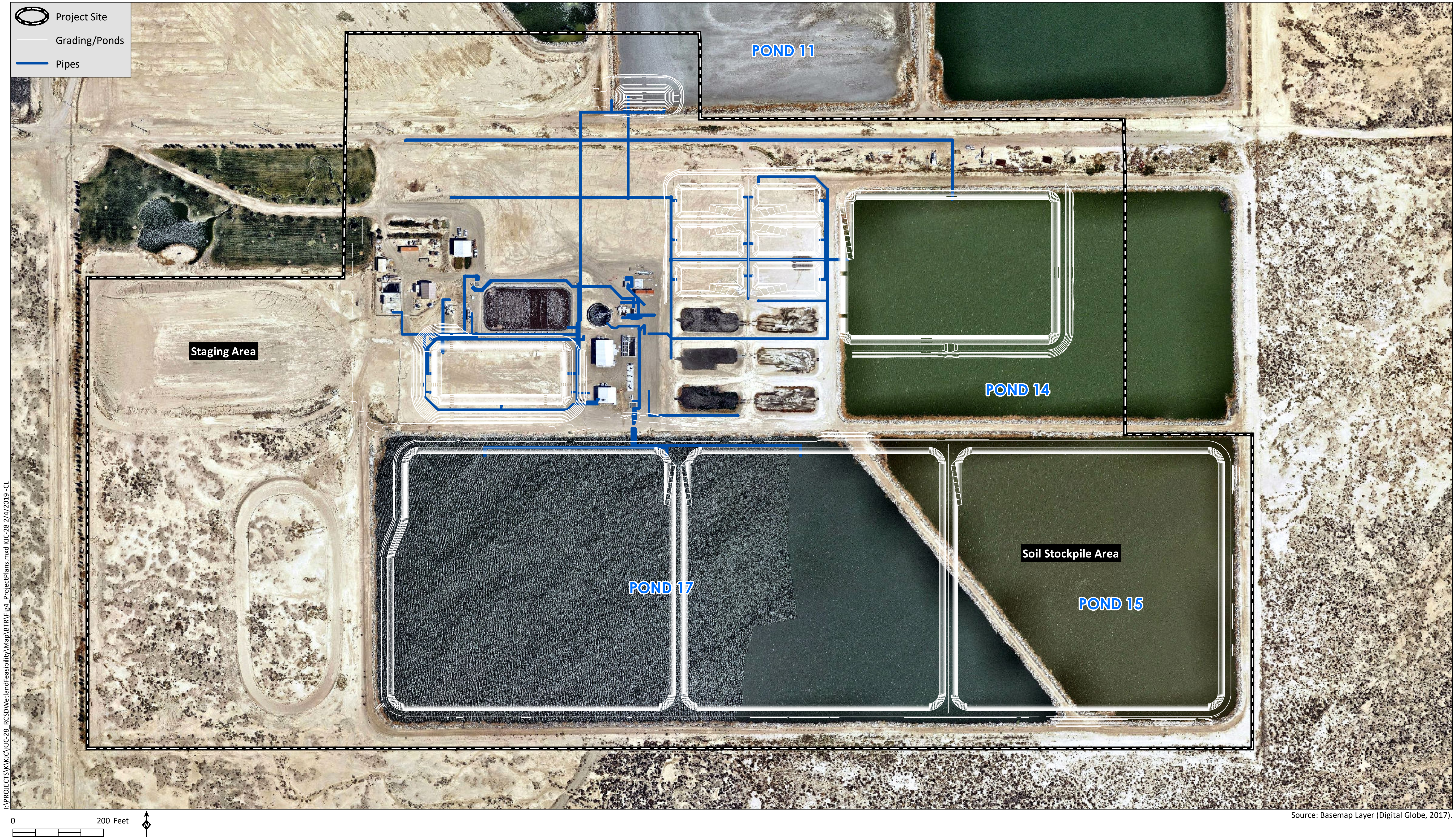
HELIX
Environmental Planning

Aerial Photograph

Figure 3

Rosamond Waste Water Treatment Plant



Source: Basemap Layer (Digital Globe, 2017).

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HELIX
Environmental Planning

Project Plans

Figure 4

1.4.1 California Environmental Quality Act

CEQA Guidelines (§15064.5) address determining the significance of impacts to archaeological, historic, and tribal cultural resources. Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, and/or scientific importance (Office of Historic Preservation 1995). Significant resources are designated as "historical resources," and are defined per Public Resources Code 21084.1 and CEQA Guidelines, California Code of Regulations (CCR) Title 14 Section 15064.5 as follows:

- Resource(s) listed or eligible for listing in the California Register of Historical Resources (CRHR) (14 CCR Section 15064.5[a][1])

- Resource(s) either listed in the National Register of Historic Places (NRHP) or in a "local register of historical resources" unless "the preponderance of evidence demonstrates that it is not historically or culturally significant" (14 CCR Section 15064.5[a][2])

- Resources identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code (14 CCR Section 15065.5[a][2])

For listing in the CRHR, a historical resource must be significant at the local, state, or national level under one or more of the following four criteria:

A. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

B. It is associated with the lives of persons important to local, California, or national history;

C. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; and

D. It has yielded or has the potential to yield information important to the prehistory or history of the local area, California, or the nation.

Under 14 CCR Section 15064.5(a)(3), the final category of "historical resources" may be determined at the discretion of the lead agency.

CEQA also addresses tribal cultural resources. Section 21074 of the statute reads:

(a) "Tribal cultural resources" are either of the following:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

(A) Included or determined to be eligible for inclusion in the CRHR.

(B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

1.4.2 National Historic Preservation Act

Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by ACHP. Revised regulations, "Protection of Historic Properties" (36 Code of Federal Regulations [CFR] Part 800), became effective August 5, 2004.

Historic properties are properties that are included in the NRHP or those that meet the criteria for inclusion in the NRHP, as outlined below. If the agency's undertaking could affect historic properties, the agency determines the scope of appropriate identification efforts and then proceeds to identify historic properties in the APE. The agency reviews background information, consults with the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) and others, seeks information from knowledgeable parties, and conducts additional studies as necessary. Districts, sites, buildings, structures, and objects listed in the NRHP are considered; unlisted properties are evaluated against the National Park Service's published criteria, in consultation with the SHPO/THPO and any Indian tribe or Native Hawaiian organization that may attach religious or cultural importance to them.

If questions arise about the eligibility of a given property, the agency may seek a formal determination of eligibility from the National Park Service. Section 106 review gives equal consideration to properties that have been included in the NRHP and those that have not been but that meet NRHP criteria.

If the agency finds that no historic properties are present or affected, it provides documentation to the SHPO/THPO and, barring any objection in 30 days, proceeds with its undertaking. If the agency finds that historic properties are present, it proceeds to assess possible adverse effects. If adverse effects are identified, they must be resolved.

Section 60.6 of 36 CFR Part 60 presents the criteria for the evaluation of cultural resources for nomination to the NRHP as follows:

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, and association, and

(a) That are associated with events that have made a significant contribution to the broad patterns of our history; or

(b) That are associated with the lives of persons significant in our past; or

(c) That embody the distinctive characteristics of a type, period or method or construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) That have yielded, or may be likely to yield, information important in prehistory or history [36 CFR Part 60].

Cultural resources that are eligible for inclusion in the NRHP are defined as historic properties. Impacts to historic properties constitute effects under the NHPA.

All resources nominated for listing in the CRHR or NRHP must have integrity, which is the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. A resource must also be judged with reference to the particular criteria under which it is proposed for nomination.

1.4.3 Tribal Cultural Resources

Federal and state laws mandate that consideration be given to the concerns of contemporary Native Americans with regard to potentially ancestral human remains, associated funerary objects, and items of cultural patrimony. Consequently, an important element in assessing the cultural sensitivity of the project area has been to evaluate the likelihood that these classes of items are present in areas that would be affected by the proposed project.

Potentially relevant to prehistoric archaeological sites is the category termed Traditional Cultural Properties (TCPs) in discussions of cultural resource management performed under federal auspices or Tribal Cultural Resources (TCRs) under CEQA. "Traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. The traditional cultural significance of a historic property is significance derived from the role the property plays in a community's traditional beliefs, customs, and practices.

Cultural resources can include TCRs, such as gathering areas, landmarks, and ethnographic locations, in addition to archaeological districts. Generally, a TCR may consist of a single site, or group of associated archaeological sites (district or traditional cultural landscape), or an area of cultural/ethnographic importance.

State Assembly Bill (AB) 52, effective July 1, 2015, introduced the TCR as a class of cultural resource and additional considerations relating to Native American consultation into CEQA. As a general concept, a TCR is similar to the federally defined TCP; however, it incorporates consideration of local and state significance and required mitigation under CEQA. A TCR may be considered significant if included in a local or state register of historical resources; or determined by the lead agency to be significant pursuant to criteria set forth in PRC §5024.1; or is a geographically defined cultural landscape that meets one or more of these criteria; or is a historical resource described in PRC §21084.1, a unique archaeological resource described in PRC §21083.2; or is a non-unique archaeological resource if it conforms with the above criteria.

1.5 PROJECT PERSONNEL

Mary-Robbins-Wade, M.A., RPA served as Principal Investigator and provided senior-level review of this technical report. Ms. Robbins-Wade meets the qualifications of the Secretary of Interior's Standards and Guidelines for archaeology. Stacie Wilson, M.A., RPA and Julie Roy, B.S. served as the Field Directors for the site visit and testing programs. Field crew was made up of Dominique Diaz de Leon, B.A. and Amber Parron, B.A. Catherine A. Wright, B.S. prepared this technical report under the supervision of Ms. Robbins-Wade. Michael Ramirez of the Morongo Band of Mission Indians participated in the testing program. Resumes for key project personnel are presented in Appendix A.

2.0 PROJECT SETTING

2.1 PHYSICAL ENVIRONMENTAL SETTING

The project is located in the town of Rosamond, in the Antelope Valley portion of the western Mojave Desert of Kern County. Lying north of the San Gabriel Mountains and south of Tehachapi, the project lies within desert lands located adjacent to the western boundary Edwards Air Force Base (EAFB). Geologically, the Antelope Valley is primarily made up of Quaternary-aged alluvium dating to the Holocene and Pleistocene. The Pleistocene soils consist of weakly consolidated, uplifted and dissected alluvial fan and terrace deposits composed primarily of sand and gravel (Diblee 2002). The Holocene alluvial deposits consist of slightly dissected alluvial fan deposits of gravel, sand and clay.

The climate of the Mojave Desert is characterized as a "high desert" with large fluctuations in daily temperatures and low humidity and rainfall. Almost all rainfall occurs in the winter, but the region can also experience occasional summer thunderstorms (Schoenherr 1992). Seasonal wind is also a strong feature of the desert. Rosamond Dry Lake and Rogers Dry Lake (formerly Muroc Dry Lake) are situated just east of the project on EAFB. Together, these playas formed a single large body of water through the Holocene that attracted both animals and humans. A wetland area known as Piute Ponds made up of clay pans and deflated sand dunes is situated just to the south of the project in Los Angeles County.

The project APE is generally flat, with an average elevation of 2,900 feet above mean sea level (amsl). Soils in the project area are classified as QOP, or Old Lacustrine, Playa and Estuarine (Paralic) Deposits dating to the Holocene to late Pleistocene. Such soils are formed of moderate- to well-consolidated clay, silt, and silty fine sand with some fine gravels. The undeveloped portion of the survey area is mainly dry with brown soils (10YR 6/4 – 6/6). The surface soils in the east-central portion of the survey area show pedogenic blocky formations, while the soils in the west-central portion of the survey area are Lacustrine deposits dissected by sporadic surface flow with signs of deflation and erosion (California Department of Conservation 2018).

2.1.1 Geological Background

The oldest identified rock formations in the Mojave Desert consist of metamorphosed sedimentary rocks, including gneiss, marble, quartzite, mica schist, gabbro, and conglomerates of pre-Cambrian age. Rock types of the subsequent Paleozoic era (230 to 620 million years ago [mya]) also include metamorphosed sedimentary rocks, including gneiss, marble, quartzite, and mica schist, as well as scattered sedimentary and carbonate rock, chert, limestone, sandstone gypsum, and dolomite. These latter sedimentary rocks, typically formed at the bottom of an ocean, yield fossils ranging from Cambrian to Permian in age. These rock formations are not abundant in the western Mojave, mostly occurring in the eastern Mojave area, but sections of Paleozoic and Pre-Cretaceous bedrock do occur along the Garlock Fault Zone just northwest of the project area, within the El Paso Mountains to the north of the project area, within the Kramer Hills just east of the project area, and within the Tehachapi and San Gabriel ranges to the northwest and southwest of the project area (Hewitt 1954; Jennings 1977; Jennings and Strand 1969; Norris and Webb 1976). During the Mesozoic Era, upwelling magma within Earth’s crust formed the Nevadan and Southern California granitic batholiths that, today, constitute the principal bedrock of the major mountain ranges within and surrounding the Mojave Desert.

During the early portion of the subsequent Cenozoic Era, the Mojave region was more mountainous; however, beginning prior to the Oligocene Epoch, circa 40 mya, tectonic forces began to alter the patterns of alluvial deposition from the west, toward the Pacific, to the east and into the continental interior. As a result, the Mojave area began to accumulate sediments from the surrounding uplands. As this alluvial deposition continued during the Cenozoic, the mountain valleys began to fill with sediments and became broad basins, with the tops of the mountains becoming the scattered ranges that are visible in the desert today. The sediments deposited in the Mojave Desert area during this period are deepest in the Antelope Valley area, with a depth of more than 4,000 feet (Norris and Webb 1976). In the latter part of the Cenozoic, during the late Middle Pliocene, approximately 3 to 4 mya, the deposition increased as periods of substantial precipitation and glacial formation and retreat began to occur. Large pluvial lakes formed in these basins during interglacial periods, and this continued into the Pleistocene. The last occurrence of these lakes ended approximately 10,000 years ago, marking the end of the Pleistocene Epoch. The erosion that occurred during the terminus of this last glacial period formed the long southward-trending Owens, Searles, Panamint, and Death valleys (Hewitt 1954). Increased interglacial precipitation and glacial melt water flowing into these valleys from the surrounding mountain areas likely flowed south across the Mojave block, filling Owens Lake, China Lake, Searles Lake, and Death Valley. Periods of volcanism also occurred in the Mojave Desert during the Cenozoic Era. In the western Mojave, volcanic activity, including rhyolite, andesite, basalt, and pyroclastic flows, occurred during the early Tertiary Period and during the subsequent Oligocene and Miocene epochs (65 to 5 mya) in the Antelope Valley, Ridgecrest, and Red Rock Canyon areas (Jennings and Strand 1969; Monastero 1996). Basalt and rhyolite flows also formed north of Indian Wells Valley and into the Coso Mountains as recently 3 mya (Monastero 1996).

Geographically, the Antelope Valley is bounded by the Tehachapi Mountains, the southern Sierra Nevada, and the Garlock Fault Zone to the north and northwest, and by the San Andreas Fault Zone and the San Gabriel Mountains to the south and southwest. The Garlock and San Andreas faults and the Tehachapi and San Gabriel mountains converge at the western end of the Antelope Valley at Frazier Mountain, forming a triangular shape (Norris and Webb 1976). To the east, the Antelope Valley extent, while indefinite, may be considered to encompass the Rosamond, Buckthorn Dry Lake, and Rogers Dry Lake basins. The Antelope Valley is characterized by converging alluvial fan deposits, lakebed sediments, exposed granitic and volcanic bedrock ranges, scattered dune deposits, and low-lying hills. The fan deposits are composed of unconsolidated Quaternary alluvium, incorporating silt, sand, gravel, and poorly developed soils. From west to east, the Rosamond, Buckhorn, and Rogers dry lake playas in the valley contain soils that consist of silts and clays that no longer sustain vegetation. The mountain ranges surrounding the valley contain a variety of rocks, principally granitic and metamorphic rocks in the Tehachapi and San Gabriel mountains, with low hills and outcrops in the valley (Rosamond Hills, Bissell Hills, Fairmont Buttes, and Antelope Buttes) containing granitic rocks and volcanic rocks such as rhyolite, andesite, basalt, sandstone, tuff, and/or pyroclastics (Jennings and Strand 1969).

2.1.2 Flora

The Mojave Desert has a typical mountain-and-basin topography with sparse vegetation. The Antelope Valley is home to four communities of Mojave Desert scrub, which dominate the plant species within the valley. The communities include saltbush scrub (*Atriplex spinifera* and *A. canescens*) and creosote (*Larrea divaricata)* located in the low lands, and Joshua tree (*Yucca brevifolia*) woodlands observed at higher elevations. Mesquite bosquets communities are found in proximity to areas with more water availability, such as Buckhorn Springs and south of Rogers Dry Lake (Eckhardt 1998). Currently, a majority of the project area is characterized by agricultural fields or open grassland.

2.1.3 Fauna

Today, large fauna species are rare in the Mojave Desert. Although the Antelope Valley was named for the graceful animal that used to inhabit this area, large game such as sheep and antelope are no longer found in the dry arid climates of the Antelope Valley. Rodents, reptiles, and birds are the more common species and are found along the desert floor. Local rodent species include various pocket mice (*Perognathus* spp.), whitetail antelope squirrel (*Ammospermophilus leucurus*), and kangaroo rats (*Dipodomys* spp.). Reptile species include the desert tortoise (*Xerobates agassizii*), desert iguana (*Dipsosaurus dorsalis*), common king snake (*Lampropeltis getulus*), and Mojave rattlesnake (*Crotalus scutulatus*). More than 300 species of birds are found in the Mojave Desert. A few species more common to the open desert are the prairie falcon (*Falco mexicanus*), burrowing owl (*Athene cunicularia*), roadrunner (*Geococcyx californianus*), and horned lark (*Eremophilia alpestris*). Other species found in the Mojave include the blacktail jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), and coyote (*Canis latrans*).

2.2 CULTURAL SETTING

2.2.1 Prehistory

Proposed dates for the earliest human occupation in California vary from around 20,000 years ago to 10,000 years ago. Carter (1957, 1978, 1980), Minshall (1976) and others (e.g., Childers 1974; Davis 1968, 1973) have long argued for the presence of Pleistocene humans in California. However, these sites identified as "early man" are all controversial. The material from the sites is generally considered nonartifactual, and the investigative methodology is often questioned (Moratto 1984). The most widely recognized timeline for the prehistory of the Western Mojave Desert was proposed by Warren and Crabtree (1986) and divided the region’s prehistory into five main periods: the Lake Mojave Period (12,000 to 7,000 before present [B.P.]), the Pinto Period (7,000 to 4,000 B.P.), the Gypsum Period (4,000 to 1,500 B.P.), the Saratoga Springs Period (1,500 to 800 B.P.), and the Late Prehistoric Period (800 years B.P. to European contact). More recently, these periods have been updated by Sutton et al. (2007), with a Paleoindian period from 12,000 to 10,000 B.P. being added, reducing the length of the Lake Mojave period; the Pinto period beginning as early as 8,000 B.P.; and the Saratoga Springs period being renamed as Rose Spring and shortened by 250 years, with the Late Prehistoric period beginning earlier. The Paleoindian period is the only cultural period dating to the Pleistocene in the Mojave Desert, with the Clovis complex being the only identified cultural complex, distinguished by a fluted projectile point, also called Clovis (Sutton et al. 2007).

Assemblages attributed to the Lake Mojave complex include large Lake Mojave points, Silver Lake points, and flaked stone crescents (Warren and Crabtree 1986; Sutton et al. 2007). The traditional view of the Lake Mojave complex holds that large game animals were of primary importance in the subsistence strategy (Kelly and Todd 1988; Warren 1984), with plants and smaller animals contributing much less to the overall economy. However, recent studies at Fort Irwin suggest a more generalized economy, based on analysis of flaked stone tools, the presence of small amounts of ground stone at most sites, and faunal assemblages indicative of significant use of small mammals and reptiles (Giambastiani et al. 1998). According to Sutton et al. (2007:237), the Lake Mojave settlement organization "appears to reflect a forager-like strategy organized around relatively small social units."

Many archaeologists have also suggested that the Lake Mojave complex is typified by a specialized orientation to lacustrine resources, since numerous Lake Mojave complex sites tend to be situated around now dry pluvial lakes (Susia 1964; Tuohy 1974; Warren 1980a). Recent data, however, suggests that the drying of pluvial lakes during the Pleistocene/Holocene transition resulted in the beginning of a gradual shift to a more diversified subsistence strategy that exploited "rich resource patches in a host of environmental situations" (Sutton et al. 2007:237), evident by Lake Mojave material also occurring in a wide variety of other settings and in areas with no direct connection to water (Basgall and McGuire 1988; Davis 1973; Rogers 1939).

As with the debate in southern California regarding the shift from San Dieguito to La Jollan patterns representing the same people using different environments and subsistence techniques, or whether they are separate cultural patterns (e.g., Bull 1983; Ezell 1987; Warren et al. 1998), there has also been considerable debate about whether the central Mojave was abandoned during the shift from the Lake Mojave period to the Pinto period (Donnan 1964; Kowta 1969; Wallace 1962) or whether occupation continued (Jenkins 1987; Jenkins and Warren 1984; Sutton 1996; Warren 1984) but with changes in population density, subsistence practices, and technology (Warren and Crabtree 1986). Some of the changes seen at the end of the Lake Mojave period may be better attributed to the characteristics associated with the Pinto complex, which indicate that "it becomes increasingly difficult to deny the possibility that the beginning of the Pinto Complex dates sometime during the early Holocene" (Sutton et al. 2007:238).

The environmental changes seen in the latter part of the Lake Mojave period, from pluvial to arid conditions, resulted in a decrease in lake and river levels and a transformation of the animal and plant life seen in the Mojave Desert. These changes resulted in the Pinto subsistence being broader and more generalized than Lake Mojave, with sites occurring in a wide range of environmental and geographical locations (Sutton et al. 2007), and the assemblages indicating a greater reliance on small animals and plants (Warren 1980b, 1984). The artifact assemblages associated with this period include Pinto points; heavy-keeled scrapers; choppers; small, flat milling stones; and manos (Warren 1986). The presence of ground stone milling equipment is what most distinguishes the Pinto period from the Lake Mojave period. The appearance of ground stone artifacts in Pinto assemblages is attributed to the exploitation of hard seeds, which is seen by Warren (1984) as part of the process of subsistence diversification brought on by the increased aridity and decreasing game populations. According to Wallace, "a changeover from hunting to the collection of seed foods is clearly reflected in the archaeological record for the period between 6000 and 3000 B.C. The importance of seeds in the diet of the prehistoric peoples can be seen in the numbers of food-grinding implements present at their settlements" (Wallace 1978:28).

Toward the end of the Pinto period, an extremely hot and dry period occurred in the Mojave Desert. During this time, population density in the region was low, as evidenced by few sites dating to between 5,000 and 4,000 years ago (Sutton et al. 2007). Following this period, approximately 4,000 to 2,000 years ago, a time of increased moisture occurred in the Mojave Desert, which marks the onset of the Gypsum period.

The increase in cooler and wetter conditions in the western Mojave allowed for an expansion of human activity to the area. In the Gypsum period, settlements are generally smaller and more numerous than during the Pinto period, which had seen larger settlements established around more reliable water sources (Sutton 1996; Sutton et al. 2007). Several cultural adaptions are seen in the Gypsum period, such as an increase in social complexity and trade, as indicated by the presence of *Haliotis* and *Olivella* shell beads from the California coast (Warren and Crabtree 1986). The artifact assemblage diversified, as well, and includes several projectile point types (Elko Eared and Corner-notched, Gypsum Cave, and Humboldt Concave Base), increased use of manos and metates, and the introduction of new technology such as the mortar and pestle (Warren 1984). Evidence for increased ritual activity, including rock art, is also apparent during this period (Sutton 1996).

Population and settlement increases that began in the Gypsum period continue in the Rose Spring/ Saratoga Springs period. Changes in artifact assemblages and well-developed middens indicate major population increases during this period, with settlements being situated near streams or washes, and along lakeshores (Sutton 1996; Sutton et al. 2007). Artifacts typical of the Rose Spring period include Rose Spring and Eastgate series projectile points, stone knives, drills, pipes, bone awls, milling implements, marine shell ornaments, and artifacts of obsidian material (Warren and Crabtree 1986; Sutton 1996; Sutton et al. 2007). Additionally, the introduction of small projectile points into assemblages appears to mark the diffusion of the bow and arrow into the Mojave Desert region (Sutton 1996).

The Late Prehistoric period in southern California is characterized by the incursion of Uto-Aztecan-speaking people who occupied large portions of the Great Basin and an area stretching from southern Arizona and northwest and central Mexico into Nevada, Oregon, and Idaho (Miller 1986). The expansion of the Takic group into southern California is unrefined, but several scholars have hypothesized as to when and how the so-called "Uto-Aztecan wedge" occurred. Sutton (2009) argues that the Takic group expanded into southern California from the San Joaquin Valley about 3,500 B.P. Moratto (1984) also proposes that Takic expansion into the Southern Coast region occurred approximately 3,200 to 3,500 B.P., while Golla (2007) suggests an expansion of Uto-Aztecan speakers into southern California at approximately 2,000 B.P.

Great Basin influence within the Mojave Desert during the late Holocene is evident in the similarity of point types between the Mojave and the Great Basin (Bettinger and Taylor 1974; Clewlow et al. 1970; Heizer and Berger 1970; Hester 1973; Lanning 1963). Cottonwood Triangular and Desert Side-notched points and Brownware ceramics become more widely distributed throughout both the Mojave Desert and the Great Basin during this period. Other artifacts characteristic of the Late Prehistoric period include Lower Colorado Buff Ware ceramics, unshaped hand stones and milling stones, incised stones, mortars, pestles, and shell and steatite beads (Warren and Crabtree 1986; Sutton et al. 2007).

