Rainbow Municipal Water District Lift Station No. 1 Replacement Project

Draft Initial Study and Mitigated Negative Declaration

Prepared for:

Rainbow Municipal Water District
3707 Old Highway 395
Fallbrook, CA 92028

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard, Suite 200
La Mesa, CA 91942

November 2020 | KJC-19

This page intentionally left blank

TABLE OF CONTENTS

TABLE OF CONTENTS (cont.)

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

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 Lift Station No. 1 Replacement Project (proposed project). The project site is located within the Rainbow Municipal Water District (District) service area) near the center of the unincorporated community of Bonsall in the County of San Diego. 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 20 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.

2.0 PROJECT DESCRIPTION

2.1 Project

Lift Station No. 1 Replacement Project

2.2 Lead Agency

Rainbow Municipal Water District

2.3 Contact Person and Phone

Malik Tamimi, Engineering Project Manager
Rainbow Municipal Water District
(760) 728-1178 ext. 173

2.4 Project Location

The proposed project is generally located in the unincorporated community of Bonsall, west of Interstate 15 and approximately 12 miles inland from the Pacific Ocean in northwest San Diego County, California (Figure 1, *Regional Location Map*). More specifically, the project alignment is located along Old River Road, Golf Club Drive, Camino Del Rey, and a segment of State Route (SR) 76 from where it intersects with Camino Del Rey/Olive Hill Road to approximately 0.25 mile north of where it meets South Mission Road (Figure 2, *Project Alignment*).

2.5 General Plan Designations

Public Agency Lands, Public/Semi-Public Facilities, General Commercial, Village Residential (VR-7.3), Semi-Rural Residential (SR-10), Rural Lands (RL-40), Public Agency Lands, and Open Space (Recreational).

2.6 Zoning

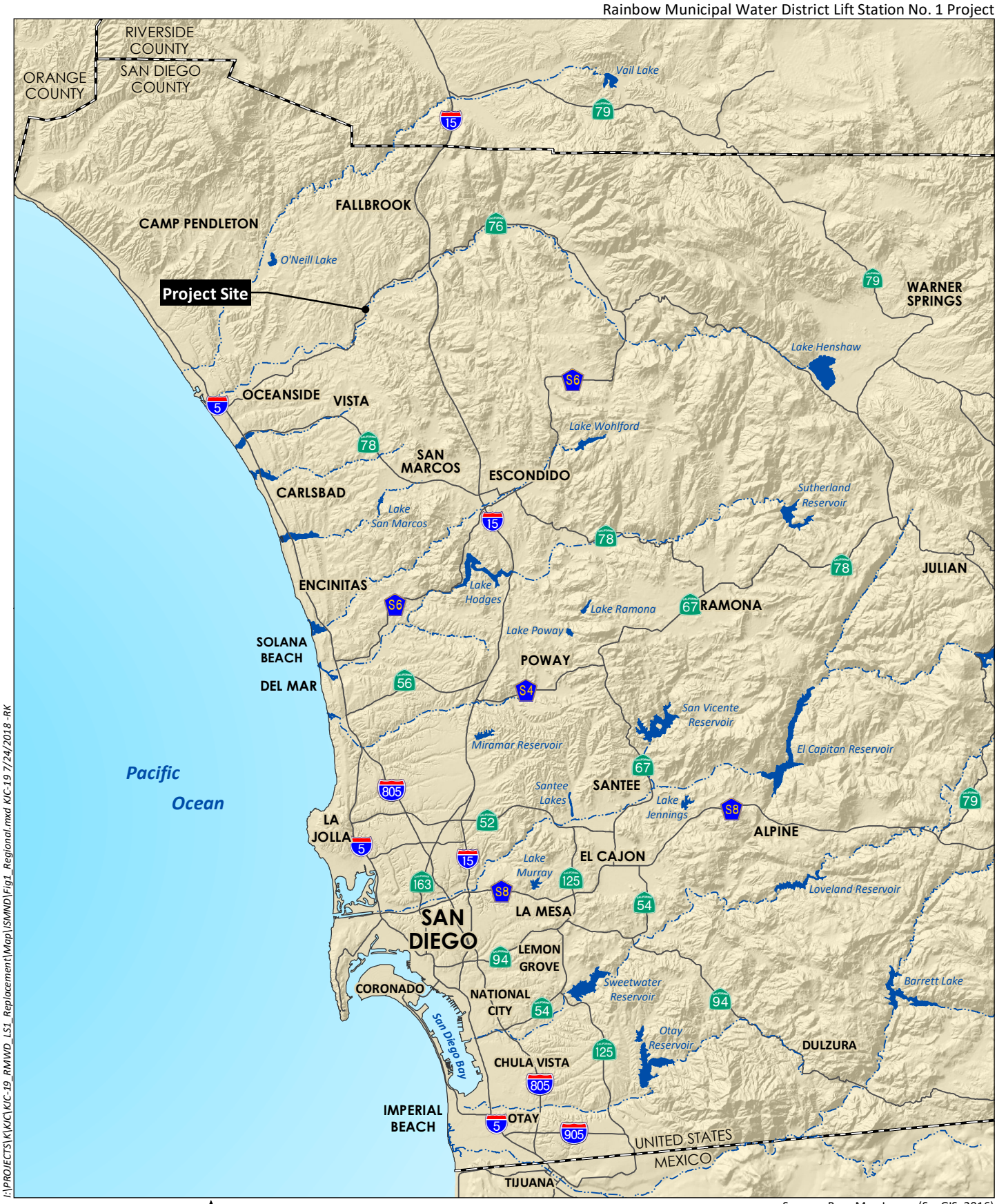
Commercial and Office, Open Space, Agricultural, Rural Residential, Residential - Variable

2.7 Project Description

Background

The District provides water distribution and wastewater collection to the unincorporated communities of Rainbow and Bonsall, and portions of Pala, Fallbrook and the city of Vista in northern inland San Diego County. The District service area, which covers approximately 82 square miles, is responsible for providing sewer service to approximately 2,500 households and businesses within its service area mainly along the SR 76 corridor. The District's service area comprises a primarily gravity flow system of collection pipes, six lift stations, and 10.5 miles of transmission main. All wastewater collected within the District is transmitted to the San Luis Rey Wastewater Treatment Plant (SLRWTP), which is owned and operated by the City of Oceanside and located at 3950 North River Road in Oceanside, CA. The District owns, through contract with the City of Oceanside, capacity to treat 1.5 million gallons of sewage per day at the SLRWTP. The District does not currently provide its own wastewater treatment of any kind; however, the District maintains the pipelines and pumping equipment within the District to the connection (outfall) to the City of Oceanside.

The proposed project would involve improvements to facilities associated with the District's existing Lift Station No. 1 (LS1) (Figure 2). LS1 would be retained in place and protected during construction of adjacent facilities. The proposed project includes two new lift stations (Thoroughbred LS and Schoolhouse LS), and the installation of seven segments of new sewer main to replace existing sewer main; each of these project components is described further below, following a brief description of the District's existing facilities associated with LS1.



I:\PROJECTS\K\KJC\KJC-19_RMWD_LS1_Replacement\Map\SMND\Fig1_Regional.mxd KJC-19 7/24/2018 -RK

0 8 Miles

Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

Regional Location

Figure 1

Survey Area
Lift Station
New/Replacement Gravity Main
Trenchless Construction for New/Replacement Gravity Main
Schoolhouse Force Main
Thoroughbred Force Main
Existing/To Remain
Existing/To be Abandoned in Place
Sewer Main Suspended from Bridge
LS1-NE
LS1-NW

Proposed Thoroughbred Lift Station
Proposed Schoolhouse Lift Station
Existing Lift Station 1
Existing Lift Station 2

1 inch = 150 feet
1 inch = 150 feet

Triple Crown Drive
Thoroughbred Lane
Olive Hill Road
Camino Del Rey
Camino Del Rey
Camino Del Rey
W Lilac Road
Fairgreen Way
Camino Del Cielo
Bonsall Elementary School
Via Asuncion Way
Moosa Creek
Golf Club Drive
Old River Road
Lake Vista Drive
Lake Vista Drive
San Luis Rey River
Old River Road
Dentro De Lomas Road
Chariot Court
Little Gopher Canyon Road
76

I:\PROJECTS\K\KJC\KJC-19_RMWD_LS1_Replacement\Map\SMND\Fig2_ProjectAlignment.mxd KJC-19 7/8/2020 - SAB

0 800 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Project Alignment

Figure 2

Existing Facilities

LS1 is located along Old River Road near the intersection with Golf Club Drive in the unincorporated community of Bonsall (Figure 2). LS1 is fed by two existing primary gravity sewer lines: the Northwest (LS1-NW) Interceptor and the Northeast (LS1-NE) Interceptor. The LS1-NW Interceptor lies along SR 76, where multiple sewer lines collect to it. The LS1-NW Interceptor then turns southeast and flows parallel to Camino Del Rey under the San Luis Rey River (River) through an inverted siphon, then along, but to the west of, Old River Road in the vicinity of Bonsall Elementary School to Moosa Creek where it meets and combines with the LS1-NE Interceptor. The LS1-NE Interceptor runs through the old San Luis Rey Downs Golf Course east of Bonsall Elementary School before combining with LS1-NW just west of Old River Road.

Once the two interceptors combine, the flows pass below Moosa Creek by gravity to the existing LS1. LS1 pumps through a relatively short force main, which discharges into a gravity sewer line located in Old River Road. Flows then travel almost 7,500 feet in a southwesterly direction to the District's existing Lift Station 2 (LS2) (Figure 2).

Proposed Project

The existing LS1 and associated sewer system is undersized for current and predicted future flows which, in combination with its current condition, requires replacement. To address the capacity problem and avoid the installation of a replacement inverted siphon across the River, the District proposes to split the flows associated with existing LS1 into two new lift stations—one for each of the two primary interceptors (LS1-NW and LS1-NE) described above. This would be accomplished by constructing two new lift stations, one on each side of the River: Thoroughbred LS on the northwest side and Schoolhouse LS on the southeast side (Figure 2). Each lift station would provide partial replacement of existing LS1. Following implementation of Phase 1 of the proposed project (described in detail below), the combination of Thoroughbred LS and Schoolhouse LS would fully replace existing LS1.

Thoroughbred Lift Station

Thoroughbred LS would be installed within Assessor's Parcel Number (APN) 126-452-01-00, which is located at the southwestern corner of the intersection of SR 76 and Thoroughbred Lane (Figure 2). Thoroughbred LS is designed with a rated capacity of approximately 2,000 gallons per minute (gpm) and includes the following primary components:

- Four (two duty and two standby) 50-horsepower (HP) submersible wastewater pumps housed in an acoustic enclosure inside the lift station structure;
- Two 10-foot diameter precast concrete wet wells;
- One approximately 400,000-gallon emergency/operational storage basin;
- One 175-kilowatt (kW) standby generator, housed in a building; and
- A 6-foot concrete masonry unit (CMU) wall to fully enclose the site.

Schoolhouse Lift Station

Schoolhouse LS would be installed within Lot 25 of the new Golf Green Estates Development along Old River Road (Figure 2). Schoolhouse LS is designed with a rated capacity of approximately 550 gpm and includes the following primary components:

- Two (one duty and one standby) 10-HP submersible wastewater pumps;
- One 12-foot diameter precast concrete wet well;
- One approximately 100,000-gallon emergency storage basin;
- One 50-kW standby generator, housed in an acoustic enclosure and surrounded by a sound attenuating wall; and
- An existing 6-foot concrete masonry unit (CMU) wall currently surrounds half of the site; the proposed project would complete the wall to fully enclose the site.

New/Replacement Sewer Mains

The project would install a total of approximately 21,000 linear feet (LF) of new sewer/force main to replace existing pipelines of a similar length. New pipelines would be installed within roadways and existing trenches as much as possible. Details of each new/replacement sewer/force main are as follows:

- LS2 Gravity Main. Approximately 7,800 LF of new 20- to 21-inch polyvinyl chloride (PVC) would parallel the existing LS2 gravity main that runs southwest towards LS2 along Old River Road. The replacement LS2 Gravity Main would be installed in Old River Road.
- Golf Club Drive Gravity Main. The existing 6-inch and 8-inch sewer main along Golf Club Drive near the intersection with Old River Road would be replaced with approximately 500 LF of new 8-inch PVC gravity main in the same trench, where possible, within Golf Club Drive. The replacement Golf Club Drive Gravity Main would convey wastewater from residences to a new manhole where the new Thoroughbred Force Main would also discharge.
- Schoolhouse Force Main. A force main of approximately 650 LF of new 6- to 14-inch PVC and ductile iron (DI) would be installed in a northeasterly direction from the proposed Schoolhouse LS location to a trench in Old River Road where it would discharge into a new manhole at the upstream end of the LS2 Gravity Main to convey the wastewater to LS2. The Schoolhouse Force Main would be attached to the side of the bridge where Old River Road crosses Moosa Creek. The 6-inch force main would combine with the 12-inch Thoroughbred Force Main after entering the street (Old River Road) and become a 14-inch combined force main.
- LS1-NE Gravity Main. Approximately 3,900 LF of 14-inch PVC would be installed along Camino Del Rey and Old River Road from a point of diversion of the existing LS1-NE Interceptor on the north end of the old San Luis Rey Downs Golf Course to the proposed Schoolhouse LS. This new gravity main alignment would replace the existing LS1-NE to the south of the point of diversion.

Once the replacement LS1-NE is operational, the existing LS1-NE alignment that runs east of the school would be disconnected and abandoned in place.

- Thoroughbred Force Main. A force main of approximately 3,700 LF of new 10- to 12-inch PVC and DI would be installed from the Thoroughbred LS to where it would combine with the Schoolhouse Force Main near Schoolhouse LS and become a 14-inch combined force main in Old River Road, prior to discharging into the manhole at the junction of Golf Club Drive and Old River Road. The force main would convey wastewater in a southerly direction to just west of SR 76, then in a southeasterly direction along Camino Del Rey. The Thoroughbred Force Main would be installed using trenchless methods (e.g., slip lining, cured-in-place pipe lining, or other trenchless methods) where it would cross the intersection of Olive Hill Road/Camino Del Rey and SR 76. The Thoroughbred Force Main would be attached to the side of the bridge where Camino Del Rey crosses the River, and then would continue in a southerly direction within Old River Road.

- Olive Hill Gravity Main. The existing 8-inch sewer main along Olive Hill Road connects to the LS1-NW interceptor at the intersection of Olive Hill Road/Camino Del Rey and SR 76. The Olive Hill Gravity Main would be rerouted prior to connecting to the LS1-NW interceptor and would convey wastewater in a northerly direction just west of and parallel to SR 76 to the Thoroughbred LS. Approximately 1,000 LF of new 8-inch PVC gravity main would be installed. The gravity main would include a trenchless crossing (e.g., microtunneling, open shield tunneling, or other trenchless methods) under an existing concrete storm channel.

- LS1-NW Gravity Main. Approximately 3,000 LF of 18-inch PVC would be installed along a segment of SR 76 from the proposed Thoroughbred LS to approximately 0.25 mile north of South Mission Road. This new gravity main alignment would replace the existing 12-inch LS1-NW pipeline to the north of the Thoroughbred Lane, and the existing LS1-NW south of Thoroughbred Lane to and east of Olive Hill Road would be abandoned in place. The gravity main would include a trenchless crossing (e.g., microtunneling, open shield tunneling, or other trenchless methods) under Ostrich Farms Creek, approximately 550 feet south of South Mission Road.

Construction Phasing

The project would be implemented in three phases. Phase 1 is anticipated to begin in August 2021 and construction would take approximately 12 months. Phase 1 would include construction of the Thoroughbred LS, installation of the Thoroughbred Force Main from the Thoroughbred LS to the existing manhole that the LS1 Force Main currently discharges to, the installation of the replacement LS1-NW gravity main north of the Thoroughbred LS, and the installation of the new gravity main from Olive Hill Road to Thoroughbred LS.

Phase 2 would include installing a new parallel gravity main alongside the existing LS2 gravity main and replacing the Golf Club Drive gravity sewer mains south of Moosa Creek.

Phase 3 would include the construction of the Schoolhouse LS, installation of the Schoolhouse Force Main from the Schoolhouse LS to the intersection with the Thoroughbred Force Main in Old River Road, and installation of the replacement LS1-NW gravity main. After both the Thoroughbred LS and the Schoolhouse LS are fully operational, the existing LS1 would be removed from service and demolished.

Project Design Features

The proposed project includes a number of design features that have been built into the project to avoid or minimize environmental impacts. The District is responsible for working with the construction contractor to ensure each project design feature is implemented and carried out at the appropriate time. The following features were assumed in the analysis:

Air Quality

- To reduce the effects to sensitive receptors, the project would comply with all applicable San Diego Air Pollution Control District (SDAPCD) Rules and Regulations, including Rule 55 related to fugitive dust emissions during construction, as a matter of project design. Rule 55 requires the following:

    1. No person shall engage in construction or demolition activity in a manner that discharges visible dust emissions into the atmosphere beyond the property line for a period or periods aggregating more than 3 minutes in any 60-minute period; and

    2. Visible roadway dust as a result of active operations, spillage from transport trucks, erosion, or track-out/carry-out shall be minimized by the use of any of the equally effective trackout/carry-out and erosion control measures listed in Rule 55 that apply to the project or operation. These measures include: track-out grates or gravel beds at each egress point; wheel-washing at each egress during muddy conditions; soil binders, chemical soil stabilizers, geotextiles, mulching, or seeding; watering for dust control; and using secured tarps or cargo covering, watering, or treating of transported material for outbound transport trucks. Erosion control measures must be removed at the conclusion of each workday when active operations cease, or every 24 hours for continuous operations.

- Diesel emissions control measures would be implemented during project construction as a matter of project design; such measures require the construction fleet to use any combination of diesel catalytic converters, diesel oxidation catalysts, diesel particulate filters and utilize California Air Resources Board (CARB)/U.S. Environmental Protection Agency (USEPA) Engine Certification Tier 3, or other equivalent methods approved by CARB.

Biological Resources

- As a matter of project design and following installation of the LS1-NE main, the trenched area at the northeastern end of the alignment (off Camino del Rey in the former golf course) would be returned to its pre-impact contours and revegetated with a native seed mix appropriate to the surrounding area.

- Where the proposed alignment crosses Moosa Creek and the San Luis Rey River, new sewer main would be suspended from existing bridges. In the northern portion of the alignment, sewer main would be installed across drainages between Olive Hill Road and the Thoroughbred LS and between the Thoroughbred LS and South Mission Road using trenchless methods (e.g., microtunneling, open shield tunneling, or other trenchless methods). Launching and receiving pits for trenchless methods would be dug in disturbed areas within the ROW. By

implementing this precaution as a matter of project design, impacts to non-wetland waters of the U.S. or waters of the State would be avoided.

- Impacts to non-wetland waters (seasonal drainage channels and streambed) along Old River Road would be avoided by employing construction fencing and flagging where the waters meet Old River Road (as shown on Figures 5 and 6 of the project Biological Resources Letter Report [BLR]). By implementing this precaution as a matter of project design, impacts to non-wetland waters of the U.S. or waters of the State would be avoided.

- Impacts to sensitive vegetation communities would be avoided by employing construction fencing and flagging where such communities occur adjacent to the impact area (as shown on Figures 7a through 7d of the project BLR). By implementing this precaution as a matter of project design, impacts to sensitive vegetation communities would be avoided.

Hazards and Hazardous Materials

- As a matter of project design, the construction contractor would be required to prepare and comply with a traffic control plan which would include measures to minimize effects related to lane closures and ensure safe passage of evacuees or emergency response vehicles.

Hydrology and Water Quality

- A Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented by the District and construction contractor. The SWPPP would include specific best management practices (BMPs) to avoid or reduce potential impacts related to the use and potential discharge of construction-related hazardous materials.

- During project construction, site design, source control, and treatment control BMPs would be implemented to prevent construction-related runoff (containing sediments, oil and grease, etc.) from entering the existing storm drain system. BMPs usually include a variety of measures to prevent discharge from entering the storm drain system, such as sandbags, silt fences, or tarps blocking the drains.

- BMPs prescribed in the SWPPP also would minimize on- and off-site erosion and drainage alteration impacts through implementation of temporary sediment control measures.

- Roadways would be returned to their original elevation and contours following completion of construction, thereby returning the storm drain collection system to its original state.

Transportation and Traffic

- The construction contractor would be required to prepare and implement a construction traffic control plan as a matter of project design to avoid significant construction-related impacts to nearby streets and intersections. The traffic control plan should include ingress and egress to and from the project site, as well as designated haul routes and use of flag persons.

- Trenchless methods (e.g., slip lining, cured-in-place pipe lining, or other trenchless methods) would be used to install sewer main below the intersection of Camino Del Rey and SR 76.

2.8 Surrounding Land Uses and Project Setting

The location of the proposed project is within the unincorporated community of Bonsall. Bonsall is a rural community in the foothills of the Peninsular Mountain Range in northern San Diego County. Local topography is characterized by hills, valleys, and the River corridor adjacent to SR 76. Development in the area is predominantly low density, estate-type residential, with commercial activity centered in the Mission Road/Olive Hill Road and SR 76 area. The Bonsall Elementary School is located east of the intersection of Old River Road and Camino Del Rey. Land uses in the area also include agriculture and equestrian facilities.

As described above and shown on Figure 2, the proposed project involves improvements to sewer facilities located along SR 76, Camino Del Rey, Old River Road, and Golf Club Drive. The existing LS2 is located at the intersection of Old River Road and Little Gopher Canyon Road. The project proposes replacement of existing gravity main from LS2 to Golf Club Drive within the right-of way of Old River Road, which is surrounded by open space and agricultural land uses. Approximately 0.4 mile north of where Old River Road passes Dentro De Lomas Road, Old River Road bisects small residential subdivision as it approaches Golf Club Drive. Old River Road then turns 90 degrees northwest and continues towards Camino Del Rey. Disturbed land west of Old River Road in this area contains the site for the proposed Schoolhouse LS and an area where a future residential development is currently under construction (Golf Green Estates). On the east side of Old River Road across from the proposed Schoolhouse LS site is the North County Fire Protection District Station 5, and further north is the Bonsall Elementary School campus. Land that was formerly the San Luis Rey Downs golf course is located throughout the northeastern portion of the project area.

From Old River Road, Camino Del Rey crosses the River and connects to SR 76 at a signalized intersection. There is a gas station and a commercial/retail center near the site for the proposed Thoroughbred LS at the northeastern corner of this intersection between where Olive Hill Road continues westward and where Thoroughbred Lane intersects SR 76. A small residential development of approximately 80 homes lies to the west of SR 76, northwest of the proposed Thoroughbred LS and roughly 285 feet from the proposed replacement gravity main.

2.9 Other Required Agency Approvals

The District is both the project proponent and the Lead Agency under CEQA. In its role as Lead Agency, the District is responsible for ensuring the adequacy of this IS/MND. Internal review and approvals would be handled by District staff.

Encroachment permits from the County of San Diego and the California Department of Transportation (Caltrans) would be required for work within roadway and bridge rights-of-way.

2.10 Consultation with California Native American Tribes Traditionally and Culturally Affiliated with the Project Area Pursuant to Public Resources Code Section (PRC) 21080.3.1

In August of 2016, 28 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.

Four tribes (the Pala Band of Mission Indians, the San Luis Rey Band of Mission Indians, the Rincon Band of Luiseno Indians, and the Viejas Band of Kumeyaay Indians) responded indicating that the project may be within their Traditional Use Areas and/or requested that the District include them in further correspondence about the project. The Viejas Tribe requested that a Kumeyaay cultural monitor and the San Luis Rey Band Tribe requested that a Lusieño Native American cultural monitor be present during ground disturbing activities.

A formal consultation with the San Luis Rey Tribe of Mission Indians was held on November 5, 2018, and with the Pala Tribe on October 28, 2020, during which District staff provided an overview of the proposed project. Staff also indicated that this IS/MND requires that a Native American monitor shall be present during construction of the project as indicated by mitigation measure **CUL-1**. The District has also initiated consultation with the Rincon Band of Mission Indians, La Jolla Band of Luiseño Indians, San Pasqual Band of Mission Indians, and the Pauma Band of Luiseño Indians.

2.11 Summary of Environmental Factors Potentially Affected

A summary of the environmental factors potentially affected by this project, consisting of Potentially Significant Impact Unless Mitigated, include:

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

3.0 ENVIRONMENTAL 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:

1. *No Impact*. Future development arising from the project's implementation will not have any measurable environmental impact on the environment and no additional analysis is required.

2. *Less Than Significant Impact*. The development associated with project implementation will have the potential to impact the environment; these impacts, however, will be less than the levels or thresholds that are considered significant, and no additional analysis is required.

3. *Potentially Significant Unless Mitigated*. The development will have the potential to generate impacts which may be considered as a significant effect on the environment, although mitigation measures or changes to the project's physical or operational characteristics can reduce these impacts to levels that are less than significant.

4. *Potentially Significant Impact*. Future implementation will have impacts that are considered significant, and additional analysis is required to identify mitigation measures that could reduce these impacts to less than significant levels.

3.1 Aesthetics

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	■	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	■
c. In non-urbanized areas, substantially degrade the existing visual character or quality 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 that would adversely affect day or nighttime views in the area?	☐	☐	■	☐

a. *Have a substantial adverse effect on a scenic vista?* ***Less Than Significant Impact***. The San Marcos Mountains, located approximately five miles southeast of the proposed project, are an important

visual landmark for the community of Bonsall (County of San Diego [County] 2011a). Old River Road is a County-designated scenic road for the rural mountain views it provides (County 2011b). Additionally, the River and Moosa Creek are considered valuable visual resources for the scenic riparian woodland habitat that they support (County 2011b). Although the project area contains numerous visual resources, project-related effects on scenic vistas would be both minimal and temporary as they would only occur during construction. Upon completion of construction, the proposed pipelines would be underground and would have no impact on scenic vistas. The proposed lift stations would be small above-ground structures located near existing residential and commercial structures. The proposed lift stations would not obstruct views; therefore, the proposed project would result in less than significant impacts to scenic vistas.

b. *Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?* ***No Impact****.* SR 76 is listed as an Eligible State Scenic Highway–Not Officially Designated on the California Scenic Highway Mapping System website (Caltrans 2016). As described above in Response 3.1a, there are numerous scenic resources within the project area; however, impacts to visual resources would be minimal and temporary and confined to construction activities. Additionally, the majority of the proposed project would be placed underground within the ROW of non-highway roads. The proposed lift stations would be small above-ground structures immediately adjacent to an area planned for residential development (Schoolhouse LS) and an area of existing residential and commercial development (Thoroughbred LS). Implementation of the proposed project would not damage surrounding trees or rock outcroppings. 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 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?* ***Less Than Significant Impact***. The existing visual quality of the site is considered high due to the scenic rural landscape. During the construction period, the presence of construction vehicles, equipment, and staging area(s) would result in short-term visual effects to the project site and its surroundings. Due to the short-term nature of these potential effects, however, impacts related to existing visual character or quality of the site and surrounding areas would be less than significant during construction. Upon project completion, all materials associated with construction would be removed and the roads and surrounding areas would be restored to their original condition. As stated under 3.1a above, the proposed lift stations would be small above-ground structures adjacent to existing and planned development and would not degrade visual character or quality of public views of the site and its surroundings. Therefore, impacts related to existing visual character or quality of the site and surrounding areas would remain less than significant upon project completion.

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 proposed project involves underground pipelines that would not be visible and would not require any associated lighting. The proposed lift stations would be small above-ground structures, and any associated security lighting would be shielded and aimed downward so as not to shine or produce glare for adjacent street traffic or surrounding land uses. Project construction would primarily occur during daylight hours, during which time no lighting would be required. Night work may be required to minimize effects on motorized traffic for some

segments of the proposed project, which would require appropriate lighting; however, this would be a temporary impact and, therefore, would be less than significant.

3.2 Agriculture and Forestry Resources

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as depicted on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency?	☐	☐	☐	■
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 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	■
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	■
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	■

a. *Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as depicted on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency?* ***No Impact****.* Designated land uses within the project area do include agricultural uses (CDC 2012); however, project implementation would not result in conversion of existing farmland to non-agricultural uses. Therefore, the project would not affect an agricultural resource area and would have no impacts to designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

b. *Conflict with existing zoning for agricultural use, or a Williamson Act Contract?* ***No Impact***. There are no Williamson Act Contracts in the project area (CDC 2013). Implementation of the project would involve improvements to sewer facilities such as underground pipelines and would not result in conflicts with existing zoning for agricultural use. No associated impacts would occur.

c. *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code 12220(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 designated or zoned for forest land, timberland, or timberland zoned Timberland Production. Therefore, implementation of the project would not conflict with existing zoning for such lands, and no impact would occur.

d. *Result in the loss of forest land or conversion of forest land to non-forest use?* ***No Impact***. As previously stated, the project site is not located in an area designated as forest land. Accordingly, project implementation would not convert forest land to non-forest use, and no impact 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***. There are no agricultural operations or timberland production operations within the project site or vicinity. The project does not propose changes that could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use. No impact would occur.

3.3 Air Quality

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	■
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is 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?	☐	☐	■	☐

The following discussion is based on air emissions calculations and modeling prepared by HELIX Environmental Planning, Inc. (HELIX 2020a). The output worksheets are included as Appendix A to this IS/MND.

a. *Conflict with or obstruct implementation of the applicable air quality plan?* ***No Impact***. The SDAPCD is the government agency that regulates sources of air pollution within the County. Currently, the San Diego Air Basin is in "non-attainment" status for criteria pollutants ozone (O_3), 10-micron or less particulate matter (PM_{10}), and 2.5-micron or less particulate matter ($PM_{2.5}$). The SDAPCD developed a Regional Air Quality Strategy (RAQS), the applicable air quality plan, to provide control measures to achieve attainment status for these criteria pollutants. The RAQS relies on information from the CARB and the San Diego Association of Governments (SANDAG), including mobile and area source emissions and information regarding projecting growth in the County, to project future emissions and then determine strategies necessary for the reduction of emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and the County. Projects that propose development that are consistent with the growth anticipated by the general plans are therefore consistent with the RAQS.

The project would not result in a significant air quality impact from operational activity, as described further in Item 3.3b. Moreover, as discussed in Item 3.14a, under *Population and Housing*, the proposed project does not include growth-generating components. As such, the proposed project is consistent with the General Plan and would be consistent with the RAQS. No impact would occur.

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?* ***Less Than Significant Impact.*** Air quality is defined by ambient air concentrations of six specific pollutants identified by the USEPA to be of concern with respect to health and welfare of the general public. These pollutants include ozone, carbon monoxide (CO), nitrogen dioxide, PM_{10}, $PM_{2.5}$, sulfur dioxide, and lead. The primary source of air pollutants generated by the proposed project would be emissions associated with temporary construction activities.

Construction

Construction of the proposed project would result in temporary increases in air pollutant and dust emissions generated primarily from construction equipment exhaust, earth disturbance/excavation, construction worker vehicle trips, and heavy-duty truck trips. Construction emissions were calculated using the South Coast Air Quality Control District's California Emissions Estimator Model (CalEEMod) emissions inventory model. Detailed construction emissions assumptions and CalEEMod inputs and outputs are provided in Appendix A.

Table 1, *Estimated Maximum Daily Construction Emissions*, provides a summary of the daily construction emission estimates by construction phase. The maximum daily emissions are provided for each individual phase, as well as a total amount of emissions that assumes that all three phases would overlap concurrently.

Screening thresholds established by the SDAPCD have been used based on SDAPCD Rules 20.2 and 20.3 Air Quality Impact Analysis (AQIA) trigger levels for new or modified stationary sources to determine significance for air emissions impacts. According to Rules 20.2 and 20.3, if these incremental levels are exceeded, an AQIA must be conducted to demonstrate that the project would not cause or contribute to a violation of an air quality standard. For CEQA purposes, these screening-level thresholds can be used to demonstrate that a project's emissions would not result in a significant impact to air quality. Because the AQIA thresholds do not address reactive organic gases (ROG), the screening-level for ROG used in this analysis has been adopted from the County's Guidelines for Determining Significance. For $PM_{2.5}$, the USEPA's "Final Clean Air Rule to Implement the Fine Particle National Ambient Air Quality Standards" recommends a significance threshold of 10 tons per year, which equates to 55 pounds per day. The screening level thresholds are included in Table 1.

Table 1
ESTIMATED MAXIMUM DAILY CONSTRUCTION EMISSIONS
(pounds/day)

Emission Source	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Phase 1	4	46	31	<1	6	3
Phase 2	4	46	31	<1	6	3
Phase 3	4	46	31	<1	6	3
Maximum Daily Emissions	**12**	**140**	**94**	**<1**	**18**	**10**
Screening Level Threshold	75	250	550	250	100	55
Exceeds Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

Note: The results represent the maximum daily mitigated on- and off-site emissions for each phase, rounded to the nearest whole number (see Appendix A).
ROG = reactive organic gas; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

As shown in the table, none of the criteria pollutant emissions would exceed the respective screening thresholds. Thus, construction-related air quality impacts would be less than significant.

Sensitive receptors, including adjacent residents within the subdivisions along portions of Old River Road and Golf Club Drive, would be exposed to particulate matter (fugitive dust) emissions during the construction period. This would be a temporary construction impact, which would exist on a short-term basis during, and would cease upon completion of, construction. To reduce the effects to sensitive receptors, the project would comply with all applicable SDAPCD Rules and Regulations, including Rule 55 related to fugitive dust emissions, as a matter of project design. Rule 55 requires the following:

1. No person shall engage in construction or demolition activity in a manner that discharges visible dust emissions into the atmosphere beyond the property line for a period or periods aggregating more than 3 minutes in any 60-minute period; and

2. Visible roadway dust as a result of active operations, spillage from transport trucks, erosion, or track-out/carry-out shall be minimized by the use of any of the equally effective trackout/carry-out and erosion control measures listed in Rule 55 that apply to the project or operation. These measures include: track-out grates or gravel beds at each egress point; wheel-washing at each egress during muddy conditions; soil binders, chemical soil stabilizers, geotextiles, mulching, or seeding; watering for dust control; and using secured tarps or cargo covering, watering, or treating of transported material for outbound transport trucks. Erosion control measures must be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations.

Operations

Following the construction of the project, activities on site would be limited to routine maintenance of the operational wastewater facilities. The electricity usage of the lift station pumps is not expected to result in the generation of criteria air pollutants; it would, however, be expected to generate greenhouse gas (GHG) emissions (see Section 3.8).

The two standby generators at the two lift stations are assumed to run approximately 15 minutes per month for maintenance and testing purposes, as well as when normal power supply is lost. The

results of the CalEEMod calculations for project operations can be found in Appendix A. Criteria pollutant emissions would be less than one pound per day and would not exceed their respective screening thresholds. Thus, operations-related air quality impacts would be less than significant.

Based on the foregoing, criteria pollutant emissions impacts from project construction and operations would be less than significant.

c. *Expose sensitive receptors to substantial pollutant concentrations?* ***Less Than Significant Impact***. Sensitive populations (i.e., children, senior citizens, and acutely or chronically ill people) are more susceptible to the effects of air pollution than are the general population. Sensitive receptors along the project alignment include single-family residences, Bonsall Community Church, and Bonsall Elementary School. As discussed above in 3.3b, the project would not generate substantial concentrations of criteria pollutants. Diesel exhaust particulate matter would be emitted from heavy equipment used during project construction, however. Diesel exhaust particulate matter in California is known to contain carcinogenic compounds. The risks associated with carcinogenic effects are typically evaluated based on a lifetime of chronic exposure (i.e., 24 hours per day, 365 days per year for 70 years). Because emissions of diesel exhaust would be temporary and short-term, construction of the project would not result in long-term chronic lifetime exposure to diesel exhaust from heavy equipment. In addition, diesel emissions control measures would be implemented during project construction as project design features that would require the construction fleet to use any combination of diesel catalytic converters, diesel oxidation catalysts, diesel particulate filters CARB/USEPA Engine Certification Tier 3 equipment, or other equivalent methods approved by CARB. Therefore, air quality impacts related to the exposure of sensitive receptors to substantial pollutant concentrations 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***. The proposed project would install replacement wastewater infrastructure components, a use that is not likely to generate nuisance odors, as all equipment but the proposed Schoolhouse LS and Thoroughbred LS would be located underground. Each proposed lift station would be equipped with an odor control system designed to neutralize hydrogen sulfide and other odors. Diesel exhaust from construction vehicles may create odors noticeable at residences adjacent to the project site; however, the diesel exhaust odors would be temporary, occurring for relatively short periods of time. Associated impacts would be less than significant.

3.4 Biological Resources

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	■	☐	☐

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
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 Game or U.S. Fish and Wildlife Service?	☐	☐	■	☐
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	■
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	■	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	■
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	■

A BLR for the project was prepared by HELIX (2020b) to document the biological conditions within the project study area, identify the potential for sensitive resources to occur within the study area, and evaluate the potential for project impacts. The results and conclusions of the survey and report are summarized herein, and the report is included as Appendix B to this IS/MND.

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?* ***Potentially Significant Unless Mitigated****.*

Plant Species

Special-status plant species are those listed as federally threatened or endangered by the U.S. Fish and Wildlife Service (USFWS); State listed as threatened or endangered or considered sensitive by the California Department of Fish and Wildlife (CDFW); and/or, are California Native Plant Society (CNPS) List 1A, 1B, or 2 species, as recognized in the CNPS' Inventory of Rare and Endangered Vascular Plants of California and consistent with the CEQA Guidelines. A search of the USFWS, California Natural Diversity Database (CNDDB), and CNPS species records reported in the project vicinity did not result in any point records for sensitive plant species on or immediately adjacent to the project alignment. A total of 38 sensitive plant species reported in the project vicinity were analyzed for their potential to occur. Of these, only a single species was determined to have a high potential to occur within the study area: Robinson's peppergrass (*Lepidium virginicum* var. *robinsonii*), an herbaceous annual plant. No special status plant species were observed in the study area during the September 2014, July and August 2016, and October 2017 general biological surveys conducted for the project. A focused plant survey was conducted by HELIX in May 2020 for

San Diego Ambrosia (*Ambrosia pumila*). No plants were found. The majority of the project alignment is characterized by developed land within and immediately adjacent to Old River Road, Camino del Rey, and Golf Club Drive, and disturbed land associated with the former golf course. However, areas of Diegan coastal sage scrub, which is where Robinson's peppergrass tends to occur, are located on the east side of Old River Road adjacent to but outside of the alignment (i.e., outside of the project impact area; refer to BLR Figures 7a through 7d). No impacts to Diegan coastal sage scrub would occur as a result of the project; as such, significant impacts to sensitive plant species, specifically Robinson's peppergrass, would not occur.

Animal Species

Special-status animal species are those listed as threatened or endangered, proposed for listing, or candidates for listing by the USFWS and considered sensitive animals by the CDFW. A search of the USFWS and CNDDB species records reported in the project vicinity did not result in any point records for sensitive animal species on or immediately adjacent to the project alignment. A total of 47 sensitive animal species reported in the project vicinity were analyzed for their potential to occur. Of these, five species were determined to have a high potential to occur within the study area: Cooper's hawk (*Accipiter cooperi*), yellow-breasted chat (*Icteria virens*), coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), and San Diego black-tailed jackrabbit *(Lepus californicus bennettii*). As described above, the majority of the project alignment is characterized by developed and disturbed land, with areas of sensitive habitat including Diegan coastal sage scrub, mule fat scrub, southern cottonwood-willow riparian forest, and southern willow scrub generally occurring to the east and west of Old River Road, primarily south of the former golf course (refer to BLR Figures 4a-4d and 7a-7d)). Suitable avian habitat along Old River Road occurs off site and outside of the proposed sewer main alignment (riparian habitat and coastal sage scrub); suitable habitat for San Diego black-tailed jackrabbit occurs east of Old River Road, in both sensitive (non-native grassland) and disturbed areas. While direct impacts to Diegan coastal sage scrub, mule fat scrub, southern cottonwood-willow riparian forest, and southern willow scrub would not occur as a result of the project, temporary indirect noise impacts resulting from construction activities could affect the avian species that occupy those habitats during their respective breeding seasons: coastal California gnatcatcher (February 15 through August 31); raptors (January 15 through July 15); or least Bell's vireo and yellow-breasted chat (March 15 through September 15). Potentially significant impacts would occur if noise from construction resulted in these species failing to breed or abandoning a nest.

Indirect noise impacts could occur along Old River Road south of the former San Luis Rey Downs Golf Club, where the proposed sewer main alignment is adjacent to southern cottonwood-willow riparian forest, southern willow scrub and Diegan coastal sage scrub. Noise in excess of an hourly average (L_{EQ}) of 60 A-weighted decibels (dBA) could disrupt nesting activities in habitat that occurs within 500 feet of work areas and that falls within the 60 dBA L_{EQ} noise contour. Construction-generated noise during periods outside of the breeding seasons for each respective species would not be considered a significant impact.

While one acre of non-native grassland, one of the habitats suitable for San Diego black-tailed jack rabbit, would be directly impacted by project construction, it would be a temporary impact associated with trenching for the proposed segment of LS1-NE gravity main that would occur in the off-road area within the former golf course (Figure 2). As a matter of project design, the trenched area would be returned to its pre-impact contours and revegetated with a native seed mix

appropriate to the surrounding area following installation of the LS1-NE main. Based on implementation of this design measure, associated temporary impacts would be less than significant and mitigation would not be required.

Nesting Birds

The project site contains trees and shrubs that provide suitable nesting habitat for common birds protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CFG Code). Construction of the proposed project could result in the removal or trimming of trees and other vegetation or general construction near nests during the general bird nesting season (January 15 through September 15) and, therefore, could result in impacts to nesting birds in violation of the MBTA and CFG Code. Direct impacts could occur as a result of removal of vegetation supporting an active nest. Impacts would be considered significant.

Implementation of Mitigation Measure **BIO-1** would reduce potential impacts to nesting birds to below a level of significance. Implementation of Mitigation Measure **BIO-2** would reduce potential noise-related indirect impacts to coastal California gnatcatcher, least Bell's vireo, yellow-breasted chat, and Cooper's hawk to below a level of significance.

BIO-1 **Pre-Construction Nesting Bird Survey and Avoidance**. Project activities requiring the removal and/or trimming of vegetation suitable for nesting birds shall occur outside of the general bird breeding season (February 15 through August 31). If the activities cannot avoid the general bird breeding season, a qualified biologist shall be retained to conduct a pre-activity nesting bird survey within 7 days prior to the activities to confirm the presence or absence of active bird nests. If no active bird nests are found by the qualified biologist, then the activities shall proceed with the reassurance that no violation to the MBTA and CFG Code would occur. If an active bird nest is found by the qualified biologist, then vegetation removal and/or trimming activities at the nest location shall not be allowed to occur until the qualified biologist has determined that the nest is no longer active.

BIO-2 **Pre-Construction Sensitive Bird Surveys and Noise Attenuation**. No construction activities shall occur between January 15 and September 15 in areas adjacent to southern willow scrub, southern cottonwood-willow riparian forest or Diegan coastal sage scrub until the following conditions have been met:

A. A qualified biologist shall survey areas that would be subject to construction noise levels exceeding 60 dBA L_{EQ} for the presence of the coastal California gnatcatcher, least Bell's vireo, yellow-breasted chat and Cooper's hawk. Surveys for the species shall be conducted pursuant to the protocol survey guidelines established by the U.S. Fish and Wildlife Service within the breeding season prior to the commencement of construction. If any of these species are present, then the following conditions must be met:

   If operation of construction equipment occurs during the breeding seasons for the coastal California gnatcatcher (February 15 through August 31), nesting raptors (January 15 through July 15), or least Bell's vireo (March 15 through September 15), pre-construction survey(s) shall be conducted by a qualified biologist as appropriate to determine whether these species occur within the areas potentially impacted by

noise. An analysis showing that either: (1) noise generated by construction activities would not exceed 60 dBA L_{EQ} at the edge of occupied habitat, or (2) existing ambient noise levels already exceed 60 dBA L_{EQ} must be completed by a qualified acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) at least two weeks prior to the commencement of construction activities. Prior to the commencement of any construction activities, areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist; or

At least two weeks prior to the commencement of construction activities, under the direction of a qualified acoustician, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dBA L_{EQ} at the edge of habitat occupied by the listed species. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring* shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dBA L_{EQ}. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (September 16).

*Construction noise monitoring shall continue at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dBA L_{EQ} or to the ambient noise level if it already exceeds 60 dBA L_{EQ}. If not, other measures shall be implemented in consultation with the biologist and the USFWS and CDFW, as necessary, to reduce noise levels to below 60 dBA L_{EQ} or to the ambient noise level if it already exceeds 60 dBA L_{EQ}. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

B. If the listed species are not detected during the survey, no noise mitigation measures would be necessary.

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 Game or U.S. Fish and Wildlife Service?* ***Less Than Significant Impact****.* No permanent impacts to sensitive vegetation communities would result from the project, which occurs almost entirely within existing roads and disturbed lands (Figure 2; see also BLR Figures 7a through 7d in Appendix B). As shown in Table 2, *Impacts to Sensitive Vegetation Communities*, the project would not permanently impact sensitive natural communities. The only impact to a sensitive vegetation community consists of 1.0 acre of temporary impacts to non-native grassland within the former golf course. These temporary impacts would result from trenching for installation of a portion of the replacement gravity main LS1-NE, after which the area would be returned to its pre-impact contours following construction and revegetated with a native seed mix appropriate to the surrounding area. The re-contouring and revegetation would be done as a matter of project design, as described above and in the Project Description of this IS/MND. No mitigation is required for this temporary impact, and no permanent impacts would occur.

Table 2
IMPACTS TO SENSITIVE VEGETATION COMMUNITIES

Vegetation Community	Existing	Impact*
Mule fat scrub	0.02	0
Southern cottonwood-willow riparian forest	25.3	0
Southern willow scrub	0.66	0
Diegan coastal sage scrub	15.0	0
Non-native grassland / extensive agriculture	19.4	1.0
TOTAL	**60.5**	**1.0**

*All impacts are temporary

c. *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?* ***No Impact****.* Potentially jurisdictional resources in the study area include wetland and non-wetland waters of the U.S./State subject to U.S. Army Corps of Engineers (USACE)/Regional Water Quality Control Board (RWQCB) jurisdiction, and riparian habitat and streambed subject to CDFW jurisdiction only (refer to Table 2 in the BLR contained in Appendix B). No impacts to jurisdictional wetlands or waterways would result from the project. The project would avoid ground disturbance in Moosa Creek and the River by using existing bridge structures to support the proposed pipeline above-ground (refer to BLR Figures 7a and 7b). Impacts to non-wetland waters (seasonal drainage channels and streambed) along Old River Road would be avoided by employing construction fencing and flagging where the waters meet Old River Road (refer to BLR Figures 5 and 6). The proposed alignment adjacent to SR 76, in the northern portion of the project, would be installed using trenchless methods (i.e., microtunneling, open shield tunneling, or other trenchless methods) where the alignment would cross existing drainages between Olive Hill Road and the Thoroughbred LS site and between the Thoroughbred LS site and South Mission Road (Figure 7a). Launching and receiving pits for trenchless methods would be dug in disturbed areas within the ROW. By implementing this precaution as a matter of project design, impacts to non-wetland waters of the U.S. or waters of the State would be avoided. No related impacts would occur.

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 Impact****.* Moosa Creek and the River both function as wildlife corridors in the project vicinity. As described above, however, the majority of the alignment is within existing roadways, which do not contribute to wildlife corridor functions or nursery sites. The existing roadways already act as a barrier to wildlife movement between upland and riparian areas, and project construction within the roadways would not further inhibit wildlife movement, particularly since most movement is expected to follow existing creek corridors. A small segment of the replacement gravity main LS1-NE would occur within non-native grassland; however, this area is parallel to existing residential development to the north, and relatively expansive areas of abandoned golf course to the south, which connect to Moosa Creek (Figure 2). Temporary trenching in this small area would not result in placement of barriers to wildlife movement along the creek or within the former golf course, and wildlife would continue to be able to move through the area. Potential impacts on wildlife corridors and nursery sites would be less than significant. No mitigation is required.

e. *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?* ***No Impact****.* As described in the BLR (HELIX 2020b), the project would not conflict with any local policies or ordinances protecting biological resources. No related 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****.* As described in the BLR (HELIX 2020b), the project alignment is not located within the boundaries of any adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan. Therefore, the project would not conflict with any adopted conservation plans, and no impact would occur.

3.5 Cultural Resources

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of CEQA?	☐	☐	■	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of CEQA?	☐	■	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	■	☐

A Cultural Resources Survey for the project was prepared by ASM Affiliates (2016 and updated in 2018) to document the existing cultural resources within the project study area and evaluate the potential for project impacts. The conclusions of the survey and report are summarized below, and the report is included as Appendix C to this IS/MND.

a. *Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of CEQA?* ***Less than Significant Impact****.* The majority of the project area has been previously developed or disturbed and is currently covered with asphalt. As described in the Cultural Resources Survey Letter Report for the project (ASM Affiliates 2018; included as Appendix C to this IS/MND), there are identified historical resources within a 0.5-mile radius of the proposed project; however, there are no known historical resources within the project's Area of Potential Effects (APE). As such, impacts to historical resources would not occur.

b. *Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of CEQA?* ***Potentially Significant Unless Mitigated***. As discussed in Response 3.5a, the project site is located within an area that has been previously disturbed. No archaeological resources have been identified within the APE; however, there are 19 identified cultural resources within a 0.5-mile radius of the project area (refer to Table 2 in Appendix C; ASM 2018). In particular, the project's survey area is adjacent to archaeological sites SDI-674/8663 near a portion of the existing alignment to be abandoned in place. Since no ground disturbance would take place in the vicinity of SDI-674/8663, this site would not be impacted by the proposed project. No new cultural

resources were identified during the field survey conducted by ASM in October 2017; however, due to the extensive prehistoric uses of the area, the proximity of proposed ground disturbance to a possible prehistoric village location, and the associated increased potential for unknown subsurface archaeological resources to exist in the alluvial soils near the River and Moosa Creek, impacts to archaeological resources are potentially significant. Implementation of mitigation measures **CUL-1** and **CUL-2** would reduce potential archaeological resource impacts to below a level of significance.

CUL-1 **Construction Monitoring for Cultural Resources.** A qualified Archaeologist and Native American monitor shall be present during grading, trenching, and subsurface disturbance and shall document such activity on a standardized form. Daily logs shall be kept by all monitors, and a monitoring report be prepared at the conclusion of each phase of monitoring. A record of activity shall be sent to the District.

CUL-2 **Unanticipated Discovery of Cultural Materials.** In the event that cultural resource(s) are unearthed during ground disturbing activities, the archeological monitor and tribal monitor shall have the authority to temporarily halt or redirect ground disturbing activities away from the vicinity of these unanticipated discoveries so that they may be evaluated. The District, the project archaeologist, and a tribal representative shall assess the significance of such cultural resource(s) and, if the cultural resource(s) is determined to be culturally significant, they shall meet to confer regarding the appropriate treatment for the cultural resource(s). Pursuant to Calif. Pub. Res. Code § 21083.2(b) avoidance is the preferred method of preservation. The archaeologist and the tribal representative shall make recommendations to the District on the measures that will be implemented to protect the newly discovered cultural resource(s), including but not limited to, avoidance in place, excavation, relocation, and further evaluation of the discoveries in accordance with CEQA. No further ground disturbance shall occur in the area of the discovery until the District approves the measures to protect the significant cultural resource(s).

c. *Disturb any human remains, including those interred outside of formal cemeteries?* ***Less Than Significant Impact****.* There are no known grave sites within the project limits, and the potential for encountering human remains during construction activities is considered low, since grading and excavation activities would occur within a previously disturbed area. In the unlikely event that human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of any human remains find immediately. If the remains are determined to be prehistoric, the Coroner would notify the Native American Heritage Commission (NAHC), which would determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery, and shall complete the inspection within 24 of notification by the NAHC. The MLD would have the opportunity to make recommendations to the NAHC on the disposition of the remains. Accordingly, impacts would be less than significant.

3.6 Energy

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

a. *Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?* ***Less than Significant Impact.*** Energy used for construction would primarily consist of fuels in the form of diesel and gasoline for the operation of construction equipment and construction worker vehicles. While construction activities would consume petroleum-based fuels, consumption of such resources would be temporary and would cease upon the completion of construction. The petroleum consumed during project construction would be typical of similar construction projects and would not require the use of new petroleum resources beyond what are typically consumed in California. Based on these considerations, construction of the project would not result in wasteful, inefficient, or unnecessary consumption of energy resources.

   Energy usage during operation of the proposed project would be limited to the energy needs of the Thoroughbred LS and Schoolhouse LS submersible wastewater pumps. Schoolhouse LS would require four (two duty and two standby) 50-HP submersible wastewater pumps. The Thoroughbred LS would require two (one duty and one standby) 10-HP submersible wastewater pumps. In addition, each lift station would include one standby generator housed in an acoustic enclosure inside the lift station structure. The Thoroughbred LS would include one 175-kW standby generator and the Schoolhouse LS would include one 50-kW standby generator. Of the included equipment, the pumps would require the most energy use (electrical). Each new lift station would provide partial replacement of the existing LS1 to accommodate future flows with equipment serving the same function for the District in different locations. Therefore, the project is not anticipated to result in a substantial increase in energy use. Project operations would not use energy in a wasteful, inefficient, or unnecessary manner. Implementation of the project would not result in a substantial increase in demand of local or regional energy supplies compared to existing conditions, and impacts would be less than significant.

b. *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?* ***No Impact.*** The project would be built and operated in accordance with existing, applicable regulations. Construction equipment would be maintained to allow for continuous energy-efficient operations. Furthermore, the project would not result in a substantial increase in energy use. Accordingly, the project would not conflict with State or local plans related to energy, and no impacts would occur.

3.7 Geology and Soils

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: (i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (Refer to Division of Mines and Geology Special Publication 42)?; (ii) strong seismic ground shaking?; (iii) seismic-related ground failure, including liquefaction?; or, (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 1994 Uniform Building Code (UBC), creating substantial 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?	☐	■	☐	☐

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)?* ***No Impact****.* The closest known active fault is the Newport-Inglewood–Rose Canyon fault zone located off-shore approximately 12 miles southwest of the site. The site is not located in an Alquist-Priolo Earthquake Fault Zone. No active faults are known to underlie or project towards the site. Additionally, the project does not propose any structures intended for human use or occupancy. No impact would occur.

ii) *Strong seismic ground shaking?* ***Less Than Significant Impact****.* The project site is located within the seismically active southern California region. Active faults in the County include segments within the San Jacinto, Elsinore, and Rose Canyon fault zones. Active faults are those faults which have had surface displacement within Holocene times (about the last 11,000 years). Near-Source Shaking Zones have been mapped by the County where velocity effects need to be

considered in the design of buildings within a specified distance of an active fault. The proposed project is approximately 10 miles from the closest Near-Source Shaking Zone, which occurs along the Elsinore fault zone east of the community of Pala (County 2007).

The proposed project proposes replacement of existing underground sewage pipelines and construction of new lift stations in previously disturbed areas. The proposed project does not include the development of any above-ground structures that would pose a threat during an earthquake event. Engineering and construction of the proposed project would be required to be in conformance with the International Code Council (ICC) International Building Code (IBC, formerly the Uniform Building Code; 2006) and related California Building Code (CBC; California Building Standards Commission 2010), and other applicable standards. Conformance with standard engineering practices and design criteria would reduce the effects of seismic ground shaking to less than significant levels.

iii) *Seismic-related ground failure, including liquefaction?* ***Less Than Significant Impact****.* Liquefaction is the temporary loss of cohesion in saturated, granular soils when the pore water pressure in the soil becomes equal to the confining pressure. Liquefaction generally occurs as a "quicksand" type of ground failure caused by strong ground shaking. The primary factors influencing liquefaction potential include groundwater, soil type, relative density of the sandy soils, confining pressure, and the intensity and duration of ground shaking. The proposed project is located in a primary area for potential liquefaction hazard (County 2007). Regional building standards, however, require sewer pipelines to be installed with specific bedding and fill materials to protect the pipeline from potential damage (Drawing Number SP-2 in Regional Standards Committee 2009). Based on these considerations, impacts related to liquefaction would be less than significant.

iv) *Landslides?* ***Less Than Significant Impact****.* The project site is not located within an area identified as susceptible to landslides (County 2007). Project construction would occur within the ROW in previously disturbed roadways and easements, as well as within a former golf course and adjacent disturbed areas. Following construction, the project site would be returned to its original condition. 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****.* Trenching and earthwork activities during construction of the proposed project would 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 effective SWPPP for project construction, since the Project's area of ground disturbance is 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****.* Refer to Response 3.7a, above, regarding soil instability related to seismic effects. No water extractions or similar practices that are typically associated with project-related subsidence effects are proposed. In addition, surface material that

would be disrupted/displaced would be balanced and re-compacted on-site during project construction, to the extent practicable. Adherence to standard engineering practices would result in less than significant impacts related to subsidence of the land.

d. *Be located on expansive soil, as defined in Table 18-1-B of the 1994 Uniform Building Code (UBC), creating substantial risks to life or property?* ***Less Than Significant Impact****.* The majority of soils that underlay the project site have a low to moderate potential for shrinking and swelling. An approximately 0.5-mile stretch of Old River Road, where the alignment runs between Little Gopher Canyon Road and Dentro De Lomas Road, is underlain with Las Posas stony fine sandy loam, a potentially expansive soil. As described above, however, the proposed replacement pipeline would be installed in an existing trench with imported bedding material and fill. Further, adherence to standard engineering practices contained within the IBC[1] and CBC would reduce any potential impacts to less than significant levels.

e. *Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?* ***No Impact****.* The proposed project does not include the implementation of septic tanks or alternative wastewater disposal systems. No impact would occur.

f. *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?* ***Potentially Significant Impact Unless Mitigation***. The project site is underlain with young alluvial floodplain deposits. Based on its relatively young age and high-energy depositional history, younger alluvium is considered unlikely to produce unique fossil remains and is assigned a low paleontological resource sensitivity (Deméré and Walsh 1994). Ground-disturbing activities associated with the proposed project would occur in previously graded and disturbed areas and would be limited to relatively shallow depths. This greatly reduces the potential for encountering intact paleontological resources. The potential still exists, however, for paleontological resources to be encountered during ground-disturbing activities. If such resources were encountered, impacts would be potentially significant. Implementation of mitigation measure **GEO-1** would reduce potential paleontological resource impacts to below a level of significance:

GEO-1 **Unanticipated Discovery of Paleontological Materials** In the unlikely event that potentially significant paleontological materials (e.g., fossils) are encountered during construction of the project, all work shall be halted in the vicinity of the paleontological discovery until a qualified paleontologist can visit the site of discovery, assess the significance of the paleontological resource, and provide proper management recommendations. If the discovery proves to be significant, additional work, such as data recovery excavation, may be warranted. The treatment and disposition of paleontological materials that might be discovered during excavation shall be in accordance with applicable laws and regulations.

[1] Table 18-1-B of the 1994 UBC has been replaced by Section 1802.3.2 of the IBC as the industry standard for defining expansive soils.

3.8 Greenhouse Gas Emissions

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

The following discussion is based on GHG emissions calculations and modeling prepared by HELIX (2020a). Detailed construction emissions assumptions and model inputs and outputs are provided in Appendix A.

a. *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?* ***Less Than Significant Impact***. Global climate change refers to changes in average climatic conditions on Earth as a whole, including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone, and certain hydro-fluorocarbons. These gases, known as GHGs, allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere. Greenhouse gases are emitted by both natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Emissions of GHGs in excess of natural ambient concentrations are thought to be responsible for the enhancement of the greenhouse effect and contributing to what is termed "global warming," the trend of warming of the Earth's climate from anthropogenic activities. Global climate change impacts are by nature cumulative; direct impacts cannot be evaluated because the impacts themselves are global rather than localized impacts.

   California Health and Safety Code Section 38505(g) defines GHGs to include the following compounds: CO_2, CH_4, N_2O, ozone, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. As individual GHGs have varying heat-trapping properties and atmospheric lifetimes, GHG emissions are converted to carbon dioxide equivalent (CO_2e) units for comparison. The CO_2e is a consistent methodology for comparing GHG emissions because it normalizes various GHG emissions to a consistent measure.[2] The most common GHGs related to the project are those primarily related to energy usage: CO_2, CH_4, and N_2O.

   Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, set the state-wide goal to reduce GHG emissions to 1990 levels by 2020. In January 2008, the California Air Pollution Control Officers Association prepared a white paper entitled "CEQA & Climate Change," which developed a

[2] The effect each GHG has on climate change is measured as a combination of the volume of its emissions, and its global warming potential. The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere and is expressed as a function of how much warming would be caused by the same mass of CO_2. For instance, CH_4 has a global warming potential of 21, meaning that 1 gram of CH_4 traps the same amount of heat as 21 grams of CO_2. N_2O has a global warming potential of 310.

900-metric ton (MT) screening to determine whether further analysis was needed to assess whether a residential or commercial project would hinder the statewide attainment of GHG emissions reduction goals described in AB 32. Senate Bill (SB) 32 was passed as a follow up to AB 32 and extended the reduction target to 40 percent below 1990 levels by 2030. For projects that would be developed after 2020, this goal is proportionally reduced to 813 MT CO_2e.

Modeling was conducted that showed project GHG emissions would not exceed this screening threshold, using CalEEMod. The calculations included estimated emissions from construction as well as emissions associated with operation (electricity usage related to the lift stations and diesel usage related to monthly testing of the backup generators). It is standard practice to include construction emissions (amortized over a typical duration of 20 years) when analyzing GHG emissions. Project operations are assumed to begin in 2021. Detailed construction emissions assumptions and CalEEMod inputs and outputs are provided in Appendix A. Table 3, *Estimated GHG Emissions*, provides a summary of the total annual GHG emissions generated by the project.

Table 3
ESTIMATED GHG EMISSIONS

Emission Source	Emissions (MT CO_2e)
Area	<1
Energy	333
Mobile	0
Waste	0
Water	0
Offroad - Generator	<1
Amortized Construction	65
TOTAL	**400**
Screening Level Threshold	**813**
Exceeds Threshold?	**No**

Refer to Appendix A for full modeling results.
MT = metric tons; CO^2e = carbon dioxide equivalent

As shown in Table 3, most of the project emissions are from the energy use related to the electric pumps for the proposed lift stations. As shown above, the total annual GHG emissions generated by the project would be approximately 400 MT CO_2e, which is below the screening threshold of 813 MT CO_2e per year. Impacts 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?* ***No Impact***. As discussed in Response 3.8a, the proposed project would not result in significant GHG emissions. The project would not result in emissions that would adversely affect state-wide attainment of GHG emission reduction goals as described in AB 32 and SB 32. Emissions would therefore have a less than cumulatively considerable contribution to global climate change impacts, and the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. No impact would occur.