2.2.2 Historical Background

During the mid-eighteenth century, Spain escalated its involvement in California from exploration to colonization (Weber 1992). In 1769, a Spanish expedition headed by Gaspar de Portolá and Junípero Serra traveled north from San Diego seeking suitable locations to establish military presidios and religious missions in order to extend the Spanish Empire into Alta California. The Presidio of San Diego and Mission San Diego de Alcalá were established in 1769 followed by the Presidio of Monterey and Mission San Carlos Borromeo de Carmelo in 1770 in northern California. The missions and presidios stood, literally and figuratively, as symbols of Spanish colonialism, importing new systems of labor, demographics, settlement, and economies to the area. Agriculture and animal husbandry were the main pursuits of the Missions.

Early Euro-American activity in the southern Mojave Desert area was minimal. The earliest European reference to the area was made by Father Francisco Garcés, who traveled west along the Mojave River in the 1770s, recording his impressions in his diary (1968 [1854]). However, the Spanish explorers were the first of a long series of travelers through this western transportation corridor. Most travel throughout the next hundred years in or out of Southern California passed through the Barstow and Victorville areas and the region remained a major link between Los Angeles and points east until the railroad arrived in the desert in the 1880s.

Initially, the arrival of the Spanish had limited direct impact on the native inhabitants of the Mojave Desert, due to its geographic isolation from the nearest mission at San Gabriel approximately 75 miles away. The Spanish were never able to exert control over the Mojave Desert, and the areas north of the San Bernardino Mountains became known as a haven for Native Americans who escaped from the missions at San Gabriel and San Fernando (Lyman 2000).

Although Mexico gained its independence from Spain in 1821, Spanish patterns of culture and influence remained for a time. The missions continued to operate as they had in the past, and laws governing the distribution of land were also retained in the 1820s. The establishment of an *assistencia* in Redlands, an outpost of the San Gabriel Mission, resulted in many of the Serrano being forcibly moved to missions between 1819 and 1834, but small outlying groups were able to evade assimilation (Kroeber 1976; Bean and Smith 1978).

Following secularization of the missions in 1834, the Euro-American society made a transition from one dominated by the church and the military to a more civilian population, with people living on ranchos or in pueblos. With the numerous new ranchos that were once held by the Spanish missions in private hands, cattle ranching expanded and prevailed over agricultural activities. By the time of secularization, however, too few Serrano and Vanyume people remained to re-establish their native lifeways (Bean and Smith 1978).

American governance began in 1848, when Mexico signed the Treaty of Guadalupe Hidalgo, ceding California to the United States at the conclusion of the Mexican–American War. California's acquisition by the United States substantially increased the growth of the population in California. The California gold rush, the end of the Civil War, and the passage of the Homestead Act implementing the United States' manifest destiny to occupy and exploit the North American continent brought many people to the region. Initially southern California was divided into only two counties: Los Angeles and San Diego. In 1853, San Bernardino County was added, placing what is now Riverside County primarily within San Diego County and partially within San Bernardino County.

Southern California was developed by Americans and other immigrants who migrated to the western frontier in pursuit of gold and other mining, agriculture, trade, and land speculation (Lech 2004). The population influx led to increased travel through the Mojave Desert. Some who passed through returned to stay, beginning the first nonnative settlement of the Mojave Desert.

The development in the area was directly connected to the arrival and growth of the railway lines. In 1882, the railway network in southern California expanded to connect the California Southern Railway (part of the Santa Fe) that began in San Diego to the Mojave area and beyond; the decision was made to route the train to the new town of Waterman. After years of planning required to navigate the rail line through the difficult terrain of the Cajon Pass, Southern Pacific Railroad (SPRR) tracks passed through Victor Valley and reached Waterman Junction (later named Barstow) in 1882. Southern Pacific selected Calico Junction (now known as Daggett) for its depot, telegraph office, and eating establishment (Moon 1980). The arrival of the SPRR contributed to a growing number of miners, merchants, and professionals in the area (Keeling 1976). In addition, the discovery of silver and borax in the Calico mines drove the construction of branch railroads.

2.2.3 Ethnohistory

At the time of European contact, the project vicinity was occupied by the Serrano and Vanyume. The Vanyume and the Serrano both spoke a language of the Takic family, which belongs to the Uto-Aztecan language stock (Bean and Smith 1978; Shipley 1978; Sutton 2009). The generic term “Serran” has been applied to four groups of the Takic branch of the Uto-Aztecan stock, which include the Aliklik or Tataviam, Kitanemuk, Vanyume, and Serrano (Kroeber 1976:611; Shipley 1978:88). The Serrano occupied a large area between the Cajon Pass and Twentynine Palms that included the San Bernardino Mountains, and seasonally exploited resources in the nearby desert (Bean and Smith 1978; Benedict 1924; Strong 1929). The Vanyume occupied the area surrounding the Mojave River, immediately north of the Serrano (Bean and Smith 1978). The word “Serrano” is a Spanish word meaning “mountaineer” or “highlander” and was given to the occupants living in the highlands, passes and mountains in the region (Johnston 1980).

Whether the Vanyume spoke a dialect of Serrano or a separate Takic language cannot be determined from the brief word list available (Bean and Smith 1978). In fact, little is known about the Vanyume, except as a recognized subgroup of the Serrano. Father Francisco Garcés traveling up the Mojave River in the 1770s, reported on the Vanyume, calling them the Beñeme, the name he also used for the Serrano (Kroeber 1976). Garcés described the groups along the Mojave River as inhabiting only a few sparse settlements. While the two groups may have shared social political organizational features, they may have diverged politically (Bean and Smith 1978). For example, the Vanyume had good relations with the Chemehuevi and the Mojave, their neighbors to the east; the mountain-dwelling Serrano did not.

Settlement patterns of the Serrano and Vanyume were centered around the seasonal variation of plant and water resources (Bean and Smith 1978). Following the pattern found among most Takic groups in Southern California, social organization occurred at the family level, with several extended families coming together into larger social groups, or clans, during certain times of the year (Johnston 1980).

Villages consisted of lineages united through marriage or economic ties and shared ritual (Bean and Smith 1978).

The Serrano collected piñon nuts and acorns from the mountain slopes as their primary staple vegetal foods. Additionally, chia and grass seeds, bulbs, roots, and tubers were typically collected by the women Seasonal burning to encourage seed production was practiced (Bean and Smith 1978). For the Vanyume, it is likely that honey mesquite, piñon nuts, yucca, and cacti fruits were important resources. The lowland Vanyume groups may have traveled to the foothills to trade cacti fruits and other lowland foods for pine nuts and acorns with the Serrano. The principal game hunted by the Serrano and the Vanyume were deer, mountain sheep, antelope, rabbits, small rodents, and various birds. No part of the game animals went to waste. The blood of game animals was drunk either cold or after cooking it into a thick broth (Bean and Smith 1978). Meat bones were boiled, and the marrow extracted and consumed. Surplus meats and plants were dried to be eaten later (Driver 1937).

2.2.4 Project Vicinity

Rosamond was originally established as a settlement called Sand Creek in the late 1800s. A line of the SPRR was routed near Sand Creek, providing easier access to the area. By 1885, Sand Creek had established a post office and the town's name was changed to Rosamond after the daughter of an SPRR official (Rosamond, CA. 93560 n.d.).

Rosamond was a ranching town until the discovery of gold in the region in the 1890s when mining took over as the socioeconomic focus. Gold mining steadily decreased until the 1930s, when America was removed from the gold standard, thereby raising prices after a period of decline. During World War II (WWII), gold mining was suspended, but it has regained popularity in the region and continues to this day. During the early twentieth century, agriculture also gained popularity in Rosamond. With the abundance of ground water in the area, even irrigation-intensive crops were able to be cultivated in the valley, thereby displacing ranching as the main source of income for valley residents. Rosamond also served to bring new settlers to the area through the construction of the Los Angeles Aqueduct, which required extensive manpower and material.

WWII saw the creation of Muroc Army Air Base in 1942. Muroc Army Air Base served as an air flight test and training facility, utilizing the access to dry lakes for bombing and gunnery practice runs and the year-round clear weather. In the early 1940s, the base was used to test the capabilities of the U.S.'s first jet aircraft, the Bell XP-59A Airacomet, which, from 1942 to 1944, went without any accidents. Muroc served as the site of jet aircraft testing for both the Navy and Air Force flight programs, establishing the base as synonymous with the cutting edge of the turbojet revolution in America. In fact, Muroc Army Air Base was also the site where the first supersonic flight was taken by the father of modern Air Force flight testing Chuck Yeager in a Bell X-1 supersonic research aircraft. In 1949, the name of the base was changed to EAFB after Capt. Glen W. Edwards, who died when his airplane departed from controlled flight and broke apart in the sky northwest of the base (Howell 2015).

3.0 STUDY METHODS

HELIX conducted a cultural resources study, which included completion of a records search, Sacred Lands File (SLF) search, Native American outreach, a review of historic maps and aerial photographs, and a site visit by HELIX archaeologists. Two previously recorded sites documented within the APE were re-identified during the site visit and subjected to archaeological testing to determine if they are historical resources (per CEQA) or historic properties (per the NHPA).

HELIX conducted a records search of the California Historical Resources Information System (CHRIS) at the Southern San Joaquin Valley Information Center (SSJVIC) on April 02, 2018 for Kern County and at the South Central Coastal Information Center (SCCIC) on April 17, 2018 for Los Angeles County. The records searches covered a one-mile radius around the project area and included archaeological and historical resources, locations and citations for previous cultural resources studies, as well as a review of the state Office of Historic Preservation (OHP) historic properties directory. A summary of the records search results and mapping thereof are included as Confidential Appendix B to this report.

HELIX contacted the Native American Heritage Commission (NAHC) on March 27, 2018 for a SLF search and list of Native American contacts for the project area. A response was received from the NAHC on April 16, 2018, and letters were sent to the recommended tribal contacts in May 2018. Telephone follow-up was performed with the San Manuel Band of Mission Indians (SMBMI) in order to determine if TCRs exist within the project area. Native American correspondence is included as Confidential Appendix C.

Historic maps were reviewed during the study to assess the potential for historic archaeological resources and assess the extent of past disturbance. Historic maps from 1915 to 1981 were reviewed. The earliest USGS topographic maps available are the 1915 (1:125,000 and 1:96,000) Elizabeth Lake maps.

3.1 SITE VISIT METHODS

HELIX archaeologists Stacie Wilson and Dominique Diaz de Leon conducted a site visit on November 13, 2018 to verify the results of the records search and to assess the level of development and disturbance within the study area. The western portion of the study area was walked in parallel transects spaced approximately 10 m apart, while a reconnaissance-level walkover was completed in the developed, eastern two-thirds of the study area, with the ponded areas being visually accessed from the berm edges. The site visit focused on the reidentification of the previously recorded resources and to ensure no additional previously unrecorded cultural resources were present within the APE. During the site visit, ground visibility was excellent, ranging from approximately 70 to 90 percent (see Plate 1).

Plate 1. Overview of the APE showing fence line for Edwards AFB western base boundary in background, view to the east

3.2 TESTING METHODS

HELIX archaeologists Julie Roy and Amber Parron conducted a consequent archaeological testing program on January 11 and 12, 2019. Michael Ramirez of the Morongo Band of Mission Indians participated in the testing program.

Testing was performed for two prehistoric sites identified by the records searches and reidentified within the APE during the site visit: CA-KER-5558 and CA-KER-5731. Testing involved a program of excavation of shovel test pits (STPs), collection of surface artifacts from concentration areas, and documentation of the results. STPs measured 30 centimeters (cm) in diameter. STPs were placed near locations of observed surface artifacts; two STPs were excavated at CA-KER-5558, and three were excavated at CA-KER-5731. All excavated soil was screened through 1/8-inch mesh. Locations of surface artifacts and STPs were recorded using a Trimble GPS unit with sub-meter accuracy. Standard California Department of Parks and Recreation (DPR) forms were completed for the resources and submitted to SSJVIC. The DPR forms are included as Confidential Appendix D.

4.0 RESULTS

4.1 RECORDS SEARCH

4.1.1 Previously Recorded Resources

The SSJVIC and SCCIC have records of 43 previously recorded cultural resources within a one-mile radius of the project (Table 1, *Previously Recorded Resources within One Mile of the Project APE*). The resources include five historic homesteads or home sites, two historic structures, two historic roads, one historic railroad line, five historic refuse deposits/scatters, six historic isolates, four multicomponent sites, six prehistoric lithic scatters/deposits, two prehistoric temporary habitations, nine prehistoric isolates, and a wood-lined pit containing lithics and possible human remains. Four archaeological resources have been documented within the APE and include two prehistoric lithic scatters, CA-KER-5558 (P-15-008766) and CA-KER-5731 (P-15-009401); a historic scatter of artifacts and construction debris, CA-KER-5732H (P-15-009402); and a prehistoric isolate, P-15-009403. These four resources are described in further detail in Section 4.2.1.

Table 1
PREVIOUSLY RECORDED RESOURCES WITHIN ONE MILE OF THE PROJECT APE

Resource Number	Resource Number	Description	Recorder, Date
P-19-000716	CA-LAN-000716	Prehistoric site. Widely dispersed lithic scatter.	Egger 1976
P-19-001498	CA-LAN-001498H	Historic site. Homestead dated 1906. Various structural foundations, fence lines, coop, pump mount. Five trash deposits dated 1880s-post 1945.	Lillard and Norwood 1984
P-19-001565	CA-LAN-001565H	Historic site. Homesite dated 1940s but does not appear on 1915 or 1947 USGS. Tamarisk windbreak remnants, rubble and trash, fenceline, treeline, animal bone.	Norwood 1989
P-19-002443	CA-LAN-002443	Prehistoric site. Large, light lithic deposit.	Chandler et al. 1996
P-19-002471	CA-LAN-002471H	Historic site. Well, fencelines, trash deposit, irrigation features. Date not provided.	Howard et al. 1994
P-19-002903	CA-LAN-002903H	Historic structure. Sierra Highway dating 1876 to SPRR opening, paved by 1930s. May follow original “Indian Trail”. May have been a sheep trail in 1865. Trash scatter.	Glennon 2001
P-19-003548	CA-LAN-003548H	Historic isolate. Road extending from the Bissell area south toward Lancaster. Dated from 1910s-1950s.	Not listed
P-19-003965	CA-LAN-003965H	Historic site. Refuse deposit. Cans, glass, ceramics, and other miscellaneous items. Dated 1914-post 1945.	Andrews et al. 2008
P-19-100594	---	Historic isolate. Church key-opened beverage can.	Hale et al. 2005
P-19-100595	---	Prehistoric isolate. Purple chert interior flake.	Hale 2005

Table 1
PREVIOUSLY RECORDED RESOURCES WITHIN ONE MILE OF THE PROJECT APE (cont.)

Resource Number	Resource Number	Description	Recorder, Date
P-19-100733	---	Prehistoric isolate. Pink rhyolite interior flake.	Andrews 2008
P-15-000486	CA-KER-000486	Prehistoric site. Widely dispersed lithic scatter.	Dowell et al. 1994; Eggers 1976
P-15-000487	CA-KER-000487/H	Multicomponent site. Reservoir and animal pen complex. Trash scatter; lithic and burned animal bone scatter. Only one chert flake was observed in 1996.	Chandler 1996 ; Eggers 1976
P-15-000488	CA-KER-000488H	Historic site. Probable homesite with melted adobe structure, treelines, earthen holding pond, terraced dune, associated trash scatter. Well dated 1908.	Norwood 1988; Eggers 1976
P-15-000505	CA-KER-000505/H	Prehistoric site. Wood-lined pit, possibly a hunting blind. One fragment of human bone (cranial). Lithics. Sunken barrel features could not be reidentified.	Chandler et al. 1996; Sutton 1976
P-15-002050	CA-KER-002050H	Historic site. McKittrick Branch (formerly Asphalto) of the SPRR dated 1970-1981; to the north 1952-1992. Associated features and debris scatter.	Bell 2012; Neal 2011; Hoffman and Covert 2010; Sprague et al. 2009; Steidl et al. 1994; Tidmore et al. 1995/1996; Apple et al. 1985
P-15-002127	CA-KER-002127/H	Multicomponent site. Small temporary camp with light lithic scatter and possible burned material. Trash dump dated 1940s-early 1950s.	Norwood 1986
P-15-002146	CA-KER-002146H	Historic site. Homestead or duck hunting site. Adobe foundation is very "melted down" and heavily vegetated. Two structures indicated on 1915 USGS; one structure on 1922 and 1947 maps. Trash scatter dated ca. 1915-1950.	Lillard and Norwood 1986
P-15-002558	CA-KER-002558/H	Multicomponent site. Medium to heavy lithic scatter. Trash dump dated 1950s.	Norwood 1989
P-15-003267	CA-KER-003267	Prehistoric site. Temporary camp with an intermittent surface lithic scatter, several fire-affected rocks, concentration of large mammal tooth fragments (not burned).	Norwood and Dyas 1992
P-15-004773	---	Historic isolate. Two pieces of lavender glass.	Samuelson 1995
P-15-004774	---	Historic isolate. Three lavender bottle glass fragments, two basal fragments.	Samuelson 1995
P-15-004775	---	Prehistoric isolate. Large secondary chert flake with cortex.	Samuelson n.d.
P-15-005527	CA-KER-004770	Prehistoric site. Small temporary camp with light lithic scatter.	Norwood 1996

Table 1
PREVIOUSLY RECORDED RESOURCES WITHIN ONE MILE OF THE PROJECT APE (cont.)

Resource Number	Resource Number	Description	Recorder, Date
P-15-005528	CA-KER-004771H	Historic site. Small light trash deposit dated to possibly mid-1930s.	Norwood 1996
P-15-005927	CA-KER-005016H	Historic site. Remains of possible homestead. Fenceline. 1922 USGS indicated structure within location but no evidence could be found.	Chandler 1996; Norwood 1989; Davis and Norwood 1986
P-15-005959	---	Prehistoric isolate. Chert flake fragment with patinated dorsal surface.	Chandler 1996
P-15-005960	---	Prehistoric isolate. White chert flake with single-facet platform.	Chandler 1996
P-15-005975	---	Historic isolate. Matchstick filler condensed milk can with punch hole opening.	Chandler 1996
P-15-008766*	CA-KER-005558	Prehistoric site. Light lithic scatter.	Norton 1998
P-15-009401*	CA-KER-005731	Prehistoric site. Small light density lithic scatter.	Norwood 1999
P-15-009402*	CA-KER-005732H	Historic structure. Probable small homesite dated 1915 (estimated). Trash scatter, construction debris. No foundation or standing elements remain.	Norwood 1999
P-15-009403*	---	Prehistoric isolate. Large chert secondary flake.	Norwood 1999
P-15-011164	CA-KER-006506	Prehistoric site. Lithic deposit.	Boyer and McGetrick 2004
P-15-011272	CA-KER-006563H	Historic site. Trash deposit dated post 1945.	Boyer et al. 2003
P-15-011760	CA-KER-006815H	Historic site. Two trash deposits dated 1914-post 1945.	Hale et al. 2005
P-15-012395	---	Historic isolate. Green glass bottle base.	Hale et al. 2005
P-15-012411	---	Historic isolate. Two matchstick filler cans. Date not provided.	Hale et al. 2005
P-15-012413	---	Prehistoric isolate. Rhyolite interior flake.	Hale et al. 2005
P-15-013313	CA-KER-007504	Prehistoric site. Large, light density lithic deposit.	Sergejev and Kramme 2007; Norwood 2006
P-15-013314	---	Prehistoric isolate. Interior piece of brown chert debitage with heavy white patina.	Sergejev 2007
P-15-013315	---	Prehistoric isolate. Tertiary stage white chert flake with multi-faceted platform.	Sergejev 2007
P-15-016229	CA-KER-008971H	Multicomponent site. Historic home site, foundations/structure pads, trash scatters, standing structures dated 1914-post 1945. Prehistoric isolate, rhyolite secondary flake.	Cunningham et al. 2011; Greenwood and Associates 1980

*Located within APE

4.1.2 Previous Studies

The records searches conducted at SSJVIC and SCCIC identified 33 previous cultural resource studies within the records search limits, three of which (Norwood 2000a and 2000b; O'Brien 2001) overlap with the project APE (Table 2, *Previous Cultural Resource Studies within One Mile of the Project APE*). One additional survey was located adjacent to the project area (Demos-Petropoulous, et al. 1999). Ten of the studies were cultural resource inventories, six were cultural resources investigations, one was a mitigation report, one was an archaeological monitoring report, six were site evaluation reports, one was a combined survey and evaluation report, five were management planning documents, one is an archaeological research design, one is a cultural resources overview, and one was an oral history.

Table 2
PREVIOUS CULTURAL RESOURCE STUDIES WITHIN ONE MILE OF THE PROJECT APE

Report No.	Report Title	Author/Date	Report Type
KE-00375 LA-01989	Report on Cultural Resource Survey Conducted for the U.S. Army Corps of Engineers for the Proposed Route for the Overland Transport of the Space Shuttle Orbiter from Air Force Plant No. 42 to Dryden Flight Research Center	Eggers, A.V., 1976	Archaeological survey
KE-00623	Cultural Resource Survey CUP No. 13, Map 230, 80 Acres, Avenue A and 15th Street, Rosamond	Love, Bruce, 1989	Archaeological survey
KE-00893	Environmental Impact Evaluation: An Archaeological Survey of Parcel Map Number 8844, Rosamond, Kern Co.	Lewis Pruett, Catherine, 1988	Archaeological survey
KE-01028 LA-04008	Cultural Resources Investigation Pacific Pipeline Emidio Route (Including West Liebre Gulch Ridge Alignment and Mojave Alternatives) L.A. and Kern Counties, CA	Unknown, 1996	Cultural Resources Investigation
KE-01919 LA-00385	Final Report on the Mitigation Procedures for the Cultural Resources of the Space Shuttle Transport Road	Sutton, Mark Q. and R. W. Robinson, 1977	Archaeological mitigation report
KE-02323*	Cultural Resources Inventory Report for the AT&T Corp. Cable Upgrade Project, Los Angeles, Kern, and San Luis Obispo Counties, California	Demos-Petropoulous, Francine, Dana McGowan, Barry Scott, Teresa O'Brien, Bill Norton, and Wendy Rause, 1999	Archaeological survey
KE-02331*	Phase I Cultural Resource Investigation for Wastewater Treatment Plant Expansion, 20 Acres Adjacent to United Street (10th Street West), Kern County, CA	Norwood, Richard, 2000	Cultural resources investigation
KE-02526*	Cultural Resources Monitoring Report for the AT&T Corp. Cable Upgrade Project for Los Angeles, Kern, and San Luis Obispo Counties, California	O'Brien, Teresa, 2001	Archaeological monitoring
KE-02757*	Phase I Cultural Resource Investigation for Wastewater Treatment Plant Expansion, 20 Acres Adjacent to Patterson Road, Rosamond, Kern County, CA	Norwood, Richard, 2000	Cultural resources investigation
KE-03537	Cultural Resource Survey for a 20 Acre Parcel Near the Intersection of Patterson Road and 20th Street West in the City of Rosamond, Eastern Kern County, CA	Schiffman, Robert and Alan Gold, 2007	Archaeological survey
KE-03558	Archaeological Survey Report: Rehabilitation on Sierra Highway from Rosamond Boulevard South to West Avenue A, Rosamond, Kern County, California	Romani, John F., 2007	Archaeological survey
KE-03654	WO 4703-0085: Lancaster-Goldtown 66 kV Transmission Line, Lightning Struck Pole Replacement Project, Edwards Air Force Base, Kern County, California	Schmidt, J., 2007	Cultural resources investigation

Table 2
PREVIOUS CULTURAL RESOURCE STUDIES WITHIN ONE MILE OF THE PROJECT APE (cont.)

Report No.	Report Title	Author/Date	Report Type
KE-03878 LA-08155	Phase II Cultural Resource Evaluations at 21 Sites Along the Northwestern and West Boundaries, Edwards Air Force Base, Kern and Los Angeles Counties, California	Giambastiani, Mark, Sinead Ni Ghabhláin, Micah Hale, Andrea Catacora, Dave Iversen, and Mark Becker, 2007	Site evaluations
KE-04260	A Phase I Cultural Resource Survey for Seven Kern Desert Solar Farm Sites, Kern County, California	Hudlow, Scott M., 2011	Archaeological survey
KE-04663 LA-10571	Phase I Cultural Resource Inventory Along 30 Selected Utility/Power Line Corridors, Edwards AFB, California	Walsh, Michael R. and C. William Clewlow Jr., 1998	Archaeological survey
LA-01063	Cultural Resources Management Plan for Edwards Air Force Base	Greenwood, Roberta S., 1981	Management planning document
LA-01955	Research Design for the Preparation of Cultural Resources Overview, Edwards Air Force Base	Greenwood, Roberta, Michael J. McIntyre, Roger G. Hatheway, Lowell John Bean, and Sylvia Brakke Vane, 1979	Archaeological research design
LA-02322	Environmental Planning and Analysis Program Historic Resource Overview and Management Plan Volume II: Historic Overview and Management Plan Volume II: Historic Overview	Wessel, Richard L., 1991	Management planning document
LA-03894	An Overview of the Cultural Resources of the Western Mojave Desert	Stickel, Gary E. and Lois J Weinman-Roberts, 1979	Cultural resources overview
LA-04008	Cultural Resources Investigation Pacific Pipeline Emidio Route	Science Applications International Corporation, 1996	Cultural resources investigation
LA-04205	Cultural Resource Management at Edwards AFB, CA: December, 1986	Norwood, Richard H., 1986	Management planning document
LA-07829	Preliminary Draft: Cultural Resources Inventory for Portions of the Piute Ponds Area, Edwards Air Force Base, California, Volume 1	Air Force Flight Test Center, 1996	Archaeological survey
LA-07991	Cultural Resources Technical Report City of Lancaster General Plan Update	Tang, Bai "Tom", Michael Hogan, and Josh Smallwood, 2006	Cultural resources investigation
LA-08027	Final Inventory and Evaluation of Historic Roads and Trails in the Antelope Valley and Edwards Air Force Base, California	Spinney, Harriet E. and Heather R. Puckett, 2006	Survey and site evaluation
LA-08140	Mines and Mining-related Sites on Edwards Air Force Base, California: A Phase II Evaluation of 75 Sites and Thematic Synthesis, Volume 1 and 2	Puckett, Heather R. and Harriet E. Spinney, 2004	Archaeological site evaluations
LA-08141	Cultural Resources Evaluation of Historic Period Homesites on Edwards Air Force Base Kern and Los Angeles Counties, California Volumes 1, 2, and 3	Tetra Tech, Inc., 2004	Archaeological evaluations
LA-09679	Cultural Resource and Paleontological Assessment, North Los Angeles / Kern County, Regional Recycled Water Master Plan, Los Angeles / East Kern Counties, California.	Loftus, Shannon L. and Robin D. Turner, 2008	Archaeological site evaluations

Table 2
PREVIOUS CULTURAL RESOURCE STUDIES WITHIN ONE MILE OF THE PROJECT APE (cont.)