3.9 Hazards and Hazardous Materials

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	■	☐
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?	☐	☐	☐	■

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****.* Small amounts of potentially hazardous materials (e.g., fuel, lubricants, and solvents) may be used during construction activities. The transport, use, and disposal of hazardous materials during the temporary, short-term construction period would be conducted in accordance with applicable local, state, and federal laws. Operation of the proposed lift station and sewer main project would not require or result in the transport, use, or disposal of potentially hazardous materials. Therefore, related 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?* ***Potentially Significant Unless Mitigated***. The proposed project is not anticipated to result in a release of hazardous materials into the environment. During the temporary, short-term construction period, however, there is the possibility of accidental release of hazardous substances such as spilling of hydraulic fluid or diesel fuel associated with construction equipment maintenance. The level of risk associated with the accidental release of these hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials. The construction contractor would be required to use standard construction controls and safety procedures to avoid

or minimize the potential for accidental release of such substances into the environment. In addition, the District has standards in place to control potential sewage spills that could occur as a result of accidental release or leaks of sewage during project construction or operation. Even with the presence of such standards, accidental conditions such as sewer pipe rupture or lift station failure could result in potential impacts related to spills and exposure of the public and environment to associated health hazards. Such impacts would be potentially significant. Implementation of mitigation measure HAZ-1 would reduce this potential impact to below a level of significance.

HAZ-1 **Sewage Lift Station Safety Features.** The proposed Schoolhouse LS and Thoroughbred LS shall incorporate standard safety features, including an emergency generator on site in case of electrical failure, and sufficient sewage detainment capacity in the event of generator and/or pump mechanism failure to allow time for repair and/or emergency conveyance of the sewage. Additionally, a Sewer System Management Plan shall be implemented that includes monitoring protocol and contingency measures in the event of emergency leaks or spills.

c. *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?* ***Less Than Significant Impact.*** Bonsall Elementary School is located 0.10 mile east of the project site on Old River Road (Figure 2). As described in Responses 3.9a and 3.9b, however, the small volume, low concentration, and short-term presence of any potentially hazardous materials during the construction period, coupled with standard control and safety procedures and adherence to applicable regulations, would result in a less than significant impact related to the release of hazardous emissions or materials near the 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?* ***No Impact***. The SWRCB GeoTracker database and the California Department of Toxic Substances Control (DTSC) EnviroStor database provide information on hazardous materials sites. The project site is not listed as a hazardous materials site on either of these databases. The hazardous materials site closest to the proposed project listed in the EnviroStor database is a School Investigation site in Fallbrook where a Phase I Environmental Site Investigation was approved in August 2016 with a No Action determination (DTSC 2016). The GeoTracker database identified three former cleanup sites near the project site. Two are located near the intersection of Camino del Rey and Camino Del Cielo, approximately 500 feet northeast of the proposed project. Cleanup activities were completed, and the cases were closed in October 1996 and February 1989 (SWRCB 2017). The third former cleanup site is located at the gas station on the corner of Camino Del Rey and SR 76. Cleanup activities were completed and the case was closed in January 2007 (SWRCB 2017). There are no active cleanup sites mapped in the near vicinity of or within the project site; therefore, no impacts related to hazardous materials sites would occur.

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 is the Camp Pendleton Air Terminal, which is located approximately seven miles west of the project. The Oceanside Municipal Airport is approximately 10 miles southwest from the project. The project does not propose features that would result in a safety hazard or excessive noise for people residing or working in the project area. 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****.* Construction of the proposed project would temporarily block portions (e.g., up to one lane at a time) of Old River Road, Camino Del Rey, and Golf Club Drive. As a matter of project design, the contractor would be required to prepare and comply with a traffic control plan which would include measures to minimize effects related to lane closures and ensure safe passage of evacuees or emergency response vehicles. Impacts would therefore be reduced to less than significant.

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? ***No Impact***. The project would not expose people or structures to a significant risk of wildland fires because the project does not propose structures that would be at risk for fire damage or buildings meant for human occupancy. No related impacts would occur.

3.10 Hydrology and Water Quality

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	■	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	■
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river 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 offsite; (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows?	☐	☐	■	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	■
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	■

a. *Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?* ***Less Than Significant Impact****.* The project site is located within the RWQCB San Diego Region Basin Plan. Under Section 402 of the Clean Water Act, the RWQCB issues NPDES permits to regulate discharges to "waters of the nation," which include rivers, lakes, and their tributary waters. Waste discharges include discharges of stormwater and construction-related discharges. Potential impacts related to water quality could occur during trenching and construction when the potential for erosion, siltation, sedimentation, and accidental

release of hazardous materials into on-site drainages would be the greatest. Implementation of a SWPPP would be required under the NPDES Construction General Permit (NPDES No. CAS000002, SWRCB Order No. 2009-0009-DWQ; as amended by Order No. 2010-0014-DWQ and Order No. 2012-0014-DWQ), administered by the RWQCB. The SWPPP would include specific BMPs to avoid or reduce potential impacts related to the use and potential discharge of construction-related hazardous materials. The construction contractor would be required to comply with the NPDES and SWPPP requirements regarding the implementation of BMPs during construction. Compliance with these requirements would ensure that the proposed project would have a less than significant impact on water quality standards and waste discharge requirements. Furthermore, the proposed project would not require the use of or otherwise substantially impair groundwater quality or interfere with groundwater recharge.

b. *Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?* ***No Impact****.* The proposed lift station and sewer main project would not require the use of, or otherwise substantially interfere with, groundwater supplies or recharge. No impacts would occur.

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?* ***Less Than Significant Impact****.* Existing surfaces—the majority of which are paved—within the disturbance area would be temporarily removed during trenching and installation phases of the proposed project. Removal of impermeable surfaces would be limited to sections of the alignment being worked on at any given time. Following construction, the trench would be back-filled and surfaces would be repaved and/or returned to their existing condition. Drainage patterns may change temporarily during construction; however, required BMPs prescribed in the SWPPP would minimize on- and off-site erosion through temporary sediment control measures. Conformance with required BMPs would reduce potential impacts related to erosion and siltation during construction to less than significant. The proposed lift stations and related appurtenances would be contained within the parcel and would not be large enough to substantially alter the existing drainage pattern of the surrounding area. Related operational effects would be negligible and, therefore, less than significant.

   ii) *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?* ***Less Than Significant Impact****.* The proposed project would only minorly increase permanent impermeable surfaces that could contribute to increased surface runoff. Drainage patterns would potentially be affected temporarily by construction activities; however, as described above in 3.9c, the SWPPP would require implementation of specific BMPs to reduce drainage alteration impacts to less than significant, and no associated flooding would occur.

   iii) *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?* ***Less Than Significant Impact****.* The proposed project would result in a negligible increase in new impermeable surfaces associated with the proposed lift stations and, therefore, would not have the capacity to create or contribute runoff water which would exceed the capacity of existing or

planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Additionally, the contractor would comply with NPDES and SWPPP requirements and implement erosion and sedimentation control measures to minimize on- and off-site erosion, as discussed in Response 3.10a. Impacts would be less than significant.

iv) *Impede or redirect flood flows? **Less Than Significant Impact.*** According to the Flood Insurance Rate Map (FIRM) No. 06073C0488G and FIRM No. 06073C0490G, the project site is located within Zone AE. This designation describes an area within the channel of a stream as well as any adjacent floodplains. This zone is within the 100-year floodplain that is subject to inundation by a one-percent-annual-chance flood event. Although the project site is located within the 100-year floodplain as designated by the Federal Emergency Management Agency, the project would not impede or redirect flood flows through construction of buried sewer mains and two small, above-grade lift stations. No related impacts would occur.

d. *In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? **No Impact.*** There are no anticipated impacts to the proposed project from seiche, tsunami, or mudflow, as no topographical features or water bodies capable of producing such events occur within the project site vicinity.

e. *Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? **No Impact.*** Refer to Responses 3.10a and 3.10c; based on implementation of appropriate BMPs as part of (and in conformance with) the applicable NPDES guidelines, water quality impacts would be less than significant. Furthermore, the proposed project would not require the use of groundwater. No related impacts would occur.

3.11 Land Use and Planning

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

a. *Physically divide an established community? **No Impact.*** The sewer main component of the project is proposed to be constructed (buried) within the existing ROW in Old River Road, Camino Del Rey, and Golf Club Drive, as well as in an off-road area within the former San Luis Rey Downs golf course and in an access road and off-road area west of SR 76. The proposed Schoolhouse LS would be constructed within a small footprint on a single lot at the edge of the Golf Green Estates, a new residential subdivision planned off of Old River Road north of Moosa Creek. The proposed Thoroughbred LS would be constructed in a disturbed area near the intersection of Thoroughbred Land and SR-76. The project would not have an impact on the physical arrangement of an established community; therefore, no impacts are anticipated to 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?* ***Potentially Significant unless Mitigated****.* The proposed project would not change the current land use in the project area and is consistent with the Bonsall Community Plan's (2011) designation for the project site, and with the County Zoning Map (County 2016) designation of the same area. The project would potentially conflict with local ordinances related to noise control, but these impacts would be reduced to less than significant with the implementation of mitigation measures **NOI-1** and **NOI-2**. See Section 3.13 for additional discussion.

3.12 Mineral Resources

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

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?* ***Less Than Significant Impact****.* According to the County (2008), the project site is within Aggregate Resource Sector B, which is zoned as MRZ-2 and meets the State Mining and Geology Board's guidelines as eligible to be designated of regional or statewide significance. Mineral resource deposits of sand and gravel have been mapped throughout the project site (County 2008); however, the project does not propose a land use that would preclude mineral extraction, nor would it permanently restrict road access to MRZ-2 areas for potential future mining operations. The proposed project is consistent with the Bonsall Community Plan (2011) and the County General Plan (2011), with respect to the protection of mineral resources. Therefore, impacts to mineral resources would be considered less than significant.

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?* ***Less Than Significant Impact****.* Refer to Response 3.12a, above. Impacts would be less than significant.

3.13 Noise

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

The following discussion was informed by construction noise modeling prepared for the project by HELIX (2016). Detailed Construction Noise Modeling Outputs are contained within Appendix D to this IS/MND.

Fundamentals of Sound and Environmental Noise

Noise can be defined as unwanted sound. Sound (and therefore noise) consists of energy waves that people receive and interpret. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Sound intensity or acoustic energy is measured in decibels (dB) that are weighted to correct for the relative frequency response of the human ear. Unlike linear units (inches or pounds), dB are measured on a logarithmic scale, representing points on a sharply rising curve.

Since dBs are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. As a general rule, doubling the traffic volume on a street or the speed of the traffic will increase the traffic noise level by three dBA.[3] Conversely, halving the traffic volume or speed will reduce the traffic noise level by 3 dBA. A 3-dBA change in sound is the level where humans generally notice a barely perceptible change in sound and a 5-dBA change is generally readily perceptible. A 10-dBA change is generally considered substantial.

The predominant rating scales for human communities are the Noise Equivalent (L_{EQ}), and the Community Noise Equivalent Level (CNEL), both of which are based on dBA. The L_{EQ} is the total sound energy of time-varying noise over a sample period. The CNEL is the average equivalent A-weighted sound level during a 24-hour day, obtained after addition of 5 dBA to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of 10 dBA to sound levels in the night from 10:00 p.m. to

[3] To account for the range of sound that human hearing perceives, a modified scale is utilized known as the A-weighted decibel, dBA. Sound intensity or acoustic energy is measured in dBs that are weighted to correct for the relative frequency response of the human ear. For example, an A-weighted noise level includes a de-emphasis on high frequencies of sound that are heard by a dog's ear but not by a human's ear.

7:00 a.m. CNEL is utilized for describing ambient noise levels because they account for all noise sources over an extended period of time and account for the heightened sensitivity of people to noise during the night.

Sensitive Noise Receptors

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise. NSLUs in the project vicinity include an elementary school, a church, residences, and sensitive habitat adjacent to the project alignment within the River corridor. The sensitive habitat may be used for nesting by federally protected avian species, such as least Bell's vireo (see Section 3.4, *Biological Resources*).

Regulatory Framework

The District has not established noise limits for its projects. For the purposes of this analysis, the County noise guidelines are used to assess potential noise impacts. Noise limits for construction activities and general exterior noise generation are described in Sections 36.401 through 36.423 of the County Municipal Code (the noise ordinance). It is unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level at any point on or beyond the boundaries of the property exceeds the sound level limits found in Table 36.404 of the noise ordinance. For the zones neighboring the project alignment, the exterior one-hour average limit is 50 dBA between 7:00 a.m. to 10:00 p.m. and 45 dBA between 10:00 p.m. and 7:00 a.m.

Sections 36.408 through 36.411 of the Municipal Code establish noise limitations for construction activities. Except for emergency work, it is unlawful for any person to operate or cause to be operated, construction equipment between 7:00 p.m. and 7:00 a.m., or that exceeds an average sound level of 75 dB for an 8-hour period, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

Regarding federally listed biological species, guidelines produced by the USFWS recommend that project noise be limited to a one-hour average of 60 dBA or, if the existing ambient noise level is above 60 dBA, noise levels should not increase the ambient noise level by more than 3 dBA at the edge of occupied habitat during the avian species breeding season.

a. *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?* ***Potentially Significant Unless Mitigated****.*

   Short-term Construction Impacts

   Construction of the project would potentially result in temporary increases in noise levels from operation of the construction equipment. Construction activities could temporarily produce elevated short-term noise levels that would potentially impact NSLUs.

   Construction of the lift stations would require the use of a cement truck and boom for foundation pouring. These two pieces of equipment used in conjunction would generate 75 dBA at approximately 125 feet distance (assuming the equipment would be used for 40 percent of an 8-hour construction day). See Appendix D, Construction Noise Modeling Outputs, for construction equipment calculations. The nearest existing NSLUs to the Schoolhouse LS are residences and

Bonsall Elementary School (refer to Figure 2). Following buildout of neighboring developments, future NSLUs may be as close as 45 feet from the Schoolhouse LS. The nearest NSLUs to the Thoroughbred LS are existing residences at a distance of approximately 110 feet. Assuming that construction would be conducted for 8 hours in a given day, construction noise may exceed the 8-hour 75-dBA L_{EQ} noise limit for nearby NSLUs. Implementation of mitigation measures **NOI-1** would reduce lift station construction noise impacts to below a level of significance.

During pipeline trenching and pipeline replacement, an excavator would move along the pipeline route digging the trench and loading the materials into a dump truck. Trenching would occur within the following distances to NSLUs: 50 feet to single-family residences along Old River Road, 50 feet to Bonsall Community Church, 100 feet to classrooms at Bonsall Elementary School, 50 feet to residences south of Camino Del Rey, and 25 feet to sensitive habitat along the River.

An excavator, dump truck, pump, and loader would generate 75 dBA at approximately 100 feet. This assumes operation of the dump truck, loader, and excavator for 40 percent of an 8-hour construction day, and a pump operating 100 percent of an 8-hour day. Trenching activities would therefore exceed the 75-dBA noise limit for nearby NSLUs including residences, the church, and classrooms at Bonsall Elementary School. Implementation of mitigation measure **NOI-1** would reduce construction impacts to below a level of significance.

The project could possibly require nighttime construction. An excavator, dump truck, pump, and loader would generate a noise level of 80.9 dBA at 50 feet. If an exception to nighttime construction restrictions were granted by the District, construction noise would exceed the nighttime property boundary noise limits of 45 dBA in neighboring zones, and impacts would be significant.

Long-term Operation Impacts

As noted in the Project Description, the project would result in the installation of a new lift stations. The Schoolhouse LS would be within Lot 25 of the new Golf Green Estates Development along Old River Road, and Thoroughbred LS would be located at the southwestern corner of SR 76 and Thoroughbred Lane. Although the proposed lift stations would replace an existing station to the southeast (Figure 2), they would generate noise levels that may affect neighboring uses differently than the existing facility due to size and change in physical location.

The new Schoolhouse LS would require the addition of two 10-HP submersible wastewater pumps, and one 50-kW standby generator to be used in case of power failure. The nearest property lines to the Schoolhouse LS site are approximately 70 feet to the west and 45 feet to the south. The Schoolhouse LS site is partially encompassed by an existing 6-foot concrete masonry unit (CMU) perimeter wall, and the project would construct the wall on the remaining portion of the site. Single-family residences are currently under construction adjacent to the southwest of the site.

The new Thoroughbred LS would require the addition of four 50-HP submersible wastewater pumps, and one 175-kW standby generator. The nearest property line to the Thoroughbred LS site is approximately 110 feet.

The pumps at both lift stations would be in constant operation. Because the pumps would be located within enclosed structures, operational noise is not expected be audible at nearby property lines and were therefore not analyzed.

The emergency generators would require periodic 15-minute tests that would occur monthly during daytime hours. Because of the proximity of the Schoolhouse LS to future NSLUs, noise levels from this 15-minute test were analyzed at nearby property lines. During a 15-minute generator test, noise levels at property lines nearest to the Schoolhouse LS generator may be between 47.8 dBA L_{EQ} (15-minute) and 54.1 dBA L_{EQ} (15-minute), depending on the manufacturer.[4] Noise levels may exceed the 50-dBA exterior daytime and the 45-dBA exterior nighttime limits at the property line nearest to future residential uses. Mitigation measure **NOI-2** would call for the design of the proposed lift station sites to comply with the County daytime and nighttime limits, reducing impacts to below a level of significance.

Implementation of mitigation measures **NOI-1** and **NOI-2** would be required to reduce impacts to below a level of significance.

NOI-1 **General Construction Noise Reduction Limits.** Noise levels from project-related demolition, grading, and construction activities shall be reduced to 75 dBA (8-hour average).

If work is to occur at night between 7:00 p.m. and 7:00 a.m. within 300 feet of occupied residences, noise from construction activities shall be reduced to 75 dBA (1-hour average).

The District shall employ measures to reduce construction/demolition noise including, but not be limited to, the following:

- Construction equipment shall be properly outfitted and maintained with manufacturer-recommended noise-reduction devices.
- Diesel equipment shall be operated with closed engine doors and equipped with factory-recommended mufflers.
- Mobile or fixed “package” equipment (e.g., arc-welders and air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.
- Electrically powered equipment shall be used instead of pneumatic or internal-combustion powered equipment, where feasible.
- Unnecessary idling of internal combustion engines (e.g., in excess of 5 minutes) shall be prohibited.
- Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise sensitive receptors.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.

[4] Two generators were modeled for this analysis: a typical generator and a generator with noise-attenuation design features.

- No project-related public address or music system shall be audible at any adjacent sensitive receptor.

- Any truck or equipment equipped with back-up alarm moving within 300 feet of a noise-sensitive land use (residence, school, or church) should have the normal back-up alarm disengaged and safety provided by lights and flagman or broad-spectrum noise backup alarm (as appropriate for conditions) used in compliance with the Occupational Safety and Health Administration safety guidelines.

- Temporary sound barriers or sound blankets shall be installed between construction operations and adjacent noise-sensitive receptors. The project Contractor shall construct a 12-foot high temporary noise barrier meeting the specifications listed below (or of a Sound Transmission Class [STC] 19 rating or better) to attenuate noise.

- The District shall notify residences within 300 feet of the project's disturbance area in writing within one week of any construction activity. The notification shall describe the activities anticipated, provide dates and hours, and provide contact information with a description of a complaint and response procedure.

- The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process for the affected resident shall be established prior to construction commencement to allow for resolution of noise problems that cannot be immediately solved by the site supervisor.

NOI-2 **Lift Station Operational Noise Limit.** Ultimate design of the lift stations shall strive to reduce noise levels from operation of two 10-HP submersible wastewater pumps and one 50-kW standby generator at the Schoolhouse LS site and four 50-HP submersible wastewater pumps and one 175-kW standby generator at the Thoroughbred LS site. Noise generated by operation of the lift stations shall strive to not exceed a daytime exterior one-hour noise level limit of 50 dBA L_{EQ} or the nighttime exterior one-hour noise level limit of 45 dBA L_{EQ} at the nearest property line.

Measures to ensure this noise limit may include installing equipment below ground, surrounding any above-ground equipment in a noise-attenuating enclosure, and/or purchasing a generator with sound attenuation features. If an enclosure is used, the plot plans shall show its location and specify its material as 8-foot masonry or 8-inch concrete masonry unit block walls. Any access door (metal or wood) shall face the interior of the permit site and away from the nearest property line. Any cracks or openings in the enclosure walls shall be caulked or filled on the interior façade or side facing the equipment. The center of the generator set shall be located no farther than 5 feet from the enclosure wall nearest to the affected property line. Any wood doors shall be solid core, at least 1¾ inches thick, and equipped with seals and a threshold sweep.

With the possibility of working as close as 25 feet from sensitive habitat, construction equipment noise on the pipeline segments would generate noise levels over 60 dBA L_{EQ} within sensitive habitat

of the River corridor. At these distances, noise levels could be as high as 88.8 dBA L_{EQ}. Therefore, impacts to nearby sensitive habitat would be potentially significant. Implementation of mitigation measures **BIO-1** and **BIO-2** would reduce potential impacts on nesting birds to below a level of significance.

The term "substantial increase" in permanent noise is generally considered to be 10 dBA above current levels. However, an increase of 3 dBA is the smallest change that would be perceptible by humans, and this differential is often conservatively used to determine the significance of an impact. An increase of this magnitude would typically be caused by a doubling of traffic. Transportation noise sources for the project would be associated with intermittent vehicular trips by District employees for maintenance of the facility. However, project facilities would not increase the number of maintenance trips typically required compared to existing conditions. Implementation of mitigation measures **NOI-1** and **NOI-2** would ensure that ambient noise levels in the project vicinity would not be 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?* ***Less Than Significant Impact****.* The construction and demolition activities required for the proposed replacement sewer mains and lift station are not anticipated to generate excessive groundborne vibrations or noise levels. No pile driving is anticipated to be necessary as part of project construction; the loudest source of potential vibration from project construction would be the potential use of a vibratory roller, which may be used to achieve soil compaction as part of foundation construction for the proposed lift station.

No vibration-sensitive land uses (i.e., land uses where equipment or operations would be disrupted by excessive vibration) are located within 200 feet of the project alignment. Therefore, construction vibration would not affect vibration-sensitive land uses. Excessive levels of groundborne vibration of either a regular or an intermittent nature can result in annoyance to residential uses. The potential use of a vibratory roller for project construction, however, would not occur frequently during construction. As there is a relatively limited need for this piece of equipment during construction, it would likely be used very briefly and would affect an individual location for only a matter of minutes during a pass-by. Due to the temporary nature of construction activities and the infrequent potential use of a vibratory roller, impacts related to vibration are considered 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 airports to the project area are Fallbrook Community Airpark, located approximately 5 miles to the north, and Marine Corps Air Station Camp Pendleton, located about 7.5 miles to the west. The project site is not located within noise impact zones for either airport. Therefore, there would be no impact associated with aircraft noise.

3.14 Population and Housing

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Induce substantial 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?	☐	☐	☐	■

a. *Induce substantial 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)?* ***No Impact****.* The proposed project does not include any new homes or businesses, thus will not directly induce population growth. The project does not propose to substantially increase capital infrastructure or add new capacity intended to indirectly support new growth. Proposed improvements to wastewater facilities are intended to compensate for an existing deficit in system capacity. Therefore, the proposed project would not indirectly induce growth.

b. *Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?* ***No Impact****.* The proposed project would not require the removal of existing housing, and therefore, would not necessitate the construction of replacement housing elsewhere. No impact would occur.

3.15 Public Services

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
1) Fire protection?	☐	☐	☐	■
2) Police protection?	☐	☐	☐	■
3) Schools?	☐	☐	☐	■
4) Parks?	☐	☐	☐	■
5) Other public facilities?	☐	☐	☐	■

1) *Fire Protection?* ***No Impact***. Implementation of the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities. Construction and operation of the proposed project would generate no additional demand for increased public services, as it would involve improvements to the existing sewer system. During construction, fire protection may be required, but these would be short-term demands and would not require increases in the level of public service offered or affect response times. No impact would occur.

2) *Police Protection?* ***No Impact***. There are no significant impacts related to police protection or service anticipated with implementation of the proposed project, for the same reasons described in Response 3.15(1).

3) *Schools?* ***No Impact***. The project does not propose new housing and would not directly or indirectly induce population growth such that there would be an increase in demand for school services. Therefore, implementation of the proposed project would not result in the need for construction of additional school facilities. No impact would occur.

4) *Parks?* ***No Impact***. Implementation of the proposed project would not affect existing park facilities or increase the demand for additional recreational facilities. Therefore, no impacts to parks are anticipated as a result of this project.

5) *Other Public Facilities?* ***No Impact***. No impacts to other public facilities are anticipated to occur with project implementation.

3.16 Recreation

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

a. *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated?* ***No Impact****.* Implementation of the proposed project would not generate an increase in demand on existing public or private parks or other recreational facilities that would either result in or accelerate physical deterioration of these facilities. No impact 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 does not include recreational facilities or require the construction or expansion of recreational facilities. No impact would occur.

3.17 Transportation

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

a. *Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?* ***Less Than Significant Impact***. No long-term increase in traffic generation would occur as a result of the proposed project, as only minimal maintenance activity is anticipated for project operations. Project construction activities would temporarily contribute to additional vehicle trips on the local circulation system. Short-term construction traffic impacts would result from hauling demolition material away from the project site, importing/exporting fill to/from the site, delivering construction materials and supplies to the site, and transporting construction personnel to and from the site. It is assumed that primary access for construction traffic would be from SR 76. Construction would occur over an approximately 10-to-12-month span.

During peak hauling periods associated with transporting waste material off site and bringing building materials to the site, there is the potential for significant impacts to roadway segments and intersections along Old River Road and Camino Del Rey. As discussed in Section 2.8 *Project Description*, the project contractor would be required to prepare and implement a construction traffic control plan as a matter of project design to avoid significant construction-related impacts to nearby streets and intersections. The traffic control plan should include ingress and egress to and from the project site, as well as designated haul routes and use of flag persons. Many of the relatively narrow roadway segments within the project area would be subject to temporary lane closures during pipeline trenching and construction; however, most closures would maintain one lane of travel at all times, with a flag person(s) ensuring safe passage of vehicles approaching and passing through such areas. If road closures would be necessary, they would last for no more than a few days on the affected road segment, and alternate routes/detours would be established to accommodate diverted traffic. Driveway closures would be kept to a minimum, with blockages likely occurring for no more than a few hours at a time. Residents would be notified well in advance of impending closures or blockages related to project construction.

Furthermore, the proposed project is not anticipated to affect public transit, bicycle, or pedestrian facilities. Based on these considerations, impacts to traffic during the construction and operation of

the project would be less than significant, and the project would not conflict with a program, plan, ordinance or policy addressing the 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)?* ***No Impact***. Refer to Response 3.17a, above. Since the proposed project would generate a short-term increase in construction traffic and no increase in traffic associated with operation, the project would not conflict with *CEQA Guidelines section 15064.3, subdivision (b)*. No impact would occur.

c. *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?* ***No Impact***. The sewer system improvements associated with the proposed project would not include the construction of hazards (e.g., sharp curves or dangerous intersections), and would not result in incompatible uses with the surrounding developed area. Therefore, no impacts regarding design features or incompatible uses would occur.

d. *Result in inadequate emergency access?* ***Less Than Significant Impact***. Adequate emergency access would be maintained at all times during construction of the proposed project, as ensured by implementation of the traffic control plan described in Response 3.17a. Specifically, lane closures and/or blockages would be temporary and safe passage of vehicles approaching and passing through the area would be ensured by measures in the traffic control plan, including use of a flag person(s). Upon completion of the construction phases, the affected roadways and surrounding areas would be returned to their original condition. Associated impacts would be less than significant. Refer also to Response 3.9g.

3.18 Tribal Cultural Resources

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project cause a substantial adverse change in the significance of a Tribal Cultural Resource (TCR), 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:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	■	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	■	☐	☐

Discussion

a. Would the project cause a substantial adverse change in the significance of a TCR that is 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)?

b. Would the project cause a substantial adverse change in the significance of a TCR that is 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?

The following discussion addresses questions XVII(a) and (b).

Assembly Bill (AB) 52, effective July 1, 2015, introduced the Tribal Cultural Resource (TCR) as a class of cultural resource and additional considerations relating to Native American consultation into CEQA. A TCR may be considered significant if included in a local or state register of historical resources; determined by the lead agency to be significant pursuant to criteria set forth in Public Resources Code §5024.1; is a geographically defined cultural landscape that meets one or more of these criteria; is a historical resource described in Public Resources Code §21084.1, a unique archaeological resources described in Public Resources Code §21083.2; or is a non-unique archaeological resource if it conforms with the above criteria.

ASM contacted the NAHC for a Sacred Land File (SLF) search of the project site and for a list of consultant tribes with traditional lands or cultural places within the project site. A response was received on August 16, 2016, stating that a search of the SLF "was completed for the USGS quadrangle information provided with negative results." It was noted that the absence of specific site information does not mean there are no Native American cultural resources within the project area. On August 16, 2016, 28 local tribal groups and individuals were contacted based on recommendations from the Native American Heritage Commission (NAHC).

Four tribes (the Pala Band of Mission Indians, the San Luis Rey Band of Mission Indians, the Rincon Band of Luiseno Indians, and the Viejas Band of Kumeyaay Indians) responded indicating that the project may be within their Traditional Use Areas and/or requested that the District include them in further correspondence about the project. The Viejas Tribe requested that a Kumeyaay cultural monitor and the San Luis Rey Band Tribe requested that a Lusieño Native American cultural monitor be present during ground disturbing activities.

A formal consultation with the San Luis Rey Tribe of Mission Indians was held on November 5, 2018, and with the Pala Tribe on October 28, 2020, during which District staff provided an overview of the proposed project. Staff also indicated that this IS/MND requires that a Native American monitor shall be present during construction of the project as indicated by mitigation measure **CUL-1**. The District has also initiated consultation with the Rincon Band of Mission Indians, La Jolla Band of Luiseno Indians, San Pasqual Band of Mission Indians, and the Pauma Band of Luiseno Indians.

Implementation of mitigation measures **CUL-1** and **CUL-2** would reduce potential impacts to TCRs to a less than significant level.

3.19 Utilities and Service Systems

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

a. *Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?* **Less Than Significant Impact**. The proposed project does not involve the construction of habitable structures that would generate water, electricity, or natural gas demand or require telecommunications facilities or wastewater storage and treatment facilities. The proposed replacement sewer mains and lift stations have been designed in response to existing wastewater demands and would not result in the construction or expansion of new water or wastewater treatment facilities or expansion of existing facilities. No permanent staffing requirements would be associated with the new lift stations, therefore demand for wastewater services would not increase due to implementation of the project. While the proposed lift stations would require electricity to operate the submersible wastewater pumps, the electricity demand would be minimal and not require the construction or relocation of new facilities. Impacts would be less than significant.

b. *Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?* **Less Than Significant Impact**. The proposed project does not involve the construction of habitable structures that could generate water demand. Impacts associated with water supplies would be less than significant.

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**. As described in 3.17a, above, the proposed project is

designed to meet existing wastewater demands and would not generate new wastewater flows. The proposed replacement sewer mains and lift stations have been designed in response to existing wastewater demands and would not result in the construction or expansion of new water or wastewater treatment facilities or expansion of existing facilities. Demand for wastewater services would not increase due to implementation of the infrastructure replacement project and there would be no impact related to wastewater treatment capacity at the SLRWTP.

d. *Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?* ***Less Than Significant Impact****.* While project construction would generate a limited amount of solid waste, the total volume would be minimal and impacts to landfills would be temporary and negligible. Excavated soil from trenching activities would be temporarily stockpiled and reused as appropriate. The remaining excess excavation material, along with any asphalt and concrete waste resulting from the demolition of existing roadways, would be hauled off site and disposed of at an appropriate facility. The proposed project does not include construction of businesses or residences that would require ongoing solid waste disposal services, and the proposed lift stations would not include restroom facilities. Sufficient landfill capacity exists to serve the project; therefore, impacts would be less than significant.

e. *Comply with federal, state, and local statutes and regulations related to solid waste?* ***Less Than Significant Impact***. The proposed project would comply with applicable, federal, state, and local statutes and regulations related to solid waste, including Title 14, Article 5.9 of the California Code of Regulations, which specifies regulatory requirements for the disposal of construction and demolition debris (CalRecycle 2016). Impacts would be less than significant.

3.20 Wildfire

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

The California Department of Forestry and Fire Protection (CALFIRE) has mapped areas of significant fire hazards in the County through their Fire and Resource Assessment Program (FRAP). These maps place areas of the County into different Fire Hazard Severity Zones (FHSZ) based upon fuels, terrain, weather, and other relevant factors. The FRAP divides areas of significant fire hazard into two designations: State Responsibility Areas (SRA), which are areas where CALFIRE is responsible for wildfire protection, and Local Responsibility Areas (LRA), where local fire protection agencies are responsible for wildfire protection. The majority of the unincorporated area of the County is SRA lands. The FHSZs are divided into three levels of fire hazard severity: Moderate, High, and Very High. The majority of the County is in the High and Very High FHSZ. According to the maps prepared for the project area by CALFIRE, the project includes components that are within High and Very High FHSZs (CALFIRE 2020).

a. S*ubstantially impair an adopted emergency response plan or emergency evacuation plan?* ***Less than Significant Impact.*** The proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan. During construction, portions of the existing roadways, including Old River Road, Camino Del Rey, and Golf Club Drive, would be closed (e.g., up to one lane at a time). However, access would be maintained, and the project would utilize appropriate traffic control measures to ensure continued emergency response and evacuation access. As a matter of project design, the contractor would be required to prepare and comply with a traffic control plan which would include measures to minimize effects related to lane closures and ensure safe passage of evacuees or emergency response vehicles. Operation of the proposed project would not result in an increase in demand for emergency services, which could affect emergency response plan implementation. Therefore, emergency-related 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?* ***Potentially Significant Unless Mitigated.*** The proposed project would not introduce permanent occupants. In addition, maintenance or construction workers would not be present for extended periods of time and would therefore not be exposed to substantial pollutants from wildfires that may occur in nearby areas. However, as discussed above, the project locations are within High and Very High FHSZs. To minimize the risk of losses resulting from wildfire, the following fire prevention strategies outlined in mitigation measure **FIRE-1** would be implemented during project construction.

   Implementation of mitigation measure **FIRE-1** would be required to reduce impacts to below a level of significance.

   FIRE-1 **Fire Safety Plan**. The following fire prevention strategies would be implemented during project construction:

   - Construction within areas of dense foliage during dry conditions will be avoided, when feasible.

   - In cases where avoidance is not feasible, brush fire prevention and management practices will be incorporated. Specifics of the brush management program will be incorporated into project construction documents.

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 project includes the replacement of sewer mains and lift stations, which would not exacerbate fire risk or result in temporary or ongoing impacts to the environment. No 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 slope instability, or drainage changes?* ***No Impact.*** The project site is not located within an area identified as susceptible to landslides (County 2007). Project construction would occur within the ROW in previously disturbed roadways and easements, as well as within a former golf course and adjacent disturbed areas. Due to the location of the project and topography of the surrounding area, flooding from runoff is not anticipated to affect the project site. Therefore, the project would not expose people or structures to significant risks associated with runoff, post-fire slope instability, or drainage changes, and impacts would be less than significant.

3.21 Mandatory Findings of Significance

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or 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?	☐	■	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable ("cumulatively considerable" means the project's incremental effects are considerable when compared to the past, present, and future effects of other projects)?	☐	☐	■	☐
c. Does the project have environmental effects which will have substantial adverse effects on human beings, directly or indirectly?	☐	■	☐	☐

a. *Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or 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?* ***Potentially Significant Unless Mitigated****.* As described in Section 3.4, Biological Resources, the removal or trimming of trees and other vegetation within the project site during the general bird nesting season has the potential to result in impacts to nesting birds in violation of the MBTA and CFG Code. Implementation of mitigation measure **BIO-1** would reduce potentially significant, temporary construction impacts to nesting birds to below a level of significance. No impacts to nesting birds are anticipated once the sewer mains and lift stations have been constructed. Project construction also has the potential to impact sensitive avian species including Cooper's hawk, coastal California gnatcatcher, least Bell's vireo, and yellow-breasted chat if construction activities were to take place adjacent to suitable habitat during the species'

respective breeding seasons. Implementation of mitigation measure **BIO-2** would reduce potentially significant, temporary construction impacts to Cooper's hawk, coastal California gnatcatcher, least Bell's vireo, and yellow-breasted chat to below a level of significance. The project would not reduce the habitat of a fish or wildlife species, as no sensitive habitat would be permanently removed. One acre of non-native grassland, which provides suitable habitat for San Diego black-tailed jackrabbit, would be temporarily removed during trenching in the former golf course; however, as a matter of project design, the trenched area would be returned to its pre-construction contours and revegetated with an appropriate native seed mix following completion of construction. No mitigation would be required for this temporary impact. The project would not cause a wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. Refer to Section 4.4 for further discussion of these issue areas.

As described in Section 3.5, *Cultural Resources*, no substantial adverse change in the significance of historical resources is anticipated to occur as a result of project implementation; thus, it would not eliminate important examples of the major periods of California history. The project has the potential to encounter buried archaeological and paleontological resources during excavation, which could result in significant impacts to important examples in California prehistory; implementation of mitigation measures **CUL-1**, **CUL-2**, and **GEO-1** would ensure that important examples of California prehistory are not eliminated and potential impacts during construction would be reduced to below a level of significance.

b. *Does the project have impacts that are individually limited, but cumulatively considerable ("cumulatively considerable" means the project's incremental effects are considerable when compared to the past, present, and future effects of other projects)?* ***Less Than Significant Impact****.* Cumulative impacts are defined as two or more individual project effects that, when considered together or in concert with other projects, combine to result in a significant impact (CEQA Guidelines Section 15355). The proposed replacement lift station and sewer main project, which is almost exclusively limited to construction-related effects, would not result in impacts that are cumulatively considerable. No significant air or GHG emissions would occur, no sensitive habitat would be permanently removed, impacts to unknown buried cultural resources would be avoided through construction monitoring, and temporary noise effects would be limited through implementation of noise abatement measures.

c. *Does the project have environmental effects which will have substantial adverse effects on human beings, directly or indirectly?* ***Potentially Significant Unless Mitigated****.* With the adherence to regulatory codes, ordinances, regulations, standards, and guidelines for a number of issue areas addressed herein, in conjunction with the discussed mitigation measures for cultural resources, noise (**NOI-1** and **NOI-2**), and wildfire (**FIRE-1**), construction (and operation) of the proposed project would not result in a substantial adverse effect on human beings either directly or indirectly.

4.0 DETERMINATION AND PREPARERS

4.1 Determination

Based on this initial evaluation:

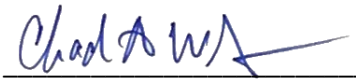
- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ■ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described herein have been included in this project. 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.

4.2 De Minimis Fee Determination (Chapter 1706, Statutes of 1990-AB 3158)

- ☐ It is hereby found that this project involves no potential for any adverse effect, either individually or cumulatively, on wildlife resources and that a "Certificate of Fee Exemption" shall be prepared for this project.
- ■ It is hereby found that this project could potentially impact wildlife, individually or cumulatively, and therefore fees shall be paid to the County Clerk in accordance with Section 711.4(d) of the Fish and Game Code.

4.3 Environmental Determination

The initial study for this project has been reviewed and the environmental determination, contained in Section V. preceding, is hereby approved:



Chad Williams, Acting District Engineer
Rainbow Municipal Water District

4.4 Report Preparers

HELIX Environmental Planning, Inc.

Joanne Dramko, AICP, Principal Planner, Project Manager
Brendan Sullivan, Environmental Planner
Jason Runyan, Noise Specialist
Victor Ortiz, Air Quality Specialist
Karl Osmundson, Principal Biologist
Stacie Wilson, RPA, Archeologist
Sean Bohac, GISP, GIS Specialist

5.0 REFERENCES

ASM Affiliates, Inc. (ASM)

2016 Cultural Resources Survey for the Rainbow Municipal Water District Lift Station #1 Replacement Project, Bonsall, San Diego County, California. October 19.

2018 Letter Report RE: Cultural Resources Study Augment for the Rainbow Municipal Water District Lift Station #1 Replacement Project, Bonsall, San Diego County, California. January 5.

California Building Standards Commission

2010 California Building Code.

California Department of Fire and Forestry (CAL FIRE)

2020 Fire Hazard Severity Zone Maps. Available at: https://www.fire.ca.gov/.

2006 Land Cover Map. Available at: http://frap.fire.ca.gov/data/frapgismaps/pdfs/fvegwhr13b_map.pdf.

California Department of Conservation (CDC)

2016 Geologic Map of the Oceanside Quadrangle. Accessed September 28, 2016. Available at: http://www.quake.ca.gov/gmaps/RGM/oceanside/oceanside.html.

2013 San Diego County Williamson Act Map. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/San_Diego_w_13_14_WA.pdf.

2012 San Diego County Important Farmland Map. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2012/sdg12_w.pdf.

California Department of Transportation (Caltrans)

2016 California Scenic Highway Mapping System, San Diego County. Accessed September 23, 2016. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/.

California Department of Toxic Substances Control

2016 EnviroStor Database. Accessed October 13, 2016. Available at: http://www.envirostor.dtsc.ca.gov/public/.

County of San Diego (County)

2016 Planning and Development Services Zoning and Property Information website. Accessed October 20, 2016. Available at: https://www.arcgis.com/home/webmap/viewer.html?webmap=f1b69ba9d3dd4940b8d1efcc9dac2ac4.

2011a Bonsall Community Plan. August 3. Available at: http://www.sandiegocounty.gov/content/dam/sdc/pds/docs/CP/Bonsall_CP.pdf.

County of San Diego (cont.)

2011b General Plan Update Final Environmental Impact Report. August. Available at: http://www.sandiegocounty.gov/content/dam/sdc/pds/gpupdate/docs/BOS_Aug2011/EIR/FEIR_0.00_Title.TOC_2011.pdf.

2009 San Diego County Code of Administrative Ordinances. Title 3, Division 6, Chapter 4. Noise Abatement and Control. January.

2008 Guidelines for Determining Significance–Mineral Resources. July 30. Available at: http://www.sandiegocounty.gov/dplu/docs/Mineral_Resources_Guidelines.pdf.

2007 Guidelines for Determining Significance–Geologic Hazards. July 30. Available at: http://www.sandiegocounty.gov/dplu/docs/Geologic_Hazards_Guidelines.pdf.

CalRecycle

2016 Regulations: Title 14, Natural Resources--Division 7, CIWMB, Chapter 3. Minimum Standards for Solid Waste Handling and Disposal. Accessed October 26, 2016. Available at: http://www.calrecycle.ca.gov/laws/regulations/title14/ch3a59a.htm.

Deméré, Thomas A. and Stephen L. Walsh

1994 Paleontological Resources–County of San Diego. Department of Paleontology, San Diego Natural History Museum.

Federal Emergency Management Agency (FEMA)

2014 A99 Designation, FEMA website. Available at: http://www.fema.gov/floodplain-management/zone-a99.

HELIX Environmental Planning, Inc. (HELIX)

2020a Air Quality and GHG Modeling Outputs. July 23.

2020b Biological Resources Letter Report. October 2020.

2016 Construction Noise Modeling Outputs. November 7.

International Conference of Building Officials

2006 International Building Code.

Larry Walker and Associates

2016 San Luis Rey River Watershed Management Area Water Quality Improvement Plan Provision B.2 Chapter. March. Available at: http://www.projectcleanwater.org/images/stories/Docs/San-Luis-Rey/WQIP/00%20SLR%20WQIP.March%202016.pdf.

Regional Standards Committee

2009 San Diego Area Regional Standard Drawings. August. Available at: http://www.sandiegocounty.gov/content/dam/sdc/dpw/DPW_STANDARDS/Old_Regional_Standard_Drawings/Regional_Standard_PDF/2009_RSD.pdf.

San Diego Air Pollution Control District (SDAPCD)

2012 SDAPCD Redesignation Request and Ozone Maintenance Plan for the 1997 National Ozone Standard. Available at: https://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/8_Hour_O3_Maint-Plan.pdf

State Water Resources Control Board (SWRCB)

2017 GeoTracker Database. Accessed October 17, 2017. Available at: https://geotracker.waterboards.ca.gov/.

2016 Final 2012 California Integrated Report, Impaired Water Bodies website. Accessed October 17, 2016. Available at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml?tab=map.

6.0 ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
APE	Area of Potential Effects
ASM	ASM Affiliates, Inc.
AQIA	Air Quality Impact Analysis
BLR	Biological Resources Letter Report
BMPs	best management practices
CalEEMod	California Emission Estimator Model
CALFIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFG Code	California Fish and Game Code
CH_4	methane
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
County	County of San Diego
CNDDB	California Natural Diversity Database
dB	decibels
dB(A)	A-weighted decibels
District	Rainbow Municipal Water District
DTSC	California Department of Toxic Substances Control
FHSZ	Fire Hazard Severity Zone
FIRM	Flood Insurance Rate Map
FRAP	Fire and Resource Assessment Program
GHGs	greenhouse gases
HELIX	HELIX Environmental Planning, Inc.
HP	horsepower
IBC	International Building Code
ICC	International Code Council
IS/MND	Initial Study/Mitigated Negative Declaration

kW	kilowatt
kWh	kilowatt hour
L_{EQ}	noise equivalent
LF	linear feet
LRA	Local Responsibility Area
LS	Lift Station
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendant
MT	metric ton
N_2O	nitrous oxide
NAHC	Native American Heritage Commission
NPDES	National Pollutant Discharge Elimination System
NSLU	noise-sensitive land use
O_3	Ozone
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PVC	Polyvinyl Chloride
RAQS	Regional Air Quality Strategy
River	San Luis Rey River
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SB	Senate Bill
SDAPCD	San Diego Air Pollution Control District
SLRWTP	San Luis Rey Wastewater Treatment Plant
SRA	State Responsibility Area
SR	State Route
STC	Sound Transmission Class
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
USFWS	U.S. Fish and Wildlife Service
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey

Appendix A

Air Quality and GHG Modeling Outputs

Rainbow MWD Lift Station Replacement

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	20.03	1.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 21,229 LF long x 50 LF wide = 640,000 sf / 43,560 sf/acre = 24.37 acres

Construction Phase - Length and Start date of phases obtained from Kennedy/Jenks

Off-road Equipment -

Off-road Equipment -

Energy Use - Electricity from the combined lift station electric pumps. Schoolhouse PS = 393,000 kWh/Year; Thoroughbred PS = 625,000 kWH/Year

Operational Off-Road Equipment - Emergency generator for each Lift Station anticipated to be tested once a month for 15 minutes. Schoolhouse Lift Station = 60 kW (80HP); Thoroughbred Lift Station = 175 kW (235 HP)

Construction Off-road Equipment Mitigation - 2x daily watering

Rainbow MWD Lift Station Replacement - San Diego County, Annual

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	55	61
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	55	61
tblConstructionPhase	NumDays	35.00	327.00
tblConstructionPhase	NumDays	35.00	521.00
tblConstructionPhase	PhaseEndDate	1/28/2019	4/1/2020
tblConstructionPhase	PhaseEndDate	2/11/2019	1/1/2024
tblConstructionPhase	PhaseStartDate	1/29/2019	1/1/2022
tblEnergyUse	T24E	0.00	1,018,000.00
tblLandUse	LandUseSquareFeet	0.00	1.00
tblLandUse	LotAcreage	0.00	20.03
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperHorsePower	84.00	80.00
tblOperationalOffRoadEquipment	OperHorsePower	84.00	235.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	0.30
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	0.30
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00

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	0.6287	7.1228	4.4320	8.3100e-003	1.2403	0.3111	1.5514	0.4844	0.2862	0.7706	0.0000	746.4380	746.4380	0.2306	0.0000	752.2033
2020	0.1493	1.6583	1.0723	2.1000e-003	0.6375	0.0718	0.7093	0.1575	0.0660	0.2235	0.0000	184.5824	184.5824	0.0583	0.0000	186.0397
2022	0.4798	5.0555	3.8357	8.2600e-003	1.4944	0.2127	1.7071	0.5104	0.1957	0.7061	0.0000	726.4957	726.4957	0.2298	0.0000	732.2399
2023	0.4399	4.4924	3.7026	8.2600e-003	1.4944	0.1853	1.6797	0.5104	0.1705	0.6809	0.0000	725.8334	725.8334	0.2297	0.0000	731.5766
2024	1.6400e-003	0.0162	0.0141	3.0000e-005	0.6937	6.7000e-004	0.6944	0.0763	6.1000e-004	0.0769	0.0000	2.7883	2.7883	8.8000e-004	0.0000	2.8104
Maximum	**0.6287**	**7.1228**	**4.4320**	**8.3100e-003**	**1.4944**	**0.3111**	**1.7071**	**0.5104**	**0.2862**	**0.7706**	**0.0000**	**746.4380**	**746.4380**	**0.2306**	**0.0000**	**752.2033**

2.1 Overall Construction

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	0.6287	7.1228	4.4320	8.3100e-003	0.4965	0.3111	0.8076	0.1923	0.2862	0.4785	0.0000	746.4371	746.4371	0.2306	0.0000	752.2024
2020	0.1493	1.6583	1.0723	2.1000e-003	0.2519	0.0718	0.3236	0.0623	0.0660	0.1283	0.0000	184.5821	184.5821	0.0583	0.0000	186.0395
2022	0.4798	5.0555	3.8357	8.2600e-003	0.5955	0.2127	0.8082	0.2025	0.1957	0.3981	0.0000	726.4949	726.4949	0.2298	0.0000	732.2390
2023	0.4399	4.4924	3.7026	8.2600e-003	0.5955	0.1853	0.7809	0.2025	0.1705	0.3730	0.0000	725.8326	725.8326	0.2297	0.0000	731.5758
2024	1.6400e-003	0.0162	0.0141	3.0000e-005	0.2706	6.7000e-004	0.2713	0.0298	6.1000e-004	0.0304	0.0000	2.7883	2.7883	8.8000e-004	0.0000	2.8104
Maximum	**0.6287**	**7.1228**	**4.4320**	**8.3100e-003**	**0.5955**	**0.3111**	**0.8082**	**0.2025**	**0.2862**	**0.4785**	**0.0000**	**746.4371**	**746.4371**	**0.2306**	**0.0000**	**752.2024**

	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**	**60.25**	**0.00**	**52.83**	**60.37**	**0.00**	**42.71**	**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	**1-1-2019**	**3-31-2019**	1.9096	1.9096
2	**4-1-2019**	**6-30-2019**	1.9303	1.9303
3	**7-1-2019**	**9-30-2019**	1.9515	1.9515
4	**10-1-2019**	**12-31-2019**	1.9520	1.9520
5	**1-1-2020**	**3-31-2020**	1.7806	1.7806
6	**4-1-2020**	**6-30-2020**	0.0196	0.0196

13	**1-1-2022**	**3-31-2022**	1.3689	1.3689
14	**4-1-2022**	**6-30-2022**	1.3837	1.3837
15	**7-1-2022**	**9-30-2022**	1.3989	1.3989
16	**10-1-2022**	**12-31-2022**	1.3993	1.3993
17	**1-1-2023**	**3-31-2023**	1.2198	1.2198
18	**4-1-2023**	**6-30-2023**	1.2329	1.2329
19	**7-1-2023**	**9-30-2023**	1.2465	1.2465
20	**10-1-2023**	**12-31-2023**	1.2469	1.2469
21	**1-1-2024**	**3-31-2024**	0.0128	0.0128
		Highest	1.9520	1.9520

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	1.0000e-005	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	332.6913	332.6913	0.0134	2.7700e-003	333.8517
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
Offroad	2.2000e-004	2.1400e-003	1.5000e-003	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.4769	0.4769	2.0000e-005	0.0000	0.4773
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	**2.3000e-004**	**2.1400e-003**	**1.5100e-003**	**1.0000e-005**	**0.0000**	**8.0000e-005**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**8.0000e-005**	**0.0000**	**333.1682**	**333.1682**	**0.0134**	**2.7700e-003**	**334.3291**

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	1.0000e-005	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	332.6913	332.6913	0.0134	2.7700e-003	333.8517
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
Offroad	2.2000e-004	2.1400e-003	1.5000e-003	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.4769	0.4769	2.0000e-005	0.0000	0.4773
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	**2.3000e-004**	**2.1400e-003**	**1.5100e-003**	**1.0000e-005**	**0.0000**	**8.0000e-005**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**8.0000e-005**	**0.0000**	**333.1682**	**333.1682**	**0.0134**	**2.7700e-003**	**334.3291**

	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	Phase 1	Grading	1/1/2019	4/1/2020	5	327	
2	Phase 2	Grading	1/1/2022	1/1/2024	5	521	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 2	Excavators	2	8.00	158	0.38
Phase 1	Excavators	2	8.00	158	0.38
Phase 1	Graders	1	8.00	187	0.41
Phase 2	Graders	1	8.00	187	0.41
Phase 1	Scrapers	2	8.00	367	0.48
Phase 2	Scrapers	2	8.00	367	0.48
Phase 1	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Phase 1	Rubber Tired Dozers	1	8.00	247	0.40
Phase 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Phase 2	Rubber Tired Dozers	1	8.00	247	0.40

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
Phase 1	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Phase 1 - 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					1.2194	0.0000	1.2194	0.4788	0.0000	0.4788	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.6184	7.1149	4.3557	8.0900e-003		0.3109	0.3109		0.2861	0.2861	0.0000	726.9022	726.9022	0.2300	0.0000	732.6518
Total	**0.6184**	**7.1149**	**4.3557**	**8.0900e-003**	**1.2194**	**0.3109**	**1.5303**	**0.4788**	**0.2861**	**0.7649**	**0.0000**	**726.9022**	**726.9022**	**0.2300**	**0.0000**	**732.6518**

3.2 Phase 1 - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	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	0.0103	7.9000e-003	0.0764	2.2000e-004	0.0209	1.5000e-004	0.0211	5.5600e-003	1.4000e-004	5.7000e-003	0.0000	19.5358	19.5358	6.3000e-004	0.0000	19.5515
Total	**0.0103**	**7.9000e-003**	**0.0764**	**2.2000e-004**	**0.0209**	**1.5000e-004**	**0.0211**	**5.5600e-003**	**1.4000e-004**	**5.7000e-003**	**0.0000**	**19.5358**	**19.5358**	**6.3000e-004**	**0.0000**	**19.5515**

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					0.4756	0.0000	0.4756	0.1867	0.0000	0.1867	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.6184	7.1149	4.3557	8.0900e-003		0.3109	0.3109		0.2861	0.2861	0.0000	726.9014	726.9014	0.2300	0.0000	732.6510
Total	**0.6184**	**7.1149**	**4.3557**	**8.0900e-003**	**0.4756**	**0.3109**	**0.7865**	**0.1867**	**0.2861**	**0.4728**	**0.0000**	**726.9014**	**726.9014**	**0.2300**	**0.0000**	**732.6510**

3.2 Phase 1 - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	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	0.0103	7.9000e-003	0.0764	2.2000e-004	0.0209	1.5000e-004	0.0211	5.5600e-003	1.4000e-004	5.7000e-003	0.0000	19.5358	19.5358	6.3000e-004	0.0000	19.5515
Total	**0.0103**	**7.9000e-003**	**0.0764**	**2.2000e-004**	**0.0209**	**1.5000e-004**	**0.0211**	**5.5600e-003**	**1.4000e-004**	**5.7000e-003**	**0.0000**	**19.5358**	**19.5358**	**6.3000e-004**	**0.0000**	**19.5515**

3.2 Phase 1 - 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					0.6322	0.0000	0.6322	0.1560	0.0000	0.1560	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1469	1.6565	1.0546	2.0500e-003		0.0717	0.0717		0.0660	0.0660	0.0000	179.7982	179.7982	0.0582	0.0000	181.2519
Total	**0.1469**	**1.6565**	**1.0546**	**2.0500e-003**	**0.6322**	**0.0717**	**0.7040**	**0.1560**	**0.0660**	**0.2220**	**0.0000**	**179.7982**	**179.7982**	**0.0582**	**0.0000**	**181.2519**

3.2 Phase 1 - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	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	2.4300e-003	1.8000e-003	0.0177	5.0000e-005	5.2900e-003	4.0000e-005	5.3300e-003	1.4100e-003	4.0000e-005	1.4400e-003	0.0000	4.7842	4.7842	1.4000e-004	0.0000	4.7878
Total	**2.4300e-003**	**1.8000e-003**	**0.0177**	**5.0000e-005**	**5.2900e-003**	**4.0000e-005**	**5.3300e-003**	**1.4100e-003**	**4.0000e-005**	**1.4400e-003**	**0.0000**	**4.7842**	**4.7842**	**1.4000e-004**	**0.0000**	**4.7878**

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					0.2466	0.0000	0.2466	0.0609	0.0000	0.0609	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1469	1.6565	1.0546	2.0500e-003		0.0717	0.0717		0.0660	0.0660	0.0000	179.7980	179.7980	0.0582	0.0000	181.2517
Total	**0.1469**	**1.6565**	**1.0546**	**2.0500e-003**	**0.2466**	**0.0717**	**0.3183**	**0.0609**	**0.0660**	**0.1269**	**0.0000**	**179.7980**	**179.7980**	**0.0582**	**0.0000**	**181.2517**

3.2 Phase 1 - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	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	2.4300e-003	1.8000e-003	0.0177	5.0000e-005	5.2900e-003	4.0000e-005	5.3300e-003	1.4100e-003	4.0000e-005	1.4400e-003	0.0000	4.7842	4.7842	1.4000e-004	0.0000	4.7878
Total	**2.4300e-003**	**1.8000e-003**	**0.0177**	**5.0000e-005**	**5.2900e-003**	**4.0000e-005**	**5.3300e-003**	**1.4100e-003**	**4.0000e-005**	**1.4400e-003**	**0.0000**	**4.7842**	**4.7842**	**1.4000e-004**	**0.0000**	**4.7878**

3.3 Phase 2 - 2022

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					1.4735	0.0000	1.4735	0.5049	0.0000	0.5049	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4712	5.0497	3.7754	8.0700e-003		0.2125	0.2125		0.1955	0.1955	0.0000	708.9498	708.9498	0.2293	0.0000	714.6820
Total	**0.4712**	**5.0497**	**3.7754**	**8.0700e-003**	**1.4735**	**0.2125**	**1.6861**	**0.5049**	**0.1955**	**0.7004**	**0.0000**	**708.9498**	**708.9498**	**0.2293**	**0.0000**	**714.6820**

3.3 Phase 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	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	8.5500e-003	5.8800e-003	0.0603	1.9000e-004	0.0209	1.4000e-004	0.0210	5.5400e-003	1.3000e-004	5.6700e-003	0.0000	17.5459	17.5459	4.8000e-004	0.0000	17.5579
Total	**8.5500e-003**	**5.8800e-003**	**0.0603**	**1.9000e-004**	**0.0209**	**1.4000e-004**	**0.0210**	**5.5400e-003**	**1.3000e-004**	**5.6700e-003**	**0.0000**	**17.5459**	**17.5459**	**4.8000e-004**	**0.0000**	**17.5579**

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					0.5747	0.0000	0.5747	0.1969	0.0000	0.1969	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4712	5.0497	3.7754	8.0700e-003		0.2125	0.2125		0.1955	0.1955	0.0000	708.9490	708.9490	0.2293	0.0000	714.6812
Total	**0.4712**	**5.0497**	**3.7754**	**8.0700e-003**	**0.5747**	**0.2125**	**0.7872**	**0.1969**	**0.1955**	**0.3924**	**0.0000**	**708.9490**	**708.9490**	**0.2293**	**0.0000**	**714.6812**

3.3 Phase 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	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	8.5500e-003	5.8800e-003	0.0603	1.9000e-004	0.0209	1.4000e-004	0.0210	5.5400e-003	1.3000e-004	5.6700e-003	0.0000	17.5459	17.5459	4.8000e-004	0.0000	17.5579
Total	**8.5500e-003**	**5.8800e-003**	**0.0603**	**1.9000e-004**	**0.0209**	**1.4000e-004**	**0.0210**	**5.5400e-003**	**1.3000e-004**	**5.6700e-003**	**0.0000**	**17.5459**	**17.5459**	**4.8000e-004**	**0.0000**	**17.5579**

3.3 Phase 2 - 2023

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					1.4735	0.0000	1.4735	0.5049	0.0000	0.5049	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4318	4.4870	3.6467	8.0700e-003		0.1852	0.1852		0.1704	0.1704	0.0000	708.9577	708.9577	0.2293	0.0000	714.6900
Total	**0.4318**	**4.4870**	**3.6467**	**8.0700e-003**	**1.4735**	**0.1852**	**1.6587**	**0.5049**	**0.1704**	**0.6753**	**0.0000**	**708.9577**	**708.9577**	**0.2293**	**0.0000**	**714.6900**

3.3 Phase 2 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	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	8.1100e-003	5.3700e-003	0.0559	1.9000e-004	0.0209	1.4000e-004	0.0210	5.5400e-003	1.3000e-004	5.6700e-003	0.0000	16.8757	16.8757	4.4000e-004	0.0000	16.8866
Total	**8.1100e-003**	**5.3700e-003**	**0.0559**	**1.9000e-004**	**0.0209**	**1.4000e-004**	**0.0210**	**5.5400e-003**	**1.3000e-004**	**5.6700e-003**	**0.0000**	**16.8757**	**16.8757**	**4.4000e-004**	**0.0000**	**16.8866**

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					0.5747	0.0000	0.5747	0.1969	0.0000	0.1969	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4318	4.4870	3.6467	8.0700e-003		0.1852	0.1852		0.1704	0.1704	0.0000	708.9569	708.9569	0.2293	0.0000	714.6891
Total	**0.4318**	**4.4870**	**3.6467**	**8.0700e-003**	**0.5747**	**0.1852**	**0.7599**	**0.1969**	**0.1704**	**0.3673**	**0.0000**	**708.9569**	**708.9569**	**0.2293**	**0.0000**	**714.6891**

3.3 Phase 2 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	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	8.1100e-003	5.3700e-003	0.0559	1.9000e-004	0.0209	1.4000e-004	0.0210	5.5400e-003	1.3000e-004	5.6700e-003	0.0000	16.8757	16.8757	4.4000e-004	0.0000	16.8866
Total	**8.1100e-003**	**5.3700e-003**	**0.0559**	**1.9000e-004**	**0.0209**	**1.4000e-004**	**0.0210**	**5.5400e-003**	**1.3000e-004**	**5.6700e-003**	**0.0000**	**16.8757**	**16.8757**	**4.4000e-004**	**0.0000**	**16.8866**