Report No.	Report Title	Author/Date	Report Type
LA-10418	Phase II Cultural Resource Evaluations at 51 Archaeological Sites in Management Regions 1a, 1b, 2b, 2c, and 3e, Bissell Hills and Paiute Ponds Edwards Air Force Base Kern and Los Angeles Counties, California	Hale, Micah, Mark Giambastiani, Dave Iverson, Michael Richards, and Sarah Stringer-Bowser, 2009	Archaeological site evaluations
LA-10529	Cultural Resources Overview and Management Plan for Edwards AFB, California, Volume 1: Overview of Prehistoric Cultural Resources	Earle, David D., Barry L. Boyer, Reid A. Bryson, Robert U. Bryson, Mark Campbell, James J. Johannesmeyer, Kelly A. Clark, Cole J. Parker, Matthew D. Pittman, Luz M. Ramirez, Margaret R. Ronning, and Jackson Underwood, 1997	Management planning document
LA-10572	Final - Historic Period Refuse Deposits on Edwards Air Force Base, California - A Phase II Evaluation of 61 sites	Puckett, Heather R. and Harriet E. Spinney, 2005	Archaeological site evaluations
LA-11220	Cultural Resources Assessment for the Replacement of 23 Southern California Edison Company Deteriorated Power Poles in Los Angeles and Kern Counties, California	Parr, Robert E., 2011	Archaeological survey
LA-12030	Air Force Flight Test Center Oral History Program - The Pancho Barnes Legacy	Kilanowski, Dana V., 1991	Historic study
LA-12632	Draft Report: A Review of the Cultural Resources Management Plan Prepared for Edwards Air Force Base by Greenwood and Associates in 1980/81	Bissell, Ronald M., 1987	Management planning document

*Within or adjacent to APE

4.2 SITE VISIT

The approximately 10-acre southwestern portion of the APE that is currently undeveloped and partially undisturbed was the primary focus of the cultural resources site visit. The four cultural resources that were previously recorded within the project site were documented within this area; no new cultural resources were identified within the APE (see Table 3, *Cultural Resources Identified Within the Project APE*).

The site visit and subsequent testing effort undertaken for the current the study did not reidentify isolate P-15-009403 or historic archaeological site CA- KER-5732H. CA-KER-5558 was reidentified but found to have been disturbed since the original recordation, and CA-KER-5731 was reidentified as originally recorded. The four cultural resources documented in the APE are described in further detail below. Maps of the project APE and cultural resource locations are provided on Figure 5 (*Cultural Resources Identified within Project APE*), which is provided as Confidential Appendix E (bound separately). Copies of the updated DPR forms for the archaeological site and isolates are included in Appendix D (Confidential Appendices, bound separately).

Table 3
CULTURAL RESOURCES IDENTIFIED WITHIN THE PROJECT APE

Isolate/Site Number	Age	Description	Status
P-15-008766/ CA-KER-5558	Prehistoric	Lithic scatter	Previously recorded, reidentified but disturbed
P-15-009401/ CA-KER-5731	Prehistoric	Lithic scatter	Previously recorded, reidentified as originally recorded
P-15-009402/ CA-KER-5732H	Historic	Historic artifact scatter with associated construction debris	Previously recorded, not reidentified
P-15-009403	Prehistoric	Isolated flake	Previously recorded, not reidentified

4.3 SITE DESCRIPTIONS

4.3.1 CA-KER-5558 (P-15-008766)

CA-KER-5558, was observed in the same general area as it was originally recorded in 1998 (Norton 1998), however it has been disturbed since its original recordation. As originally recorded, the resource included 14 artifacts of rhyolite and chert material: two rhyolite flake tools, nine rhyolite flakes, two chert flakes, and one rhyolite core in an area measuring 21 meters (m) by 9 m. Since the original recordation of the site, the area has been highly disturbed with the construction of a v-ditch and the planting of trees for a wind break through west side of the cultural site, along the western boundary of the project site (see Plate 2). Also observed in the area of the site are push piles of soil and gravel, possibly from the construction of the ditch and an access road east of the v-ditch/tree line.

Plate 2. Overview of CA-KER-5558, view towards south

4.3.2 CA-KER-5731 (P-15-009401)

CA-KER-5731 is a prehistoric lithic scatter documented by Norwood (1999a) as a small, light density lithic scatter. The site measures 2 m by 7 m and includes seven rhyolite flakes, one jasper flake, and approximately 20 fragments of associated blocky rhyolite not native to the area (according to Norwood 1999a). Site soils are made up of deflated sand dunes eroding onto a clay pan deposit associated with the nearby playa (see Plate 3). The site condition was noted as being good in 1999, and HELIX found the site to be in the same condition as originally recorded.

Plate 3. Overview of CA-KER-5731, view towards northeast

4.3.3 CA-KER-5732H (P-15-009402)

CA-KER-5732H was recorded in 1999 (Norwood 1999b) as a historic artifact scatter with associated construction debris that likely represented the remains of a small historic homesite. No structural remains (including foundations or standing building elements) were present at the time of recordation, but the artifact scatter included primarily nails and roofing tacks that would have been used in the construction of a building on the property. According to the site form, a 1922 Soil Survey Map depicts a structure in this location. It was likely built sometime after 1915 and demolished prior to 1947. What remained in 1999 included patinated glass, wire nails and roofing tacks, bailing wire, shotgun shells, a knife-opened sanitary can, and unidentifiable metal and milled wood. The remains of two post-1950s automobiles were present, along with concrete fragments that may have represented either the remnants of a historic period foundation or dumping of concrete derived elsewhere. The current survey did not reidentify any trace of the site; the area where it had been recorded has been graded and displaced by a basin (see Plate 4).

Plate 4. Overview of mapped location of CA-KER-5732H, view towards east

4.4 ISOLATE DESCRIPTIONS

4.4.1 P-15-009403

One isolated prehistoric lithic artifact was identified by the records search (Norwood 1999c). P-15-009403 was a large secondary flake made from gray and tan cryptocrystalline silicate located south of the entrance to the wastewater treatment facility. The current survey did not reidentify the artifact; the v-ditch and row of trees planted for the wind break along the west side of the project site likely displaced or buried the isolate.

4.5 TESTING

Because CA-KER-5558 and CA-KER-5731 are situated within the proposed impact area for the project, a testing program was designed and implemented in order to determine if they were historical resources, per CEQA, or historic properties, per NHPA. The results of the testing program are presented below Locations of STPs and surface artifacts collected are shown on Figure 5 (see Confidential Appendix E). The collected artifacts were cataloged at the HELIX laboratory in San Diego and will be reinterred within a conservation easement on the property once all ground disturbance for project development has been completed; a copy of the artifact catalog is provided as Appendix F to this report.

4.5.1 CA-KER-5558

Within the designated site boundary of CA-KER-5558, two 30-cm diameter STPs were excavated in 10-cm levels to a depth of 30 cm below ground surface (cmbs) (see Plate 5). The soil at CA-KER-5558 was moderately compact light yellowish-brown sandy silt underlain by hardpan clay. No artifacts were recovered in the two STPs.

A total of 15 artifacts was collected from the surface of CA-KER-5558, including three retouched/utilized flakes, one retouched/utilized tool, eight debitage, two cores, and one hammerstone (Table 4, *Summary of Artifact Recovery for CA-KER-5558*). The artifact assemblage recovered was slightly different from what was noted by Norwood in 1999, but there were no significant differences. The description of the site as a small lithic scatter holds true.

Table 4
SUMMARY OF ARTIFACT RECOVERY FOR CA-KER-5558

Artifact Class	Item	Count	% Count	Weight (G)	% Weight
Flaked Stone	Retouched/utilized flake	3	20%	18.1	6%
	Retouched/utilized tool	1	7%	71.1	21%
	Debitage	8	53%	27.1	8%
	Core	2	13%	104.6	32%
	Hammer	1	7%	111.1	33%
TOTAL		**15**	**100%**	**332.0**	**100%**

Note: Percentage totals reflect rounding.

Plate 5. STP 2 at CA-KER-5558

4.5.2 CA-KER-5731

Within the site boundary of CA-KER-5731, three 30-cm-diameter STPs were excavated. STPs 1 and 3 were placed between sandy hummocks on dry hard soils and excavated in 10-cm levels to a depth of 30 cmbs (see Plates 6 and 7). STP 2 was placed on a sandy hummock, where soils have accumulated over time and excavated to a depth of 50 cmbs. Soil at CA-KER-5731 was described as lightly to heavily compacted light yellow-brown silt. No artifacts were recovered during testing excavations.

A total of 17 artifacts was collected from the surface of CA-KER-5731, consisting of one unclassified tool, nine debitage, one core, and six pieces of exotic material (blocky rhyolite that is not native to the site area) (Table 5, *Summary of Artifact Recovery for CA KER 5731)*.

Table 5
SUMMARY OF ARTIFACT RECOVERY FOR CA-KER-5731

Artifact Class	Item	Count	% Count	Weight (G)	% Weight
Flaked Stone	Unclassified tool fragment	1	6%	156.3	41%
	Debitage	9	53%	93.3	25%
	Core	1	6%	39.7	10%
Other Stone	Exotic material (manuport)	6	35%	89.5	24%
	TOTAL	**17**	**100%**	**378.6**	**100%**

Note: Percentage totals reflect rounding**.**

Plate 6. STP 1 at CA-KER-5731

Plate 7. STP 3 at CA-KER-5731

4.6 OTHER ARCHIVAL RESEARCH

Various archival sources were consulted, including historic topographic maps, aerial imagery (NETR Online 2018) and the Bureau of Land Management (BLM) General Land Office (GLO) Records. The purpose of this research was to identify historic land use in the area.

Land patents were filed for Section 34 starting in the early 1900s. The north half of the NW ¼ and the north half of the NE ¼ of Section 34 were purchased in 1921 by J. Amory Smith. The property encompassed by the south half of the NE ¼ and the NW ¼ of the section was purchased by Susie Attman in 1927. In 1933, the SE ¼ of the NW ¼ of Section 34 was purchased by Harriet F. Drake (neé Carroll). The SE ¼ of Section 34 was purchased by John E. Cosad in 1938. No improvements were recorded on any of the land patents. No information pertaining to the structural remains recorded at CA-KER-5732H was identified in land patent files.

The earliest USGS topographic maps available are the 1915 (1:125,000 and 1:96,000) Elizabeth Lake maps. Several roads surround the project area, and the SPRR is shown west of the project. Several structures and wells are depicted in the project vicinity, but none are shown within the project APE. The 1917 (1:125,000) Elizabeth Lake map does not show any additional historic buildings or features on the landscape. The 1943 and 1956 1:62500-scale Rosamond quadrangles; the 1947, 1956, and 1973 1:24,000-scale Rosamond quadrangles; and the 1949, 1955, and 1959 1:250,000-scale Los Angeles quadrangles do not show any historic structures or features within or adjacent to the study area other than the SPRR. The 1966 1:250,000-scale Los Angeles quadrangle shows a dirt road bisecting the project area. The 1975 1:250,000-scale Los Angeles quadrangle shows a transmission line bisecting the project on a north-south axis. Finally, the 1981 1:100,000-scale Lancaster quadrangle does not show any historic development in the project. Based upon the dates of availability for historic mapping and aerial photos, it is possible the structure to which CA-KER-5732H is associated was constructed after 1917 and demolished prior to 1943.

4.7 NATIVE AMERICAN CONTACT PROGRAM

HELIX contacted the NAHC on March 27, 2018 for a SLF search and list of Native American contacts for the project area. The NAHC indicated in a response dated April 16, 2018 that no known sacred lands or Native American cultural resources are within the project area. Letters were sent on May 03, 2018 to Native American representatives and interested parties identified by the NAHC.

An email response was received from the SMBMI on June 6, 2018 stating that proposed project area exists within Serrano ancestral territory and, therefore, is of interest to the Tribe. Further, SMBMI requested formal consultation with RCSD under AB 52. Copies of the NAHC response, mapping and photos of the project, and information about the land use history of the project parcel were provided by HELIX to SMBMI via email on June 08, 2018, per their request. Additional data regarding the revised project was provided to SMBMI on February 6, 2019. Consultation between RCSD and SMBMI determined that the project is situated within a Tribal Cultural Resource (TCR) comprising a culturally sensitive landscape. SMBMI provided recommendations for mitigation measures to ensure the project does not cause impacts to the TCR; these are summarized in Section 6, Summary and Management Recommendations.

No additional responses have been received to date. Native American correspondence, including email correspondence between HELIX and SMBMI pertaining to the project, is included as Appendix C (Confidential Appendices, bound separately).

5.0 ELIGIBILITY RECOMMENDATIONS

Potential project effects to the cultural resources identified within the APE and their eligibility recommendations are provided in Table 6, *NRHP/CRHR Eligibility Recommendations of Cultural Resources*. Two of the sites, CA-KER-5558 and CA-KER-5731, were tested for significance and recommended as ineligible for listing on the NRHP or CRHR, as described below. One of the previously recorded sites, CA-KER-5732H, was not reidentified during fieldwork. The isolate identified within the project, P-15-009403, does not meet the criteria for listing on the NRHP or CRHR, and thus is not a historic property or significant cultural resource.

Table 6
NRHP/CRHR ELIGIBILITY RECOMMENDATIONS OF CULTURAL RESOURCES

Resource Number	Description	Location	NRHP/CRHP Eligibility Recommendation	Potential Effect
P-15-008766/ CA-KER-5558	Lithic scatter	3855013 m/N 394950 m/E	Not eligible	None
P-15-009401/ CA-KER-5731	Lithic scatter	3855066 m/N 395018 m/E	Not eligible	None
P-15-009402/ CA-KER-5732H	Historic artifact scatter with associated construction debris	Destroyed	Not reidentified	None
P-15-009403	Isolated flake	Destroyed	Not reidentified; de facto ineligible	None

5.1 CA-KER-5558 (P-15-008766)

CA-KER-5558 is a sparse lithic scatter with no subsurface cultural deposits. The site was documented and subjected to testing, which did not result in the identification or recovery of any subsurface artifacts.

Criterion A – There is no evidence to show the site's specific association with events that have made a significant contribution to the patterns of our history. Although the lithic scatter is of prehistoric age, the site is in no way unique, nor does it offer specific association with a significant contribution to the patterns of our local or regional history, or the cultural heritage of California or the United States. As such, the site does not meet the requirements of Criterion A per the discussion in National Register Bulletin 36, as described above. Therefore, CA-KER-5558 is not eligible under Criterion A.

Criterion B – The site cannot be shown to be associated with any individuals. It is a limited use, prehistoric resource that cannot be tied to any individual. Based on this, it is not eligible under Criterion B.

Criterion C – As addressed in the report, while CA-KER-5558 does represent human expression of culture or technology, it does not represent any significant or unique prehistoric cultural activities. Given this, the site is not considered eligible under Criterion C.

Criterion D – As addressed above, the research potential of CA-KER-5558 is quite limited. Only two rhyolite flake tools, nine rhyolite flakes, two chert flakes, and one rhyolite core artifacts were recovered from the surface, eight of them being debitage and two retouched/utilized flakes. No subsurface finds were made during testing. Any additional information that could be obtained from the site is limited, and testing has exhausted its research value. As such, CA-KER-5558 is not considered eligible under Criterion D.

5.2 CA-KER-5731 (P-15-009401)

CA-KER-5731 is a small lithic scatter representing a limited use resource, possibly a temporary campsite. No subsurface cultural deposits were identified during testing. Artifacts collected from the surface of this site included only nine pieces of debitage, one tool fragment, one core, and six pieces of material non-native to the site and assumed to be manuports. Archaeological testing, surface collection, and site documentation have exhausted the research potential of this resource.

Criterion A – There is no evidence to show the site's specific association with events that have made a significant contribution to the patterns of our history. Although the lithic scatter is of prehistoric age, the site is in no way unique, nor does it offer any specific association with any significant contribution to the patterns of our history. No subsurface cultural deposits were identified during testing and the research value of the site was exhausted during testing. As such, the site does not meet the requirements of Criterion A per the discussion in National Register Bulletin 36, as described above. It is not It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States. Therefore, CA-KER-5731 is not eligible under Criterion A.

Criterion B – The site cannot be shown to be associated with any individuals. It is a limited use, prehistoric resource that cannot be tied to any individual. Based on this, CA-KER-5731 is not eligible under Criterion B.

Criterion C – As addressed in the report, while CA-KER-5731 does represent a significant human expression of culture or technology, it does not represent any significant or unique prehistoric cultural activities. Given this, the site is not considered eligible under Criterion C.

Criterion D –The research potential of CA-KER-5731 is quite limited. Only limited surface artifacts were recovered, and no subsurface finds were made during testing. The research potential of the site is extremely limited, and testing has exhausted its research value. As such, CA-KER-5558 is not considered eligible under Criterion D.

5.3 CA-KER-5732H (P-15-009402)

CA-KER-5732H was recorded in 1999 as a historic artifact scatter with associated construction debris that likely represented the remains of a small historic homesite. The site has been destroyed since its original recordation. The current survey did not reidentify any trace of the site, and the area where it had been recorded has been graded; a pond is now present.

5.4 P-15-009403

P-15-009403 was a large secondary flake that has been either destroyed or mismapped; however, as an isolated artifact, it would does not meet any of the criteria for listing in the NRHP or CRHR.

6.0 SUMMARY AND MANAGEMENT RECOMMENDATIONS

A study was undertaken to identify cultural resources that are present in the area proposed for direct impacts as a result of the proposed project and to determine the effects of the project on significant cultural resources and historic properties. The cultural resources study identified four resources within the project area; these include two prehistoric lithic scatters, a historic refuse scatter, and a prehistoric isolate. A program of archaeological testing and surface collection was performed at the two prehistoric lithic scatters, CA-KER-5558 and CA-KER-5731, to determine their eligibility for listing in the NRHP and the CRHR. The remaining two cultural resources, CA-KER-5732H and P-15-009403, were not reidentified in the field and are presumed to have been destroyed. In summary, the cultural resources within the APE area do not meet the criteria for listing on the NRHP or CRHR and thus are not historic properties under the NHPA or CEQA. They also do not meet the criteria for significant cultural resources as defined by CEQA. In addition, the resources are all disturbed by modern activities; this lack of integrity detracts from any potential archaeological research value the resources might have once had. However, CA-KER-5558 and CA-KER-5731 are contributing resources to a landscape Tribal Cultural Resource (TCR) that overlaps the project area. As it was determined by RCSD that avoidance of these resources was not feasible, the sites were subjected to archaeological significance evaluation in order to determine their eligibility for listing on the CRHR and NRHP. Artifacts recovered during testing were temporarily housed off-site. Per consultation efforts between SMBMI and RCSD, the material shall be reburied in a conservation area owned and managed by RCSD.

Based upon the presence of numerous sites located near the project and the fact that blowing sand may have obscured surface manifestations of additional resources within the APE, the potential exists to identify previously unknown cultural resources during construction. In addition, the APE is situated in an area considered by the SMBMI to be a TCR landscape. Due to the heightened cultural sensitivity of the proposed project area, an archaeological monitor with at least three (3) years of regional experience in archaeology shall be present for all ground-disturbing activities that occur within the proposed project area (which include, but are not limited to, vegetation removal and planting, clearing/grubbing, grading, excavation, trenching, compaction, fence/gate removal and installation, drainage and irrigation removal and installation, other ground disturbances, and archaeological work). A sufficient number of archaeological monitors shall be present each work day to ensure that simultaneously occurring ground disturbing activities receive thorough levels of monitoring coverage. A Monitoring and Treatment Plan that is reflective of the project mitigation ("Cultural Resources" and "Tribal Cultural Resources") shall be completed by the archaeologist and submitted to RCSD for dissemination to SMBMI and other interested TCA tribes. Once all parties review and approve the plan, it shall be adopted by RCSD; the plan must be adopted prior to permitting for the project. Any and all findings will be subject to the protocol detailed within the Monitoring and Treatment Plan.

If, in consultation with RCSD, a discovery made during monitoring is determined to be significant, a mitigation plan shall be prepared and carried out in accordance with state guidelines. Implementation of the mitigation plan shall include Native American participation. If the resources cannot be avoided, a data recovery plan shall be developed to ensure collection of sufficient information to address archaeological and historical research questions, with results presented in a technical report describing field methods, materials collected, and conclusions. Cultural material collected as part of an assessment or data recovery effort shall be curated at a qualified facility. Field notes and other pertinent materials shall also be curated along with the archaeological collection.

If additional pre-contact cultural resources are discovered during project implementation, ground disturbing activities shall be suspended within 100 feet of the resource(s) and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. Representatives from the monitoring tribe(s), the Archaeological Monitor, and RCSD shall confer regarding treatment of the discovered resource, as detailed within the Monitoring and Treatment Plan. A research design shall be developed and will include a plan to evaluate the resource for significance under CEQA criteria. The research design shall also acknowledge that, regardless of archaeological significance under CEQA, all finds are subject, if feasible, to avoidance/preservation in place as treatment due to the presence of a TCR landscape.

Should any resource not be a candidate for avoidance or preservation in place, and the removal of the resource is necessary to mitigate impacts, the research design shall include a comprehensive discussion of sampling strategies, resource processing, analysis, and reporting protocols/obligations. Removal of any cultural resource(s) shall be conducted in the presence of a Tribal monitor, unless otherwise decided by the monitoring tribe(s). All plans for analysis shall be reviewed and approved by the District, SMBMI, and other interested TCA tribes prior to implementation, and all removed material shall be temporarily curated in a secure facility on-site. Cultural material shall be reburied within the conservation area owned and managed by RCSD, as agreed upon during AB 52 consultation. Reburial shall not occur until all ground-disturbing activities associated with the project have been completed, all monitoring has ceased, cataloguing and basic recordation of cultural resources have been completed, and a final monitoring report has been issued to RCSD, the Southern San Joaquin Valley Archaeological Information Center, SMBMI and other monitoring tribes. Reburials are subject to a reburial agreement that shall be developed between RCSD and monitoring tribes outlining the determined reburial process and location, and shall include measures and provisions to protect the reburial area from any future impacts (vis a vis project plans, conservation/preservation easements, etc.).

If human remains are discovered during any construction activities, all ground-disturbing activity within 100 feet of the remains shall be halted immediately, and RCSD shall contact the County coroner immediately, according to Section 5097.98 of the State Public Resources Code and Section 7050.5 of California's Health and Safety Code. If the remains are determined by the County coroner to be Native American, the NAHC shall be notified within 24 hours. The NAHC shall identify a Most Likely Descendant, who will be designated to cooperate with RCSD to arrange for the proper disposition of the remains, according to the NAHC guidelines for the treatment and disposition of human remains.

All draft records/reports containing the significance and treatment findings and data recovery results shall be prepared by the archaeologist and submitted to RCSD, SMBMI, and other interested TCA tribes for their review and comment. After approval from all parties, the final reports and site/isolate records will be submitted to the local CHRIS Information Center, RCSD, SMBMI, and other interested TCA tribes.

Should the APE change to incorporate new areas of proposed disturbance, intensive pedestrian archaeological survey of these areas will be required.

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Appendix A

Resumes

Mary Robbins-Wade, M.A., RPA

Director of Cultural Resources

HELIX Environmental Planning

Summary of Qualifications

Ms. Robbins-Wade has over 35 years of experience in both archaeological research and general environmental studies. She oversees the management of all of HELIX's archaeological, historic, and interpretive projects; prepares and administers budgets and contracts; designs research programs; supervises personnel; and writes reports. Ms. Robbins-Wade has managed or participated in hundreds of projects under the California Environmental Quality Act (CEQA), as well as numerous archaeological studies under various federal jurisdictions, addressing Section 106 compliance and National Environmental Policy Act (NEPA) issues. She has an excellent relationship with the local Native American community and the Native American Heritage Commission (NAHC). Ms. Robbins-Wade has worked in Southern California archaeology for most of her robust career. Her clients regularly include numerous government agencies, including the counties of San Diego, Imperial, Riverside, Orange, and Los Angeles and the cities of San Diego, Vista, Oceanside, Chula Vista, Carlsbad, La Mesa, Poway, Santee, Escondido, and others. She has conducted studies for many water districts/water agencies, Caltrans, SANDAG, U.S. Navy, UC San Diego, San Diego Community College District, various non-profits, and a variety of other entities.

Although Ms. Robbins-Wade has extensive experience with public sector projects, most of her work has been for private developers. She has managed projects from monitoring of single-family home remodels to survey and data recovery programs for Specific Plan areas, large residential developments, and a variety of commercial projects. Work for public projects has ranged from constraints studies for pipeline alternatives to survey, testing, and monitoring programs for public projects, such as parks, roadways, and various utilities. Ms. Robbins-Wade has also managed a range of monitoring projects in the public sector, including the installation of a manhole in Old Town State Historic Park, an emergency pipeline repair in a culturally sensitive area, monitoring improvements to Highway 76 along the San Luis Rey River, and lengthy monitoring programs for sewer/water/storm water projects.