3.3 Phase 2 - 2024

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					0.6937	0.0000	0.6937	0.0762	0.0000	0.0762	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6100e-003	0.0162	0.0139	3.0000e-005		6.7000e-004	6.7000e-004		6.1000e-004	6.1000e-004	0.0000	2.7260	2.7260	8.8000e-004	0.0000	2.7480
Total	**1.6100e-003**	**0.0162**	**0.0139**	**3.0000e-005**	**0.6937**	**6.7000e-004**	**0.6943**	**0.0762**	**6.1000e-004**	**0.0768**	**0.0000**	**2.7260**	**2.7260**	**8.8000e-004**	**0.0000**	**2.7480**

3.3 Phase 2 - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	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	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0624	0.0624	0.0000	0.0000	0.0624
Total	**3.0000e-005**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0624**	**0.0624**	**0.0000**	**0.0000**	**0.0624**

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					0.2705	0.0000	0.2705	0.0297	0.0000	0.0297	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6100e-003	0.0162	0.0139	3.0000e-005		6.7000e-004	6.7000e-004		6.1000e-004	6.1000e-004	0.0000	2.7260	2.7260	8.8000e-004	0.0000	2.7480
Total	**1.6100e-003**	**0.0162**	**0.0139**	**3.0000e-005**	**0.2705**	**6.7000e-004**	**0.2712**	**0.0297**	**6.1000e-004**	**0.0303**	**0.0000**	**2.7260**	**2.7260**	**8.8000e-004**	**0.0000**	**2.7480**

3.3 Phase 2 - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	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	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0624	0.0624	0.0000	0.0000	0.0624
Total	**3.0000e-005**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0624**	**0.0624**	**0.0000**	**0.0000**	**0.0624**

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
User Defined Industrial	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
User Defined Industrial	9.50	7.30	7.30	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
User Defined Industrial	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

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	332.6913	332.6913	0.0134	2.7700e-003	333.8517
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	332.6913	332.6913	0.0134	2.7700e-003	333.8517
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					
User Defined Industrial	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					
User Defined Industrial	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			
User Defined Industrial	1.018e+006	332.6913	0.0134	2.7700e-003	333.8517
Total		**332.6913**	**0.0134**	**2.7700e-003**	**333.8517**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	1.018e +006	332.6913	0.0134	2.7700e-003	333.8517
Total		**332.6913**	**0.0134**	**2.7700e-003**	**333.8517**

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	1.0000e-005	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	1.0000e-005	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

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			
User Defined Industrial	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			
User Defined Industrial	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			
User Defined Industrial	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			
User Defined Industrial	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
Generator Sets	1	0.30	12	80	0.74	Diesel
Generator Sets	1	0.30	12	235	0.74	Diesel

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Generator Sets	2.2000e-004	2.1400e-003	1.5000e-003	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.4769	0.4769	2.0000e-005	0.0000	0.4773
Total	**2.2000e-004**	**2.1400e-003**	**1.5000e-003**	**1.0000e-005**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.4769**	**0.4769**	**2.0000e-005**	**0.0000**	**0.4773**

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

Rainbow MWD Lift Station Replacement

San Diego County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	20.03	1.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 21,229 LF long x 50 LF wide = 640,000 sf / 43,560 sf/acre = 24.37 acres

Construction Phase - Length and Start date of phases obtained from Kennedy/Jenks

Off-road Equipment -

Off-road Equipment -

Energy Use - Electricity from the combined lift station electric pumps. Schoolhouse PS = 393,000 kWh/Year; Thoroughbred PS = 625,000 kWH/Year

Operational Off-Road Equipment - Emergency generator for each Lift Station anticipated to be tested once a month for 15 minutes. Schoolhouse Lift Station = 60 kW (80HP); Thoroughbred Lift Station = 175 kW (235 HP)

Construction Off-road Equipment Mitigation - 2x daily watering

Rainbow MWD Lift Station Replacement - San Diego County, Winter

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	55	61
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	55	61
tblConstructionPhase	NumDays	35.00	327.00
tblConstructionPhase	NumDays	35.00	521.00
tblConstructionPhase	PhaseEndDate	1/28/2019	4/1/2020
tblConstructionPhase	PhaseEndDate	2/11/2019	1/1/2024
tblConstructionPhase	PhaseStartDate	1/29/2019	1/1/2022
tblEnergyUse	T24E	0.00	1,018,000.00
tblLandUse	LandUseSquareFeet	0.00	1.00
tblLandUse	LotAcreage	0.00	20.03
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperHorsePower	84.00	80.00
tblOperationalOffRoadEquipment	OperHorsePower	84.00	235.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	0.30
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	0.30
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00

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	4.8277	54.5817	33.9616	0.0636	8.8376	2.3838	11.2215	3.6401	2.1931	5.8332	0.0000	6,303.4022	6,303.4022	1.9479	0.0000	6,352.1000
2020	4.5332	50.2530	32.4928	0.0636	8.8376	2.1751	11.0127	3.6401	2.0011	5.6411	0.0000	6,164.0917	6,164.0917	1.9472	0.0000	6,212.7712
2022	3.6992	38.8895	29.5042	0.0636	8.8376	1.6360	10.4736	3.6401	1.5051	5.1452	0.0000	6,158.7157	6,158.7157	1.9482	0.0000	6,207.4215
2023	3.3923	34.5576	28.4801	0.0635	8.8376	1.4256	10.2632	3.6401	1.3115	4.9516	0.0000	6,153.1570	6,153.1570	1.9479	0.0000	6,201.8547
2024	3.2854	32.4155	28.1232	0.0634	8.8376	1.3365	10.1741	3.6401	1.2296	4.8696	0.0000	6,145.8511	6,145.8511	1.9471	0.0000	6,194.5273
Maximum	**4.8277**	**54.5817**	**33.9616**	**0.0636**	**8.8376**	**2.3838**	**11.2215**	**3.6401**	**2.1931**	**5.8332**	**0.0000**	**6,303.4022**	**6,303.4022**	**1.9482**	**0.0000**	**6,352.1000**

2.1 Overall Construction (Maximum Daily Emission)

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	4.8277	54.5817	33.9616	0.0636	3.5469	2.3838	5.9307	1.4462	2.1931	3.6393	0.0000	6,303.4022	6,303.4022	1.9479	0.0000	6,352.1000
2020	4.5332	50.2530	32.4928	0.0636	3.5469	2.1751	5.7220	1.4462	2.0011	3.4473	0.0000	6,164.0917	6,164.0917	1.9472	0.0000	6,212.7712
2022	3.6992	38.8895	29.5042	0.0636	3.5469	1.6360	5.1829	1.4462	1.5051	2.9513	0.0000	6,158.7157	6,158.7157	1.9482	0.0000	6,207.4215
2023	3.3923	34.5576	28.4801	0.0635	3.5469	1.4256	4.9725	1.4462	1.3115	2.7578	0.0000	6,153.1570	6,153.1570	1.9479	0.0000	6,201.8547
2024	3.2854	32.4155	28.1232	0.0634	3.5469	1.3365	4.8834	1.4462	1.2296	2.6758	0.0000	6,145.8511	6,145.8511	1.9471	0.0000	6,194.5273
Maximum	**4.8277**	**54.5817**	**33.9616**	**0.0636**	**3.5469**	**2.3838**	**5.9307**	**1.4462**	**2.1931**	**3.6393**	**0.0000**	**6,303.4022**	**6,303.4022**	**1.9482**	**0.0000**	**6,352.1000**

	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**	**59.87**	**0.00**	**49.78**	**60.27**	**0.00**	**41.49**	**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	4.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-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
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
Offroad	0.0370	0.3561	0.2504	9.3000e-004		0.0136	0.0136		0.0136	0.0136		87.6142	87.6142	3.2100e-003		87.6944
Total	**0.0371**	**0.3561**	**0.2505**	**9.3000e-004**	**0.0000**	**0.0136**	**0.0136**	**0.0000**	**0.0136**	**0.0136**		**87.6145**	**87.6145**	**3.2100e-003**	**0.0000**	**87.6947**

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	lb/day										lb/day					
Area	4.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-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
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
Offroad	0.0370	0.3561	0.2504	9.3000e-004		0.0136	0.0136		0.0136	0.0136		87.6142	87.6142	3.2100e-003		87.6944
Total	**0.0371**	**0.3561**	**0.2505**	**9.3000e-004**	**0.0000**	**0.0136**	**0.0136**	**0.0000**	**0.0136**	**0.0136**		**87.6145**	**87.6145**	**3.2100e-003**	**0.0000**	**87.6947**

	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	Phase 1	Grading	1/1/2019	4/1/2020	5	327	
2	Phase 2	Grading	1/1/2022	1/1/2024	5	521	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 2	Excavators	2	8.00	158	0.38
Phase 1	Excavators	2	8.00	158	0.38
Phase 1	Graders	1	8.00	187	0.41
Phase 2	Graders	1	8.00	187	0.41
Phase 1	Scrapers	2	8.00	367	0.48
Phase 2	Scrapers	2	8.00	367	0.48
Phase 1	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Phase 1	Rubber Tired Dozers	1	8.00	247	0.40
Phase 2	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Phase 2	Rubber Tired Dozers	1	8.00	247	0.40

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
Phase 1	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Phase 1 - 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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920		6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**8.6733**	**2.3827**	**11.0560**	**3.5965**	**2.1920**	**5.7885**		**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	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	0.0888	0.0616	0.5848	1.6400e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		163.3828	163.3828	5.2700e-003		163.5146
Total	**0.0888**	**0.0616**	**0.5848**	**1.6400e-003**	**0.1643**	**1.1700e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**163.3828**	**163.3828**	**5.2700e-003**		**163.5146**

3.2 Phase 1 - 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					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920	0.0000	6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**3.3826**	**2.3827**	**5.7653**	**1.4026**	**2.1920**	**3.5947**	**0.0000**	**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	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	0.0888	0.0616	0.5848	1.6400e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		163.3828	163.3828	5.2700e-003		163.5146
Total	**0.0888**	**0.0616**	**0.5848**	**1.6400e-003**	**0.1643**	**1.1700e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**163.3828**	**163.3828**	**5.2700e-003**		**163.5146**

3.2 Phase 1 - 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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6733**	**2.1739**	**10.8472**	**3.5965**	**2.0000**	**5.5965**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	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	0.0831	0.0555	0.5345	1.5900e-003	0.1643	1.1500e-003	0.1655	0.0436	1.0600e-003	0.0446		158.2264	158.2264	4.7600e-003		158.3455
Total	**0.0831**	**0.0555**	**0.5345**	**1.5900e-003**	**0.1643**	**1.1500e-003**	**0.1655**	**0.0436**	**1.0600e-003**	**0.0446**		**158.2264**	**158.2264**	**4.7600e-003**		**158.3455**

3.2 Phase 1 - 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					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.3826**	**2.1739**	**5.5565**	**1.4026**	**2.0000**	**3.4026**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	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	0.0831	0.0555	0.5345	1.5900e-003	0.1643	1.1500e-003	0.1655	0.0436	1.0600e-003	0.0446		158.2264	158.2264	4.7600e-003		158.3455
Total	**0.0831**	**0.0555**	**0.5345**	**1.5900e-003**	**0.1643**	**1.1500e-003**	**0.1655**	**0.0436**	**1.0600e-003**	**0.0446**		**158.2264**	**158.2264**	**4.7600e-003**		**158.3455**

3.3 Phase 2 - 2022

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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	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	0.0743	0.0460	0.4627	1.4800e-003	0.1643	1.1100e-003	0.1654	0.0436	1.0200e-003	0.0446		147.3051	147.3051	4.0200e-003		147.4057
Total	**0.0743**	**0.0460**	**0.4627**	**1.4800e-003**	**0.1643**	**1.1100e-003**	**0.1654**	**0.0436**	**1.0200e-003**	**0.0446**		**147.3051**	**147.3051**	**4.0200e-003**		**147.4057**

3.3 Phase 2 - 2022

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					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**3.3826**	**1.6349**	**5.0175**	**1.4026**	**1.5041**	**2.9067**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	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	0.0743	0.0460	0.4627	1.4800e-003	0.1643	1.1100e-003	0.1654	0.0436	1.0200e-003	0.0446		147.3051	147.3051	4.0200e-003		147.4057
Total	**0.0743**	**0.0460**	**0.4627**	**1.4800e-003**	**0.1643**	**1.1100e-003**	**0.1654**	**0.0436**	**1.0200e-003**	**0.0446**		**147.3051**	**147.3051**	**4.0200e-003**		**147.4057**

3.3 Phase 2 - 2023

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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**8.6733**	**1.4245**	**10.0978**	**3.5965**	**1.3105**	**4.9070**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	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	0.0706	0.0420	0.4289	1.4200e-003	0.1643	1.0900e-003	0.1654	0.0436	1.0000e-003	0.0446		141.6792	141.6792	3.6800e-003		141.7711
Total	**0.0706**	**0.0420**	**0.4289**	**1.4200e-003**	**0.1643**	**1.0900e-003**	**0.1654**	**0.0436**	**1.0000e-003**	**0.0446**		**141.6792**	**141.6792**	**3.6800e-003**		**141.7711**

3.3 Phase 2 - 2023

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					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**3.3826**	**1.4245**	**4.8071**	**1.4026**	**1.3105**	**2.7132**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	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	0.0706	0.0420	0.4289	1.4200e-003	0.1643	1.0900e-003	0.1654	0.0436	1.0000e-003	0.0446		141.6792	141.6792	3.6800e-003		141.7711
Total	**0.0706**	**0.0420**	**0.4289**	**1.4200e-003**	**0.1643**	**1.0900e-003**	**0.1654**	**0.0436**	**1.0000e-003**	**0.0446**		**141.6792**	**141.6792**	**3.6800e-003**		**141.7711**

3.3 Phase 2 - 2024

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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286		6,009.7487	6,009.7487	1.9437		6,058.3405
Total	**3.2181**	**32.3770**	**27.7228**	**0.0621**	**8.6733**	**1.3354**	**10.0087**	**3.5965**	**1.2286**	**4.8251**		**6,009.7487**	**6,009.7487**	**1.9437**		**6,058.3405**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	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	0.0673	0.0385	0.4004	1.3600e-003	0.1643	1.0700e-003	0.1654	0.0436	9.8000e-004	0.0446		136.1024	136.1024	3.3800e-003		136.1868
Total	**0.0673**	**0.0385**	**0.4004**	**1.3600e-003**	**0.1643**	**1.0700e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**136.1024**	**136.1024**	**3.3800e-003**		**136.1868**

3.3 Phase 2 - 2024

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					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286	0.0000	6,009.7487	6,009.7487	1.9437		6,058.3405
Total	**3.2181**	**32.3770**	**27.7228**	**0.0621**	**3.3826**	**1.3354**	**4.7180**	**1.4026**	**1.2286**	**2.6312**	**0.0000**	**6,009.7487**	**6,009.7487**	**1.9437**		**6,058.3405**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	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	0.0673	0.0385	0.4004	1.3600e-003	0.1643	1.0700e-003	0.1654	0.0436	9.8000e-004	0.0446		136.1024	136.1024	3.3800e-003		136.1868
Total	**0.0673**	**0.0385**	**0.4004**	**1.3600e-003**	**0.1643**	**1.0700e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**136.1024**	**136.1024**	**3.3800e-003**		**136.1868**

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
User Defined Industrial	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
User Defined Industrial	9.50	7.30	7.30	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
User Defined Industrial	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

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					
User Defined Industrial	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					
User Defined Industrial	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	4.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	4.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-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	lb/day										lb/day					
Architectural Coating	1.0000e-005					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.0000e-005					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**4.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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	1.0000e-005					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.0000e-005					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**4.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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
Generator Sets	1	0.30	12	80	0.74	Diesel
Generator Sets	1	0.30	12	235	0.74	Diesel

UnMitigated/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
Equipment Type	lb/day										lb/day					
Generator Sets	0.0370	0.3561	0.2504	9.3000e-004		0.0136	0.0136		0.0136	0.0136		87.6142	87.6142	3.2100e-003		87.6944
Total	**0.0370**	**0.3561**	**0.2504**	**9.3000e-004**		**0.0136**	**0.0136**		**0.0136**	**0.0136**		**87.6142**	**87.6142**	**3.2100e-003**		**87.6944**

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 B

Biological Resources Letter Report

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942
619.462.1515 tel
619.462.0552 fax
www.**helixepi**.com

October 30, 2020 KJC-19

Mr. Michael Powers, P.E.
Rainbow Municipal Water District
3707 Old Highway 395
Fallbrook, CA 92028

Subject: Biological Resources Letter Report for the Rainbow Municipal Water District Lift Station No. 1 Replacement Project

Dear Mr. Powers:

At the request of the Rainbow Municipal Water District (District) and Kennedy/Jenks Consultants, HELIX Environmental Planning, Inc. (HELIX) has completed this biological resources letter report for the Lift Station No. 1 Replacement Project (project) located in the unincorporated community of Bonsall, San Diego County, California. The project generally proposes improvements to existing waste water facilities associated with the District's existing Lift Station 1 (LS1).

The purpose of this report is to document the existing biological conditions within the project alignment and provide an analysis of potential impacts to sensitive biological resources with respect to local, state, and federal policy. This report provides the biological resources technical documentation necessary for review under the California Environmental Quality Act (CEQA) by District and other responsible agencies for the project.

Figures and other supporting information are provided as enclosures attached to this letter report.

INTRODUCTION

Project Location

The Lift Station No. 1 Replacement Project is located in the community of Bonsall, in unincorporated northwestern San Diego County north of the City of Vista, east of Marine Corps Base Camp Pendleton, south of Fallbrook, and west of Interstate 15 (Figure 1). The project alignment is near the center of Bonsall Sections 20, 29, 30, and 31 of Township 10S, Range 3W, on the U.S. Geological Survey (USGS) Bonsall 7.5-minute quadrangle (Figure 2). The project sewer main alignment comprises the existing District right-of-way (ROW), which closely corresponds to the ROW of Old River Road from Little Gopher Canyon Road north for approximately 1.6 miles, until it turns into Camino Del Rey, and eventually turns

southeast for 700 feet into the former San Luis Rey Downs Golf Club. A short spur of the alignment extends from Old River Road onto Golf Club Drive for approximately 500 feet (Figure 3). The alignment also follows Camino Del Rey westward and extends 600 feet along Olive Hill Road. From the intersection of Camino Del Rey and State Route (SR-) 76, the alignment extends north and runs adjacent to SR-76 for 0.7 mile.

Project Description

The proposed project would entail improvements to facilities associated with the District's existing LS1. LS1 would be retained in place and protected during construction of adjacent facilities. The proposed project includes installation of two new lift stations and six segments of new sewer main to replace existing sewer main.

The existing LS1 is currently operating over capacity. To avoid the installation of a replacement inverted siphon across the San Luis Rey River, the District proposes to split the flows associated with existing LS1 into two new lift stations. This would be accomplished by constructing a new lift station, along with associated piping (as needed), one on each side of the River: Thoroughbred Lift Station (LS) on the northwest side and Schoolhouse LS on the southeast side.

The project would install approximately 21,000 linear feet (LF) of new sewer main along the described alignment to replace existing sewer main of a similar length. New sewer main would be installed within roadways and existing trenches as much as possible. Where the alignment crosses Moosa Creek and the San Luis Rey River, new sewer main would be suspended from existing bridges. In the northern portion of the alignment, sewer main would be installed across drainages between Olive Hill Road and the Thoroughbred LS and between the Thoroughbred LS and South Mission Road using trenchless methods (i.e., jack and bore). Trenchless methods would also be used to install sewer main below the intersection of Camino Del Rey and SR-76 (i.e., pipe bursting) Launching and receiving pits for trenchless methods would be dug in disturbed areas within the ROW.

A conservative buffer to accommodate construction activities is assumed to extend to 25 feet on either side of the centerline of the roads where existing mains will be replaced or relocated (i.e., Old River Road, Camino del Rey, Golf Club Drive). A 50-foot construction buffer has been applied to the Thoroughbred LS and Schoolhouse LS sites, as well as to the segment of the LS1-NE gravity main that exits Camino del Rey at the northern end of the project alignment (in the former golf course). Areas outside of existing roadways that are temporarily impacted by construction of the LS1-NE gravity main will be returned to their pre-impact contours following construction and revegetated with a native seed mix appropriate to the surrounding area.

METHODS

Literature Review

Prior to conducting biological field surveys, HELIX conducted a search of the California Natural Diversity Database (CNDDB; California Department of Fish and Wildlife [CDFW] 2020a-c) for information regarding sensitive species known to occur within one mile of the project alignment, as well as a review of U.S.

Fish and Wildlife Service (USFWS) database (2016) and California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants.

General Biological Survey

A general biological survey of the study area was conducted by HELIX biologists Joshua Zinn and George Aldridge on September 3, 2014, with additional surveys conducted by HELIX biologist Stacy Nigro on July 13 and August 5, 2016, and by HELIX biologist Talaya Rachels on October 9, 2017. A rare plant survey was conducted by HELIX biologist Angelia Bottiani on May 22, 2020. Vegetation was mapped on a 1"=250' aerial photograph. The study area was surveyed on foot and with the aid of binoculars. Plant and animal species observed or otherwise detected during the survey were recorded (Attachments A and B). Animal identifications were made in the field by direct, visual observation, or indirectly by detection of calls, burrows, tracks, or scat. Plant identifications were made in the field or in the lab through comparison with voucher specimens or photographs.

Jurisdictional Delineation

An initial jurisdictional delineation of the study area was conducted by HELIX on September 3, 2014, concurrent with the initial general biological survey. The delineation was conducted to identify and map water and wetland resources potentially subject to U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (CWA; 33 USC 1344), Regional Water Quality Control Board (RWQCB) jurisdiction pursuant to Section 401 of the CWA and State Porter-Cologne Water Quality Control Act, and streambed and riparian habitat potentially subject to CDFW jurisdiction pursuant to Sections 1600 *et seq.* of the California Fish and Game Code (CFG Code). Additional areas within the biological resources study area were examined by HELIX in preliminary jurisdictional delineations whereby potential jurisdictional boundaries were estimated based primarily on vegetation and hydrology indicators observed in the field and desktop review of various data.

Survey Limitations

Noted animal species were identified by direct observation, vocalizations, or the observance of scat, tracks, or other signs. However, the lists of species identified are not necessarily comprehensive accounts of all species that utilize the project alignment as species that are nocturnal, secretive, or seasonally restricted may not have been observed. Those species that are of special status and have potential to occur in the project alignment are addressed in Attachment C of this report.

Nomenclature

Nomenclature for this report is from Baldwin et al. (2012), and the California Native Plant Society (CNPS; 2018) for plants, Holland (1986) and Oberbauer (2008) for vegetation communities, Collins and Taggart (2006) for reptiles and amphibians, American Ornithologists' Union (2014) for birds, and Baker et al. (2003) for mammals. Sensitive plant species status is taken from CNPS (2018). Sensitive animal species status is taken from CDFW's CNDDB (2020a-c). Soils information was taken from the Natural Resources Conservation Service (NRCS; 2019).

EXISTING CONDITIONS

General Land Uses

Land uses in the study area include open space, agriculture, residential development, a former golf course, and transportation. Within the ROW, land uses are almost entirely transportation–Old River Road, Camino del Rey, SR-76, Olive Hill Road, and Golf Club Drive and their shoulders–except for the section of alignment within the former San Luis Rey Downs Golf Club. The Schoolhouse LS site would occur on a residential site, as it would be constructed on a parcel within the future Golf Green Estates development. The Thoroughbred LS site would occur on vacant land adjacent to commercial and residential uses. Land uses surrounding the study area are mostly low-density rural residential and agriculture in unincorporated Bonsall, and transportation in the SR-76 corridor (Figure 3).

Disturbance

Most of the study area shows signs of past and/or current disturbance. The ROW is mostly unvegetated, and almost entirely disturbed. Pavement and disturbed land make up the entirety of the ROW along Old River Road. The ROW continues along the pavement of Camino Del Rey, turning southeast through the former San Luis Rey Downs Golf Club and into non-native grassland. Outside of the ROW, the study area includes areas of native vegetation in the San Luis Rey River and on slopes east of Old River Road, areas of active or past agriculture that are in various states of disturbance ranging from bare ground to non-native grassland, and areas of residential development.

The ROW and areas along Old River Road, Camino del Rey, SR-76, Olive Hill Road, and Golf Club Drive are subject to constant disturbance by vehicles and traffic noise, and developed areas experience night lighting, runoff from irrigated landscaping, and human and domestic animal incursion. Non-native plant species are common in all vegetated parts of the study area.

Topography and Soils

The study area is mostly within the historic floodplain of the San Luis Rey River and topography is generally flat with steep slopes to the east of Old River Road. The study area slopes gently south, from highs of 175 feet above mean sea level at the junction of Golf Club Drive and Old River Road and 160 feet in Moosa Creek, to a low of 142 feet at the south end of the study area. Elevations in places on the slopes along the east side of Old River Road are higher, but these are well outside of the ROW. Soils in the majority of the study area are Riverwash and Tujunga sand. Soils in the ROW are coarse/rocky- to fine- sandy loams in nine soil series (NRCS 2019).

Vegetation Communities/Habitat Types

The study area currently supports eight vegetation communities or land cover types (Table 1; Figures 4a through 4c): mulefat scrub, southern cottonwood-willow riparian forest (including disturbed), southern willow scrub, Diegan coastal sage scrub, non-native grassland, extensive agriculture, disturbed habitat, and developed land.

Table 1
EXISTING VEGETATION COMMUNITIES WITHIN THE STUDY AREA

Vegetation Community[1]	Area (acre)
Mulefat scrub	0.02
Southern cottonwood-willow riparian forest (including disturbed; 61330)	25.33
Southern willow scrub (63320)	8.02
Diegan coastal sage scrub (including disturbed; 32510)	19.46
Non-native grassland (42200)	19.43
Extensive agriculture (18300)	5.92
Disturbed habitat (11300)	80.51
Developed land (including concrete-lined channel; 12000)	78.15
TOTAL	**236.88**

[1]Vegetation community codes are from Oberbauer (2008)

Mulefat Scrub

Mulefat scrub is a depauperate, shrubby riparian scrub community dominated by mulefat (*Baccharis salicifolia*) and interspersed with small willows (*Salix* spp.). This vegetation community occurs along intermittent stream channels with a fairly coarse substrate and moderate depth to the water table. This early seral community is maintained by frequent flooding, the absence of which would lead to a cottonwood or sycamore dominated riparian woodland or forest (Holland 1986), provided the requisite hydrology is present to support the greater water needs of those habitats. One small patch of sparse mulefat scrub occurs in an ephemeral drainage north of Little Gopher Canyon Road and consists of only mulefat with no other riparian species.

Southern Cottonwood-Willow Riparian Forest (including Disturbed)

Southern cottonwood-willow riparian forest is composed of winter-deciduous trees that require water near the soil surface. Willow (*Salix* spp.), Fremont cottonwood (*Populus fremontii*), and western sycamore (*Platanus racemosa*) form a dense, medium height canopy along rivers and in mesic canyons and streambeds. Associated understory species include mulefat, stinging nettle (*Urtica dioica* ssp. *holosericea*), and wild grape (*Vitis girdiana*). Southern cottonwood-willow riparian forest dominates the broad riparian corridor of the San Luis Rey River west of the study area and borders Old River Road along much of its western edge south of the former San Luis Rey Downs Golf Club. South of Dentro de Lomas Road, southern cottonwood-willow riparian forest near Old River Road is less dense and more disturbed by non-native species than in other parts of the study area.

Southern Willow Scrub

Southern willow scrub consists of dense, broad-leaved, winter-deciduous stands of trees dominated by shrubby willows in association with mulefat, and with scattered emergent Fremont cottonwood and western sycamore. This vegetation community appears as a single layer; it lacks separate shrub and tree layers and generally appears as a mass of short trees or large shrubs. It 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.

Southern willow scrub within Moosa Creek and the San Luis Rey River corridor includes a mixed herbaceous understory of both upland and wetland annual species. Herbaceous vegetation observed includes common seasonal wetland species such as willow herb (*Epilobium ciliatum*), celery (*Apium graveolens*), great marsh evening primrose (*Oenothera elata* ssp. *hookeri*), water mint (*Mentha aquatica*), cocklebur (*Xanthium strumarium*), slim aster (*Symphyotrichum subulatum*), and annual beardgrass (*Polypogon monspeliensis*), as well as upland species such as western ragweed (*Ambrosia psilostachya*), prickly sow-thistle (*Sonchus asper*), caterpillar phacelia (*Phacelia cicutaria*), and white sweet-clover (*Melilotus alba*). This mixed herbaceous understory is likely a result of the prolonged drought conditions in the region, and not characteristic of these areas in wetter years.

Diegan Coastal Sage Scrub (including Disturbed)

Coastal sage scrub is one of the two major shrub types that occur in southern California, occupying xeric sites characterized by shallow soils (the other is chaparral). Four distinct coastal sage scrub geographical associations (northern, central, Venturan, and Diegan) are recognized along the California coast. Diegan coastal sage scrub may be dominated by a variety of species depending upon soil type, slope, and aspect. Typical species found within Diegan coastal sage scrub include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum* ssp. *fasciculatum*), laurel sumac (*Malosma laurina*), and black sage (*Salvia mellifera*). Diegan coastal sage scrub covers the slopes east of Old River Road in the southern portion of the study area and south of Olive Hill Road in the northern portion of the study area. Disturbed Diegan Coastal Sage Scrub occurs west of SR-76 north of the Thoroughbred LS site.

Non-native Grassland

Non-native grassland is a dense to intermediate cover of annual grasses, often associated with numerous species of showy-flowered native annual forbs. This association occurs on gradual slopes with deep, fine-textured, usually clay soils. Characteristic species include wild oats (*Avena* spp.), red brome (*Bromus rubens*), ripgut (*Bromus diandrus*), ryegrass (*Festuca* spp.), and mustard (*Brassica* sp.). Most of the annual introduced species that make up the majority of species and biomass within the non-native grassland originated from the Mediterranean region, an area with a long history of agriculture and a climate similar to California. These two factors, in addition to intensive grazing and agricultural practices in conjunction with severe droughts, contributed to the successful invasion and establishment of these species and the replacement of native grasslands with an annual-dominated non-native grassland. Non-native grassland in the study area occurs at the northern end of the project alignment within the former golf course, and covers disturbed areas east of the ROW of Old River Road as well as a large area of former California black walnut (*Juglans californica*) orchard west of Old River Road near the southern end of the study area. Dominant species in non-native grassland are wild oats and ripgut.

Extensive Agriculture

Extensive agriculture comprises pastures and row crops. Both land covers typically feature dense covers of non-native species in a monoculture, with bare ground between rows in the case of row crops. Large

areas east of Old River Road were bare at the time of the survey but had been recently plowed and are presumably used for extensive agriculture; however, there were no crop species evident at the time.

Disturbed Habitat

Disturbed habitat is land that has been physically disturbed by human activity to the point that it no longer supports a recognizable native or naturalized vegetation association, but that retains a soil substrate. If vegetation is present, it consists of an assemblage of weedy, predominantly non-native species that typically follow disturbance. The species present will depend on local colonization potential. Vegetated disturbed habitat is distinguished from non-native grassland by having less than a 50 percent cover of grass species. Most of the study area in the immediate vicinity of the proposed pipeline alignment is disturbed habitat, including the shoulders of Old River Road, Camino Del Rey, and Golf Club Drive, a large bare area across Old River Road from Bonsall Elementary School, and the former golf course (San Luis Rey Downs Golf Club). Both proposed lift station sites and the surrounding vicinity are composed entirely of disturbed habitat.