Selected Project Experience

12 Oaks Winery Resort and Golf Community (2015 - 2018). Project Manager/ Principal Investigator for a cultural resources survey of approximately 650 acres for a proposed project in the County of Riverside. Oversaw background research, field survey, site record updates, Native American coordination, and report preparation. Met with Pechanga Cultural Resources staff to discuss Native American concerns. Worked with applicant and Pechanga to design the project to avoid impacts to cultural resources. Work performed for Standard Portfolio Temecula, LLC.

Education

Master of Arts, Anthropology, San Diego State University, California, 1990

Bachelor of Arts, Anthropology, University of California, Santa Barbara, 1981

Registrations/ Certifications

The Register of Professional Archaeologists, Register of Professional Archaeologists #10294, 1991

County of San Diego, Approved CEQA Consultant for Archaeological Resources, 2014

NCTD, Roadway Worker ID #C02943, 2015

Riverside County Approved Cultural Resources Consultant, 2017

28th Street between Island Avenue and Clay Avenue Archaeological Monitoring (2014 - 2018).Project Manager/Principal Investigator for a utilities undergrounding project in a historic neighborhood of East San Diego. Responsible for project management; coordination of archaeological and Native American monitors; coordination with forensic anthropologist, Native American representative/Most Likely Descendent, and City staff regarding treatment of possible human remains; oversaw identification of artifacts and cultural features, report preparation, and resource documentation. Work performed for the City of San Diego.

30th St Pipeline Replacement (2014 - 2015).Project Manager/Principal Investigator for a 3.4-mile City of San Diego pipeline replacement project that traverses several historic neighborhoods in North Park, South Park, Golden Hill, and Southeastern San Diego. Oversaw background research and report preparation. Work performed for Rick Engineering.

964 Urania Avenue (2016 - 2016).Project Manager/Principal Investigator for a cultural resources survey and testing program for a proposed residential development in the City of Solana Beach. Oversaw background research, field survey, testing, site recordation, Native American coordination, and report preparation. Work performed for Hall Land Company.

Archaeological Testing for the F11 (2015 - 2017).Project Manager for a cultural resources study for a proposed mixed-use commercial and residential tower in downtown San Diego. Initial work included an archaeological records search and a historic study, including assessment of the potential for historic archaeological resources. Subsequent work included development and implementation of an archaeological testing plan, as well as construction monitoring and the assessment of historic archaeological resources encountered. Work performed for the Richman Group of Companies.

Balboa Station Specific Plan Area First Screencheck PEIR (2016 - 2017).Cultural Resources Task Manager for a Specific Plan that would provide the policy framework to establish transit-oriented development and multi-modal improvements within the Specific Plan area. One of the main objectives of the Specific Plan is to improve access to existing and future transit facilities. Oversaw background research, Native American outreach, cultural resources survey, and technical report in support of the PEIR. Work performed for RRM Design Group, with City of San Diego as the lead agency.

Borrego Springs Community Library IS/MND (2015 - 2016).Cultural Resources Task Manager/ Principal Investigator for a cultural resources survey for a proposed development consisting of a public library, park, and police substation for the County of San Diego. The project is proposed on a 20.5-acre site on undeveloped land in the Borrego Springs community.

Professional Affiliations

Society for American Archaeology

Society for California Archaeology

San Diego Archaeological Center

San Diego History Center

San Diego Museum of Man

San Diego County Archaeological Society

Buena Sanitation District Green Oak Sewer Replacement Project (2016 - 2017).Project Manager/Principal Investigator for a cultural resources testing program in conjunction with a proposed sewer replacement project for the City of Vista. Oversaw background research, fieldwork, site record update, Native American coordination, and report preparation. Work performed for Harris & Associates, Inc.

Burton Hawkins Monitoring (2014 - 2015).Project Manager/Principal Investigator for cultural resources testing and monitoring program for a remodel project at a home in La Jolla. Overseeing the archaeological testing program, which includes monitoring of several phases of construction, cataloging and analysis, research, and report preparation (work is still underway). Native American coordination included working with Most Likely Descendant and forensic anthropologists addressing possible human remains. The home is in the Spindrift site, a significant cultural resource in terms of both archaeological importance and Native American cultural values. Work performed for John Hawkins.

Cactus II Feeder Transmission Pipeline IS/MND (2017 - 2018).Senior Archaeologist overseeing cultural resources survey and report for this proposed pipeline project, including background research and Native American outreach. Assisted EMWD with Native American consultation under AB 52. The project would construct approximately five miles of new 30-inch to 42-inch diameter new transmission pipeline to serve planned development in Moreno Valley. Work was performed for EMWD.

Camino Largo / PC6-056 (2014 - 2015).Project Manager/Principal Investigator for a cultural resources survey and testing program for a proposed residential development in the City of Vista. Oversaw background research, field survey, testing, site recordation, Native American coordination, and report preparation. Work performed for City of Vista.

Campo Bus Yard (2015 - 2016).Cultural Resources Task Manager/Principal Investigator for a cultural resources survey for a proposed MTS bus yard in the Campo area of the County of San Diego. The project is immediately adjacent to a County-listed and National Register-eligible historic property (Camp Lockett), and features associated with that historic district extend into the project area. The Campo Valley is also rich in Native American cultural resources, although no prehistoric sites were identified within the project area. Oversaw background research, field survey, coordination, Native American outreach, and report preparation. Work was conducted under an as-needed contract with SANDAG.

Campo Creek Bridge (2016 - 2017).Project Manager/Principal Investigator for the cultural resources monitoring program for this emergency bridge replacement project on SR-94 in southeastern San Diego County. The project area is very sensitive in terms of Native American cultural resources, as well as historic resources.

Responsible for development and implementation of the monitoring and discovery plan. The project requires effective communication and coordination with construction crews, Caltrans staff, and Native American monitors. Work performed as a subconsultant to Flatiron, with Caltrans as the lead agency.

Cemetery Area Water Pipeline Replacement-Construction Monitoring (2015 - 2016).Project Manager/Principal Investigator for a water pipeline replacement project in eastern Escondido, located partially within a historic cemetery. Initial work included a cultural resources survey and a historic study of the cemetery. Current work involves cultural resources monitoring during construction. Oversaw historic study and cultural resources survey. Responsible for Native American outreach and report preparation. Currently overseeing monitoring. Work performed for the City of Escondido.

Coastal Meander Trail (2014 - 2015).Project Manager/Principal Investigator for a cultural resources monitoring program for a trail at Scripps Institution of Oceanography on the UC San Diego campus. The trail is located between two known archaeological sites. Oversaw construction monitoring, documentation of cultural resources encountered, site record update, and report preparation. Work performed for UC San Diego.

Cultural Resources Study - P16-0310 Pheasant Hill MND (2017 - 2017).Project Manager/Principal Investigator for a cultural resources survey and testing program for a proposed residential development in the City of Vista. Oversaw background research, field survey, testing, site recordation, Native American coordination, and report preparation. Work performed for City of Vista.

El Camino Real Road Widening-Archaeological Monitoring (2015 - 2016).Project Manager/Principal Investigator for an archaeological monitoring project for the City of Carlsbad in a culturally sensitive area. Project requires close coordination with Native American representatives, City staff, construction crews, and another cultural resources firm to ensure that there are no impacts to significant cultural resources. Work performed for the City of Carlsbad.

El Cuervo Del Sur Wetlands Creation Site, July 2015 - June 2016 (2015 - 2016).Cultural resources task lead for cultural resources studies for a biological mitigation program in the culturally sensitive Los Peñasquitos Canyon Preserve in the City of San Diego. Work included review of previous studies for the area, records searches, Sacred Lands File searches from the Native American Heritage Commission, outreach to the local Native American community, field survey with Native American monitors, and report preparation. Work was performed under an as-needed contract with the City of San Diego Transportation & Storm Water Department.

Fox Tank Replacement EIR (2017 - 2017).Senior Archaeologist for proposed project to construct a 1.0-million-gallon tank, as well as an on-site detention basin, paved access road, and other appurtenances. A 12-inch-diameter transmission pipeline would be constructed and the existing Orange Tank demolished. Oversaw cultural resources survey and report, including background research and Native American coordination. Assisted EMWD with Native American consultation in accordance with Assembly Bill (AB) 52. Work was performed for EMWD.

French Valley South Tract 30837 Project (2015 - 2016).Principal Investigator for a 153-acre residential project in the unincorporated community of French Valley, Riverside County. Oversaw background research, field survey, site record updates, Native American coordination, and preparation of a cultural resources report update in support of wetland permitting. The project proposes construction of 312 single-family residences.

Genesee Sewer/Monte Verde (2014 - 2016).Project Manager/Principal Investigator of an archaeological monitoring program for a sewer line project in the culturally sensitive Rose Canyon area of the City of San Diego. Overseeing field monitoring and documentation of artifacts; monitoring is still underway. Work performed for Garden Communities.

Green Oak Villas Technical Reports (2016 - 2016).Project Manager/Principal Investigator for a cultural resources survey and testing program for a proposed multi-family residential development in the City of Vista. Oversaw background research, field survey, testing, site record update, Native American coordination, and report preparation. Work performed for Providence Capital Group, Inc., with the City of Vista as the lead agency.

Guava Street Bridge at Murrieta Creek Project (2017 - 2017).Principal investigator for cultural resources monitoring and environmental compliance tasks for the City of Murrieta's Capital Improvement Program (CIP) #8323 Guava Street Bridge at Murrieta Creek project, which includes replacement of the existing Washington Avenue bridge over Murrieta Creek with a new bridge at Guava Street. Work was performed for Falcon Engineering Services with the City of Murrieta as the lead agency.

Hacienda del Mar EIR (2016 - 2018).Senior Archaeologist for a proposed commercial development project for a senior care facility in Del Mar. Assisted in the preparation of associated permit applications and an EIR. Oversaw background research, updated records search and Sacred Lands File search, monitoring of geotechnical testing, coordination with City staff on cultural resources issues, and preparation of updated report. Prior to coming to HELIX, served as Cultural Resources Task Lead for the cultural resources survey for the project, conducted as a subcontractor to HELIX. Work performed for Milan Capital Management, with the City of San Diego as the lead agency.

Heritage Bluffs II (2014 - 2015).Project Manager/Principal Investigator for a cultural resources survey of approximately 170 acres and testing program at two archaeological sites, for a proposed residential development in the City of San Diego. Worked with project applicant and Red Tail on project design that would avoid impacts to a site area with cultural features and cremated human remains. Much of the work was completed prior to coming to HELIX, between 2007 and 2014. Work performed for Project Design Consultants.

Judson Potable Water Storage Tank and Transmission Pipeline IS/MND (2016 - 2017).Senior Archaeologist for a project proposing to construct a 2.5-million-gallon potable water storage tank, approximately 3,000 linear feet of 18-inch-diameter transmission pipeline, a paved access road, a detention basin, and other associated utilities to support tank operation. Project work included background research in preparation for field survey and assistance with report preparation. Work performed for Eastern Municipal Water District.

Lilac Hills Ranch (2014 - 2017).Project Manager/Principal Investigator of a cultural resources survey and testing program for an approximately 608-acre mixed-use development in the Valley Center area. Oversaw background research, field survey, testing, recording of archaeological sites and historic structures, and report preparation. Responsible for development of the research design and data recovery program, preparation of the preservation plan, and Native American outreach and coordination. The proposed Specific Plan includes residential and commercial use, Town Center, park and private recreation areas, senior center, school site, waste recycling facility, wastewater reclamation facility, active orchards, and other supporting infrastructure. The project also included recording historic structures, development of a research design and data recovery program for a significant archaeological site, and coordination with the Native American community and the client to develop a preservation plan for a significant cultural resource. The project changed over time, so additional survey areas were included, and a variety of off-site improvement alternatives were addressed. Work performed for Accretive Investments, Inc. with County of San Diego as the lead agency.

Mapping of Archaeological Monitoring SIO (2015 - 2016).Project Manager/Principal Investigator for a review of past archaeological studies and prepared a cultural resources sensitivity map for the SIO campus to guide future studies and assess the need for cultural resource monitoring. HELIX cultural staff is conducting archaeological monitoring for a gas line replacement project at SIO under this contract as well. The sensitivity map is updated as new projects are undertaken at SIO.

Mast Park Project (2015 - 2016).Cultural Resources Task Manager overseeing cultural resources monitoring during grading associated with a 12.67-acre habitat restoration project in the City of Santee, which serves as a mitigation area for six development projects. This project consists of installing an extensive irrigation system to aid in the establishment of container stock plants, local native tree and shrub cuttings, and approximately 7 acres of native riparian habitat seed mix. The project includes removal of 35,000 cubic yards of sand to create new channels that will convey storm flows of the San Diego River. The balance of the site has been enhanced by removing non-native plant species, adding a walk path, and installing a post-and-rail fence to minimize disturbance of sensitive areas. Oversaw monitoring by archaeologists and Native American monitors, cataloging and analysis of cultural material recovered, and report preparation. Work performed for the City of Santee.

Mid City Pipeline CEQA (2014 - 2015).Project Manager/Principal Investigator for alternative water pipeline alignments in the Mid-City Pipeline Phase 2 Project within the cities of San Diego and La Mesa. Oversaw background research, monitoring of geotechnical borings, and report preparation. Work performed as a subconsultant to AD Hinshaw Associates, with the City of San Diego PWD as the lead agency.

Mission Cove Monitoring (2014 - 2016).Project Manager/Principal Investigator of an archaeological monitoring program for the 14.47-acre Mission Cove Affordable Housing mixed-use project area in the City of Oceanside. Overseeing field monitoring and documentation of finds. A significant archaeological and cultural resource is within the project, and there is a potential for unknown buried resources, given the alluvial setting. Work performed for National Community Renaissance.

Moulton Niguel Water District Regional Lift Force Main Replacement (2017 - 2018).Cultural Resources Task Lead for the replacement of a regional lift station force main operated by Moulton Niguel Water District (MNWD). The project comprises an approximately 9,200 linear foot alignment within Laguna Niguel Regional Park in Orange County, in an area that is quite sensitive in terms of cultural resources. HELIX is supporting Tetra Tech throughout the preliminary design, environmental review (CEQA), and final design, including permitting with applicable state and federal regulatory agencies. The cultural resources survey will inform project design, in order to avoid or minimize potential impacts to cultural resources. Overseeing background research and constraints analysis, Native American coordination, cultural resources survey, coordination with MNWD and Tetra Tech, and report preparation. Work performed for MNWD, as a subconsultant to Tetra Tech.

Orange County Sanitation District Newhope-Placentia TSR, No. 2-72 B (2016 - 2016).Cultural Resources Task Leader/Principal Investigator for a sewer replacement project located in the City of Anaheim in southern Orange County. The project proposed the replacement of 20,679 feet of existing 33- to 42-inch sewer pipes with

48- to 54-inch pipes within an existing alignment. Project work included a records search, field check, review of historic maps and aerial photographs, Native American outreach, and report authorship. Work performed for Orange County Sanitation District.

Orange County Sanitation District Newhope-Placentia Trunk Sewer Replacement, No. 2-72A (2015 - 2016).Cultural Resources Task Leader/Principal Investigator for a sewer replacement project located in the cities of Anaheim and Fullerton. The project proposed the replacement and upsizing of 12,300 feet pipeline along an existing 14,205-foot alignment. Project work included a records search, field check, review of historic maps and aerial photographs, and Native American outreach. Work performed for Orange County Sanitation District.

Old Mission San Luis Rey Cemetery Expansion Project (2016 - 2017).Project Manager/ Principal Investigator for a cultural resources monitoring program for the expansion of the cemetery at Old Mission San Luis Rey, an area of sensitivity in terms of archaeological, historic, and Native American cultural resources. Worked performed for Old Mission San Luis Rey, with the City of Oceanside as the lead agency.

Otay Crossings Commerce Park EIR (2016 - 2018).Project Manager/Principal Investigator for a cultural resources program including testing, data recovery, and monitoring for a 311.5-acre project in the County of San Diego. Served as Project Manager/Principal Investigator for the cultural resources study that addressed 14 sites, including testing at the 10 sites that not been previously assessed. Work performed for Kearny PCCP Otay 311, LLC, with County of San Diego as the lead agency.

Otay Water District Campo Road MND (2014 - 2016).Project Manager/Principal Investigator of a cultural resources survey for a project replacing approximately 9,225 linear feet of 10-inch gravity sewer with a new 15-inch gravity sewer system in the Rancho San Diego area, near the Sweetwater River. Overseeing background research, field survey, Native American coordination, and report preparation. Work performed as subconsultant for Rick Engineering, with Otay Water District as lead agency.

Park Circle - Cultural Resources (2014 - 2018).Project Manager/Principal Investigator of a cultural resources survey and testing program for a proposed 65-acre residential development in the Valley Center area of San Diego County. The project is located along Moosa Creek, in an area that is culturally sensitive to the Luiseño people. Overseeing background research, historic study, field survey, testing, recording archaeological sites and historic structures, and report preparation. Responsible for Native American outreach and coordination. The cultural resources study included survey of the project area, testing of several archaeological sites, and outreach and coordination with the Native American community, as well as a historic study that addressed a mid-20th century dairy barn and a late 19th century vernacular farmhouse. Work performed for Touchstone Communities.

Peacock Hill Cultural Resources (2014 - 2017).Project Manager/Principal Investigator of a cultural resources study update for a residential development in Lakeside. Oversaw updated research, fieldwork, lab work, analysis by forensic anthropologists, report preparation, and Native American coordination. In the course of outreach and coordination with the Native American (Kumeyaay) community, possible human remains were identified, prompting additional fieldwork, as well as coordination with the Native American community and forensic anthropologists. Work performed for Peacock Hill, Inc.

Pottery Canyon Mitigation Monitoring (2014 - 2016).Project Manager/Principal Investigator for a cultural resources monitoring program in conjunction with contaminated soils remediation program at a significant historic archaeological site in Pottery Canyon Park in the City of San Diego. The project included review of the previous testing report and the remediation plan, assessment of the capping program to ensure its compliance with the approved preservation measures, monitoring of capping, collection and cataloging of artifacts outside the capped area, and preparation of a monitoring report. Work performed for the City of San Diego Department of Park and Recreation under an as-needed contract.

Pujols Shearwater (2015 - 2016).Project Manager/ Principal Investigator for an archaeological monitoring program for a luxury apartment development in the City of Temecula, Riverside County. The project included historic background research, construction monitoring, and documentation of a historic archaeological resource encountered during monitoring. Work was performed for ColRich Communities.

Rady Murrieta Project (2016 - 2016).Principal Investigator/Cultural Resources Task Lead for a medical office building project in the City of Murrieta, Riverside County. The cultural resources survey included a records search at the Eastern Information Center, Sacred Lands File search from the Native American Heritage Commission (NAHC), tribal outreach and coordination, a field survey, and preparation of a report per CEQA and City requirements. Work was performed for Rady Children’s, with the City of Murrieta as the lead agency.

Ray Stoyer Water Recycling Facility Phase I Expansion IS/MND (2015 - 2015).Principal Investigator responsible for directing background research, field survey, cultural resources report preparation, and Native American outreach for Padre Dam Municipal Water District’s proposed expansion project CEQA and the State Water Resources Control Board’s CEQA-Plus requirements. The proposed project would expand the facility’s capacity from 2 to 6 million gallons per day. Work performed for Padre Dam Municipal Water District.

Roripaugh Ranch Phase 2 (2017 - 2018).Principal Investigator/ Cultural Resources Task Lead for a cultural resources study in conjunction with biological permitting for roadway and drainage improvements along Santa Gertrudis Creek in the City of Temecula, Riverside County. The cultural resources study includes a records search and background research, Native American coordination and contacting the Native American Heritage Commission, field survey, coordination with US Army Corps of Engineers, and preparation of a report addressing the National Historic Preservation Act Section 106 compliance. Work performed for Roripaugh Valley Restoration, LLC.

San Diego County Women's Detention Facility (2014 - 2015).Leader/Principal Investigator for the construction monitoring program for the new Women's Detention Facility in Santee. The project site is in an alluvial setting on the south side of the San Diego River, in proximity to a recorded village site. Buried cultural resources were identified in the alluvial soils during monitoring. Other cultural material recovered was associated with the historic Edgemoor site. Prior to coming to HELIX, served as Cultural Resources Task Leader/Principal Investigator for archaeological survey and testing program for the project as a subconsultant to HELIX. Work performed for Balfour Beatty.

San Diego River Trail Qualcomm Stadium Segment Preliminary Engineering (1600-0165) (2015 - 2015).Principal Investigator for the cultural resource survey and report in support of an IS/MND for a 0.8-mile-long segment of the planned regional San Diego River Trail, extending from Fenton Parkway through the Qualcomm Stadium parking lot to connect with Rancho Mission Road. Work was performed as a subconsultant to Quality Infrastructure Corporation, with SANDAG as the lead agency.

Simpson Farms (2014 - 2016).Project Manager/Principal Investigator in a cultural resources study update for a mixed-use development within a total disturbance area of approximately 75 acres in the unincorporated County of San Diego near the community of Jamul. Oversaw updated research, site recordation, historic analysis, testing/assessment of a previously undocumented archaeological site, report preparation, and Native American coordination. The project consists of 94 single-family dwelling units, a neighborhood commercial site, and related uses such as access roads, drainage facilities and open space. Historic research and a historic structures assessment is also part of this project. Work performed as subconsultant for Gotham Management, LLC, with County of San Diego as lead agency.

SR-76 East Mitigation Monitoring - Cultural Monitoring (2015 - 2018).Project Manager/Principal Investigator for a cultural resources monitoring project for roadway improvements at the SR-76/I-15 Interchange and on SR-76 along the San Luis Rey River in the Bonsall area of San Diego County. The area along the San Luis Rey River is quite sensitive in terms of cultural resources. Overseeing field monitoring, report preparation, and monitor coordination with Caltrans field staff. Responsible for

Native American coordination and coordination with Caltrans cultural resources staff. Work is being conducted for Caltrans and SANDAG.

City of Carlsbad Trails Master Plan Constraints Analysis (2015 - 2015).Cultural Resources Task Manager for the analysis of the Carlsbad Trails Master Plan, which includes existing and proposed recreational trails throughout the City. Conducted an initial screening of potential cultural resources issues that may affect discrete projects within the Trails Master Plan. The project also includes developing protocols for addressing cultural resources under the Trails Master Plan. Work performed for the City of Carlsbad.

Turtle Ranch (2017 - 2017).Project Manager/Principal Investigator for construction monitoring for a residential project in French Valley in Riverside County. The project included construction monitoring, coordination with County staff regarding a historic deposit encountered during monitoring, and preparation of a report for submittal to the County.

University and Innovation District Environmental Impact Report (2015 - 2016).Cultural Resources Task Manager/Principal Investigator for the 375-acre, four-year University and Regional Technology Park in the Otay Ranch and Eastlake III neighborhoods of Chula Vista, San Diego County. Responsible for preparation of the cultural resources technical report and managing cultural resources surveys, including Native American outreach, in support of the EIR. HELIX is managing grading studies, technical studies, and the CEQA documentation, as well as providing input to the Sectional Planning Area Plan. The University will feature academic space, academic support space, physical education facilities, student housing, and parking areas sized to serve up to 20,000 full-time equivalent students. The Regional Technology Park is envisioned as a higher-value manufacturing and research park with both independent uses and programmatic links to the university. Work performed for City of Chula Vista. Cultural resources task leader for the University Innovation District Sectional Planning Area project that would direct the implementation of a four-year university and supporting uses in the Otay Ranch and Eastlake III neighborhoods in the City of Chula Vista. The University will feature academic space, academic support space, physical education facilities, student housing, and parking areas to be sized to serve up to 20,000 full-time equivalent (FTE) students. Tasks included supervising the background research, field surveys, recording of cultural resources, and report preparation. Was also responsible for Native American outreach.

Upas Street Pipeline Replacement Phase 2-08 (2015 - 2016).Cultural Resources Task Lead/Principal Investigator for cultural resources monitoring program for a portion of the Upas Street Pipeline Replacement Project, a part of the City of San Diego Public Utilities Department Capital Improvement Program (CIP) and one element of a continuing effort to replace all the cast iron pipelines within the City.

Oversaw archaeological and Native American monitoring. Work performed for Wier Construction.

USD Master Plan and Conditional Use Permit (2015 - 2016).Principal Investigator for the cultural resources technical report for USD's Master Plan EIR. Oversaw background research, field survey, Native American outreach, and report preparation. Work performed as a subconsultant to M.W. Steele Group, Inc., with University of San Diego as the lead agency.

Upper San Gabriel Valley Municipal Water District Direct Reuse System Support (2015 - 2016).Cultural Resources Task Leader/Principal Investigator for a project developed to increase non-potable recycled water reuse. The project would include the construction of pipelines, booster stations, and a reservoir to extend non-potable recycled water service to portions of the cities of La Puente, Industry, South El Monte, El Monte, and Pico Rivera. The Project also includes plumbing modifications to convert existing water users' irrigation systems from potable water supply to the recycled water supply. Work for the project included records search and literature review, review of historic maps and aerial photographs, Native American outreach, supervision of the field survey, report authorship, and coordination with the State Water Resources Control Board. Work performed for Upper San Gabriel Valley Municipal Water District.

Upper San Gabriel Valley Municipal Water District Indirect Reuse Replenishment (2015 - 2017).Cultural Resources Task Leader/Principal Investigator for the construction of a pump station at the San Jose Creek Water Reclamation Plant (SJCWRP) West Plant and an approximately 9-mile, 36-inch pipeline from the SJCWRP pump station to the Santa Fe Spreading Grounds (SFSG). Project also includes four new groundwater monitoring wells that would be installed in the SFSG area. Work for the project included records search and literature review, Native American outreach, supervision of the field survey, supervision of the recording of the historic Santa Fe Dam, and report authorship. Work performed for Upper San Gabriel Valley Municipal Water District.

Valiano Cultural Resources (2014 - 2015).Project Manager/Principal Investigator of a cultural resources survey and testing program for a 239-acre residential planned community in the Escondido area of the County of San Diego. Oversaw background research, field survey, testing, recording archaeological sites and assessment of historic structures, Native American outreach and coordination, and report preparation. Archaeological testing was conducted at several sites that could not be avoided through project design. The project site is in an area that is of cultural importance to both the Kumeyaay and Luiseño people; HELIX archaeologists worked with Native American representatives from both groups. Coordination was conducted to determine the feasibility of preserving bedrock milling features by moving them to open space areas within the project. Other archaeological sites were retained in open space through project design. Work performed for Integral Partners Funding, LLC.

Valiano Project (2015 - 2015).Project Manager/Principal Investigator for a cultural resources survey and testing project for a proposed residential development in the County of San Diego. Oversaw background research, field survey and testing, Native American coordination, report preparation, and development of a data recovery plan. Managed coordination and field meetings with both Kumeyaay and Luiseño representatives. The study included historic structures evaluation, as well as archaeological research. Work performed for Integral Partners Funding, LLC.

Villa Storia (2014 - 2015).Project Manager/Principal Investigator of a cultural resources survey for a proposed residential development in the City of Oceanside. Oversaw background research, field survey, Native American coordination, and report preparation. The project is in proximity to Mission San Luis Rey, in an area of great cultural significance to the Luiseño people, as well as archaeological sensitivity. The cultural resources study included background research, survey of the project area, archaeological testing/assessment, and coordination with the Native American community. Work performed for Integral Partners Funding, LLC.

Washington Road (2017 - 2017).Project Manager/Principal Investigator for a cultural resources constraints analysis, historic study, and construction monitoring for a residential project in French Valley in Riverside County. The cultural resources study included historic background research and a field visit to assess a previously recorded historic archaeological site, preparation of a site record update, construction monitoring, documentation of isolated historic material encountered during monitoring, and preparation of a report for submittal to the County.

Santa Margarita Water District 3A Water Reclamation Plant Tertiary Treatment Expansion (2016 - 2016).Cultural Resources Task Leader/Principal Investigator for a project proposed to increase recycled water production capabilities The project would include: increasing the reliability of the aeration system; expanding and/or replacing the existing filters with more effective tertiary filters; expanding the disinfection system; expanding the tertiary effluent pumps; possibly upsizing the discharge pipeline that connects to the District's recycled water distribution system; modifying various in-plant piping and electrical systems, and adding a standby generator to the facility for use in case of a power outage. All improvements would occur within the existing boundaries of the 3A Treatment Plant property located in southern Orange County. Project work included a records search and literature review, review of historic maps and aerial photographs, Native American outreach, and report authorship. Work performed for Santa Margarita Water District.

Wildomar Crossings Retail Development Project (2016 - 2017).Principal Investigator for a cultural resources survey for a proposed retail development project in the City of Wildomar in Riverside County. The cultural resources survey included a records search, Sacred Lands File search and Native American outreach, review of historic maps and aerial photographs, an intensive field survey, and report preparation.

Borrego Solar Farm (2009 - 2010). Project Manager/Principal Investigator for a cultural resources survey and testing program for a proposed solar farm project in the Borrego Springs area of the County of San Diego. The survey included two parcels and a transmission line and resulted in the documentation of 13 archaeological sites and 8 isolates.

Pala Substation (1992 - 1993). Project Manager for cultural resources survey and testing program for a proposed substation in the Pala area of northern San Diego County, near the Pala Indian Reservation. Oversaw background research, testing and documentation of cultural resources identified, and report preparation.

San Diego International Airport Master Plan Update (2005 - 2006). Project Manager/Archaeological Principal Investigator for an archaeological study and historic structures analysis for the Airport Master Plan Update. The historic study included assessment of five buildings on the main airport area, as well as a complex of 47 buildings and structures at the Teledyne Ryan property. Two buildings within the main airport area were assessed as significant resources (the original United terminal and the Allied Aerospace building). In addition, the Ryan Aeronautical Company Historic District was identified and recorded as a National Register-eligible historic district with 17 contributing elements. Work performed for engineering/design prime and San Diego County Regional Airport Authority.

Bayshore Bikeway (2014). Project Manager for cultural resources monitoring for a 2.7-acre habitat restoration area designed to mitigate impacts to biological resources from development of the Bayshore Bikeway around a portion of the San Diego Bay that extends through the City of San Diego, National City, and Chula Vista. The restoration area was within a cultural resource site. Managed archaeological and Native American monitors per mitigation requirements of the U.S. Fish and Wildlife Service; coordinated with USFWS, City of San Diego staff, and contractor. Worked performed under a contract with the City of San Diego.

San Diego International Airport Master Plan Update (2005 - 2006). Project Manager/Archaeological Principal Investigator for an archaeological study and historic structures analysis for the Airport Master Plan Update. The historic study included assessment of five buildings on the main airport area, as well as a complex of 47 buildings and structures at the Teledyne Ryan property. Two buildings within the main airport area were assessed as significant resources (the original United terminal and the Allied Aerospace building). In addition, the Ryan Aeronautical Company Historic District was identified and recorded as a National Register-eligible historic district with 17 contributing elements. Work performed for HNTB Corporation and San Diego County Regional Airport Authority.

Brown Field Municipal Airport Master Plan (1997 - 1998). Project Manager/ Archaeological Principal Investigator for an archaeological study and historic structures analysis for the Airport Master Plan Update. The historic study included assessment of 30 World War II era historic buildings associated with the Navy's use of Brown Field and documentation of a significant, National Register-eligible historic district that was recognized by the City of San Diego's Historical Resources Board as a City Landmark. The historic study also addressed former homesteads within the project area and the historic context of Otay Mesa.

Carmel Mountain/Del Mar Mesa Natural Resource Management Plan (2013). Cultural Resources Task Manager for a cultural resources survey and testing program to identify potential impacts from trail usage, in support of the City of San Diego's Del Mar Mesa/Carmel Mountain Natural Resource Management Plan. Provided recommendations for avoidance or preservation of resources as well as future testing and/or monitoring. Oversaw background research, fieldwork, cataloging and analysis of cultural material recovered. Responsible for Native American coordination, report preparation, and recommendations. Work performed as a subconsultant to HELIX, for the City of San Diego.

Tecolote Canyon Natural Resources Management Plan (2003 - 2004). Cultural Resources Task Manager for the preparation of a Natural Resource Management Plan addressing the approximately 900-acre Tecolote Canyon Park in the western portion of the City of San Diego, most of which is within the City's MSCP MHPA. Responsible for records search and literature review, review of historic maps and archival material, consultation with the chair of the Citizen's Advisory Committee for the Park, and recommendations for the management of the cultural resources within the Park. Work performed for the City of San Diego Department of Park and Recreation.

Barnett Ranch Open Space Preserve (2003). Cultural Resources Task Manager for a 700-acre open space preserve located in the unincorporated community of Ramona in San Diego County. The archaeological project consisted of a records search and literature review, as well as review of the site records and notes from the survey of the project area conducted in the late 1990s. Responsible for developing recommendations for the management of the cultural resources in the Open Space Preserve. Work performed for the County of San Diego.

Balboa Park Golf Course (2013). Project Manager/Principal Investigator for a cultural resources monitoring program for improvements to a maintenance path through the MHPA at Balboa Park Golf Course. Oversaw monitoring. Responsible for Native American coordination and report preparation. Work performed for the City of San Diego.

Vista Sports Park (2007 - 2010). Project Manager/Principal Investigator for a cultural resources survey and subsequent construction monitoring for a sports park in Vista, in northern San Diego County. Work included off-site improvements, such as sewer and road connections. Due to the cultural sensitivity of the site, which is close to Rancho Guajome, staff worked closely with Saving Sacred Sites and the San Luis

Rey Band of Luiseño Mission Indians. Oversaw background research, survey, and monitoring. Responsible for Native American coordination and report preparation. Work performed for the City of Vista.

Nobel Athletic Fields and Library (2002 - 2003). Project Manager/Principal Investigator for a cultural resources survey and testing program for a project that included a multi-use active field, children's play areas, a recreation center, a library, an off-leash dog area, picnic shelters, restrooms, parking lots, and open space, located in the Golden Triangle area of the City of San Diego. Oversaw background research, fieldwork, cataloging and analysis, Native American coordination, report preparation, and curation of artifacts. Work performed for the City of San Diego.

Stacie Wilson, M.S., RPA

Principal Investigator

HELIX Environmental Planning

Summary of Qualifications

Ms. Wilson has been professionally involved in cultural resources management for 15 years. She meets the qualification of the Secretary of Interior's Standards and Guidelines for Archaeological and Historic Preservation and has led multiple field efforts on both public and private lands. As principal investigator for cultural resources, she has supported project compliance with the National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act (NHPA), and the California Environmental Quality Act (CEQA). Having worked in coordination with project stakeholders, Native American tribal representatives, and local, state and federal agencies like California Energy commission (CEC), Bureau of Land Management (BLM), U.S. Department of Energy (DOE), and the California State Historic Preservation Office (SHPO), Ms. Wilson has the knowledge of, and experience with, applicable regulatory frameworks and requirements to conduct the successful and efficient completion of cultural resources services. She is efficient in guiding the coordination between agencies, clients, office support staff, sub consultants, and the field team and is well versed in the maintenance of project schedules and budgets. She excels in data organization and management and is skilled in archaeological inventories and excavation, and NHPA-, NEPA-, and CEQA-compliant technical report documentation.

Project Experience

Archaeological Survey and Site Documentation for the Devers to Valley Substation Project, Riverside County, CA (October 2008 – September 2009). Field Director for the cultural resource inventory of approximately 600 acres in eastern Riverside County located on BLM and private land. Duties included the organization and supervision of field survey, GIS project data management, and documentation approximately 50 archaeological resources on DPR forms. Co-author of cultural resources inventory report submitted to the BLM. Work was performed for Southern California Edison (SCE), with BLM as the lead agency.

Archaeological Survey and Site Documentation for the BLM National Historic Trails Inventory, AZ, CA, CO, NM, NV, UT, WY (2010 – May 2012). GIS Task Lead for a multi-state initiative that focused on identifying, field inventorying, and assessing the cultural and visual resources of six National Historic Trails located on BLM lands. The inventory included examining high potential route segments and sites of the Old Spanish, El Camino Real de Tierra Adentro, California, Oregon, Mormon Pioneer, and Pony Express National Historic Trails. For this project, elements of the National Park Service's (NPS) Cultural Landscape approach were integrated as part of the setting analysis to document and assess the historic integrity, contributing, and noncontributing elements of the trail setting. Served as lead archaeologist and field director for California sections and in close coordination with BLM, led the field effort of over 2,000 acres inventoried in remote areas of San Bernardino County. Task lead duties included technical guidance; development of methodology; and establishment

Education

Master of Science, Applied Geographical Information Science, Northern Arizona University, 2008

Bachelor of Arts, Anthropology, University of California, San Diego, 2001

Bachelor of Science, Biological Psychology, University of California, San Diego, 2001

Registrations/ Certifications

Register of Professional Archaeologists (RPA) #16436, 2008

Professional Affiliations

Society for California Archaeology

Society for American Archaeology

of protocols and standards for field work in compliance with federal standards. **9 days**

Cultural Resources Surveys for the Antelope Valley Solar Project, Kern and Los Angeles Counties, CA (February 2010 – March 2012). Field Director, GIS specialist, and report author for solar electric-generating facilities proposed on an approximately 5,000-acre site in Kern and Los Angeles counties. The project included the organization of a records search, Native American contact program, archaeological and built environment surveys, the recordation of cultural resources, and the preparation of cultural resources reports. Work was performed for Renewable Resources Group, Inc., with the Kern County as the lead agency. **25 days**

Archaeological Survey of the Mojave Solar Project and Lockhart Substation Connection & Communication Facilities, San Bernardino County, CA (April 2010 – July 2011). Project Manager, Field Director, and Class III report and cultural resources Environmental Assessment section author for the Lockhart Substation Connection & Communication Facilities for the proposed Mojave Solar Project. The project was located in the Mojave Desert region of California on private, BLM, and Edwards Air Force Base lands in San Bernardino County and included survey of 85 linear miles. Duties involved active coordination and communication facilitation between DOE, BLM, and the client for successful cultural resources permitting. Work performed for Mojave Solar, LLC, with the BLM as the lead agency. **15 days**

Cultural Resources Surveys for the RE Astoria Project, Kern County, CA (March 2013 – April 2014). Principal Archaeologist for a cultural resources study of a 2,050-acre solar power project in Kern County. Duties included the organization of a records search, conducting an Native American contact program, overseeing archaeological and built environment surveys, the recordation of cultural resources, and the preparation of a Phase I cultural resources technical report. Work was performed for Recurrent Energy (RE) Astoria LLC, with the County of Kern as the lead agency. **10 days**

Archaeological Survey for the Path 42 Transmission Line Project, Riverside County, CA (April – July 2013). Field Director for a cultural resources survey of the Path 42 Transmission Line Project in Riverside County. Covering 233 acres, the Class III study included compilation of record searches, a Native American contact program, field surveys, and completion of a cultural resources investigations Class III report. Work performed for Imperial Irrigation District (IID), with the BLM as the lead agency. **3 days**

Archaeological Survey for the Valley South Sub-transmission Project, Riverside County, CA (March 2012 – October 2016). Principal Investigator for a cultural resources inventory of the proposed Valley South Sub-transmission Project located in western Riverside County. Covering over 20 miles, the Phase I inventory and field survey project included compilation of record searches, a Native American contact program, field surveys, and completion of a Cultural Resources Survey

Report and Proponent's Environmental Assessment section. Work performed for SCE, with the California Public Utilities Commission as the lead agency.

Archaeological Studies for the San Diego Gas & Electric (SDG&E) As-Needed Services Contract, San Diego and Imperial counties, CA (2011 – 2016). Project Manager and Principal Investigator for cultural resources as-needed services for SDG&E pole replacement, operation and maintenance, transmission line planning, and other projects in San Diego and Imperial counties on private, local agency, and federal lands. Activities included task coordination and management of field survey, monitoring, and archaeological documentation for project task orders.

Archaeological Studies for the County of San Diego Department of Parks and Recreation As-Needed Consulting Services Contract, San Diego County, CA (2012 – 2016). Cultural Resources Task Lead and Principal Investigator for as-needed CEQA and NEPA support. Duties included coordination of archaeological monitors, site assessments, survey, site form documentation, and reporting efforts in compliance with Section 106 of the NHPA and CEQA. Principal Investigator for several NEPA complaint task orders, including the Cultural Resources Study in Support of the Tijuana River Valley Regional Park Trails and Habitat Enhancement Project (August - September 2014) and the Cultural Resources Study in Support of the Mesa Trail and Restoration Project and the Dairy Mart Overlook Project (January – May 2014). In support of a Land and Water Conservation Fund application, compliance with Section 106 of the NHPA was required for the projects. Duties included agency and fieldwork coordination and providing Section 106 consultation support.

Archaeological Studies for the Southern California Edison (SCE) As-Needed Environmental Compliance Support Contract, CA (2015 – 2016; 10 days of fieldwork). Principal Investigator for various as-needed projects located within SCE territory throughout several counties. Duties included coordination of cultural records searches, surveys, monitoring and reporting efforts for Capital Improvement and Transmission Line Rating Remediation (TLRR) program projects on private and public lands.

Archaeological Surveys and Site Documentation for the City of San Diego Long-term Mitigation Strategy Development Project (November -December 2016). Principal Investigator for a cultural resources study of the Kearny Mesa East Mitigation Site, a 7.57-acre City of San Diego owned parcel located in Murphy Canyon. Conducted as part of an as-needed contract with the City of San Diego, Transportation & Storm Water Department, the project evaluated the potential mitigation opportunities for the parcel. Duties included conducting background research, a field survey and recording of cultural resources, Native American outreach and coordination, and report preparation. Work performed for the City of San Diego.

Selected Bibliography of Technical Reports

Glenny, Wayne, **Stacie Wilson**, Theodore Cooley, and Patrick McGinnis
2014 Cultural Resources Study in Support of the Mesa Trail and Restoration Project and the Dairy Mart Overlook Project, Tijuana River Valley Regional Park, San Diego, California. Prepared for County of San Diego Department of Parks and Recreation, in support of a Land and Water Conservation Fund application.

Cooley, Ted and **Stacie Wilson**
2010 Cultural Resources Report for the Proposed RRG Weldon Solar Project Weldon, Kern County, California. Prepared for Renewable Resources Group (RRG). Submitted to County of Kern Planning Department.

Eckhardt, William T. and **Stacie Wilson**
2009a Final Cultural Resources Inventory of the Proposed SCE Devers to Valley Substation Project, Riverside County, California. Prepared for Southern California Edison (SCE). Submitted to Bureau of Land Management, Palm Springs-South Coast Field Office.
2009b Cultural Resources Inventory of the Proposed DPV2 Colorado River Switchyard Project, Riverside County, California. Prepared for Southern California Edison (SCE). Submitted to Bureau of Land Management, Palm Springs-South Coast Field Office.

Jordan-Connor, Stacey, **Stacie Wilson**, and Rachel Droessler
2015 Archaeological Survey Report for the Otay Truck Route Project San Diego, San Diego County, California. Prepared for the City of San Diego. Submitted to California Department of Transportation District Environmental Branch, District 11.

McGinnis, Patrick, Rachel Droessler, and **Stacie Wilson**
2013 Cultural Resources Investigations Class III Report for the Path 42 Transmission Line Project, Riverside County, California. Prepared for Imperial Irrigation District. Submitted to Bureau of Land Management, Palm Springs- South Coast Field Office.

Wilson, Stacie
2014 Auger Testing Results for Tijuana River Valley Regional Park Trails and Habitat Enhancement Project, Tijuana River Valley Regional Park, San Diego, California. Prepared for County of San Diego Department of Parks and Recreation. Submitted to U.S. Army Corps of Engineers, Carlsbad Field Office.
2016 Addendum 1, Cultural Resources Survey Report for the Proposed Southern California Edison Valley South 115 kV Subtransmission Project (VSSP), Riverside County, California. Prepared for Southern California Edison (SCE).
2016 Letter Report – Monitoring of D Street Fill Wetland Restoration Project Site. Prepared for San Diego Gas & Electric (SDG&E). Submitted to Fish and Wildlife Service (FWS).

Wilson, Stacie, Theodore Cooley, and Spencer Bietz
2014 Cultural Resources Study in Support of the Tijuana River Valley Regional Park Trails and Habitat Enhancement Project, Tijuana River Valley Regional

Park, San Diego, California. Prepared for County of San Diego Department of Parks and Recreation. Submitted to U.S. Army Corps of Engineers, Carlsbad Field Office.

Wilson, Stacie and Jill Gibson
2015 Cultural Resources Survey Report for the Proposed Southern California Edison Valley South 115 kV Subtransmission Project (VSSP), Riverside County, California. Prepared for Southern California Edison (SCE).

Wilson, Stacie and Stacey C. Jordan
2010 Existing Conditions Report for the Proposed RRG Antelope Valley Solar Project Kern and Los Angeles Counties, California. Prepared for Renewable Resource Group (RRG). Submitted to County of Kern Planning Department.

Wilson, Stacie, Stacey C. Jordan, and Christy Dolan
2010 Cultural Resources Report for The Gaskell Property Portion of the Proposed RRG Antelope Valley Solar Project Kern County, California. Prepared for Renewable Resource Group (RRG). Submitted to County of Kern Planning Department.
2011 Cultural Resources Report for the Transmission Line and Whirlwind Substation Portion of the Proposed RRG Antelope Valley Solar Project Kern County, California. Prepared for Renewable Resource Group (RRG). Submitted to County of Kern Planning Department.

Wilson, Stacie, M.K. Meiser, and Theodore Cooley
2011 Cultural Resources Class III Survey Report for the Proposed Mojave Solar Project and Lockhart Substation Connection & Communication Facilities, San Bernardino County, California. Prepared for Mojave Solar, LLC. Submitted to Bureau of Land Management.

Catherine A. Wright
Senior Archaeologist

HELIX Environmental Planning

Summary of Qualifications
Ms. Wright has 22 years of experience performing cultural resource management in the West. She has performed the full range of archaeological and historic resource studies in California, Arizona and Nevada. This includes background research, surveys, site evaluations, and mitigation through data recovery and monitoring. She has prepared numerous cultural resource survey reports, site overviews, background summaries, survey and testing plans, and Integrated Cultural Resource Management Plans (ICRMPs). She acted as Quality Assurance Manager for numerous large cultural resources contracts with the Department of Defense, including the Navy, Air Force, Army Corps of Engineers (Corps), and the US Army. Ms. Wright has also served as a Natural Resources Specialist for Naval Facilities Engineering Command (NAVFAC), Southwestern Division and has worked closely with NAVFAC personnel managing cultural resource contracts for NAVFAC Southwest and NAVFAC Atlantic.

Ms. Wright has considerable experience with the applications of the NHPA and with cultural resource requirements of CEQA and with CEQA Plus. Through her federal service, she is also familiar with the requirements of various Executive Orders guiding archaeological and historic resource studies. Ms. Wright has also worked with BLM, City and County of Riverside, California State Parks, Caltrans, Bureau of Indian Affairs (BIA), U.S. Forest Service (USFS), Bureau of Reclamation, Corps, Imperial Irrigation District (IID), Coachella Valley Water District, the City and County of San Diego, and Caltrans.

Ms. Wright has also worked with various municipalities and local water districts in southern California, including the Santa Fe Irrigation District, Encinas Basin Water District, Carlsbad Municipal Water District, San Diego County Water Authority, Vista Irrigation District, Metropolitan Municipal Water District, Imperial Irrigation District (IID), Coachella Valley Water District (CVWD), the City and County of San Diego, and Caltrans. In addition, she was charged with assisting with the management of on-call cultural resource studies for the City of San Diego, USDI Bureau of Reclamation, IID, and CVWD, among others. Ms. Wright has provided cultural resource expertise in Carlsbad, Vista, Oceanside, San Marcos, Encinitas, Escondido, and Del Mar.

Education
Bachelor of Arts, Anthropology, University of California, Riverside, 1998

Selected Project Experience

Apple Valley Airport Detention Basin IS/MND (2018 - 2018).As Assistant Project Manager, worked with the San Manuel Band of Mission Indians to provide Native American monitoring services during an archaeological survey of the Apple Valley Airport. Work performed for the Apple Valley Airport Authority.

Orchard Wood Sewer Replacement Project (2018 - 2018).As Cultural Resource Specialist, Ms. Wright prepared a technical report to summarize the results of a survey of an existing sewer line in Encinitas. The technical report summarized status of knowledge information, methods and results of the study, and provided recommendations for additional work. The area is sensitive for prehistoric archaeological resources and recommendations for archaeological and Native American monitoring during ground disturbances were made. Prepared for Infrastructure Engineering Corporation.

Seraphina Project (2017 - 2018).As Archaeologist, prepared a technical report to summarize the results of a 40-acre survey adjacent to Santa Gertrudis Creek in Temecula. Two pipelines associated with the historically significant First San Diego Aqueduct are situated within the project area and will be capped during project construction. Prepared site forms for the pipes and a historic road alignment, which are located within the study area. Prepared a State Historic Preservation Officer (SHPO) consultation letter for the U.S. Army Corps of Engineers. Work was performed in compliance with Section 106 of the NHPA.

Sycamore-Watson Residential Project (2018 - 2018).As Archaeological Peer Reviewer, Ms. Wright provided comments on a cultural resources survey technical report for a 7-acre development property. The project area is sensitive for cultural and Tribal cultural resources. She provided critical feedback on the methods utilized and the recommendations provided in the report. Work performed for the City of Vista.