Developed Land

Developed land is where permanent structures and/or pavement have been placed, which prevents the growth of vegetation, or where landscaping is clearly tended and maintained. Developed land in the study area includes paved streets such as Old River Road, Camino Del Rey, and Golf Club Drive, houses, and landscaping.

Flora

A total of 73 plant species were recorded in the study area, of which 37 are native (Attachment A).

Fauna

A total of 27 animal species were observed or otherwise detected in the survey area during the biological surveys, including five invertebrate, one reptile, 17 bird species, and four mammal species (Attachment B).

SENSITIVE BIOLOGICAL RESOURCES

Sensitive Vegetation Communities/Habitat Types

Sensitive vegetation communities/habitat types are defined as land that supports unique vegetation communities or the habitats of rare or endangered species or subspecies of animals or plants as defined by Section 15380 of the State CEQA Guidelines.

Sensitive vegetation communities/habitat types mapped within the project alignment include mule fat scrub, southern cottonwood-willow riparian forest, southern willow scrub, Diegan coastal sage scrub, and non-native grassland.

Special Status Species

Special Status Plant Species

No sensitive plant species were observed in the study area. The CNDDB queries returned 35 sensitive vascular plant species and three sensitive non-vascular plant species within a one mile radius of the project alignment. These 38 species were analyzed for potential to occur in the study area based on ecological requirements and known ranges (Attachment C). Of these sensitive plant species, two species have high potential to occur in the study area: San Diego Ambrosia (*Ambrosia pumila*) and Robinson's peppergrass (*Lepidium virginicum* var. *robinsonii*).

San Diego Ambrosia (Federally Endangered; California Rare Plant Rank 1B.1)

San Diego ambrosia is a perennial herb found in disturbed areas within chaparral, valley grassland, and coastal sage scrub communities. It is considered rare, threatened, or endangered in California and elsewhere and seriously threatened (over 80 percent of occurrences are threatened). San Diego Ambrosia prefers habitat in creek beds, seasonally dry drainages, floodplains, and valley bottoms. Suitable habitat for this species occurs throughout the study area.

Robinson's Pepper Grass (California Rare Plant Rank 1B.2)

Robinson's pepper grass is an herbaceous annual found in coastal sage scrub and chaparral in southwestern California and the Channel Islands. It is considered rare, threatened, or endangered in California and elsewhere and moderately threatened (20-80 percent of occurrences threatened). Robinson's pepper grass typically occurs in dry, exposed areas in sage scrub and chaparral, outside of the shrub canopy. Suitable habitat in the study area is confined to Diegan coastal sage scrub located off site on slopes east of Old River Road.

Special Status Animal Species

No special status animal species were observed or otherwise detected in the study area. The CNDDB queries returned 47 sensitive animal species within a one mile radius of the project alignment, including one invertebrate, one fish, 13 amphibians and reptiles, 16 birds, and 16 mammals. These 47 species were analyzed for potential to occur in the study area based on habitat affinities and known ranges (Attachment C). Of these sensitive animal species, five have high potential to occur in the study area: Cooper's hawk (*Accipiter cooperi*), yellow-breasted chat (*Icteria virens*), coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), and San Diego black-tailed jackrabbit *(Lepus californicus bennettii*).

Cooper's hawk (State Species of Special Concern [SSC])

Cooper's hawk nests in riparian trees and coast live oaks, and forages in open areas in marginal woodland. Cooper's hawk is considered a Species of Special Concern by CDFW, which carries no formal legal status; however, CEQA requires full analysis of proposed project impacts to such species. Suitable nesting and foraging habitat occurs in the study area along Old River Road.

Yellow-breasted chat (SSC)

Yellow-breasted chat is a songbird that inhabits mature riparian woodland, and CNDDB includes records for this species in the San Luis Rey River near the study area. Yellow-breasted chat is considered a Species of Special Concern by CDFW. Suitable habitat for the yellow-breasted chat in the study area includes riparian scrub and forest along the western side of Old River Road; riparian vegetation in Moosa Creek is not sufficiently dense to support the yellow-breasted chat.

Coastal California gnatcatcher (FT/SSC)

Coastal California gnatcatcher is a songbird that occurs in coastal sage scrub and CNDDB includes records for this species near the study area. Coastal California gnatcatcher is a federally listed threatened, state Species of Special Concern. Suitable habitat for Coastal California gnatcatcher in the study area includes Diegan coastal sage scrub that occurs along the eastern side of Old River Road.

Least Bell's vireo (Federal Endangered; State Endangered)

Least Bell's vireo is a songbird that occurs in dense riparian thickets along major rivers in San Diego County, and CNDDB includes numerous records for this species in the San Luis Rey River near the study area. Least Bell's vireo is listed as Endangered under both the federal and state ESAs. Suitable habitat for least Bell's vireo in the study area occurs along the western side of Old River Road; riparian vegetation in Moosa Creek is not sufficiently dense to support least Bell's vireo.

San Diego black-tailed jackrabbit

San Diego black-tailed jackrabbit is one of 17 recognized subspecies of black-tailed jackrabbit that are widespread throughout western North America. San Diego black-tailed jackrabbit occurs west of the mountains from southern Santa Barbara County to northern Baja California and favors open habitats with some shrub cover, including coastal sage scrub, grasslands, and croplands. Suitable habitat for San Diego black-tailed jackrabbit occurs in the study area, but is restricted to off-site habitat located east of Old River Road, primarily in disturbed areas, non-native grassland, and fallow agricultural fields.

Nesting Birds

The project alignment is characterized almost completely by developed land; however, there are several non-native trees on the site that provide suitable nesting habitat for several common (non-sensitive) bird species known to the region and protected under the federal Migratory Bird Treaty Act (MBTA) and CFG Code.

Raptor Foraging

No raptors were observed or detected near the project alignment during the biological survey. Several raptors known to the region have the potential to forage over the general area surrounding the project alignment; however, the project alignment itself does not provide raptor foraging habitat due to its developed nature, small size, overall poor quality habitat, and proximity to regular human activity.

Jurisdictional Waters and Wetlands

Potentially jurisdictional resources in the study area include wetland and non-wetland waters of the U.S./State subject to USACE/RWQCB jurisdiction, and riparian habitat and streambed subject to CDFW jurisdiction only (Table 2). Wetland waters of the U.S. comprise vegetated channel within Moosa Creek, San Luis Rey River, and an unnamed tributary to the San Luis Rey River; non-wetland waters of the U.S. include an unvegetated portion of Moosa Creek where it passes underneath Old River Road, seasonal drainage channels along Old River Road, the portion of the San Luis Rey River that is shaded by the bridge on Camino Del Rey, and a concrete-lined channel that runes beneath SR-76. Areas subject to CDFW jurisdiction include 33.37 acres of riparian vegetation and 1.27 acre of unvegetated streambed. Unvegetated streambed includes a portion of Moosa Creek where it passes underneath Old River Road, seasonal drainage channels along Old River Road, and the concrete-lined channel beneath SR-76.

Table 2
JURISDICTIONAL WATERS AND WETLANDS

Jurisdictional Resources	Type	Area (acre)
Waters of the U.S./State – USACE/RWQCB Jurisdiction		
Vegetated	Wetland	25.76
Seasonal drainage/unvegetated channel	Non-wetland	0.90
	TOTAL	**26.66**
Riparian Habitat and Streambed – CDFW Jurisdiction		
Mulefat scrub	Riparian	0.02
Southern cottonwood-willow riparian forest	Riparian	22.02
Southern cottonwood-willow riparian forest-Disturbed	Riparian	3.31
Southern willow scrub	Riparian	8.02
Streambed	Streambed	1.27
	TOTAL	**34.63**

U.S. Army Corps of Engineers/Regional Water Quality Control Board Jurisdiction

Wetland waters of the U.S. in the study area are located within Moosa Creek, San Luis Rey River, and an unnamed tributary to the San Luis Rey River (Figure 5). Moosa Creek is a seasonal tributary to the San Luis Rey River, with a well-defined channel that supports perennial riparian vegetation along portions of its length. Wetland waters of the U.S. extend over the width of the Moosa Creek channel immediately upstream and downstream of the Old River Road bridge crossing, as defined by the ordinary high water marks (OHWMs), and are made up of southern willow scrub vegetation (Figure 5).

Non-wetland waters of the U.S. in the study area comprise seasonal drainage channels that cross Old River Road through culverts, a short reach of Moosa Creek underneath the Old River Road bridge where no vegetation grows, the reach of the San Luis Rey River underneath Camino Del Rey where no vegetation grows, and a concrete-lined channel that is tributary to the San Luis Rey River (Figure 5). The seasonal drainage channels exhibit identifiable beds and banks, but support only upland vegetation, with sparse individuals of riparian shrubs such as mulefat and tamarisk (*Tamarix* spp.) occurring at culvert inlets where Old River Road causes seasonal ponding. These seasonal drainages range between

two and six feet in width, as defined by the OWHMs, and are tributary to the San Luis Rey River. Moosa Creek, the San Luis Rey River, and all three seasonal drainage channels have hydrologic connection to U.S. territorial seas.

California Department of Fish and Wildlife Jurisdiction

The CDFW jurisdiction in the study area is located in the San Luis Rey River and an unnamed tributary, in addition to Moosa Creek, along the west side of Old River Road between the former San Luis Rey Downs Golf Club and Little Gopher Canyon Road, and three seasonal drainages that cross Old River Road in culverts (Figure 6). The extent of CDFW jurisdiction in Moosa Creek is defined by the maximum extent of riparian vegetation (southern willow scrub) associated with those watercourses; CDFW jurisdiction along Old River Road correspond to riparian vegetation (southern cottonwood-willow riparian forest) west of the road and a small patch of mulefat east of the road; and CDFW jurisdiction in the three seasonal drainages associated with the culverts under Old River Road is defined as between the top of bank of each drainage channel (two to six feet wide). These latter features are considered unvegetated streambed, in addition to a concrete-lined channel that is tributary to the San Luis Rey River in the northern portion of the study area.

Habitat Connectivity and Wildlife Corridors

Wildlife corridors connect otherwise isolated pieces of habitat and allow movement or dispersal of plants and animals. Local wildlife corridors allow access to resources such as food, water, and shelter within the framework of their daily routine. 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. A corridor is a specific route that is used for the movement and migration of species, and may be different from a linkage in that it represents a smaller or narrower avenue for movement. A linkage is an area of land that supports or contributes to the long-term movement of animals and genetic exchange by providing live-in habitat that connects to other habitat areas. Many linkages occur as stepping-stone linkages that are made up of a fragmented archipelago arrangement of habitat over a linear distance.

Moosa Creek and the San Luis Rey River are within linkages identified in the draft North County Multiple Species Conservation Program, and both function as wildlife corridors in the project vicinity. Existing roadways, such as SR-76, Camino del Rey, Old River Road, and Golf Club Drive constrain these corridors by interrupting connectivity between the riparian areas and undeveloped hillsides along portions of the alignment. Existing residential, commercial, and industrial development within the project vicinity further constrains wildlife movement in the area. Despite the surrounding development that fragments habitat and constrains wildlife movement along these corridors, both areas support important foraging, breeding, migration, and dispersal habitat for numerous species. Although adjacent to native habitat along much of its length, the majority of the project alignment is within existing roadways, which do not contribute to wildlife corridor functions.

APPLICABLE REGULATIONS

This section provides a summary of applicable regulations to the proposed project.

Federal Government

Federal Endangered Species Act

Administered by the USFWS, the Federal Endangered Species Act (FESA) provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered a "take" under the FESA. Section 9(a) of the FESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harm" and "harass" are further defined in federal regulations and case law to include actions that adversely impair or disrupt a listed species' behavioral patterns.

The USFWS designates critical habitat for endangered and threatened species. Critical habitat is defined as areas of land that are considered necessary for endangered or threatened species to recover. The ultimate goal is to restore healthy populations of listed species within their native habitats so they can be removed from the list of threatened or endangered species. Once an area is designated as critical habitat pursuant to the FESA, federal agencies must consult with the USFWS to ensure that any action they authorize, fund, or carry out is not likely to result in destruction or adverse modification of the critical habitat.

Sections 7 and 10(a) of the FESA regulate actions that could jeopardize endangered or threatened species. Section 7 generally describes a process of federal interagency consultation and issuance of a biological opinion and incidental take statement when federal actions may adversely affect listed species. Section 10(a) generally describes a process for preparation of a Habitat Conservation Plan and issuance of an incidental take permit.

Migratory Bird Treaty Act

All migratory bird species that are native to the United States or its territories are protected under the federal MBTA, as amended under the Migratory Bird Treaty Reform Act of 2004 (FR Doc. 05-5127). The MBTA is generally protective of migratory birds but does not actually stipulate the type of protection required. In common practice, the MBTA is now used to place restrictions on disturbance of active bird nests during the nesting season. In addition, the USFWS commonly places restrictions on disturbances allowed near active raptor nests.

Clean Water Act

Impacts to waters of the U.S. are regulated by the USACE under Section 404 of the CWA (33 U.S. Code [USC] 401 et seq.; 33 USC 1344; USC 1413), and the Department of Defense, Department of the Army, and USACE (33 CFR Part 323). A federal CWA Section 404 Permit is required for impacts related to dredge, fill, or discharge in waters of the U.S. Impacts are typically permitted with a Nationwide Permit or an Individual Permit depending on the amount of impact.

A CWA Section 401 Water Quality Certification administered by the RWQCB must be issued prior to any 404 Permit. All areas considered USACE jurisdictional would be covered under the 401 Certification.

State of California

California Environmental Quality Act

Primary environmental legislation in California is found in CEQA and its implementing guidelines (State CEQA Guidelines), which require that projects with potential adverse effects (or impacts) on the environment undergo environmental review. Adverse environmental impacts are typically mitigated as a result of the environmental review process in accordance with existing laws and regulations.

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 (CFG Code Section 2080.1[a]). For State-only listed species, Section 2081 of CFG Code authorizes the CDFW to issue an Incidental Take Permit for State listed threatened and endangered species if specific criteria are met.

California Fish and Game Code

The CFG Code provides specific protection and listing for several types of biological 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. 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.

Section 1600 of CFG Code requires a Streambed Alteration Agreement (SAA) for any activity that would alter the flow, change, or use any material from the bed, channel, or bank of any perennial, intermittent, or ephemeral river, stream, and/or lake. 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.

ANALYSIS OF PROJECT EFFECTS AND PROPOSED MITIGATION MEASURES

An analysis of project effects and proposed mitigation measures is presented below in accordance with the State CEQA Guidelines.

ISSUE 1 – SPECIAL STATUS SPECIES

Would the project 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 CDFW or USFWS?

Issue 1 Impact Analysis

Less than Significant Impact with Mitigation. No special status plant or animal species were determined to have a high potential to occur within the project alignment itself; none were observed or otherwise detected on site or within the larger study area during biological surveys. Two special status plant species (San Diego ambrosia and Robinson's pepper grass) were determined to have a high potential to occur within the study area due to the presence of suitable habitat within the study area. No San Diego ambrosia were detected within the study area during the May 2020 focused rare plant survey; therefore, impacts to San Diego ambrosia are not expected to occur. No direct impacts would occur to Diegan coastal sage scrub as a result of the project; as such, impacts to Robinson's pepper grass are not expected to occur.

Five special status animal species were determined to have a high potential to occur within the study area due to the presence of suitable habitat outside of the alignment but within the larger study area: Cooper's hawk, yellow-breasted chat, coastal California gnatcatcher, least Bell's vireo, and San Diego black-tailed jackrabbit. No direct impacts would occur to the habitats of Cooper's hawk, yellow-breasted chat, coastal California gnatcatcher, or least Bell's vireo as a result of the project; as such, direct impacts to these four special status species would not occur. Suitable habitat for San Diego black-tailed jackrabbit only occurs in off-site areas east of Old River Road and Camino del Rey; of these areas, only the non-native grassland off of Camino del Rey would be impacted by project trenching and the impacts would be temporary (Figure 7a). As a matter of project design, the trenched areas within non-native grassland would be returned to their pre-disturbance contours and revegetated with an appropriate native seed mix following construction. Accordingly, impacts to San Diego black-tailed jackrabbit would be less than significant.

Temporary noise impacts from construction activities could occur to the following species during their respective breeding seasons: coastal California gnatcatcher (February 15-August 31), raptors (January 15-July 15), or least Bell's vireo and yellow-breasted chat (March 15-September 15). Such impacts could result in substantial adverse effects if noise from construction resulted in these species failing to breed or abandoning a nest. Suitable riparian habitat and coastal sage scrub along Old River Road occur off site and outside of the proposed pipeline alignment. Therefore, no direct impacts would occur and potential effects are restricted to indirect noise-related impacts during construction only, as further discussed below.

Noise impacts could occur along Old River Road south of the former San Luis Rey Downs Golf Club, where the proposed pipeline alignment is adjacent to southern cottonwood-willow riparian forest, southern willow scrub, and Diegan coastal sage scrub. Noise in excess of a 60 decibels/hour average (dBh^{-1}) could disrupt nesting activities in habitat that occurs within 500 feet of work areas and that falls within the 60 dBh^{-1} noise contour. Construction-generated noise during periods outside of the breeding seasons for each respective species would not be considered a significant impact.

Implementation of Mitigation Measure Bio-1 would reduce potential impacts on nesting birds to less than significant. Implementation of Mitigation Measure Bio-2 would reduce potential noise-related indirect impacts on coastal California gnatcatcher, least Bell's vireo, yellow-breasted chat, and Cooper's hawk to less than significant.

Issue 1 Mitigation Measures

BIO-1 **Pre-Construction Nesting Bird Survey and Avoidance.** Project activities requiring the removal and/or trimming of vegetation suitable for nesting birds shall occur outside of the general bird breeding season (February 15-August 31). If the activities cannot avoid the general bird breeding season, a qualified biologist shall be retained to conduct a pre-activity nesting bird survey within seven days prior to the activities to confirm the presence or absence of active bird nests. If no active bird nests are found by the qualified biologist, then the activities shall proceed with the reassurance that no violation of the MBTA and CFG Code would occur. If an active bird nest is found by the qualified biologist, then vegetation removal and/or trimming activities at the nest location shall not be allowed to occur until the qualified biologist has determined that the nest is no longer active.

BIO-2 **Pre-Construction Sensitive Bird Surveys and Noise Attenuation.** No construction activities shall occur between January 15 and September 15 in areas adjacent to southern willow scrub, southern cottonwood-willow riparian forest, or Diegan coastal sage scrub until the following conditions have been met:

A. A qualified biologist shall survey areas that would be subject to construction noise levels exceeding 60 dBh^{-1} for the presence of the coastal California gnatcatcher, least Bell's vireo, yellow-breasted chat, and Cooper's hawk. Surveys for the species shall be conducted pursuant to the protocol survey guidelines established by the USFWS within the breeding season prior to the commencement of construction. If any of these species are present, then the following conditions must be met:

If operation of construction equipment occurs during the breeding seasons for the coastal California gnatcatcher (February 15-August 31), nesting raptors (January 15-July 15), or least Bell's vireo (March 15-September 15), pre-construction survey(s) shall be conducted by a qualified biologist as appropriate to determine whether these species occur within the areas potentially impacted by noise. An analysis showing that either: (1) noise generated by construction activities would not exceed 60 dBh-1 at the edge of occupied habitat, or (2) existing ambient noise levels already exceed 60 dBh-1 must be completed by a qualified acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) at least two weeks prior to the commencement of construction activities. Prior to the commencement of any construction activities, areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist; or

At least two weeks prior to the commencement of construction activities, under the direction of a qualified acoustician, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dBh-1 at the edge of habitat occupied by the listed species. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring* shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dBh-1. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (September 16).

* Construction noise monitoring shall continue at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the USFWS and CDFW, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

B. If the listed species are not detected during the survey, no noise mitigation measures would be necessary.

Conclusions

The project could result in impacts to nesting birds protected under the MBTA and CFG Code; however, with implementation of mitigation measures BIO-1 and BIO-2, impacts would be reduced to less than significant.

ISSUE 2 – RIPARIAN HABITAT AND SENSITIVE NATURAL COMMUNITIES

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS?

Issue 2 Impact Analysis

Less Than Significant Impact. No permanent impacts to sensitive vegetation communities would result from the project, which occurs almost entirely within existing roads and disturbed lands (Figures 7a through 7d). The only impact to a sensitive vegetation community consists of one acre of temporary impacts to non-native grassland within the former golf course. These temporary impacts would result from trenching for installation of the gravity main, after which the area would be returned to its pre-impact contours following construction and revegetated with a native seed mix appropriate to the

surrounding area as a matter of project design. The project would not permanently impact sensitive natural communities.

Table 3
IMPACTS TO SENSITIVE VEGETATION COMMUNITIES

Vegetation Community	Existing	Impact* (acre)
Mulefat scrub	0.02	--
Southern cottonwood-willow riparian forest (including disturbed)	25.33	--
Southern willow scrub	8.02	--
Diegan coastal sage scrub (including disturbed)	19.46	--
Non-native grassland	19.43	0.23
TOTAL	**72.26**	**0.23**

*All impacts are temporary

Issue 2 Mitigation Measures

No mitigation is required. Temporarily impacted non-native grassland would be returned to its pre-impact contours following construction and revegetated with a native seed mix appropriate to the surrounding area. No permanent impact would occur.

Conclusion

The project would not result in permanent impacts to sensitive vegetation communities and no mitigation is required.

ISSUE 3 – JURISDICTIONAL WETLANDS AND WATERWAYS

Would the project have a substantial adverse effect on federally-protected wetlands as defined by Section 404 of the federal CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Issue 3 Impact Analysis

No Impact. No impacts to jurisdictional wetlands or waterways would result from the project. The project would avoid ground disturbance in Moosa Creek and the River by using existing bridge structures to support the proposed pipeline above-ground (Figures 7a and 7b). Impacts to non-wetland waters (seasonal drainage channels and streambed) along Old River Road would be avoided by employing construction fencing and flagging where they meet Old River Road (Figures 5 and 6). The proposed alignment adjacent to SR-76, in the northern portion of the project, would be installed using trenchless methods (i.e. jack and bore) where the alignment would cross existing drainages between Olive Hill Road and the Thoroughbred LS site and between the Thoroughbred LS site and South Mission Road (Figure 7a). Launching and receiving pits for trenchless methods would be dug in disturbed areas within the ROW. By implementing this precaution as a matter of project design, impacts to non-wetland waters of the U.S. or waters of the State would be avoided.

Issue 3 Mitigation Measures

No mitigation is required.

Conclusion

The project would not result in impacts to federally-protected wetlands or waterways and no mitigation is required.

ISSUE 4 – WILDLIFE MOVEMENT AND NURSERY SITES

Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory corridors, or impede the use of native wildlife nursery sites?

Issue 4 Impact Analysis

Less than Significant Impact. Moosa Creek and the San Luis Rey River both function as wildlife corridors in the project vicinity. However, the majority of the alignment is within existing roadways, which do not contribute to wildlife corridor functions or nursery sites. The existing roadways already act as a barrier to wildlife movement between upland and riparian areas, and project construction within the roadways would not further inhibit wildlife movement, particularly since most movement is expected to follow existing creek corridors. A small segment of the alignment is within non-native grassland; however, this area is parallel to existing residential development to the north, and relatively expansive areas of abandoned golf course to the south, which connect to Moosa Creek. Trenching in this area would not result in placement of barriers to wildlife movement along the creek or within the former golf course, and wildlife would continue to be able to move through the area. Potential impacts on wildlife corridors and nursery sites would be less than significant.

Issue 4 Mitigation Measures

None required.

Conclusion

Project implementation would result in less than significant impacts on wildlife movement and nursery sites. No mitigation is required.

ISSUE 5 – ADOPTED PLANS

Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?

Issue 5 Impact Analysis

No Impact. The project alignment is not located within the boundaries of any adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan. The project would not conflict with such plans and no impact would occur.

Issue 5 Mitigation Measures

None required.

Conclusion

Project implementation would not result in significant impacts to any adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan. No mitigation is required.

ISSUE 6 – LOCAL POLICIES OR ORDINANCES

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Issue 6 Impact Analysis

No Impact. The project would not conflict with any local policies or ordinances protecting biological resources, and no impact would occur.

Issue 6 Mitigation Measures

No mitigation is required.

Conclusion

Project implementation would not result in significant impacts to any local policies or ordinances protecting biological resources. No mitigation is required.

We appreciate the opportunity to provide you with this letter report. Please do not hesitate to contact me or Karl Osmundson at (619) 462-1515 if you have any questions or require further assistance.

Sincerely,

Katie Bellon
Biologist

Attachments:

Figure 1: Regional Location Map
Figure 2: Project Vicinity Map (USGS Topography)
Figure 3: Project Vicinity Map (Aerial Photograph)
Figure 4a-d: Vegetation
Figure 5: USACE Jurisdiction
Figure 6: CDFW Jurisdiction
Figure 7a-d: Project Alignment/Impacts
Attachment A: Plant Species Observed
Attachment B: Animal Species Observed or Detected
Attachment C: Sensitive Species Potential to Occur
Attachment D : Site Photos

LIST OF PREPARERS

The following individuals contributed to the fieldwork and/or preparation of this report.

George Aldridge	PhD, Biology, University of California, Irvine, 2005 B.S., Botany, Humboldt State University, 1998 B.A., Political Science, University of California, Santa Barbara, 1985
Katie Bellon	B.S., Biology, California State Polytechnic University, San Luis Obispo, 2009
Camille Lill	M.S., Spatial Information Science, University of Adelaide, Australia, 2003 B.A., Geography, Emphasis in Techniques, University of Oregon, 2000
Stacy Nigro	B.S., Forest Resources and Conservation (emphasis Wildlife Ecology) University of Florida-Gainesville, 1994
Talaya Rachels*	B.S., Botany, University of Hawaii at Manoa, 2013
Karl Osmundson	B.S., Wildlife, Fish, & Conservation Biology, University of California-Davis, 2003
Aleksandra Richards	M.A., International Relations, University of San Diego, 2010 B.A., Communications, Emphasis in Print Journalism, California State University Fullerton, 2008
Joshua Zinn	M.S., Environmental Management, University of San Francisco, 2003 B.S., Natural Resources Planning and Interpretation, Humboldt State University, California, 1995

*Primary report author

REFERENCES

American Ornithologists' Union. 2014. American Ornithologists' Union Checklist of North and Middle American Birds. 7th Edition and Supplements. Retrieved from: http://www.aou.org/checklist/north/print.php.

Baker, R.J., L.C. Bradley, R.D. Bradley, J.W. Dragoo, M.D. Engstrom, R.S. Hoffmann, C.A. Jones, F. Reid, D.W. Rice, and C. Jones. 2003. Revised checklist of North American Mammals north of Mexico. Occasional Papers of the Museum, Texas Tech University 223.

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition. University of California Press, Berkeley.

California Department of Fish and Wildlife. 2020a. State and Federally Listed Endangered, Threatened, and Rare Plants of California. Biogeographic Data Branch, California Natural Diversity Database. September. Retrieved from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109390&inline=1

2020b. State and Federally Listed Endangered and Threatened Animals of California. State of California. Biogeographic Data Branch, California Natural Diversity Database. July. Retrieved from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109405&inline=1

2020c. Special Animals List. Biogeographic Data Branch, California Natural Diversity Database. Periodic publication. 51 pp. July. Retrieved from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline=1.

California Native Plant Society. 2018. Inventory of Rare and Endangered Plants (online edition, v8-02). Rare Plant Program. California Native Plant Society, Sacramento, CA. Retrieved from: http://www.rareplants.cnps.org. Accessed May 2020.

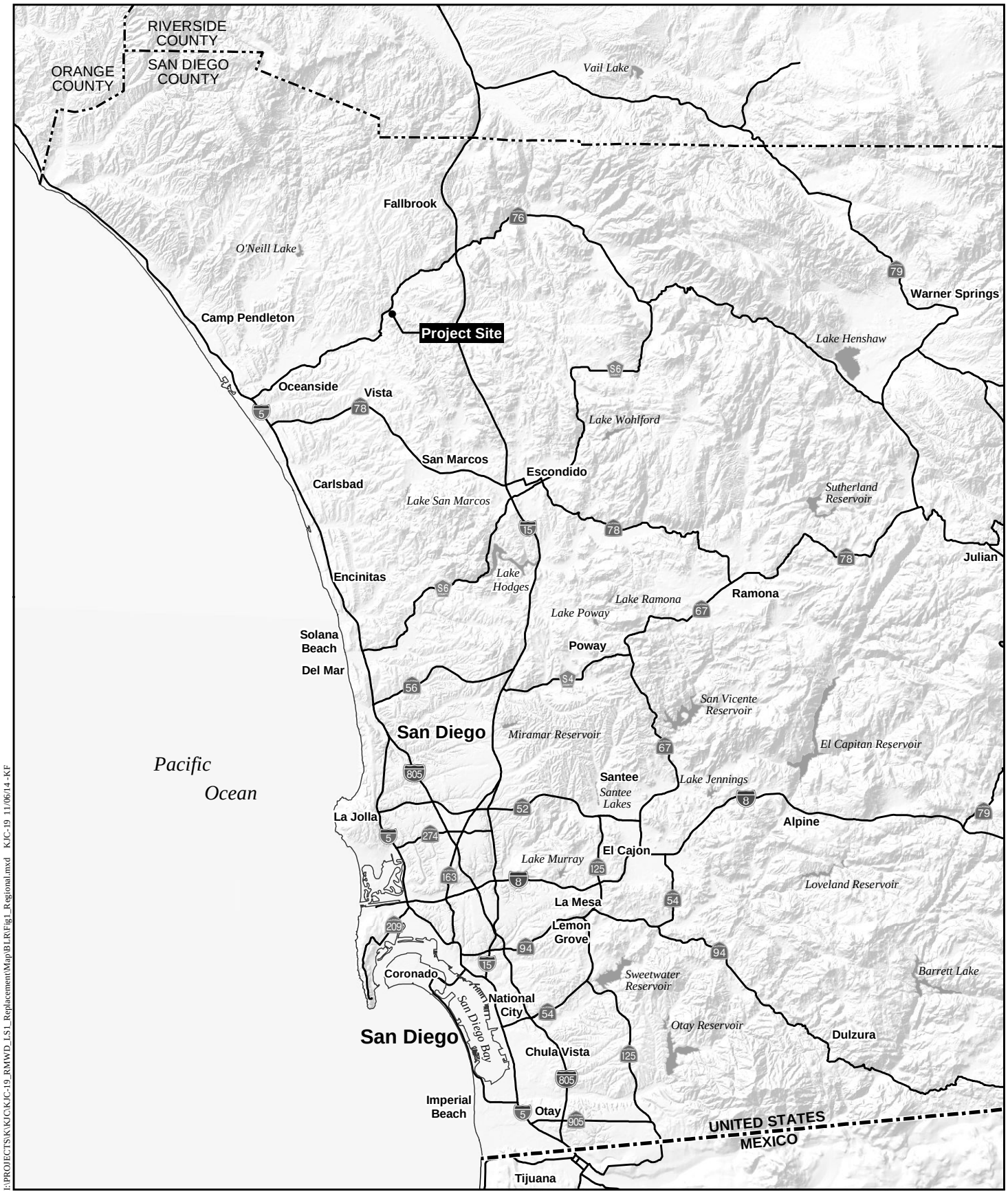
Collins, J.T. and T.W. Taggart. 2006. The Center for North American Herpetology (CNAH): The Academic Portal to North American Herpetology. Retrieved from: http://www.cnah.org/index.asp.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. State of California, The Resources Agency, 156 pp.

Natural Resource Conservation Service. 2019. Web Soil Survey. Retrieved from: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed June 2020.