PSEP L1004 Archaeological High-Level Review, **central CA** (2017)– As Senior Archaeologist, prepared a literature review and sensitivity analysis for a proposed pipeline replacement project. Worked with SoCalGas personnel to obtain records search information. Prepared a sensitivity analysis to identify the potential for the unanticipated discovery of archaeological or historical sites during project development. Provided recommendations for compliance with CEQA and NEPA. Produced a second set of recommendations pertaining to a number of taps to be installed in the project. The results were negative. *Client: Southern California Gas Company*

Archaeological Monitoring for the Widening of 32151Del Obispo, San Juan Capistrano, CA (2017) - As Archaeologist, prepared scope of work and cost estimate to perform five days of archaeological monitoring during trenching and potholing within a known archaeological district in San Juan Capistrano. *Client: Southern California Gas Company.*

Archaeological Survey for the Repair of Line 235, **Needles, CA** (2017) – As Archaeologist, prepared a scope of work, cost estimate, and Fieldwork Authorization Request (FAR) for a survey on Bureau of Land Management lands administered by the BLM’s Needles Field Office. Survey was conducted to support repair or replacement of 34-inch diameter pipeline that has succumbed to various forms of degradation since its installation in the late 1950’s. *Client: Southern California Gas Company*

Archaeological Monitoring for Southern California Gas Line 85 Pipeline Right of Way near Taft, Kern County, CA (2017)– As Archaeologist, prepared Fieldwork Authorization Request for submission to the Bureau of Land Management. Prepared draft technical report to summarize the results of monitoring. Prepared a DPR form for a single isolated artifact identified during construction. *Client: Southern California Gas Company*

PSEP L1005 Archaeological High-Level Review, **central CA** (2017)– As Senior Archaeologist, prepared a literature review and sensitivity analysis for a proposed pipeline replacement project. Worked with SoCalGas personnel to obtain records search information. Prepared a sensitivity analysis to identify the potential for the unanticipated discovery of archaeological or historical sites during project development. Provided recommendations for compliance with CEQA and NEPA. *Client: Southern California Gas Company*

Archaeological Survey for the Line 6916 Sunnyslope Relocation Potholing Project, **Twentynine Palms, San Bernardino County, CA** (2017)– As Co-Project Manager, assisted in coordinating an archaeological survey near Twentynine Palms, CA. *Client: Southern California Gas Company*

Archaeological Monitoring for Line 6916, Needles, Riverside County, CA – As Project Manager, coordinated with a subcontractor to provide a qualified archaeological monitor during the excavation of an existing natural gas line on BLM lands near Needles. An isolated artifact was recorded in proximity to the gas line and so monitoring was required. No additional artifacts or cultural resources were identified during construction. *Client: Southern California Gas Company*

Cuyama Photovoltaic (PV) Monitoring, **First Solar, Cuyamaca, Santa Barbara County, CA** (2017)– As Project Manager, managed archaeological and Native American monitoring, noise, air quality, and Best Management Practices work for the development of a PV project in Santa Barbara County. Coordinated with First Solar staff to provide qualified monitoring personnel to observe construction and to monitor air quality and noise levels during construction. Provided weekly updates to First Solar on the progress of monitoring and nesting bird surveys. *Client: First Solar*

Pallowalla High-Level Environmental Review and Cultural Resources Survey, **Southern California Gas Company, Blythe, Riverside County, CA** (2017) – As Senior Archaeologist, conducted a high-level review of cultural resources information for a 2.5-acre project located in open desert adjacent to a residential development in Blythe. Prepared recommendations for cultural resource studies of the property. Managed an intensive pedestrian survey of the project. Prepared technical report to summarize the negative results of the survey. *Client: Southern California Gas Company*

Cultural Resource Reviews for the SoCalGas PSEP Project, **central CA** (2016 - 2017)– As Senior Archaeologist, prepared summaries of existing cultural resource information for a number of SoCalGas undertakings in Central California. Coordinated with SoCalGas adjunct staff to obtain records searches of information provided by the California Historical Resources Information System (CHRIS) information centers in Fullerton, Bakersfield, and Santa Barbara counties. Reviewed historic topographic maps and aerial photos to determine the historic land use of the project properties. Prepared high-level reviews and detailed environmental reviews for pipeline maintenance, replacement, and abandonment projects throughout the region. Provided recommendations for additional work required to implement the PSEP program. *Client: Southern California Gas Company*

Environmental Monitoring for Valves 18 and 18a, **Adelanto, San Bernardino County, CA** (2017)– As Co-Project Manager, assisted with coordinating the work of a qualified biologist during monitoring of construction for the replacement of two gas valves. Worked with the subcontractor to ensure a preconstruction survey was completed within a week of the commencement of construction. Reviewed daily field notes during monitoring and reviewed and edited the preconstruction survey reports. *Client: Southern California Gas Company*

On-Call Environmental Studies for Southern California Gas Company, **southern CA** (217)– As Project Manager for cultural resource services under this on-call contract, worked with SoCalGas personnel to propose upon, staff, and complete various technical studies including records searches, surveys, Native American monitoring, archaeological monitoring, and site significance evaluations throughout SoCalGas's jurisdiction. Coordinated with subcontractors to provide qualified cultural resources personnel. Coordinated with federal agencies to obtain permitting to perform the studies. Prepared and reviewed technical reports. Provided labor estimates for upcoming projects. Tracked use of subcontractors to ensure adequate use of Disadvantaged Business Enterprises. *Client: Southern California Gas Company*

Line 3000 Cultural Resource Surveys and Monitoring Efforts, **Needles, CA** (2016- 2017) – As Project Manager, coordinated with a qualified subcontractor to perform archaeological surveys and monitoring for safety related conditions on natural gas lines located south of National Trails Highway in Needles, CA. Prepared scope and cost and negotiated the Request for Contractor Service (RFCS). Monitoring was performed on an as-needed basis during construction and required immediate responses to requests for service. The work was performed under a Fieldwork Authorization by the Needles BLM. Reviewed technical report prior to submittal to SoCalGas Project Manager. *Client: Southern California Gas Company (2016-2017)*

Archaeological Testing at the SoCalGas Goleta Facility (2016 - 2017). As Project Manager, prepared a proposal to complete archaeological testing within the boundaries of a known prehistoric habitation site located within the SoCalGas facility located along Goleta Slough, Santa Barbara County. Prepared mapping of STP locations for approval by the County prior to the commencement of testing. Coordinated the exact placement of excavation locations with the field director. Coordinated site access and project work with the SoCalGas archaeologists and environmental personnel. Reviewed technical report prior to submission. Work performed for SoCalGas.

Archaeological Studies at the Sanchez Adobe (2016 - 2017). As Project Manager, coordinated archaeological monitoring during the replacement of a waterline within a National Register of Historic Places (NRHP-) listed historic district in San Mateo County. The five-acre property includes archaeological remains attributable to every major habitation period in California, from the prehistoric through WWII. Coordinated with San Mateo County to provide Ground Penetrating Radar (GPR) studies to determine if intact subsurface cultural deposits are present within the site boundaries; edited resulting GPR report and utilized the results to prepare a proposal for performing an Extended Phase I testing program within the boundaries of an area slated for the construction of an interpretive center. Coordinated the preservation in place of human remains discovered during testing through placement of a cap with Park personnel, the construction contractor, and Native American representatives. Work performed for San Mateo County Parks Department.

Class III Archaeological Survey of BLM Lands for the Upgrade and Maintenance of Southern California Gas Pipeline Line 3000, **near Needles, San Bernardino County, CA** (2016 - 2017)– As Project Manager, worked with SoCalGas to complete an 1127-acre survey along an existing natural gas line situated along Kelbaker Road in the Mojave Desert. The work was performed for compliance with the FLPMA and Section 106 of the NHPA. Prepared and submitted a Fieldwork Authorization Request to the Bureau of Land Management (BLM) to conduct fieldwork. Obtained a records search from SoCalGas. Coordinated with field staff to complete the survey along 62 miles of the pipeline. Coordinated with BLM to obtain additional project information, a Fieldwork Authorization, and to prepare appropriate recommendations for the evaluation and mitigation of project sites. Prepared portions of historic context. More than 70 resources were identified and recorded. Eligibility evaluations were provided based upon surface components of the site. Two separate ARMR-format reports were prepared for BLM review.

Naval Weapons Station Seal Beach Integrated Cultural Resources Management Plan (ICRMP) Update, **NWS Seal Beach, Orange County, CA.** As Project Coordinator, worked with the Prime contractor to prepare and negotiate a budget for updating the NWS Seal Beach, Detachment Fallbrook and Detachment Corona ICRMPs. Attended the project kickoff meeting with Rincon's technical staff and management staff from the Prime to determine the distribution of work between the firms. Reviewed draft ICRMP sections. Coordinated the transfer of data and deliverables between Rincon and the Prime. *Client: Ultrasystems Environmental for NAVFAC SW*

Cuyama Solar Development, **New Cuyama, Santa Barbara County, CA** (2016) – As Task Manager, led the archaeological and Native American monitoring effort during ground disturbances related to the development of a solar field and gen-tie line in Cuyama. Coordinated with the client and monitors to ensure appropriate archaeological and Tribal coverage during site development. Attended weekly coordination meetings and worked closely with the Project Manager to provide data to First Solar in a timely manner. Prepared a brief technical report to summarize the background, methods utilized during fieldwork, and the results of the study, which were negative. *Client: First Solar*

Scarlet Solar Archaeological Survey, **Fresno County, CA** (2016) – As Task Manager, prepared records search request and request to the Native American Heritage Commission to conduct a search of the California Sacred Lands File (SLF). Coordinated fieldwork with Rincon Field Director and the client to ensure access to the study area was granted. Conducted informal Native American consultation to determine the Tribal sensitivity of the 4,000+-acre project property. *Client: Recurrent Energy*

Work Plan for the Orcutt Specific Plan Area Archaeological Testing Project (2016 - 2017). As Senior Archaeologist, drafted the testing plan for a small lithic scatter located at the confluence of three streams in San Luis Obispo County. Work plan included the methods for testing the site with Shovel Test Pits STPs and TEUs to determine the CRHR eligibility of the site. Work performed for Ambient Communities, LLC.

Archaeological Technician Support for the Development of Sewage Settling Ponds along Lake Rosamond, **Edwards Air Force Base, Kern and Los Angeles Counties, CA** (2016)– As Project Manager, worked with the installation's on-call contractor to provide adequate, qualified field surveyors to complete a pedestrian inventory of a large area along Rosamond Lake on the western side of the base. Coordinated with field crew and base staff to complete the survey. Prepared site forms and other field documentation for more than 80 prehistoric and historic sites located near Challenger Road. For the most part, the sites are attributable to the Western Pluvial Lakes Tradition and to the historic period occupation of EAFB. *Client – JT3*

Braverman Drive Residential Development Site Mitigation and Salvage (2016). As Archaeologist, assisted with the salvage of late prehistoric cremations and associated burial goods after the completion of data recovery mitigation of a prehistoric site along the San Diego River in Santee, San Diego County. Screened soil and collected diagnostic and unique artifacts and human remains for repatriation with the Kumeyaay Indians. Reviewed portions of the technical report. Work performed for KB Home.

Line 33-37 Archaeological Monitoring, Santa Monica Mountains Recreation Area, **Los Angeles County, CA** (2016)– As Task Manager, worked with Southern California Gas to provide archaeological and Native American monitors for the replacement of a gas line on National Park Service lands. Coordinated the revision of an existing ARPA permit for the project to include monitoring. Worked with NPS and SCG to obtain timely approval of the permit. *Client – Southern California Gas Company (2016)*

Richmar Park Archaeological Monitoring, **San Marcos, San Diego County, CA** (2016) – As Project Manager, worked with City of San Marcos staff to provide archaeological monitoring for the development of a park on Richmar Ave. The project was performed for CEQA and HUD NHPA compliance. No sites were identified. *Client: Schmidt Design (2016)*

Archaeological Testing for the 6th Avenue Suites Project (2016). As Senior Archaeologist, monitored mechanical trenching to test a previously developed property for subsurface archaeological deposits. Monitored geotechnical testing and boring being performed by the project geologist. No sites were identified. Coordinated with City of San Diego personnel to provide paleontological monitors during deeper excavations on the property. Prepared technical report. Work performed for the Narven Partners.

Frazier Park to Pine Mountain Telecommunications Cable Project, Angeles National Forest. Los Angeles County, CA - As Senior Archaeologist, prepared a permit application for an ARPA permit to complete replacement of telecommunication lines within the ANF. Worked with ANF archaeologists to obtain permitting. *Client: Plains All American Pipeline, LLC* (2015)

Archaeological Monitoring for 220 West Gutierrez Street, **Santa Barbara, CA** (2015) - As Senior Archaeologist, worked with monitor to prepare a technical report summarizing monitoring and the discovery of two historic trash deposits on the property at 220 W. Gutierrez in Santa Barbara. Prepared technical report and site form for the discovery. *Client: Paladin Law Group, LLC*

Walker Pass Archaeological Survey, **Neenach, Los Angeles and Kern counties, CA** (2015) - Conducted survey and prepared site documentation, a historic context for the town of Neenach, and prepared portions of an archeological survey report for compliance with CEQA prior to the development of a 1,200-acre solar field in the Antelope Valley. *Client: Recurrent Energy*

Garland Solar Archaeological Monitoring Project, **Kern and Los Angeles Counties, CA (2015 - 2016)** – Coordinated closely with monitoring staff to ensure adequate archaeological and Native American monitors were present during project development. Tracked monitoring hours and expenses for the client. Prepared monthly summary reports to describe the month's construction monitoring activities as required by the project MMRP. Project Coordinator/Technical Writer. *Client: Recurrent Energy*

Malibu Creek Regional Park Interpretive Displays, **U.S. Salvation Army, Malibu Canyon, Los Angeles County, CA** – As Project Archaeologist, prepared a historic context to summarize the prehistoric and historic uses of the area surrounding Malibu Creek in the Santa Monica Mountains. Prepared text for on-site interpretive signs to be placed within the park to educate the public on historic uses of the area. *Client: Salvation Army*

Environmental Assessment/Overseas Environmental Assessment (EA/OEA) for the Fiber Optic Communications Underwater System (FOCUS) Replacement, **NAVAIR Sea Range, Point Mugu, California,** (2014-2015). As technical editor, reviewed draft EA/OEA being prepared by the Department of the Navy for the replacement of submarine communications lines running from Naval Base Ventura County, Point Mugu to Santa Cruz and San Nicolas islands, offshore from the mainland. Ensured Government comments to the draft document were properly incorporated. Provided input on the archaeological studies to be accomplished before project implementation.

Update and Evaluation of 31 Sites at Airport Lake, NAVAIR, NAWS China Lake, Inyo County, California, (2014). As Senior Archaeologist, prepared site forms and background information for the preparation of a technical report to summarize the study.

Target Buffer Survey, NAVAIR, **NAWS China Lake, California**, (2014). Prepared previous research section for a technical report summarizing the results of an intensive pedestrian survey on the North Range of NAWS China Lake. Identified previous studies conducted within the current study area and summarized their results. Prepared summaries of site information for more than 50 sites identified within the project APE.

Bodie Hills Archaeological Surveys, **Bureau of Land Management, Inyo and Mono counties, California,** (2014). As Senior Archaeologist, prepared site forms and previous research sections for the technical report provided to the BLM summarizing a survey and evaluation effort on BLM lands in Inyo and Mono counties, California. Survey was conducted over the course of three years and resulted in the identification, documentation, and evaluation of more than 200 prehistoric and mining-related historic sites.

NAVFAC Southwest On-Call Cultural Resources Contract, NAVFAC Southwest, California, Arizona and Nevada, (2012-2017). As Contract Manager, worked with lead cultural resource specialists and NAVFAC cultural resources personnel to conduct the full range of archaeological and architectural history studies on Navy and Marine Corps installations throughout the American Southwest. Served as Quality Control Manager for project deliverables.

Edwards Air Force Base (EAFB) Additional 85 Sites Testing, **EAFB, Kern and Inyo counties, California,** (2010). As Assistant Contract Manager, prepared cost estimate and scope of work for submission to the Air Force. Edited portions of technical report. Negotiated the budgeted amount with base personnel.

Sunrise Powerlink Archaeological Monitoring Project, **Burns and McDonnell Engineering, San Diego County, California,** (2009 - Present). As Assistant Contract Manager, coordinated with client to staff, permit, and manage archaeological monitoring of the construction of a major transmission corridor from Imperial County to the San Diego coastline. Worked with BLM to obtain FLPMA permitting for temporary field crews and coordinated project scheduling.

San Diego Gas & Electric Monitoring at 749 Ora Avo Road, SDG&E, Vista, San Diego County, California, (2008). Conducted emergency monitoring of the replacement of a power pole in Vista. Coordinated work with SDG&E project managers and construction foreman, conducted archaeological monitoring of pole replacement, and prepared technical report to summarize the results of the project.

La Pozz Cement Survey, **Enviroscientists, Kern County, California,** (2008-2009). As Project Coordinator, assisted in ensuring completion of technical aspects of work. Edited archaeological report and managed report production.

SHPO Consultation for the JIEDDO Construction Project, NAWS China Lake, Ridgecrest, California, (2007). Assisted with the preparation of a SHPO consultation package for Section 106 compliance on a large-scale trenching project for the installation of a fiber optic network. Prepared a written review of previous cultural resources work that had taken place within the project, identified sites that were impacted by trenching, and made recommendations for treatment and/or mitigation of 29 National Register-eligible sites. Reviewed a contractor's damage assessment report and provided comments. Conducted site visits to identify sites damaged by trenching.

Historical Resources Evaluation of the Palmdale Ditch, Los Angeles County (2008). As report editor, reviewed and revised technical report for the survey and evaluation of a historic water feature in the Antelope Valley. Work performed for Metropolitan Water District of Southern California.

Determination of Effect for Ranges at San Clemente Island, **NAVFAC Southwest, NALF San Clemente Island, San Clemente Island, Los Angeles County, California**, (2007). Assisted with the preparation of a written determination of effects from the construction of berms within a rifle range on the Island. Conducted site visits to identify impacts to a National Register-eligible site. Prepared background information on the project and coordinated with the Officer-In-Charge to determine any plans for future work in the area. The Determination of Effect report will be submitted to the SHPO for concurrence.

Archaeological Site Signing at San Clemente Island, NAVFAC Southwest, NALF San Clemente Island, San Clemente Island, Los Angeles County, California, (2007). Assisted with the installation of new protective signs at the Eel Point site. Prepared a scope of work to install more than 700 additional signs for sites located near roadways and in areas with a high level of access to military personnel. Prepared brochures to be provided to military personnel to inform them on the SCLI cultural resources program.

Data Consolidation for Previous Work at San Clemente Island, NAVFAC Southwest, NALF San Clemente Island, San Clemente Island, Los Angeles County, California, (2007). Reviewed previous documentation for studies conducted in the central portion of the Island. Prepared a scope of work and cost estimate for consolidation of the data under a single cover.

NALF San Clemente Island Programmatic Agreement (PA),NAVFAC Southwest, Southern California, (2007). Reviewed a cultural resources section of the Southern California Range Complex EIR and provided comments. Prepared an abbreviated history of work at the Island to include in a consultation package for submission to the SHPO to support Commander Navy Region Southwest's Programmatic Agreement for cultural resources at the Island. Consulted with the Commanding Officers of both Naval Base Coronado and NALF San Clemente Island, and Navy environmental personnel to facilitate the submission of the PA.

MCAS Miramar Integrated Cultural Resources Management Plan (2007 - 2009). As Technical Editor, reviewed this management planning document, which covers regulatory requirements and status of knowledge information for archaeological resources and historic built environment resources on the MCAS Miramar base in San Diego County. Work performed for NAVFAC SW.

MCAS Miramar Archaeological Study, **NAVFAC Southwest, MCAS Miramar, San Diego County, California,** (2007-2009). Prepared work plan for the preparation of an Integrated Cultural Resources Management Plan (ICRMP) for this Marine Corps installation, located in central coastal San Diego County. Reviewed status of knowledge information related to the archaeology and history of the base. Worked with Base Archaeologist, Public Works Office, and environmental personnel to complete the ICRMP.

UCSD San Diego Consortium for Regenerative Medicine Archaeological Monitoring, University of California San Diego, La Jolla, San Diego County, California, (2009). As Assistant Project Manager, coordinated work between the Prime contractor and project personnel. Worked with project archaeologist to develop a strategy for conducting monitoring within the boundaries of a known archaeological site for the construction of a new research facility and associated parking structures.

EAFB Phase II and III Studies Along the West and Northwest Base Boundaries, **US Army Corps of Engineers, EAFB, Kern and San Bernardino counties, California,** (2007-2009). As Technical Editor, worked with report authors to ensure study documentation was complete and correct. Edited technical report summarizing background information, study methods and results.

Archaeological Inventory of the Chicken Springs Project, **Bureau of Land Management, Chicken Springs, Sweetwater County, Wyoming,** (2008-2009). As Assistant Project Manager, prepared bid documents including written proposal and project budget. Coordinated work with offices in Cheyenne and Rock Springs, Wyoming. Edited technical report resulting from fieldwork.

Historical Resources Evaluation of the Palmdale Ditch, **Los Angeles County, California,** (2008). As report editor, reviewed and revised technical report for the survey and evaluation of a historic water feature in the Antelope Valley.

LaPozz Mining Archaeological Survey, **Bureau of Land Management, Kern County, California,** (2008). As report co-author, reviewed and revised technical report providing recommendations for eleven sites prior to their disturbance by mining undertakings. Revised report to follow BLM requirements (ARMR report format) and reviewed site records and additional project documentation to ensure compliance with Section 106 of the NHPA.

Edwards Air Force Base Archaeological Survey and Evaluations, **U.S. Army Corps of Engineers, Edwards Air Force Base, Kern and San Bernardino counties, California,** (2008). As Report Editor, reviewed cultural resources technical reports and provided revisions to Principal Investigators.

UCSD Gliderport Cultural Resources Assessment Project, **University of California, San Diego, La Jolla, San Diego County, California,** (2008). As Report Editor, reviewed technical report resulting from an archival review of known sites within a proposed construction project area.

Naval Detachment Concord Archaeological Survey, NAVFAC Southwest, Concord, California, 2006-2008. As Assistant Project Manager, coordinated closely with Navy personnel and staff GIS administrator to prepare project area maps for use during survey and to conduct the records search. Edited final draft of technical report.

Carson Lake Geothermal Project, USDI Bureau of Land Management, Fallon, Churchill County, Nevada, 2007. As Report Editor, reviewed technical report resulting from a 300-acre archaeological survey near Naval Air Station Fallon in Nevada. Reviewed technical report and provided recommendations for revisions to the content.

Felicita Park Archaeological Monitoring, County of San Diego Department of Parks and Recreation, Escondido, San Diego County, California, 2007. As Assistant Project Manager, coordinated archaeological monitoring during the removal of large signs at Felicita Park in Escondido. Prepared scope and budget and coordinated between Parks and Recreation staff and archaeological monitors.

Black Mountain Park Project, City of San Diego, Black Mountain Park, Rancho Bernardo, San Diego County, California, 2005-2007. As Associate Archaeologist, prepared background study of the park and surrounding area based upon records search information from the South Coastal Information Center and the San Diego Museum of Man. Reviewed and summarized records search results to provide a historic context for the study area. Edited historic resources management plan for the mine complex.

Power Line Reconstruction at Palomar Mountain, San Diego Gas & Electric Company, San Diego County, California, 2007-2008. As Assistant Project Manager, consulted with SDG&E environmental managers to provide archaeological monitors during the replacement of power poles that were burned during the 2007 San Diego wildfires. Coordinated with SDG&E personnel, California State Parks archaeologists, and staff members to ensure adequate archaeological coverage during the ground disturbances resulting from this project. Provided assistance with Section 106 compliance. Coordinated monitoring during clean up of a diesel spill within the State Park.

Preparation of Publications for the Journal of California and Great Basin Archaeology (2006). As Peer Reviewer, edited two technical reports prepared by CalFire for submission to the Journal of California and Great Basin Archaeology. One of the papers provides the basis for identifying and describing Cuyamaca Oval basin metates (Hector et al. 2006). Work performed for CalFire.

Archaeological Survey of the Redhawk Project, Temecula, Riverside County, CA (2006). As Associate Archaeologist, obtained a records search of the project area at the Eastern Information Center and prepared a technical report based upon field survey. Directed a paleontological study of the project and incorporated the results into a technical report. Work performed for HELIX Environmental Planning.

Archaeological Survey of the Canyon Trails Project (2006). As Associate Archaeologist, conducted survey of an 80-acre parcel located in the northeast portion of Hemet, Riverside County. Identified 20 previously undocumented archaeological sites, most of which are bedrock milling loci. Prepared site documentation and CRHR eligibility evaluations based upon surface components of the sites. Human remains were identified on the property during subsequent archaeological testing for the project. Work performed for T&B Planning.

Archaeological Monitoring for DSRM Cable Installation in Pauma, DSRM Cable, Pauma Valley, San Diego County, California, 2005. As Archaeological Monitor, coordinated monitoring with client and Caltrans personnel. Conducted monitoring of manual excavation of two small trenches within Caltrans right-of-way along State Route 76 in Pauma Valley. Prepared letter report and assisted with permit requirements.

Ventana at Duncan Canyon Specific Plan, David Evans and Associates, Fontana, San Bernardino County, California, 2005. As Native American Coordinator, conducted Native American consultation for the 85-acre project area, located east of Interstate 15 at the future Duncan Canyon interchange. Results of the consultation were positive in that they identified concerns by Native American tribal representatives regarding the proposed development project.

Pala Pipeline Project, Yuima Water District, Pauma and Pala, San Diego County, California (2005). As an assistant project manager, coordinated records search and Native American consultation for construction of a proposed 17-mile-long water pipeline between the Pauma and Pala Indian Reservations in northeastern San Diego County. Obtained permission from tribal representatives to conduct records searches on tribal lands, coordinated closely with client, and prepared constraints analysis for the project. Made recommendations for archaeological survey of the entire length of the proposed pipeline. Work performed for PBS&J.

Jurupa Hills Archaeological Resources Survey, Riverside County, CA (2004). As Assistant Project Manager, coordinated survey of a 40-acre parcel of land adjacent to the Jurupa Indian Reservation. Conducted Native American consultation for the project. Work performed for HELIX Environmental Planning.

Yucaipa Non-Potable Water Pipeline Records Search, Riverside and San Bernardino counties, CA (2003). As Assistant Project Manager, summarized records searches conducted by the Eastern Information Center and the San Bernardino County Museum for a proposed pipeline. Coordinated field effort with Crew Chief and prepared a constraints analysis for the project. Work performed for the Yucapia Water District.

Robert Diemer Facility Archaeological Survey, Yorba Linda, Orange County, CA (2003). As Assistant Project Manager, coordinated survey of a proposed MWD water facility in Yorba Linda and edited technical report. Work performed for Metropolitan Water District of Southern California.

Archaeological Survey for the Capistrano Project, Helix Environmental Planning, Riverside County, California, 2003. As Assistant Project Manager, conducted a modified records search to identify the adequacy of prior surveys on a parcel of land in support of Army Corps' recommendations to the developer. Reviewed a 1990 survey report for the parcel and identified one archaeological site on the parcel from information on file at the Eastern Information Center at UC Riverside.

Hyundai Test Track Survey, Sapphos Environmental for the City of California City, Kern County, California, 2002. As Assistant Project Manager, conducted intensive pedestrian survey of one mile2 of land for a proposed automobile test track in the western Mojave Desert. Survey identified over 50 cultural resources which were then documented. The survey report was incorporated into an EIR for the test track project.

API Highline Project, Imperial County, CA (2001). As Field Technician, conducted testing of proposed API-Highline Material Site. Responsible for preparation of site records and report production. Work performed for the Imperial Irrigation District.

Edwards Air Force Base Paleoethnobotany Project, U.S. Army Corps of Engineers, Kern County, California, 2001. As Associate Archaeologist, conducted flotation of soil samples from Edwards Air Force Base for paleoethnobotanical study.