Oberbauer, T., M. Kelly, and J. Buegge. 2008. Draft Vegetation Communities of San Diego County. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California," R. F. Holland, Ph.D., October 1986. March. Revised from 1996 and 2005. July.

U.S. Fish and Wildlife Service. 2020. Species Occurrence Database. Accessed June 2020.



I:\PROJECTS\KK\GK\KC-19_RMWD_LS1_Replacement\Map\BLRFig1_Regional.mxd KJC-19 11/06/14 -KF

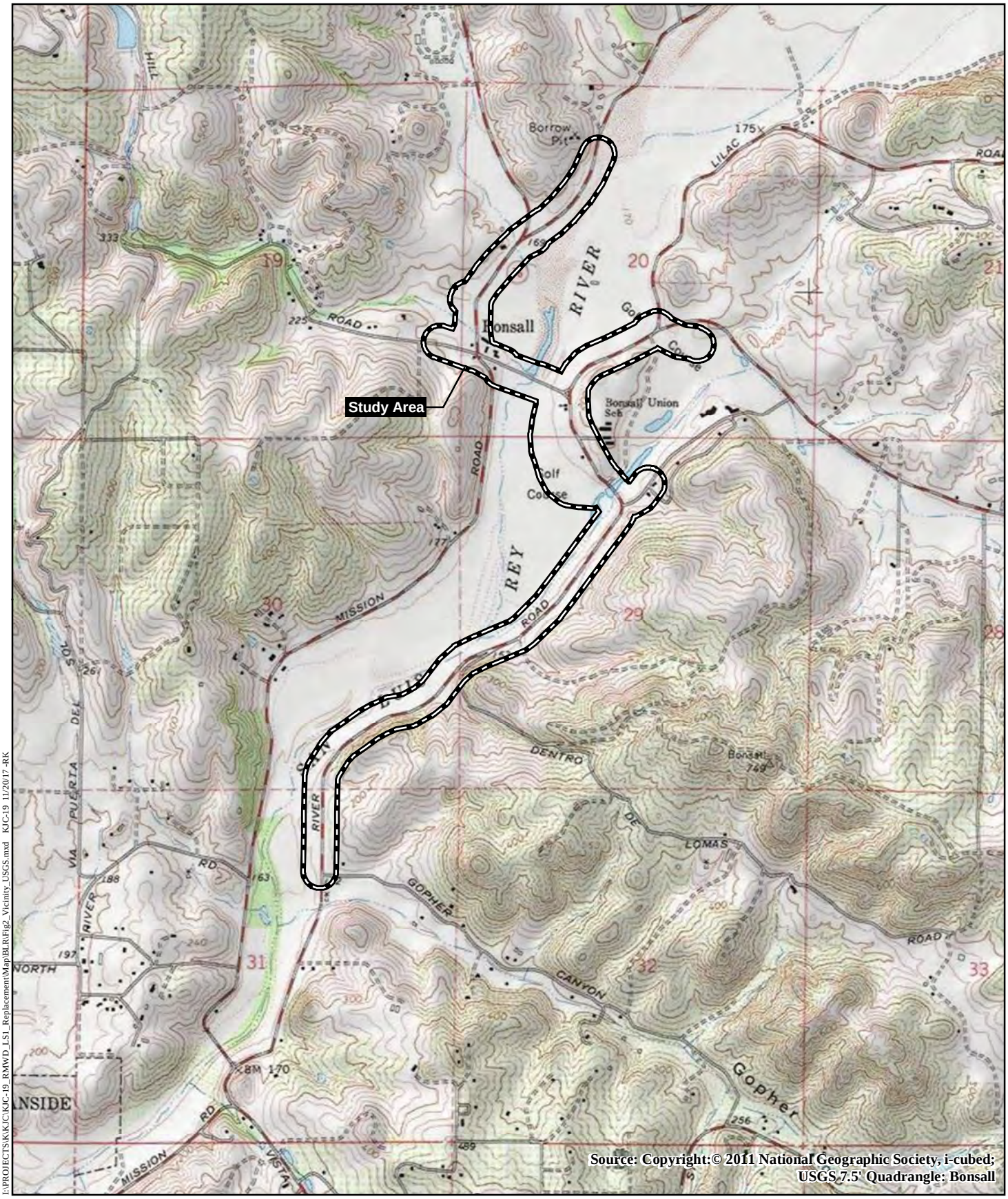
Regional Location Map

RAINBOW MUNICIPAL WATER DISTRICT LIFT STATION 1 REPLACEMENT PROJECT

HELIX Environmental Planning

N 0 8 Miles

Figure 1



I:\PROJECTS\KK\CK\KC-19_RMWD_LS1_Replacement\Map\BLR\Fig2_Vicinity_USGS.mxd KJC-19 11/20/17 -RK

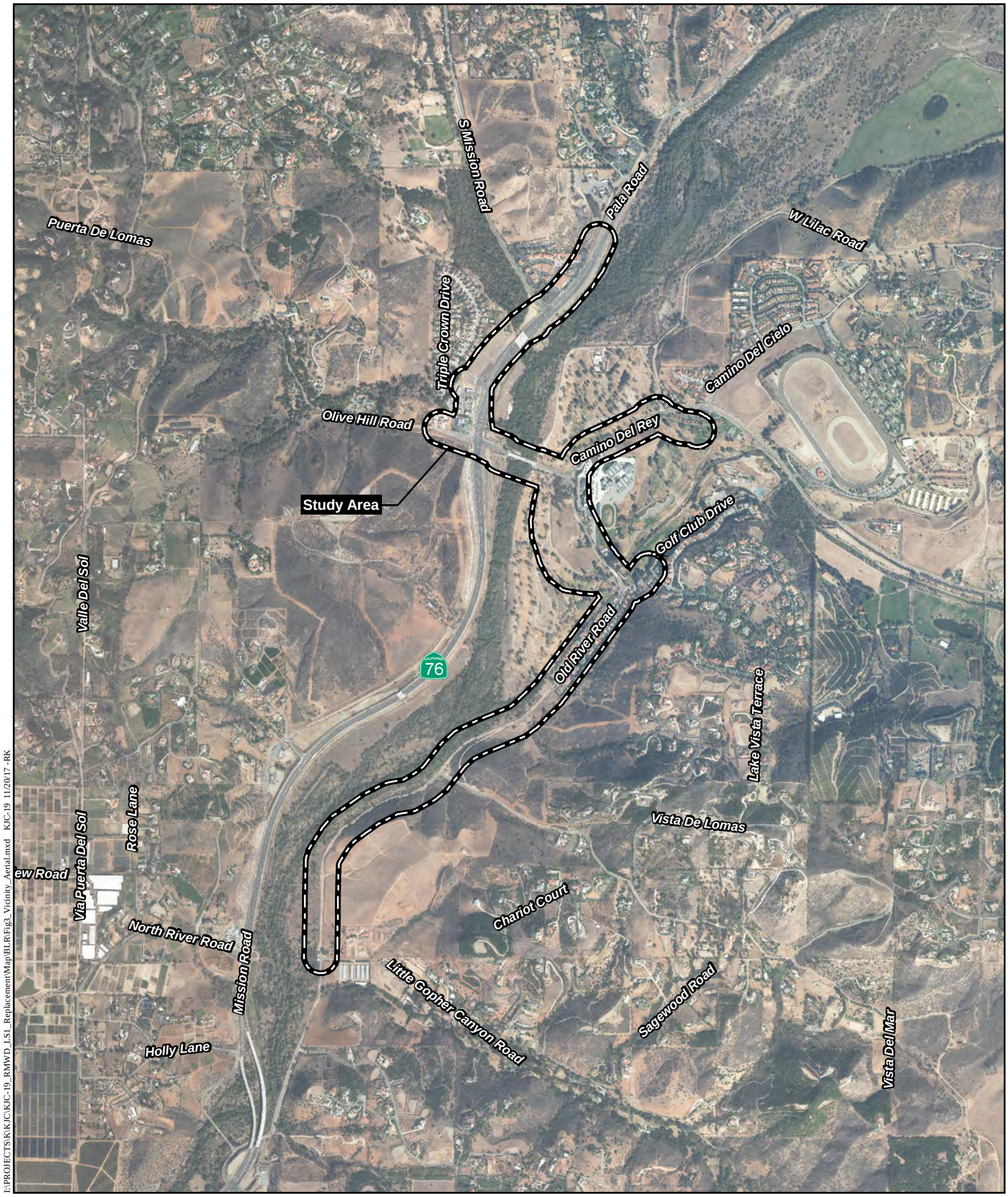
Project Vicinity Map (USGS Topography)

RAINBOW MUNICIPAL WATER DISTRICT LIFT STATION 1 REPLACEMENT PROJECT

HELIX Environmental Planning

N 0 2,000 Feet

Figure 2



I:\PROJECTS\KK\KJC\KJC-19_RMWD_LS1_Replacement\Map\BLR\Fig2_Vicinity_Aerial.mxd KJC-19 11/20/17 -RK

Project Vicinity Map (Aerial Photograph)

RAINBOW MUNICIPAL WATER DISTRICT LIFT STATION 1 REPLACEMENT PROJECT

HELIX Environmental Planning

N

0 2,000 Feet

Figure 3

Survey Area

Vegetation

- Southern Willow Scrub
- Diegan Coastal Sage Scrub
- Diegan Coastal Sage Scrub - Disturbed
- Streambed
- Concrete-lined Channel
- Non-native Grassland
- Disturbed Habitat
- Developed

Pala Road
S Mission Road
Triple Crown Drive
Rio Valle Drive
Thoroughbred Lane
Mission Road
Olive Hill Road
Camino Del Rey
Via Asuncion Way
Mission Road
Old River Road
Camino Del Rey

I:\PROJECTS\KJC\KJC-19_RMWD_LS1_Replacement\Map\BLR\Fig4_Vegetation.mxd KJC-19 07/26/18 RK

Vegetation

RAINBOW MUNICIPAL WATER DISTRICT LIFT STATION 1 REPLACEMENT PROJECT

HELIX Environmental Planning

N 0 300 Feet

Figure 4a

Vegetation

RAINBOW MUNICIPAL WATER DISTRICT LIFT STATION 1 REPLACEMENT PROJECT

HELIX Environmental Planning

N 0 300 Feet

Figure 4b

Survey Area

Vegetation

- Southern Cottonwood Willow Riparian Forest
- Southern Willow Scrub
- Diegan Coastal Sage Scrub
- Non-native Grassland
- Disturbed Habitat
- Developed

76

Old River Road

Old River Road

Dentro De Lomas Road

I:\PROJECTS\KJK\KJC\KJC-19_RMWD_LS1_Replacement\Map\BLR\Fig4_Vegetation.mxd KJC-19 07/26/18 - RK

Vegetation

RAINBOW MUNICIPAL WATER DISTRICT LIFT STATION 1 REPLACEMENT PROJECT

HELIX Environmental Planning

N

0 300 Feet

Figure 4c

I:\PROJECTS\KK\KC\KIC-19_RMWD_LS1_Replacement\Map\BLR\Fig4_Vegetation.mxd KIC-19 11/20/17 -RK

Vegetation

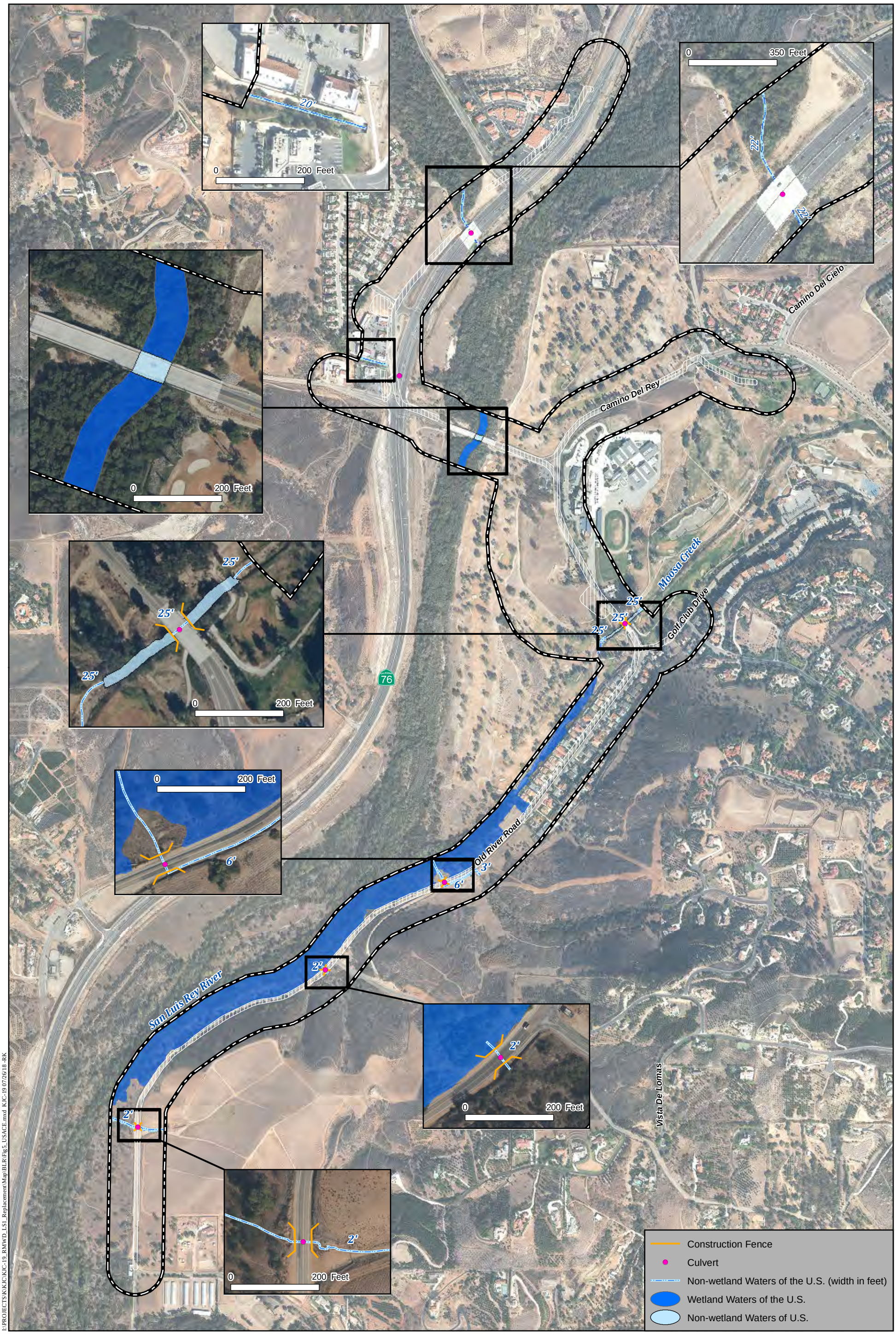
RAINBOW MUNICIPAL WATER DISTRICT LIFT STATION 1 REPLACEMENT PROJECT

HELIX Environmental Planning

N

0 300 Feet

Figure 4d



I:\PROJECTS\KJC\KJC-19_RMWD_LS1_Replacement\Map\BLR\Fig5_USACE.mxd KJC-19 07/26/18 -RK

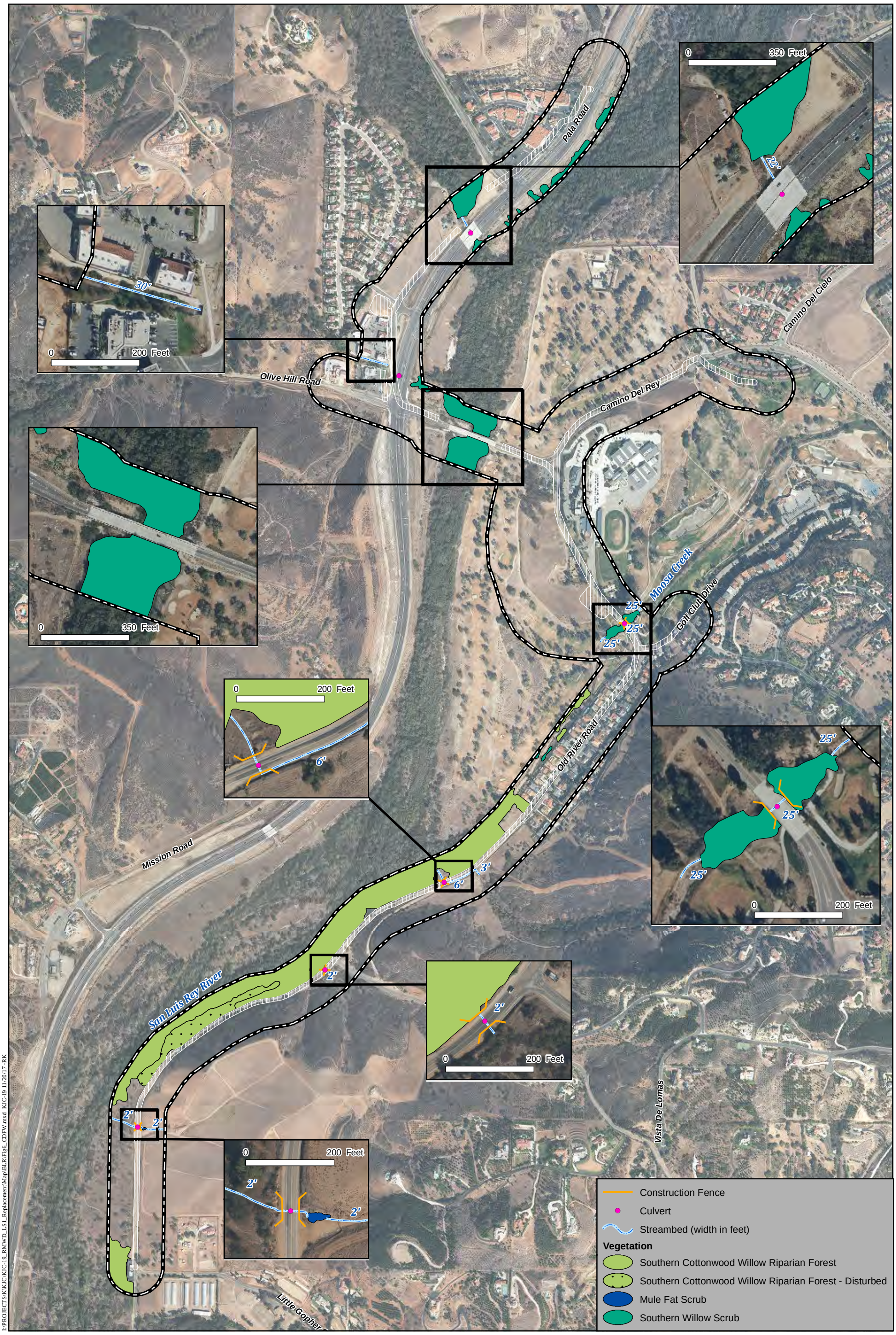
USACE Jurisdiction

RAINBOW MUNICIPAL WATER DISTRICT LIFT STATION 1 REPLACEMENT PROJECT

HELIX Environmental Planning

N 0 800 Feet

Figure 5



I:\PROJECTS\KK\KJC\KJC-19_RMWD_LS1_Replacement\Map\BLR\Fig6_CDFW.mxd KJC-19 11/20/17 - RK

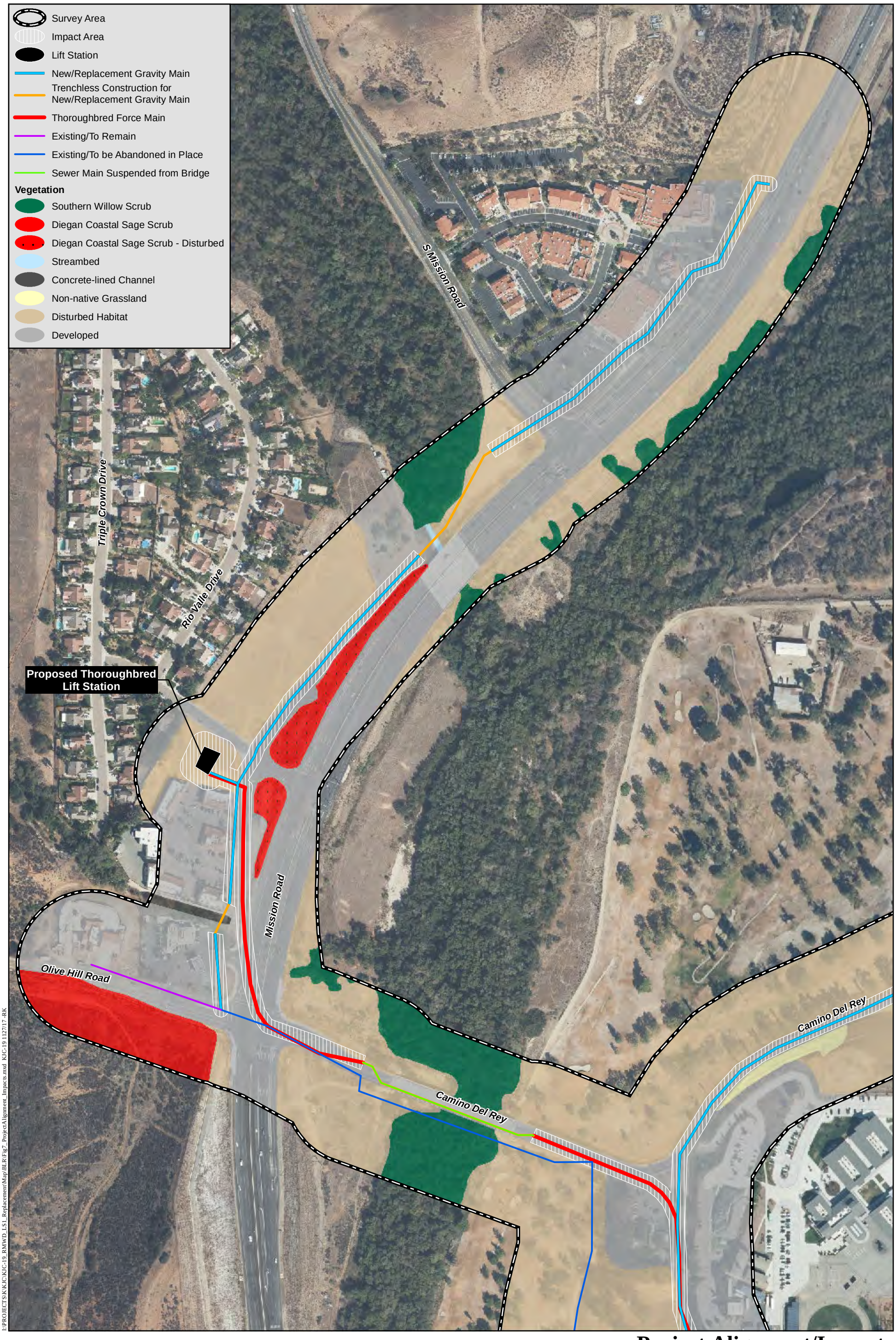
CDFW Jurisdiction

RAINBOW MUNICIPAL WATER DISTRICT LIFT STATION 1 REPLACEMENT PROJECT

HELIX Environmental Planning

N 0 700 Feet

Figure 6



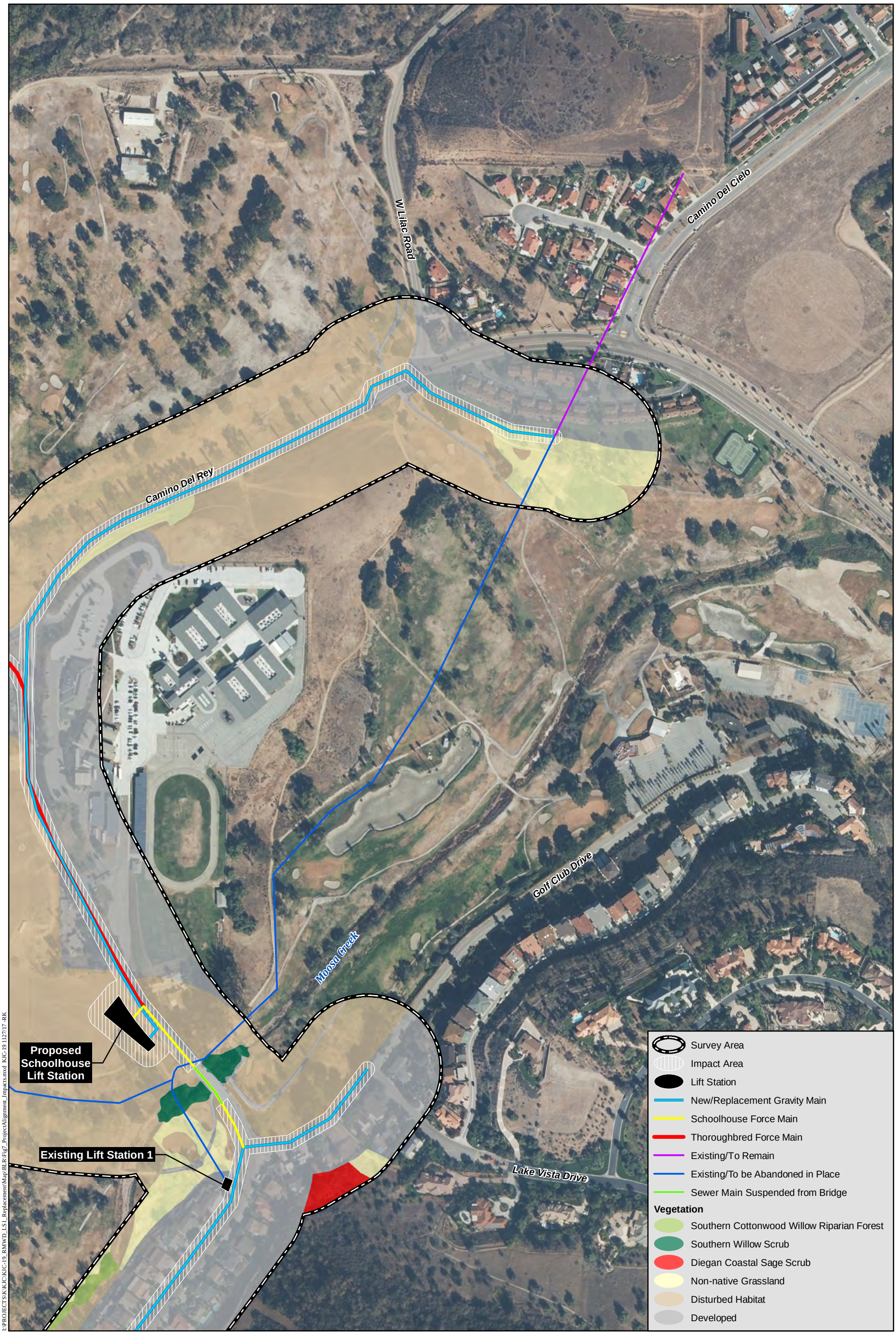
Project Alignment/Impacts

RAINBOW MUNICIPAL WATER DISTRICT LIFT STATION 1 REPLACEMENT PROJECT

HELIX Environmental Planning

N 0 300 Feet

Figure 7a



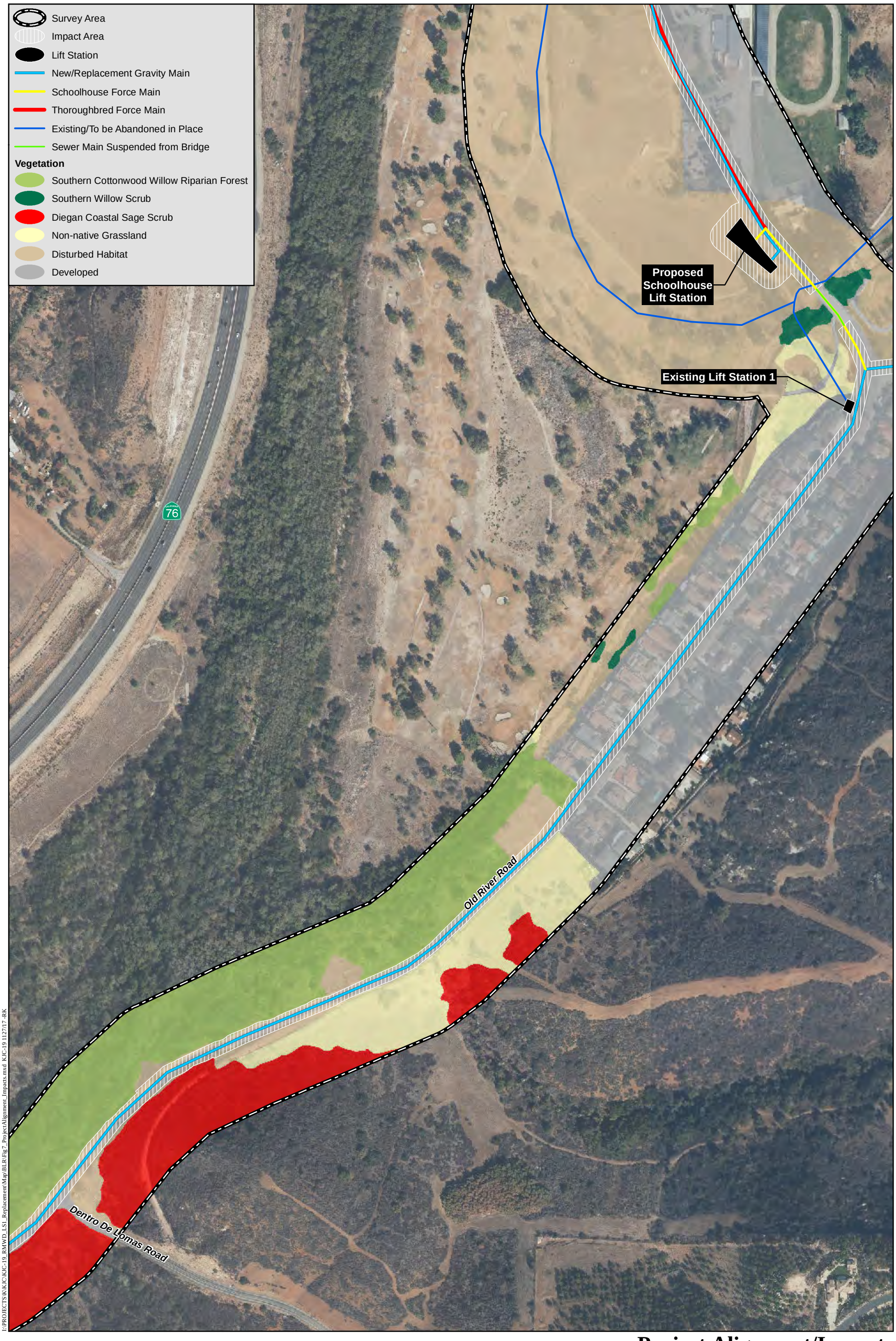
Project Alignment/Impacts

RAINBOW MUNICIPAL WATER DISTRICT LIFT STATION 1 REPLACEMENT PROJECT

HELIX Environmental Planning

N 0 300 Feet

Figure 7b



Project Alignment/Impacts

RAINBOW MUNICIPAL WATER DISTRICT LIFT STATION 1 REPLACEMENT PROJECT

HELIX Environmental Planning

N 0 300 Feet

Figure 7c

Survey Area
Impact Area
Lift Station
New/Replacement Gravity Main

Vegetation

Southern Cottonwood Willow Riparian Forest
Southern Cottonwood Willow Riparian Forest - Disturbed
Mule Fat Scrub
Diegan Coastal Sage Scrub
Non-native Grassland
Extensive Agriculture
Disturbed Habitat
Developed