SA Line Archaeological Site Evaluation, Imperial County, CA (2001). As Associate Archaeologist, conducted evaluation of archaeological sites within the SA Line right-of-way. Work performed for the Imperial Irrigation District.

Palm Canyon Drive Realignment, Agua Caliente Band of Cahuilla Indians, Palm Springs, Riverside County, California, 2001. As Associate Archaeologist, conducted excavation, inventory and illustration of an ethnohistoric village site and associated aqueduct system.

IID EES Line Survey, Imperial Irrigation District, Imperial County, California, 2001. As Associate Archaeologist, conducted archaeological survey of proposed transmission line in Imperial County.

Salton Sea Authority Evaporation Ponds Monitoring, Riverside County, CA (2000). As Field Archaeologist, conducted archaeological monitoring coordinated with Native American monitors, construction crews, and representatives from the Salton Sea Authority. Monitoring was in the vicinity of a significant prehistoric site in the Imperial Valley. Work performed for the Salton Sea Authority under contract to USDI Bureau of Reclamation.

San Sebastian Marsh Survey, Caltrans District 11, Imperial County, California, 2000. As Associate Archaeologist, assisted with pedestrian survey of one square mile of land within the San Sebastian Marsh Area of Critical Environmental Concern. Recorded 12 features including features with burials.

Locus O Data Recovery (2000). As Associate Archaeologist, conducted excavation of large rock ring with associated human remains at CA-RIV-45 located in Palm Springs, Riverside County. Work performed for Agua Caliente Band of Cahuilla Indians.

Level 3 Survey (Victorville to Vegas Segment), HDR, San Bernardino County, California to Primm, Nevada, 1999. As Field Archaeologist, conducted survey and site recordation of powerline right-of-way from Victorville to Primm. Only a few archaeological sites and isolated artifacts were identified and documented within the existing powerline corridor.

Survey of the Lavic Lake Area, Marine Corps Air Ground Combat Center, UC Riverside, San Bernardino County, California, 1997. As Field Archaeologist, conducted survey of the Lavic Lake area on the Marine Corps Air Ground Combat Center Twentynine Palms. Documented a number of lithic scatters.

Excavation at Emerson Lake, Marine Corps Air Ground Combat Center, UC Riverside, San Bernardino County, California, 1997. As Field Archaeologist, excavated five archaeological sites along the edges of the Pleistocene shoreline of Emerson Lake.

Julie A. Roy
Archaeologist

Summary of Qualifications

Ms. Roy has over 20 years of experience as an archaeologist, field lead, and supervisor on more than 130 projects throughout California, Nevada, Arizona, and Guam. Conducted archaeological studies for a wide variety of development and resource management projects including work on military installations, energy and transmission projects, commercial and residential developments, historic archaeology projects, and water projects. Competent in all areas of archaeology and efficient in report preparation for a range of cultural resource studies including monitoring projects and archaeological Phase I, II and III studies. Ms. Roy is proficient in laboratory activities including artifact preparation, cataloging, identification, and illustration. Accomplished in the initiation, coordination and completion of field assignments including survey, site testing, dry and wet screening, and data recovery projects. She is also knowledgeable in the preparation of proposals and report writing and research, client, contractor and subcontractor correspondence, laboratory, computer software including Microsoft, Adobe, GIS/ArcView, CADD, GPS and total-station operations, as well as in the illustration of archaeological features, artifacts, and burials.

Ms. Roy is established as a qualified archaeological monitor for the City and the County of San Diego. Her experience includes working closely with representatives of San Diego County Parks and Recreation for the past 10 years and she has received accolades from numerous county representatives for her work at park facilities. For the past 4 four years, she has served as the monitoring coordinator for the San Diego Gas & Electric Company (SDG&E) Fire Resource Mitigation Initiative (FiRM) project, where she regularly provided effective communication between field monitors, construction managers/foremen, and Principal Investigators for construction projects and assisted in scheduling and tracking of project progress.

Selected Project Experience

On-call Archaeological Services (Ongoing). Archaeologist and Field Lead for SDG&E infrastructure operations and transmission line maintenance activities for over 12 years. Projects include survey, testing, excavations, and data recovery of both historic and prehistoric resources including Native American burial sites. Approved to monitor for City projects throughout San Diego and Imperial counties. Other duties include records search, survey, archaeological documentation and investigations, and preparation of reports under CEQA and NEPA guidelines.

On-Call Archaeological Services (Ongoing). Archaeologist and Field Lead for County Parks infrastructure and maintenance activities for San Diego County Department of Parks and Recreation. Responsible for communication with County supervisors and contractors, and the coordination of project activities with cultural and Native American monitors for projects throughout San Diego and Imperial Counties.

Education

Master of Arts, Archaeology, University of Leicester, England, In progress

Bachelor of Arts, Anthropological Archaeology, University of California San Diego, 2002

Associate of Arts, Psychology, San Diego City College, 2000

Registrations/ Certifications

OSHA 30-hour Construction Safety Training Certification

Competent Person Certification

Professional Affiliations

Society for California Archaeology

Society for American Archaeology

Association of Environmental Professionals

Other duties include records search, field survey, archaeological documentation and investigations including testing, excavations and data recovery projects and preparation of reports following CEQA and NEPA guidelines.

Fire Resource Cultural Resources Mitigation (Ongoing). Monitoring Coordinator and Lead Archaeologist on this Fire Resource Mitigation Initiative (FiRM) project for SDG&E. Monitoring Coordinator duties consist of close communication with SDG&E supervisors and staff, liaisons, and contractors in conjunction with the coordination of FiRM project activities associated with cultural and Native American archaeological and monitoring efforts throughout San Diego and Imperial Counties. Archaeological Supervisor duties consists of record search, survey, archaeological site documentation, testing, excavations, and data recovery projects, and preparing reports following CEQA and NEPA guidelines.

Monitoring, Genesis Solar Power Project (2011 - 2012). Supervisor-in-Charge of over 20 cultural monitors on this solar power project located in Blythe, California. Responsible for conducting safety meetings and coordinating cultural monitors to all areas of the project site, as well as leading test excavations of discovered resources during construction activities. Also responsible for representing firm during onsite meetings with Nextera officials, Bureau of Veritas, Bureau of Land Management (BLM), and safety liaisons for the project. Communicated directly with Native American supervisors and monitors on a daily basis. Recorded and collected artifacts located during construction activities with the use of Global Positioning Satellite technology. Completed daily field notes and collection logs for all collected artifacts, and reviewed all staff monitoring logs prior to daily submission to the California Energy Commission (CEC). Work performed for Nextera.

Survey and Monitoring, Palen Solar Power Project (2009 - 2010). Archaeologist for survey and cultural monitoring in Desert Center, California. Monitored contract and personnel activities during traveling to and from proposed project sites, including trenching and testing within the proposed project areas. Work performed for Solar Millennium.

Ridgecrest Solar Power Project (2009 - 2010). Archaeologist for surveys of the project area undertaken to determine if cultural resources are present and if there would be any project effects on these resources. Monitored contractor activities during the testing phase of the project to ensure that sites were not impacted during work activities. The project was located in Ridgecrest and work was performed for Solar Millennium.

Archaeological Monitoring, 20A Julian Conversion Project (2006). Archaeological Monitor for undergrounding of utilities in the City of Julian. The project was conducted under the County of San Diego guidelines while working closely with the construction contractor.

Data Recovery, Hill Street Utility Undergrounding Project (2006). Archaeological Monitor participated in the data recovery for this residential utility undergrounding project in the community of Point Loma in San Diego. The project was conducted under CEQA and City of San Diego guidelines while working closely with the construction contractor.

Archaeological Monitoring, 30th Street Utility Undergrounding Project (2006). Archaeological Monitor for residential utility undergrounding project in the community of South Park in San Diego. The project was conducted under CEQA and City of San Diego guidelines while working closely with the construction contractor.

Archaeological Monitoring, Bird Rock Avenue Utility Undergrounding Project (2005). Archaeological Monitor for the undergrounding of residential utilities in the Bird Rock community of La Jolla. The project was conducted under CEQA and the City of San Diego guidelines while working closely with San Diego Gas and Electric Company and the construction contractor. No cultural resources were identified during this project.

Archaeological Monitoring and Data Recovery, Princess Street Utility Undergrounding Project (2005 - 2006). Archaeological Monitor/Crew Chief for utility undergrounding project, which included trenching through a major prehistoric and ethnohistoric Indian village site (the Spindrift Site/CA-SDI-39) in La Jolla. Crewmembers worked closely with Native American representatives during the recovery of human remains. A concurrent data recovery program incorporated all cultural material recovered from the trenching activities. This project was conducted pursuant to CEQA and City of San Diego guidelines while working closely with San Diego Gas & Electric Company and the construction contractor.

Pacifica Street Utility Undergrounding Project (2006). Archaeological Monitor/Crew Chief for residential utility undergrounding project in the community of Pacific Beach in San Diego. Trenches and cultural materials were documented in conjunction with a concurrent data recovery program. The project included working with Native American representatives and the discovery of human remains. The project was conducted under CEQA and City of San Diego guidelines while working closely with the construction contractor.

Archaeological Studies, Natomas Levee Improvement Program (2008). Archaeologist on this project that involved the identification, recordation, and assessment of NRHP eligibility of cultural resources that could be impacted by project related activities. Identified resources that consisted of existing ranch complexes dating to the early 1900s, and several Native American habitation and resource procurement locales and burials dating from the Middle to Late Horizon. We coordinated directly with the USACE and provided assistance to the USACE in consultation with the MLD regarding cultural resource issues as they relate to the assessment and collection of baseline data and developing methods to preserve that data. Work performed for the Sacramento Area Flood Control District.

Archaeological Monitoring, Water Pipeline Project (2008). Archaeological Monitor for activities of this 3.3-mile-long pipeline for compliance with project guidelines and to ensure the preservation of known cultural sites in the area. This project was conducted in compliance with CEQA and Imperial County guidelines. Work performed for Western Mesquite Mine.

Archaeological Monitoring, "Backdoor" Pipeline Project (2006 - 2007). Archaeological Monitor for this 3-mile underground pipeline project. The project was conducted in compliance with CEQA, and the Ramona Municipal Water District while working closely with construction contractors.

Archaeological Monitoring, Forrester Creek Pipeline Project (2007). Archaeological Monitor for underground pipeline project conducted in compliance with CEQA and the City of Santee.

Archaeological Survey, Lake Hodges Erosion Impact Assessment Project (2007). Archaeologist for San Diego County Water Authority's lake shoreline survey and site relocation project to assess erosion impacts related to rising and falling lake levels. The project included the reassessment of a major prehistoric village site (CA-SDI-10920) and a variety of other prehistoric resources conducted in compliance with CEQA.

Archaeological Survey and Testing, Guam Military Build-up, Guam, Mariana Islands, Territory of U.S. (2012 – 2013). Archaeologist for a survey on Navy and Air Force bases and on privately-owned land for possible use by the military. The survey entailed the identification and recordation of both historic and prehistoric sites. Testing was conducted and included excavation of shovel test pits (STPs) to delineate site boundaries. No collection of artifacts was undertaken. The work was, conducted in compliance with NEPA. Responsibilities included use of Trimble and GPS, as well as providing mapping methods.

Archaeological Services, Marine Corps Base (MCB) Camp Pendleton (2007-Present). Archaeologist/Crew Chief responsible for field crew and acted as safety officer during portions of the program. This program incorporated various projects including a base-wide utilities expansion project at MCB Camp Pendleton. Project duties included archaeological survey, testing and excavations, and the recordation of located resources. Testing included the excavation of STPs and 1-x-1-meter test excavation units for both previously recorded sites and previously undocumented sites identified during archaeological survey. Work performed for Naval Facilities Engineering Command, Southwest.

Archaeological Survey and Testing, US Navy, Naval Weapon Station, Seal Beach - Fallbrook Annex (2005). Archaeologist on this project that included an archaeological survey and testing projects to determine the effects of road use and new road construction on previously recorded sites, in compliance with NEPA. Testing included the excavation of shovel test pits in previously recorded archaeological sites and additional archaeological survey located at the Fallbrook Naval Weapons Station.

Rattlesnake Rock/Mohave Desert Survey Project (2004). Archaeologist for survey and the relocation of previously recorded historic and prehistoric resources including a large prehistoric site (CA-SBR-73). This project was focused on the relocation of historically recorded archaeological sites at U.S. Army National Training Center, Fort Irwin.

Environmental Impact Statement, Southern Nevada Supplemental Airport (2007-2009). Archaeologist on this project that included survey and recordation of the northern portion of Ivanpah Valley from the California state line to Henderson, Clarke County, Nevada. Cultural sites located within the project area included a section of the pacific railroad, historic roads, camps, railroad and construction debris, transmission lines, trash scatters and prehistoric sites and features. The project was surveyed and recorded in compliance with the Nevada State Historic Preservation Office (SHPO) and BLM guidelines.

Archaeological Site Assessment, Neuman Parcel Map Project (2006). Archaeologist for project that was conducted to assess the significance of cultural sites in conjunction with a proposed residential development. The project was conducted in compliance with CEQA and City of Ramona guidelines.

Archaeological Testing, J & S Builder Project (2006). Archaeological Crew Chief for testing that was conducted to determine both historic and prehistoric significance of the three areas within the project boundaries located in Dehesa, California. The project was conducted in conjunction with a proposed residential development and in compliance with CEQA.

Archaeological Survey, Carroll Residential Subdivision Project (2006). Archaeological Crew Chief for survey that was conducted on this property to determine cultural significance in conjunction to a proposed residential development located in Campo, California. The archaeological survey was conducted in compliance with CEQA.

Sach's Residential Subdivision Project Survey (2006). Archaeology Crew Chief for survey of the property that was conducted to determine potential impacts to cultural resources by a proposed residential development located in Campo, California. The archaeological survey was conducted in compliance with CEQA.

Archaeological Survey, Ramona 30-Acre Project (2006). Archaeologist for archaeological survey of the property for residential development by a private owner. The project was conducted to determine the cultural significance of the property in conjunction with other known sites in the area. The archaeological survey was conducted in compliance with CEQA, and the City of Ramona.

JB Princess, Construction (2007). Archaeological Monitor for residential development located in La Jolla. Conducted in compliance with CEQA, and City of San Diego guidelines.

Hellman Ranch Housing Project (2003 - 2005). Field/Laboratory Crew Member on this project, which focused on data recovery for a major prehistoric site. Duties included archaeological grading monitoring, data recovery excavation, water screening, and artifact sorting, Native American burial excavation, repatriation, and the excavation of a large cremation feature. In addition, Ms. Roy prepared artifact and feature illustrations for the project. The site included numerous prehistoric activity areas within the 12-acre archaeological site that was situated within one-mile of the Pacific Ocean. Archaeological monitoring was conducted until all subsurface activities ceased. The guidelines for Phase III recovery were set down by court recommended mitigation in accordance with State laws and the California Coastal Commission. Work performed for the City of Seal Beach.

Archaeological Survey, Proctor Valley Project (2006). Archaeologist for an archaeological survey that was conducted to determine the potential for adverse affects to recorded and unrecorded cultural sites in an area for a proposed commercial development. The archaeological survey was conducted in compliance with CEQA. Numerous recorded sites were identified and more were recorded in an area of approximately 400 acres located in southern San Diego County.

Archaeological Survey and Data Recovery, Pacific Highlands Ranch (2006). Archaeologist for an archaeological survey and data recovery excavations at a variety of prehistoric sites for a proposed commercial development in Del Mar, California. The archaeological survey and data recovery program were conducted in compliance with CEQA.

Archaeological Monitor, Crystal Cove Historic District (2001 - 2003). Archaeological Monitor for the monitoring and detailed documentation of a variety of historic structures within Crystal Cove State Park located in Orange County California. The project was focused on historic registry building documentation to architectural standards and protection. Work performed for California State Parks.

Old Town McCoy House (2001 - 2002). Archaeologist for excavation of historic archaeological deposits discovered during monitoring outside the area of the house itself. Features included an historic privy and the recovery of a variety of associated historic artifacts. The project was located in Old Town, San Diego and conducted in compliance with state and city guidelines. Work performed for California State Parks.

Chicken Bones Race Survey (2006). Archaeologist for a survey to redirect the proposed race route when cultural areas were determined to be within the planned route, located in El Centro, California. This project was performed for the Bureau of Land Management and conducted in compliance with CEQA and Imperial County guidelines.

Race Survey, Phase 2A and 2B (2006). Archaeologist for project that was to establish a route for the race that would avoid cultural resources in the area, located in El Centro, California. This project was performed for the Bureau of Land Management and conducted in compliance with CEQA and Imperial County guidelines.

Dominique Diaz de Leon

Staff Archaeologist

HELIX
Environmental Planning

Summary of Qualifications

Ms. Diaz de Leon serves as a field archaeologist and has conducted cultural resources monitoring, cultural resources surveys, archaeological testing, and mapping of cultural features. Project types on which she has worked throughout southern California include residential and commercial developments, solar sites, road widening, telecom tower and conduit installation, and utilities undergrounding. She has experience with international projects, working in La Rumorosa, B.C., Mexico on an archaeo-astronomical project in the archaeological site of El Vallecito; the project involved mapping and observation, as well as recording of solar events. She has shown an ability to effectively coordinate and communicate in a work environment and has good working relationships with Native American monitors, construction crews, and supervisors.

Selected Project Experience

1125 S. Cleveland Street -Cultural & Native American Monitoring (2016 - 2016).Served as an archaeological monitor for an infill development project in the City of Oceanside in northwestern San Diego County. The project involved the construction of 15 residential units on a 2-acre lot near Oceanside Boulevard. Conducted cultural resources monitoring, coordinated with the crew and Native American monitors, and took daily field notes. Work performed for Hallmark Communities, Inc.

Coal #65157380 (2016 - 2016).Served as an archaeological monitor for a Verizon Wireless telecommunications project in Riverside County. Conducted cultural resources monitoring, coordinated with the crew and Native American monitors, and took daily field notes. Work performed under contract to Terracon Consultants, Inc.

Cultural Resources Study - P16-0310 Pheasant Hill MND (2017 - 2017).Served as a field archaeologist for testing/assessment of a historic archaeological site in conjunction with a proposed residential development in the City of Vista in northern San Diego County. Worked with crew chief and backhoe operator on mechanical trenches, screening soil to collect cultural material. Work performed for the City of Vista.

El Cajon Animal Shelter, PS0020 (2017 - 2017).Served as an archaeological monitor for construction of a new animal shelter in the City of El Cajon. Conducted cultural resources monitoring, coordinated with the crew and Native American monitors, identified artifacts, and took daily field notes. Work conducted for the City of El Cajon.

Education

Bachelor of Arts, Cultural Anthropology, University of California, Santa Barbara, 2015

Education Abroad Program, Cultural Anthropology, University of Granada, Spain, 2015

Professional Affiliations

Society of California Archaeology

El Camino Real Road Widening-Archaeological Monitoring (2016 - 2016).Served as an archaeological monitor on a road widening project for the City of Carlsbad. The project area was identified as archaeologically and culturally sensitive. Conducted cultural resources monitoring, coordinated with the crew and Native American monitors, identified artifacts, and took daily field notes. Work conducted for the City of Carlsbad.

Feather Acres (2017 - 2017).Served as an archaeological monitor for a residential project for the City of Solana Beach. Conducted cultural resources monitoring, coordinated with the crew and Native American monitors, identified artifacts, and took daily field notes. Co-authored monitoring report. Work conducted for Clipper NSPP FA, LLC, with the City of Solana Brach as the lead agency.

Presidio Vista (2017 - 2017).Served as an archaeological monitor for a proposed residential development of 31 homes and two streets in the City of Vista. Conducted cultural resources monitoring, coordinated with the crew and Native American monitors, and took daily field notes. Co-author of monitoring report. Work performed for Lennar, with City of Vista as the lead agency.

RCC (2016 - 2016).Served as an archaeological monitor for a Verizon Wireless tower and conduit installation project in the City of Riverside. Conducted cultural resources monitoring, coordinated with the crew and Native American monitors, identified artifacts, and took daily field notes. Work performed under contract to Terracon Consultants, Inc.

SDG&E Solar Sites (2016 - 2016).Served as an archaeological monitor for a proposed solar site project in Pala in northern San Diego County. Conducted cultural resources monitoring, coordinated with the crew and Native American monitors, identified any artifacts and cultural features, collected cultural material encountered (historics), and took daily field notes. County of San Diego was the lead agency.

Selenium #65157399 (2016 - 2016).Served as an archaeological monitor for a telecom project. Conducted cultural resources monitoring, coordinated with the crew and Native American monitors, and took daily field notes. Work performed under contract to Terracon Consultants, Inc.

Smilax (2016 - 2016).Served as an archaeological monitor for a Verizon Wireless tower and conduit installation project in Vista, California. Conducted cultural resources monitoring, coordinated with the crew and Native American monitors, and took daily field notes. Work performed under contract to Terracon Consultants, Inc.

Stardust (2016 - 2016).Served as an archaeological monitor for a Verizon Wireless tower and conduit installation project in Murrieta, California. Conducted cultural resources monitoring, coordinated with the crew and Native American monitors, and took daily field notes. Work performed under contract to Terracon Consultants, Inc.

Confidential Appendix B

Records Search Results

Confidential Appendix C

Native American Correspondence

Confidential Appendix D

DPR Site Forms

Confidential Appendix E

Cultural Resources Map

Appendix F

Artifact Catalog

CA-KER-5558 Artifact Catalog

Artifact No	Unit type	Unit number	Upper depth	Lower depth	Class	Item	Material	Count	Weight (g)
1	General surface	0	0	0	Flaked Stone	Debitage	Fine-grained metavolcanic	1	2.4
2	General surface	0	0	0	Flaked Stone	Debitage	Fine-grained metavolcanic	1	4.7
3	General surface	0	0	0	Flaked Stone	Retouched/Utilized tool	Fine-grained metavolcanic	1	7.8
4	General surface	0	0	0	Flaked Stone	Debitage	Fine-grained metavolcanic	1	5.3
5	General surface	0	0	0	Flaked Stone	Debitage	Chert	1	3
6	General surface	0	0	0	Flaked Stone	Debitage	Chert	1	1
7	General surface	0	0	0	Flaked Stone	Debitage	Fine-grained metavolcanic	1	1.2
8	General surface	0	0	0	Flaked Stone	Debitage	Chert	1	5.6
9	General surface	0	0	0	Flaked Stone	Hammer	Fine-grained metavolcanic	1	111.1
10	General surface	0	0	0	Flaked Stone	Retouched/Utilized flake	Fine-grained metavolcanic	1	71.1
11	General surface	0	0	0	Flaked Stone	Core	Fine-grained metavolcanic	1	54.8
12	General surface	0	0	0	Flaked Stone	Core	Chert	1	49.8
13	General surface	0	0	0	Flaked Stone	Retouched/Utilized flake	Fine-grained metavolcanic	1	7
14	General surface	0	0	0	Flaked Stone	Retouched/Utilized flake	Jaspar	1	3.3
15	General surface	0	0	0	Flaked Stone	Debitage	Fine-grained metavolcanic	1	3.9

CA-KER-5731 Artifact Catalog

Artifact No	Unit type	Unit number	Upper depth	Lower depth	Class	Item	Material	Count	Weight (g)
1	General surface	0	0	0	Other Stone	Exotic material	Medium to coarse- grained metavolcanic	1	26.1
2	General surface	0	0	0	Flaked Stone	Unclassified tool fragment	Medium to coarse- grained metavolcanic	1	156.3
3	General surface	0	0	0	Flaked Stone	Debitage	Jaspar	1	4.4
4	General surface	0	0	0	Other Stone	Exotic material	Medium to coarse- grained metavolcanic	4	8.7
5	General surface	0	0	0	Flaked Stone	Debitage	Medium to coarse- grained metavolcanic	1	0.7
6	General surface	0	0	0	Flaked Stone	Debitage	Medium to coarse- grained metavolcanic	7	33.5
7	General surface	0	0	0	Other Stone	Exotic material	Medium to coarse- grained metavolcanic	10	27
8	General surface	0	0	0	Flaked Stone	Core	Medium to coarse- grained metavolcanic	1	39.7
9	General surface	0	0	0	Flaked Stone	Debitage	Medium to coarse- grained metavolcanic	1	0.9
10	General surface	0	0	0	Other Stone	Exotic material	Medium to coarse- grained metavolcanic	2	10.3
11	General surface	0	0	0	Flaked Stone	Debitage	Medium to coarse- grained metavolcanic	1	2.9
12	General surface	0	0	0	Flaked Stone	Debitage	Jaspar	1	0.1
13	General surface	0	0	0	Other Stone	Exotic material	Medium to coarse- grained metavolcanic	1	0.2
14	General surface	0	0	0	Flaked Stone	Debitage	Medium to coarse- grained metavolcanic	1	46.5
15	General surface	0	0	0	Other Stone	Exotic material	Medium to coarse- grained metavolcanic	1	17
16	General surface	0	0	0	Flaked Stone	Debitage	Medium to coarse- grained metavolcanic	1	0.9
17	General surface	0	0	0	Flaked Stone	Debitage	Medium to coarse- grained metavolcanic	1	3.4

Appendix E

AB 52 Native American Tribal Consultation Correspondence

January 30, 2019

Big Pine Paiute Tribe of the Owens Valley
Genvieve Jones, Chairperson
P.O. Box 700
Big Pine, CA 93513

RE: AB 52 Consultation; Rosamond Community Services District Wastewater Treatment Plant (WWTP) Evaporation Ponds Project, Rosamond, Kern and Los Angeles Counties, CA

Dear Genvieve Jones:

The Rosamond Community Services District (RCSD) has determined that a project application is complete for the RCSD Treatment Wetlands Project (project), in Rosamond, Kern County, CA. This letter is being provided in compliance with Tribal Cultural Resources under the California Environmental Quality Act, AB 52 (Gatto, 2014) to fulfill the requirement for formal notification of determination that a Project Application is complete or decision to undertake a project, and notification of consultation opportunity, pursuant to Public Resources Code § 21080.3.1 (hereafter PRC).

Below, please find a description of the proposed project, a summary of the cultural resources study completed, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

PROJECT DESCRIPTION

The project proposes to expand the existing wastewater treatment plant (WWTP) by duplicating the existing Biolac/clarifier system, activated sludge system, secondary clarifier, and sludge drying beds. The existing WWTP contains a series of evaporation ponds. Pond 17 would be converted to percolation ponds to make use of existing piping and infrastructure, and secondary effluent would be discharged to

these percolation ponds for disposal. An Infiltration Test Basin is proposed to address the potential for Pond 17 to leach nitrate and TDS into the groundwater. If the leaching tests indicate that infiltration is feasible, Pond 17 would then be reconfigured into three ponds, and the top five feet of the existing pond bottom would be excavated and removed to convert the evaporation pond to a percolation pond system. Access ramps would be included for operation and maintenance. The area west of Pond 17 would be utilized as a potential percolation pond site or staging area. Excess soil from construction activities would be deposited in Pond 15, which is currently not in service. A new septage receiving station would be installed north of the WWTP on the southwest side of existing Pond 11 (refer to attached Project Plan); the pond would measure approximately 117 feet long by 39 feet wide with a water surface area of 4,800 square feet (SF).

PROJECT LOCATION

The project site is located approximately four miles northeast of the intersection of State Route 138 (SR-138) and SR-14 in the community of Rosamond near the southern boundary of Kern County (Figure 1, Regional Location). Specifically, the project site is located east of the intersection of Patterson Road and 10th Street West near the western edge of Rosamond Lake, a natural dry lake bed.

CULTURAL RESOURCES STUDY AND RESULTS

HELIX Environmental Planning, Inc. (HELIX) conducted a cultural resources study for the project, which included completion of records searches, a Sacred Lands File (SLF) search, Native American outreach, a review of historic maps and aerial photographs, and a site visit by HELIX archaeologists. Two previously recorded sites documented within the project Area of Potential Effects (APE) were re-identified during the site visit and subjected to archaeological testing to determine if they are significant historical resources or historic properties.

The records searches were performed for the study area and a one-mile radius surrounding it. They indicated that 38 previous cultural resources studies have been conducted within one mile of the project, none of which covered the APE. The records search results also indicated that a total of 43 cultural resources have been previously recorded within one mile of the project, four of which are located within the APE, as described below.

The Native American Heritage Commission (NAHC) was contacted on March 27, 2018 for a Sacred Lands File (SLF) search and list of Native American tribal contacts for the project area. The NAHC indicated that no known sacred lands or Native American cultural resources are listed in the SLF as occurring within the project area. Letters were sent on May 03, 2018 to Native American representatives and interested parties identified by the NAHC. No responses have been received to date. A Native American monitor from the Morongo Band of Mission Indians was present during the site evaluation fieldwork.

A site visit resulted in the reidentification of two previously recorded prehistoric archaeological sites within the APE, P-15-008766 (CA-KER-5558) and P-15-009401 (CA-KER-5731). HELIX archaeologists completed a site evaluation program through archaeological testing (excavation and surface collection) in January 2019. Two additional resources identified by the records search, a prehistoric isolate (P-15-009403) and a historic archaeological site P-15-009402 (CA-KER-5732H), were not reidentified within the APE during the site visit and are presumed to have been destroyed.

HELIX completed the site evaluation program to determine if CA-KER-5558 and CA-KER-5731 are significant historical resources, per the California Environmental Quality Act (CEQA), or historic properties, per the National Historic Preservation Act (NHPA), prior to ground disturbances related to project development. The sites were determined to be sparse lithic scatters, limited to surface artifacts, with no subsurface cultural evidence. Site form updates for the four previously recorded resources within the APE have been submitted to the Southern San Joaquin Valley Information Center (SSJVIC).

The methods and results of the cultural resources survey will be presented in the technical report currently being prepared by HELIX; this report can be provided to you upon request. Due to the number and significance of cultural resources in the region and the alluvial environment of the project site, the cultural resources site evaluation report will recommend that ground disturbing activities during construction be monitored by a qualified archaeologist and a Native American monitor.

RCSD is inviting you to consult on this project if you so desire. Any information you have regarding tribal cultural resources will be kept strictly confidential and will not be divulged to the public. Please contact RCSD, Brach Smith by March 1, 2019 to initiate consultation.

Sincerely,

Brach Smith

Brach Smith
Director of Public Works
Bsmith@rosamondcsd.com
(661)256-3411 x229

Rosamond Community Services District

January 30, 2019

Big Pine Paiute Tribe of the Owens Valley
Danielle Gutierrez, THPO
P.O. Box 700
Big Pine, CA 93513

RE: AB 52 Consultation; Rosamond Community Services District Wastewater Treatment Plant (WWTP) Evaporation Ponds Project, Rosamond, Kern and Los Angeles Counties, CA

Dear Danielle Gutierrez:

The Rosamond Community Services District (RCSD) has determined that a project application is complete for the RCSD Treatment Wetlands Project (project), in Rosamond, Kern County, CA. This letter is being provided in compliance with Tribal Cultural Resources under the California Environmental Quality Act, AB 52 (Gatto, 2014) to fulfill the requirement for formal notification of determination that a Project Application is complete or decision to undertake a project, and notification of consultation opportunity, pursuant to Public Resources Code § 21080.3.1 (hereafter PRC).

Below, please find a description of the proposed project, a summary of the cultural resources study completed, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

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these percolation ponds for disposal. An Infiltration Test Basin is proposed to address the potential for Pond 17 to leach nitrate and TDS into the groundwater. If the leaching tests indicate that infiltration is feasible, Pond 17 would then be reconfigured into three ponds, and the top five feet of the existing pond bottom would be excavated and removed to convert the evaporation pond to a percolation pond system. Access ramps would be included for operation and maintenance. The area west of Pond 17 would be utilized as a potential percolation pond site or staging area. Excess soil from construction activities would be deposited in Pond 15, which is currently not in service. A new septage receiving station would be installed north of the WWTP on the southwest side of existing Pond 11 (refer to attached Project Plan); the pond would measure approximately 117 feet long by 39 feet wide with a water surface area of 4,800 square feet (SF).

PROJECT LOCATION

The project site is located approximately four miles northeast of the intersection of State Route 138 (SR-138) and SR-14 in the community of Rosamond near the southern boundary of Kern County (Figure 1, Regional Location). Specifically, the project site is located east of the intersection of Patterson Road and 10th Street West near the western edge of Rosamond Lake, a natural dry lake bed.

CULTURAL RESOURCES STUDY AND RESULTS

HELIX Environmental Planning, Inc. (HELIX) conducted a cultural resources study for the project, which included completion of records searches, a Sacred Lands File (SLF) search, Native American outreach, a review of historic maps and aerial photographs, and a site visit by HELIX archaeologists. Two previously recorded sites documented within the project Area of Potential Effects (APE) were re-identified during the site visit and subjected to archaeological testing to determine if they are significant historical resources or historic properties.

The records searches were performed for the study area and a one-mile radius surrounding it. They indicated that 38 previous cultural resources studies have been conducted within one mile of the project, none of which covered the APE. The records search results also indicated that a total of 43 cultural resources have been previously recorded within one mile of the project, four of which are located within the APE, as described below.

The Native American Heritage Commission (NAHC) was contacted on March 27, 2018 for a Sacred Lands File (SLF) search and list of Native American tribal contacts for the project area. The NAHC indicated that no known sacred lands or Native American cultural resources are listed in the SLF as occurring within the project area. Letters were sent on May 03, 2018 to Native American representatives and interested parties identified by the NAHC. No responses have been received to date. A Native American monitor from the Morongo Band of Mission Indians was present during the site evaluation fieldwork.

A site visit resulted in the reidentification of two previously recorded prehistoric archaeological sites within the APE, P-15-008766 (CA-KER-5558) and P-15-009401 (CA-KER-5731). HELIX archaeologists completed a site evaluation program through archaeological testing (excavation and surface collection) in January 2019. Two additional resources identified by the records search, a prehistoric isolate (P-15-009403) and a historic archaeological site P-15-009402 (CA-KER-5732H), were not reidentified within the APE during the site visit and are presumed to have been destroyed.

HELIX completed the site evaluation program to determine if CA-KER-5558 and CA-KER-5731 are significant historical resources, per the California Environmental Quality Act (CEQA), or historic properties, per the National Historic Preservation Act (NHPA), prior to ground disturbances related to project development. The sites were determined to be sparse lithic scatters, limited to surface artifacts, with no subsurface cultural evidence. Site form updates for the four previously recorded resources within the APE have been submitted to the Southern San Joaquin Valley Information Center (SSJVIC).

The methods and results of the cultural resources survey will be presented in the technical report currently being prepared by HELIX; this report can be provided to you upon request. Due to the number and significance of cultural resources in the region and the alluvial environment of the project site, the cultural resources site evaluation report will recommend that ground disturbing activities during construction be monitored by a qualified archaeologist and a Native American monitor.

RCSD is inviting you to consult on this project if you so desire. Any information you have regarding tribal cultural resources will be kept strictly confidential and will not be divulged to the public. Please contact RCSD, Brach Smith by March 1, 2019 to initiate consultation.

Sincerely,

Brach Smith

Brach Smith
Director of Public Works
Bsmith@rosamondcsd.com
(661)256-3411 x229

Rosamond Community Services District

Bringing Life to Rosamond

Board of Directors
Greg Wood, *President*
J. Russell Williford, *Vice President*
Rick Webb
Byron Glennan
Ben Stewart

General Manager
Ronald D. Smith

January 30, 2019

Chumash Council of Bakersfield
Julio Quair, Chairperson
729 Texas Street
Bakersfield, CA 93307

RE: AB 52 Consultation; Rosamond Community Services District Wastewater Treatment Plant (WWTP) Evaporation Ponds Project, Rosamond, Kern and Los Angeles Counties, CA

Dear Julio Quair:

The Rosamond Community Services District (RCSD) has determined that a project application is complete for the RCSD Treatment Wetlands Project (project), in Rosamond, Kern County, CA. This letter is being provided in compliance with Tribal Cultural Resources under the California Environmental Quality Act, AB 52 (Gatto, 2014) to fulfill the requirement for formal notification of determination that a Project Application is complete or decision to undertake a project, and notification of consultation opportunity, pursuant to Public Resources Code § 21080.3.1 (hereafter PRC).

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Sincerely,

Brach Smith

Brach Smith
Director of Public Works
Bsmith@rosamondcsd.com
(661)256-3411 x229

3179 35th Street West, Rosamond CA 93560
661.256.3411 — bsmith@rosamondcsd.com

Rosamond Community Services District

Bringing Life to Rosamond

January 30, 2019

Kern Valley Indian Community
Robert Robinson, Chairperson
P.O. Box 1010
Lake Isabella, CA 93240

RE: AB 52 Consultation; Rosamond Community Services District Wastewater Treatment Plant (WWTP) Evaporation Ponds Project, Rosamond, Kern and Los Angeles Counties, CA

Dear Robert Robinson:

The Rosamond Community Services District (RCSD) has determined that a project application is complete for the RCSD Treatment Wetlands Project (project), in Rosamond, Kern County, CA. This letter is being provided in compliance with Tribal Cultural Resources under the California Environmental Quality Act, AB 52 (Gatto, 2014) to fulfill the requirement for formal notification of determination that a Project Application is complete or decision to undertake a project, and notification of consultation opportunity, pursuant to Public Resources Code § 21080.3.1 (hereafter PRC).

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Sincerely,

Brach Smith

Brach Smith
Director of Public Works
Bsmith@rosamondcsd.com
(661)256-3411 x229

Rosamond Community Services District

Bringing Life to Rosamond

Board of Directors
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J. Russell Williford, *Vice President*
Rick Webb
Byron Glennan
Ben Stewart

General Manager
Ronald D. Smith

January 30, 2019

Kern Valley Indian Community
Julie Turner, Secretary
P.O. Box 1010
Lake Isabella, CA 93240

RE: AB 52 Consultation; Rosamond Community Services District Wastewater Treatment Plant (WWTP) Evaporation Ponds Project, Rosamond, Kern and Los Angeles Counties, CA

Dear Julie Turner:

The Rosamond Community Services District (RCSD) has determined that a project application is complete for the RCSD Treatment Wetlands Project (project), in Rosamond, Kern County, CA. This letter is being provided in compliance with Tribal Cultural Resources under the California Environmental Quality Act, AB 52 (Gatto, 2014) to fulfill the requirement for formal notification of determination that a Project Application is complete or decision to undertake a project, and notification of consultation opportunity, pursuant to Public Resources Code § 21080.3.1 (hereafter PRC).

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PROJECT LOCATION

The project site is located approximately four miles northeast of the intersection of State Route 138 (SR-138) and SR-14 in the community of Rosamond near the southern boundary of Kern County (Figure 1, Regional Location). Specifically, the project site is located east of the intersection of Patterson Road and 10th Street West near the western edge of Rosamond Lake, a natural dry lake bed.

CULTURAL RESOURCES STUDY AND RESULTS

HELIX Environmental Planning, Inc. (HELIX) conducted a cultural resources study for the project, which included completion of records searches, a Sacred Lands File (SLF) search, Native American outreach, a review of historic maps and aerial photographs, and a site visit by HELIX archaeologists. Two previously recorded sites documented within the project Area of Potential Effects (APE) were re-identified during the site visit and subjected to archaeological testing to determine if they are significant historical resources or historic properties.

The records searches were performed for the study area and a one-mile radius surrounding it. They indicated that 38 previous cultural resources studies have been conducted within one mile of the project, none of which covered the APE. The records search results also indicated that a total of 43 cultural resources have been previously recorded within one mile of the project, four of which are located within the APE, as described below.

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HELIX completed the site evaluation program to determine if CA-KER-5558 and CA-KER-5731 are significant historical resources, per the California Environmental Quality Act (CEQA), or historic properties, per the National Historic Preservation Act (NHPA), prior to ground disturbances related to project development. The sites were determined to be sparse lithic scatters, limited to surface artifacts, with no subsurface cultural evidence. Site form updates for the four previously recorded resources within the APE have been submitted to the Southern San Joaquin Valley Information Center (SSJVIC).

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RCSD is inviting you to consult on this project if you so desire. Any information you have regarding tribal cultural resources will be kept strictly confidential and will not be divulged to the public. Please contact RCSD, Brach Smith by March 1, 2019 to initiate consultation.

Sincerely,

Brach Smith

Brach Smith
Director of Public Works
Bsmith@rosamondcsd.com
(661)256-3411 x229

Rosamond Community Services District

Bringing Life to Rosamond

January 30, 2019

Kitanemuk & Yowlumne Tejon Indians
Delia Dominguez
115 Radio Street
Bakersfield, CA 93305

RE: AB 52 Consultation; Rosamond Community Services District Wastewater Treatment Plant (WWTP) Evaporation Ponds Project, Rosamond, Kern and Los Angeles Counties, CA

Dear Delia Dominguez:

The Rosamond Community Services District (RCSD) has determined that a project application is complete for the RCSD Treatment Wetlands Project (project), in Rosamond, Kern County, CA. This letter is being provided in compliance with Tribal Cultural Resources under the California Environmental Quality Act, AB 52 (Gatto, 2014) to fulfill the requirement for formal notification of determination that a Project Application is complete or decision to undertake a project, and notification of consultation opportunity, pursuant to Public Resources Code § 21080.3.1 (hereafter PRC).

Below, please find a description of the proposed project, a summary of the cultural resources study completed, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

PROJECT DESCRIPTION

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Sincerely,

Brach Smith

Brach Smith
Director of Public Works
Bsmith@rosamondcsd.com
(661)256-3411 x229

Rosamond Community Services District

Bringing Life to Rosamond

January 30, 2019

San Manuel Band of Mission Indians
Lynn Valbuena, Chairwoman
26569 Community Center Drive
Highland, CA 92346

RE: AB 52 Consultation; Rosamond Community Services District Wastewater Treatment Plant (WWTP) Evaporation Ponds Project, Rosamond, Kern and Los Angeles Counties, CA

Dear Lynn Valbuena:

The Rosamond Community Services District (RCSD) has determined that a project application is complete for the RCSD Treatment Wetlands Project (project), in Rosamond, Kern County, CA. This letter is being provided in compliance with Tribal Cultural Resources under the California Environmental Quality Act, AB 52 (Gatto, 2014) to fulfill the requirement for formal notification of determination that a Project Application is complete or decision to undertake a project, and notification of consultation opportunity, pursuant to Public Resources Code § 21080.3.1 (hereafter PRC).

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Sincerely,

Brach Smith

Brach Smith
Director of Public Works
Bsmith@rosamondcsd.com
(661)256-3411 x229

Rosamond Community Services District

Bringing Life to Rosamond

January 30, 2019

San Manuel Band of Mission Indians
Lee Clauss, Director of Cultural Resources
26569 Community Center Drive
Highland, CA 92346

RE: AB 52 Consultation; Rosamond Community Services District Wastewater Treatment Plant (WWTP) Evaporation Ponds Project, Rosamond, Kern and Los Angeles Counties, CA

Dear Lee Clauss:

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Sincerely,

Brach Smith

Brach Smith
Director of Public Works
Bsmith@rosamondcsd.com
(661)256-3411 x229

Rosamond Community Services District

Bringing Life to Rosamond

January 30, 2019

Santa Rosa Indian Community of the Santa Rosa Rancheria
Rueben Barrios Sr., Chairperson
P.O. Box 846
Leemore, CA 93245

RE: AB 52 Consultation; Rosamond Community Services District Wastewater Treatment Plant (WWTP) Evaporation Ponds Project, Rosamond, Kern and Los Angeles Counties, CA

Dear Rueben Barrios Sr.:

The Rosamond Community Services District (RCSD) has determined that a project application is complete for the RCSD Treatment Wetlands Project (project), in Rosamond, Kern County, CA. This letter is being provided in compliance with Tribal Cultural Resources under the California Environmental Quality Act, AB 52 (Gatto, 2014) to fulfill the requirement for formal notification of determination that a Project Application is complete or decision to undertake a project, and notification of consultation opportunity, pursuant to Public Resources Code § 21080.3.1 (hereafter PRC).

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Brach Smith

Brach Smith
Director of Public Works
Bsmith@rosamondcsd.com
(661)256-3411 x229

Rosamond Community Services District

Bringing Life to Rosamond

January 30, 2019

Tejon Indian Tribe
Octavio Escobedo, Chairperson
1731 Hasti-acres Drive Suite 108
Bakersfield, CA 93309

RE: AB 52 Consultation; Rosamond Community Services District Wastewater Treatment Plant (WWTP) Evaporation Ponds Project, Rosamond, Kern and Los Angeles Counties, CA

Dear Octavio Escobedo :

The Rosamond Community Services District (RCSD) has determined that a project application is complete for the RCSD Treatment Wetlands Project (project), in Rosamond, Kern County, CA. This letter is being provided in compliance with Tribal Cultural Resources under the California Environmental Quality Act, AB 52 (Gatto, 2014) to fulfill the requirement for formal notification of determination that a Project Application is complete or decision to undertake a project, and notification of consultation opportunity, pursuant to Public Resources Code § 21080.3.1 (hereafter PRC).

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3179 35th Street West, Rosamond CA 93560
661.256.3411 — bsmith@rosamondcsd.com

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RCSD is inviting you to consult on this project if you so desire. Any information you have regarding tribal cultural resources will be kept strictly confidential and will not be divulged to the public. Please contact RCSD, Brach Smith by March 1, 2019 to initiate consultation.

Sincerely,

Brach Smith

Brach Smith
Director of Public Works
Bsmith@rosamondcsd.com
(661)256-3411 x229

Rosamond Community Services District

Bringing Life to Rosamond

Board of Directors
Greg Wood, *President*
J. Russell Williford, *Vice President*
Rick Webb
Byron Glennan
Ben Stewart

General Manager
Ronald D. Smith

January 30, 2019

Tubatulabals of Kern Valley
Robert Gomez Jr., Chairperson
P.O. Box 226
Lake Isabella, CA 93240

RE: AB 52 Consultation; Rosamond Community Services District Wastewater Treatment Plant (WWTP) Evaporation Ponds Project, Rosamond, Kern and Los Angeles Counties, CA

Dear Robert Gomez Jr.:

The Rosamond Community Services District (RCSD) has determined that a project application is complete for the RCSD Treatment Wetlands Project (project), in Rosamond, Kern County, CA. This letter is being provided in compliance with Tribal Cultural Resources under the California Environmental Quality Act, AB 52 (Gatto, 2014) to fulfill the requirement for formal notification of determination that a Project Application is complete or decision to undertake a project, and notification of consultation opportunity, pursuant to Public Resources Code § 21080.3.1 (hereafter PRC).

Below, please find a description of the proposed project, a summary of the cultural resources study completed, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

PROJECT DESCRIPTION

The project proposes to expand the existing wastewater treatment plant (WWTP) by duplicating the existing Biolac/clarifier system, activated sludge system, secondary clarifier, and sludge drying beds. The existing WWTP contains a series of evaporation ponds. Pond 17 would be converted to percolation ponds to make use of existing piping and infrastructure, and secondary effluent would be discharged to

these percolation ponds for disposal. An Infiltration Test Basin is proposed to address the potential for Pond 17 to leach nitrate and TDS into the groundwater. If the leaching tests indicate that infiltration is feasible, Pond 17 would then be reconfigured into three ponds, and the top five feet of the existing pond bottom would be excavated and removed to convert the evaporation pond to a percolation pond system. Access ramps would be included for operation and maintenance. The area west of Pond 17 would be utilized as a potential percolation pond site or staging area. Excess soil from construction activities would be deposited in Pond 15, which is currently not in service. A new septage receiving station would be installed north of the WWTP on the southwest side of existing Pond 11 (refer to attached Project Plan); the pond would measure approximately 117 feet long by 39 feet wide with a water surface area of 4,800 square feet (SF).

PROJECT LOCATION

The project site is located approximately four miles northeast of the intersection of State Route 138 (SR-138) and SR-14 in the community of Rosamond near the southern boundary of Kern County (Figure 1, Regional Location). Specifically, the project site is located east of the intersection of Patterson Road and 10th Street West near the western edge of Rosamond Lake, a natural dry lake bed.

CULTURAL RESOURCES STUDY AND RESULTS

HELIX Environmental Planning, Inc. (HELIX) conducted a cultural resources study for the project, which included completion of records searches, a Sacred Lands File (SLF) search, Native American outreach, a review of historic maps and aerial photographs, and a site visit by HELIX archaeologists. Two previously recorded sites documented within the project Area of Potential Effects (APE) were re-identified during the site visit and subjected to archaeological testing to determine if they are significant historical resources or historic properties.

The records searches were performed for the study area and a one-mile radius surrounding it. They indicated that 38 previous cultural resources studies have been conducted within one mile of the project, none of which covered the APE. The records search results also indicated that a total of 43 cultural resources have been previously recorded within one mile of the project, four of which are located within the APE, as described below.

The Native American Heritage Commission (NAHC) was contacted on March 27, 2018 for a Sacred Lands File (SLF) search and list of Native American tribal contacts for the project area. The NAHC indicated that no known sacred lands or Native American cultural resources are listed in the SLF as occurring within the project area. Letters were sent on May 03, 2018 to Native American representatives and interested parties identified by the NAHC. No responses have been received to date. A Native American monitor from the Morongo Band of Mission Indians was present during the site evaluation fieldwork.

A site visit resulted in the reidentification of two previously recorded prehistoric archaeological sites within the APE, P-15-008766 (CA-KER-5558) and P-15-009401 (CA-KER-5731). HELIX archaeologists completed a site evaluation program through archaeological testing (excavation and surface collection) in January 2019. Two additional resources identified by the records search, a prehistoric isolate (P-15-009403) and a historic archaeological site P-15-009402 (CA-KER-5732H), were not reidentified within the APE during the site visit and are presumed to have been destroyed.

HELIX completed the site evaluation program to determine if CA-KER-5558 and CA-KER-5731 are significant historical resources, per the California Environmental Quality Act (CEQA), or historic properties, per the National Historic Preservation Act (NHPA), prior to ground disturbances related to project development. The sites were determined to be sparse lithic scatters, limited to surface artifacts, with no subsurface cultural evidence. Site form updates for the four previously recorded resources within the APE have been submitted to the Southern San Joaquin Valley Information Center (SSJVIC).

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RCSD is inviting you to consult on this project if you so desire. Any information you have regarding tribal cultural resources will be kept strictly confidential and will not be divulged to the public. Please contact RCSD, Brach Smith by March 1, 2019 to initiate consultation.

Sincerely,

Brach Smith

Brach Smith
Director of Public Works
Bsmith@rosamondcsd.com
(661)256-3411 x229

3179 35th Street West, Rosamond CA 93560
661.256.3411 — bsmith@rosamondcsd.com

Rosamond Community Services District

Bringing Life to Rosamond

January 30, 2019

Tule River Indian Tribe
Neil Pyron, Chairperson
P.O. Box 589
Porterville, CA 93258

RE: AB 52 Consultation; Rosamond Community Services District Wastewater Treatment Plant (WWTP) Evaporation Ponds Project, Rosamond, Kern and Los Angeles Counties, CA

Dear Neil Pyron:

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Rosamond Community Services District

RCSD
Bringing Life to Rosamond

January 30, 2019

Wuksache Indian Tribe/Eshom Valley Band
Kenneth Woodrow, Chairperson
1179 Rock Have Court
Salinas, CA 93906

RE: AB 52 Consultation; Rosamond Community Services District Wastewater Treatment Plant (WWTP) Evaporation Ponds Project, Rosamond, Kern and Los Angeles Counties, CA

Dear Kenneth Woodrow:

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