76

San Luis Rey River

Dentro De Lomas

Old River Road

Little Gopher Canyon Road

Existing Lift Station 2

I:\PROJECTS\KK\KJC\KJC-19_RMWD_LS1_Replacement\Map\BLR\Fig7_ProjectAlignment_Impacts.mxd KJC-19 11/27/17 -RK

Project Alignment/Impacts

RAINBOW MUNICIPAL WATER DISTRICT LIFT STATION 1 REPLACEMENT PROJECT

HELIX Environmental Planning

N

0 300 Feet

Figure 7d

Attachment A
PLANT SPECIES OBSERVED

Family	Scientific Name	Common Name	Habitat
Dicots			
Aizoaceae	*Carpobrotus edulis**	hottentot-fig	DH
Anacardiaceae	*Malosma laurina*	laurel sumac	DCSS
	*Schinus molle**	Peruvian pepper tree	DH
	Toxicodendron diversilobum	poison oak	SCWRF
Amaranthaceae	*Amaranthus blitoides**	prostrate pigweed	DH
Apiaceae	*Apium graveolens**	celery	SWS
	*Foeniculum vulgare**	fennel	DH
Asteraceae	*Ambrosia psilostachya*	western ragweed	DH, SWS
	Artemisia californica	California sagebrush	DCSS
	Baccharis pilularis	coyote brush	DCSS
	Baccharis salicifolia	mulefat	DH, SWS, SCWRF
	Baccharis sarothroides	broom baccharis	DH, SCWRF
	*Carduus pycnocephalus**	Italian thistle	DH
	*Centaurea melitensis**	star thistle	DH
	Erigeron canadensis	horseweed	DH
	*Hedypnois cretica**	Crete weed	DH, SCWRF
	Heterotheca grandiflora	telegraph weed	DH
	Isocoma menziesii	goldenbush	DH, SWS, SCWRF
	Pluchea odorata	salt marsh fleabane	SWS
	*Lactuca serriola**	prickly lettuce	DH
	Logfia gallica	Narrowleaf cottonrose	SCWRF
	*Sonchus asper**	prickly sow thistle	SWS
	Symphyotrichum subulatum	slim aster	SWS
	Xanthium strumarium	cocklebur	SWS
Boraginaceae	*Heliotropium curassavicum* var. *occulatum*	salt heliotrope	DH
	Phacelia cicutaria	caterpillar phacelia	SWS
Brassicaceae	*Hirschfeldia incana**	perennial mustard	DH
Cactaceae	*Cylindropuntia prolifera*	coastal cholla	DCSS
Cactaceae	*Opuntia ficus-indica**	Indian-fig	DH
Chenopodiaceae	*Atriplex prostrata**	triangle orache	SWS
	*Salsola tragus**	Russian thistle	DH
Cucurbitaceae	*Cucurbita foetidissima*	calabazilla	DH
Euphorbiaceae	*Chamaesyce maculata**	spotted spurge	DH
	Croton setigerus	dove weed	DH
	*Ricinus communis**	castor-bean	DH
Fabaceae	*Melilotus albus**	white sweet clover	SWS
	*Medicago polymorpha**	Bur clover	DH

Attachment A (cont.)
PLANT SPECIES OBSERVED

Family	Scientific Name	Common Name	Habitat
Fagaceae	*Quercus agrifolia* var. *agrifolia*	coast live oak	DCSS
Geraniaceae	*Erodium botrys**	Big heron bill	DH
Juglandaceae	*Juglans californica* var. *californica*	Southern California black walnut	NNG/exAG
Lamiaceae	*Mentha aquatica**	water mint	SWS
Myrtaceae	*Eucalyptus camaldulensis**	red gum	EW
Myrsinaceae	*Lysimachia arvensis**	Scarlet pimpernel	DH
Onagraceae	*Epilobium ciliatum* ssp. *ciliatum*	willow herb	SWS
	Oenothera elata ssp. *hookeri*	great marsh evening-primrose	SWS
Plantaginaceae	*Plantago major**	common plantain	SWS
Platanaceae	*Platanus racemosa*	western sycamore	SCWRF
Polygonaceae	*Eriogonum fasciculatum*	buckwheat	DCSS
	*Rumex crispus**	curly dock	DH
Rosaceae	*Heteromeles arbutifolia*	toyon	DCSS
	Rosa californica	California rose	DCSS
Salicaceae	*Populus fremontii* ssp. *fremontii*	Fremont cottonwood	SCWRF
	Salix exigua	narrow-leaved willow	SWS
	Salix lasiolepis	arroyo willow	SWS, SCWRF
Saururacaea	*Anemopsis californica*	yerba mansa	SWS
Solanaceae	*Datura wrightii*	jimson weed	DH
	*Nicotiana glauca**	tree tobacco	DH
Tamaricaceae	*Tamarix* sp.*	tamarisk	NNG, SCWRF
Zygophyllaceae	*Tribulus terrestris*	Puncture vine	DH
Monocots			
Agavaceae	*Yucca schidigera*	Mohave yucca	DCSS
Arecaceae	*Washingtonia robusta**	Mexican fan palm	SCWRF, SWS
Cyperaceae	*Cyperus eragrostis*	tall flatsedge	DH, SWS
Poaceae	*Arundo donax**	giant reed	SWS
	Avena sp.*	oats	DH
	*Bromus diandrus**	common ripgut grass	DH, SCWRF
	*Bromus hordeaceus**	soft chess	DH
	*Bromus catharticus**	rescue grass	
	*Cynodon dactylon**	Bermuda grass	DH, SWS
	*Festuca perennis**	Italian ryegrass	DH
	*Hordeum murinum**	foxtail barley	DH
	Leptochloa fusca ssp. *uninervia*	Mexican sprangle-top	DH
	*Paspalum dilatatum**	dallis grass	SWS
	*Polypogon monspeliensis**	annual beard grass	SWS

*Non-native species

Attachment B
ANIMAL SPECIES OBSERVED OR DETECTED

Order/Family	Scientific Name	Common Name
INVERTEBRATES		
Hymenoptera		
Apidae	*Apis mellifera*	European honey bee
Lepidoptera		
Lycaenidae	*Plebejus acmon*	acmon blue
Nymphalidae	*Junonia coenia*	common buckeye
	Nymphalis antiopa	mourning cloak
Pieridae	*Pieris rapae*	cabbage white butterfly
VERTEBRATES		
Reptiles		
Squamata		
Phrynosomatidae	*Uta stansburiana*	common side-blotched lizard
Birds		
Apodiformes		
Trochilidae	*Calypte anna*	Anna's hummingbird
Accipitriformes		
Accipitridae	*Buteo jamaicensis*	red-tailed hawk
Columbiformes		
Columbidae	*Zenaida macroura*	mourning dove
Passeriformes		
Aegithalidae	*Psaltriparus minimus*	bushtit
Corvidae	*Corvus brachyrhynchos*	American crow
Emberizidae	*Melospiza melodia*	song sparrow
	Pipilo crissalis	California towhee
Fringillidae	*Carduelis psaltria*	lesser goldfinch
	Carpodacus mexicanus	house finch
Icteridae	*Icterus cucullatus*	hooded oriole
Mimidae	*Mimus polyglottos*	northern mockingbird
Parulidae	*Geothlypis trichas*	common yellowthroat
Troglodytidae	*Troglodytes aedon*	house wren
Tyrannidae	*Sayornis nigricans*	black phoebe
	Sayornis saya	Say's phoebe
	Tyrannus vociferans	Cassin's kingbird
Piciformes		
Picidae	*Picoides nutallii*	Nuttall's woodpecker
Mammals		
Carnivora		
Canidae	*Canis latrans*	coyote
Lagomorpha		
Lepidae	*Sylvilagus audubonii*	desert cottontail
Rodentia		
Geomyidae	*Thomomys bottae*	Botta's pocket gopher
Sciuridae	*Spermophilus beecheyi*	California ground squirrel

THIS PLANT INTENTIONALLY LEFT BLANK

Appendix C
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
PLANTS				
Abronia villosa var. *aurita*	Chaparral sand-verbena	--/-- CRPR 1B.1	Annual herb. Grows in chaparral and coastal scrub in sandy areas. Elevation range 260-5250 ft. Flowering period Jan. – Sept.	**Low.** Appropriate habitat and soils are limited on site.
Adolphia californica	California adolphia	--/-- CRPR 2.1	Shrub. Found in chaparral, coastal sage scrub, and grassland on sandy/gravelly to clay soils. Elevation range 50–985 ft. Flowering period Dec. – May.	**None.** Shrub would have been observed if present.
Ambrosia pumila	San Diego Ambrosia	FE/-- CRPR 1B.1	Perennial herb. Occurs in disturbed areas within chaparral, valley grassland, and coastal sage scrub communities. Elevation 100-2000 ft. Flowering period Apr. – October.	**Presumed Absent.** Suitable disturbed habitat occurs on site. This species has been historically recorded on site; however, this species was not detected during any of the 2014, 2016, 2017, or 2020 surveys.
Arctostaphylos rainbowensis	Rainbow manzanita	--/-- CRPR 1B.1	Shrub. Grows in chaparral and usually found in gabbro chaparral in Riverside and San Diego Counties. Elevation range 885-2590 ft. Flowering period Dec. – Mar.	**None.** Shrub would have been observed if present.
Astragalus pachypus var. *jaegeri*	Jaeger's milk-vetch	--/-- CRPR 1B.1	Shrub. Grows in coastal scrub, chaparral, valley and foothill grassland, and cismontane woodland. Prefers dry ridges and valleys and open sandy slopes; often in grassland and oak-chaparral. Elevation range 1200- 3000 ft. Flowering period Dec. –June.	**None.** Site outside of the elevation range for this species.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
PLANTS (cont.)				
Atriplex pacifica	South coast saltscale	--/-- CNPS 1B.2	Annual herb. Grows in coastal scrub, coastal bluff scrub, playas, and chenopod scrub on alkali soils. Elevation range 1- 1640 ft. Flowering period Mar. – Oct.	**None.** No appropriate habitat on site.
Berberis nevinii	Nevin's barberry	FE/SE CRPR 1B.1	Shrub. Grows in chaparral, cismontane woodland, coastal scrub, and riparian scrub on steep, north facing slopes or in low grade sandy washes. Elevation range 950-5170 ft. Flowering period Mar. – June.	**None.** Site outside of the elevation range for this species.
Brodiaea orcuttii	Orcutt brodiaea	--/-- CRPR 1B.1	Small herb. Occurs only on clay soils in vernally moist environments, usually near vernal pools but occasionally near streams. Elevation range 0-5000 ft. Flowering period May – Jul.	**None.** No clay soils present on site.
Caulanthus simulans	Payson's jewel-flower	--/-- CRPR 4.2	Annual herb. Grows in chaparral and coastal scrub, frequently in burned areas, or in disturbed sites such as streambeds; also on rocky, steep slopes. Elevation range 295-7220 ft. Flowering period Mar. – May.	**Not expected.** Appropriate vegetation community (chaparral) on site but no rocky, steep slopes.
Ceanothus cyaneus	Lakeside ceanothus	--/-- CRPR 1B.2	Shrub. Grows in closed-cone coniferous forest and chaparral. Elevation range 330-4970 ft. Flowering period Apr. – June.	**None.** Shrub would have been observed if present.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
PLANTS (cont.)				
Ceanothus ophiochilus	Vail Lake ceanothus	FT/SE CNPS 1B.1	Shrub. Grows in chaparral on Gabbro seams on north-facing ridges on the eastern sides of mountains. Elevation range 2030-2700 ft. Flowering period Feb. – mar.	**None.** Site is outside of elevation range of this species.
Ceanothus verrucosus	Wart-stemmed ceanothus	--/-- CRPR 2.2	Shrub. Grows in chaparral. Elevation range 0 - 1245 ft. Flowering period Jan. – Apr.	**None.** Shrub would have been observed if present.
Centromadia parryi ssp. *australis*	Southern tarplant	--/-- CRPR 1B.1	Annual herb. Found in marshes, swamp margins, valley and foothill grassland. Often seen in disturbed sites near the coast at marsh edges; also in alkaline soils sometimes with salt grass. Elevation range 0 – 660 ft. Flowering period May – Nov.	**Not expected.** No marshland habitat on site.
Centromadia pungens ssp. *laevis*	Smooth tarplant	--/-- CRPR 1B.1	Annual herb. Grows in valley and foothill grassland, chenopod scrub, meadows, playas, riparian woodland, alkali meadow, alkali scrub, and disturbed places. Elevation range 0-3100 ft. Flowering period Apr. – Sept.	**Low.** Appropriate habitat on site; however nearest the sighting is more than 8 miles from project site.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	--/-- CRPR 1B.1	Annual herb. Grows on coastal bluff scrub and in coastal dunes on sandy sites. Elevation range 10-330 ft. Flowering period Jan.-Aug.	**Not expected.** Appropriate soils on site however site is not as close to the coast as is generally preferred by plant.
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	--/-- CRPR 1B.2	Annual herb. Grows in chaparral, coastal scrub, meadows, seeps, valley and foothill grassland, and vernal pools on gabbroic clay. Elevation range 100-5020 ft. Flowering period Apr. – July.	**Not expected.** No clay soils present on site.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
PLANTS (cont.)				
Clinopodium chandleri	San Miguel savory	--/-- CRPR 1B.2	Perennial herb. Found in chaparral, cismontane woodland, coastal scrub, woodland, and grassland on rocky, gabbroic or metavolcanic substrate. Elevation range 390-3300 ft. Flowering period Mar. – July.	**None.** No appropriate substrate on site.
Comarostaphylis diversifolia ssp. *diversifolia*	Summer holly	--/-- CRPR 1B.2	Shrub. Grows in mixed chaparral on north and south-facing cliffs and banks. Elevation range 30-1800 ft. Flowering period Apr. – June.	**None.** Shrub would have been observed if present.
Dodecahema leptoceras	Slender-horned spineflower	FE/SE CRPR 1B.1	Annual herb. Grows in chaparral, cismontane woodland, coastal scrub. Frequently on flood deposited terraces and washes. Elevation range 656-2490 ft. Flowering period Apr. – June.	**None.** Site outside of the elevation range for this species.
Dudleya multicaulis	Many-stemmed dudleya	--/-- CRPR 1B.2	Perennial herb. Grows in chaparral, coastal scrub, and grassland. Often in heavy, clayey soils or grassy slopes. Elevation range 0-2590 ft. Flowering period Apr. – July.	**None.** No clay soils present on site.
Dudleya viscida	Sticky dudleya	--/-- CRPR 1B.2	Perennial herb. Found in coastal scrub, coastal bluff scrub, and chaparral. Elevation range 0 – 1475 ft. Flowering period May – June.	**None.** Coastal habitat not present on site.
Geothallus tuberosus	Campbell's liverwort	--/-- CRPR 1B.1	Liverwort. Found in coastal scrub, chaparral, grassland, vernal pools on mesic soil. Elevation range 30-1970 ft.	**Not expected.** Most suitable habitat lost to urbanization. Closest known occurrence is more than 10 miles from project site.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
PLANTS (cont.)				
Harpagonella palmeri	Palmer's grapplinghook	--/-- CRPR 4.2	Mat-forming herb. Occurs on clay soils in grasslands and coastal sage scrub. Elevation range 0-3000 ft. Flowering period Mar. – May.	**None.** Appropriate soils not present on site.
Horkelia cuneata var. *puberula*	Mesa horkelia	--/-- CRPR 1B.1	Perennial herb. Found in chaparral, cismontane woodland, and coastal scrub on sandy or gravelly sites. Elevation range 230-2760 ft. Flowering period Feb. – July.	**Low.** Appropriate soils and habitat on site however nearest sighting is more than 10 miles from the project site.
Horkelia truncata	Ramona horkelia	--/-- CRPR 1B.3	Perennial herb. Grows in chaparral, cismontane woodland, mixed chaparral, vernal streams, and disturbed areas near roads on clay soil. Elevation range 1310-4265 ft. Flowering period May - June.	**None.** Site outside of the elevation range for this species.
Isocoma menziesii var. *decumbens*	Decumbent goldenbush	--/-- CRPR 1B.2	Shrub. Grows in coastal scrub on sandy soils; often in disturbed sites. Elevation range 30-2985 ft. Flowering period Apr. – Nov.	**None.** Shrub would have been observed if present.
Juncus luciensis	Santa Lucia dwarf rush	--/-- CRPR 1B.2	Annual herb. Found in vernal pools, meadows, lower montane coniferous forest, chaparral, great basin scrub ephemeral drainages, wet meadow habitats, and streamsides. Elevation range 985-6690 ft. Flowering period Apr. – July.	**None.** Site outside of the elevation range for this species.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
PLANTS (cont.)				
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	--/-- CRPR 1B.1	Annual herb. Found in coastal salt marshes, playas, valley and foothill grassland, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. Elevation range 1-4595 ft. Flowering period Jan. – June.	**None.** No suitable habitat or soils on site.
Lepidium virginicum var. *robinsonii*	Robinson's peppergrass	--/-- CRPR 1B.2	Medium herb. Occurs in openings in chaparral and coastal sage scrub. Elevation range 0-5000 ft. Flowering period Jan – Jul.	**High.** Appropriate vegetation communities and elevation range for the plant on site.
Monardella hypoleuca ssp. *intermedia*	Intermediate monardella	--/-- CRPR 1B.3	Perennial herb. Grows in chaparral, cismontane woodland, and lower montane coniferous forest often in steep, brushy areas. Elevation range 1310-4100 ft. Flowering period June – Aug.	**None.** Site outside of the elevation range for this species.
Monardella hypoleuca ssp. *lanata*	Felt-leaved monardella	--/-- CRPR 1B.2	Perennial herb. Grows in chaparral and cismontane woodland. Occurs in understory in mixed chaparral, chamise chaparral, and southern oak woodland on sandy soil. Elevation range 985-5170 ft. Flowering period June –Aug.	**None.** Site outside of the elevation range for this species.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
PLANTS (cont.)				
Monardella macrantha ssp. *hallii*	Hall's monardella	--/-- CRPR 1B.3	Perennial herb. Found in broadleaved upland forest, chaparral, lower montane coniferous forest, cismontane woodland, and grassland. Prefers dry slopes and ridges in openings within the above communities. Elevation range 2280-7200 ft. Flowering period June – Oct.	**None.** Site outside of the elevation range for this species.
Nolina cismontana	Chaparral nolina	--/-- CRPR 1B.2	Shrub. Grows in chaparral and coastal scrub primarily on sandstone and shale substrates; also known from gabbro. Elevation range 460-4185 ft. Flowering period May – July.	**None.** Site outside of the elevation range for this species.
Packera ganderi	Gander's ragwort	--/SR CRPR 1B.2	Perennial herb. Grows in chaparral, recently burned sites, and gabbro outcrops. Elevation range 1310-3940 ft. Flowering period Apr. – June.	**None.** Site outside of the elevation range for this species.
Pseudognaphalium leucocephalum	White rabbit-tobacco	--/-- CRPR 2B.2	Perennial herb. Found in riparian woodland, cismontane woodland, coastal scrub, and chaparral on sandy or gravelly sites. Elevation range 0 - 6890 ft. Flowering period Aug. – Nov.	**Low.** Appropriate vegetation communities and soil found on site however nearest sighting of this plant is approximately five miles from project site.
Quercus dumosa	Nuttall's scrub oak	--/-- CRPR 1B.1	Shrub. Grows in closed-cone coniferous forest, chaparral, and coastal scrub generally on sandy soils near the coast; sometimes on clay loam. Elevation range 50-2100 ft. Flowering period Feb. – Mar.	**None.** Shrub would have been observed if present.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
PLANTS (cont.)				
Schizymenium shevockii	Shevock's copper moss	--/-- CRPR 1B.2	Moss. Found in cismontane woodland on metamorphic rocks containing heavy metals; frequents mesic sites.	**None.** No appropriate habitat present on site.
Tetracoccus dioicus	Parry's tetracoccus	--/-- CRPR 1B.2	Shrub. Grows in chaparral and coastal scrub on stony, decomposed gabbro soil. Elevation range 490-3280 ft. Flowering period Apr. – May.	**None.** Soils and elevation not suitable for plant on project site.
Tortula californica	California screw moss	--/-- CRPR 1B.2	Moss. Found in chenopod scrub and valley or foothill grassland growing on sandy soil. Elevation range 30-4800 ft.	**Not expected.** Appropriate habitat types not present on site**.**
ANIMALS				
Invertebrates				
Euphydryas editha quino	Quino checkerspot butterfly	FE/--	Sunny openings within chaparral and coastal sage shrublands. Host plants include *Plantago erecta, Cordylanthus rigidus*, *Collinsia* spp., *Plantago patagonica*, *Antirrhinum coulterianum*, and *Castilleja exserta.*	**Not expected.** Host plant not present on site.
Fish				
Gila orcuttii	Arroyo chub	--/--	Native to streams from Malibu to San Luis Rey River basin. Introduced into streams in Santa Clara and Ventura in slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	**Not expected.** Very little water present in San Luis Rey River, during survey water was flowing underground and only puddles were present.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
ANIMALS (cont.)				
Reptiles and Amphibians				
Aspidoscelis tigris stejnegeri	Coastal whiptail	--/--	Found in deserts and semiarid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	**Low.** Appropriate habitat is limited on site.
Bufo microscaphus californicus	Arroyo toad	FE/SSC	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian and desert wash. Requires rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range.	**Low.** River in project site could potentially provide habitat.
Charina trivirgata roseofusca	Coastal rosy boa	--/--	Desert and chaparral from the coast to the Mojave and Colorado Deserts. Prefers moderate to dense vegetation and rocky cover habitats with a mix of brushy cover and rocky soil such as coastal canyons and hillsides, desert canyons, washes and mountains.	**Not expected.** Site lacks appropriate soils and habitat on site is limited.
Clemmys marmorata	Western pond turtle	--/SSC	Ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation. Requires basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.3 m from water for egg-laying.	**Not expected.** Surface water on site was limited.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
ANIMALS (cont.)				
Reptiles and Amphibians (cont.)				
Cnemidophorus hyperythrus	Orange-throated whiptail	--/SSC	Coastal scrub, chaparral, and valley and foothill hardwood habitats. Prefers washes and sandy areas with patches of brush and rocks. Perennial plants required to support its primary prey termites.	**Low.** Some habitat requirements present on site.
Crotalus ruber ruber	Northern red-diamond rattlesnake	--/SSC	Chaparral, woodland, grassland, and desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	**Low.** Extremely limited habitat on site.
Diadophis punctatus similis	San Diego ringneck snake	--/--	Moist habitats such as oak woodlands and canyon bottoms, occasionally grassland, chaparral, and coastal sage scrub.	**Not expected.** Extremely limited habitat on site.
Eumeces skiltonianus interparietalis	Coronado skink	--/SSC	Grassland, chaparral, pinyon-juniper and juniper sage woodland, and pine-oak and pine forests.	**Low.** Appropriate habitat is limited on site.
Phrynosoma blainvillii	Coast horned lizard	--/SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	**Low.** Appropriate habitat is limited on site.
Salvadora hexalepis virgultea	Coast patch-nosed snake	--/SSC	Semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	**Low.** Appropriate habitat is limited on site.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
ANIMALS (cont.)				
Reptiles and Amphibians (cont.)				
Spea hammondii	Western spadefoot toad	--/SSC	Burrows in loose soils 3 feet in depth. Requires temporary rainpools and vernal pools (for breeding) lasting three weeks with cool to warm temperatures and absence of predators (crayfish, bullfrogs, etc.).	**Low.** Some suitable habitat is present on site.
Taricha torosa	Coast Range newt	--/SSC	Coastal drainages from Mendocino County to San Diego County. Lives in terrestrial habitats and will migrate over 1 km to breed in ponds, reservoirs and slow moving streams.	**Low.** Appropriate habitat is limited on site.
Thamnophis hammondii	Two-striped garter snake	--/SSC	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 feet elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	**Not expected.** Permanent fresh water is limited on site.
Birds				
Accipiter cooperi	Cooper's hawk	--/SSC	(Nesting) Open, uninterrupted, or marginal woodland. Nest sites mainly found in riparian growths of deciduous trees, and live oaks.	**High.** Appropriate vegetation for nesting present on site.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	--/--	Resident in southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	**Low.** Limited habitat present on site.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
ANIMALS (cont.)				
Birds (cont.)				
Amphispiza belli belli	Bell's sage sparrow	BCC/WL	Chaparral and sage scrub with modest leaf-litter on the ground (e.g., after a fire or in gabbro-based soil areas).	**Low.** Limited habitat on site.
Athene cunicularia	Burrowing owl	BCC/SSC	Grassland or open scrub habitats with sufficient small mammal prey and mammal burrows.	**Not expected.** No grassland habitat present on site.
Aquila chrysaetos	Golden eagle	--/FP	(Nesting and Wintering) Rolling foothills and mountain areas, juniper-sage flats, and deserts. Primarily associated with cliff-walled canyons and large trees in open habitats for nesting.	**Low.** Appropriate habitat is limited on site.
Buteo regalis	Ferruginous hawk	BCC/WL	Open grasslands.	**Low.** No grassland habitat present on site.
Circus cyaneus hudsonius	Northern harrier	--/SSC	Coastal salt and freshwater marsh. Nests and forages in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	**Not expected.** No marshland habitat on site.
Coccyzus americanus occidentalis	Yellow-billed cuckoo	FC/SE	Extensive stands of mature riparian woodland.	**Low.** Limited habitat present on site.
Dendroica petechia brewsteri	Yellow warbler	--/SSC	Riparian woodland.	**Low.** Limited habitat present on site.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
ANIMALS (cont.)				
Birds (cont.)				
Empidonax trailii extimus	Southwestern willow flycatcher	FE/SE	Breeds within thickets of willows or other riparian understory usually along streams, ponds, lakes, or canyons. Migrants may be found among other shrubs in wetter areas.	**Low.** Limited habitat present on site.
Ictera virens	Yellow-breasted chat	--/SSC	Mature riparian woodland.	**High.** Appropriate habitat present on site.
Ixobrychus exilis	Least bittern	--/SSC	Colonial nester in marshlands and borders of ponds and reservoirs which provide ample cover. Nests usually placed low in tules, over water.	**Not expected.** No marshland habitat present on site.
Nycticorax nycticorax	Black-crowned night heron	--/--	Colonial nester, usually in trees, occasionally in tule patches. Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	**Not expected.** Appropriate habitat not present on site.
Plegadis chihi	White-faced ibis	--/--	Shallow fresh-water marsh. Dense tule thickets for nesting interspersed with areas of shallow water for foraging.	**Not expected.** No marshland habitat present on site.
Polioptila californica californica	Coastal California gnatcatcher	FT/SSC	Coastal sage scrub below 2500 feet in southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	**High.** Coastal sage scrub present on site.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
ANIMALS (cont.)				
Birds (cont.)				
Vireo bellii pusillus	Least Bell's Vireo	FE/ SE	Summer resident of Southern California in low riparian areas in the vicinity of water or in dry river bottoms below 2,000 feet. Nests places along the margins of bushes or on twigs projecting into pathways.	**High.** Riparian woodland present on site.
Mammals				
Antrozous pallidus	Pallid bat	--/SSC	Rocky, mountainous areas and near water; also found over more open, sparsely vegetated grasslands, and prefers foraging in the open. Uses three different roosts: 1) the day roost is in a warm, horizontal opening such as rock cracks; 2) the night roost is in the open, near foliage; and 3) the hibernation roost, which is in caves or cracks in rocks.	**Not expected.** Appropriate habitat not present on site.
Chaetodipus californicus femoralis	Dulzura California pocket mouse	--/SSC	Variety of habitats including coastal scrub, chaparral, and grasslands in San Diego County. Associated with grass-chaparral edges.	**Low.** Limited habitat present on site.
Chaetodipus fallax fallax	Northwestern San Diego pocket mouse	--/SSC	Open areas of coastal sage scrub and weedy growth, often on sandy substrates.	**Low.** Limited habitat present on site.
Dipodomys stephensi	Stephens' kangaroo rat	FE/ST	Primarily annual and perennial grasslands, but also occurs in coastal scrub and sagebrush with sparse canopy cover. Prefers buckwheat, chamise, brome grass and filaree. Will burrow into firm soil.	**Not expected.** No grassland habitat on site.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
ANIMALS (cont.)				
Mammals (cont.)				
Eumops perotis californicus	Greater western mastiff bat	--/SSC	Lower and upper Sonoran Desert scrub near cliffs, preferring rugged rocky canyons with abundant crevices. Prefers crowding into tight crevices.	**Not expected.** Preferred habitat not present on site.
Lasiurus cinereus	Hoary bat	--/--	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	**Low.** Area may be used for foraging.
Lasiurus xanthinus	Western yellow bat	--/SSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	**Low.** Habitat on site is limited.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	--/SSC	Primarily in open habitats including coastal sage scrub, chaparral, grasslands, croplands, and open, disturbed areas if there is at least some shrub cover present.	**High.** Appropriate habitat on site.
Myotis ciliolabrum	Small-footed myotis	--/--	Wide range of habitats mostly arid wooded and brushy uplands near water. Seeks cover in caves, buildings, mines and crevices. Prefers open stands in forests and woodlands. Requires drinking water. Feeds on a wide variety of small flying insects.	**Low.** May use site for foraging.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

Species Name	Common Name	Status	Habit, Ecology and Life History	Potential to Occur[3]
ANIMALS (cont.)				
Mammals (cont.)				
Myotis evotis	Long-eared myotis	--/--	Found in all brush, woodland and forest habitat from sea level to about 9,000 feet. Prefers coniferous woodlands and forests.	**Low.** Forest habitat is present on site.
Myotis yumanensis	Yuma myotis	--/--	Open water near woodlands and forests. Also uses caves and mines.	**Not expected.** No open water present on site.
Neotoma lepida intermedia	San Diego desert woodrat	--/SSC	Open chaparral and coastal sage scrub, often building large, stick nests in rock outcrops or around clumps of cactus or yucca.	**Low**. Appropriate habitat on site is limited.
Nyctinomops femorosaccus	Pocketed free-tailed bat	--/SSC	Semiarid desert lands. Day-roosts in caves, crevices in cliffs, and under the roof tiles of buildings. Uses a variety of arid habitats in southern California: pine-juniper woodlands, desert scrub, palm oases, desert wash, desert riparian, etc. Prefers rocky areas with high cliffs.	**Not expected.** Appropriate habitat not present on site.
Nyctinomops macrotis	Big free-tailed bat	--/SSC	Rocky areas, in day they roost in rocky cliffs, sometimes caves, buildings, or tree holes.	**Low.** Tree holes are present on site but rock cliffs are not.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	--/SSC	Lower elevation grasslands and coastal sage communities in and around the Los Angeles basin. Open ground with fine sandy soils. May not dig extensive burrows, hiding under weeds and dead leaves instead.	**Low.** Coastal sage community is present on site.
Taxidea taxus	American badger	--/SSC	Open plains and prairies, farmland, and sometimes edges of woods.	**Not Expected**. No appropriate habitat on site.

[1]Sensitive species reported within 2 miles of the project site, except Narrow Endemics which are County-wide.

Appendix C (cont.)
SENSITIVE SPECIES POTENTIAL TO OCCUR1

[2]Listing is as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; R = Rare; SSC = State Species of Special Concern; FP = Fully Protected. CRPR = California Rare Plant 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 needed; 4 – watch list for species of limited distribution. Extension codes: .1 – seriously endangered; .2 – moderately endangered; .3 – not very endangered.

[3]Potential to Occur is assessed as follows. **None**: Species is either sessile (*i.e.* plants) or so limited to a particular habitat that it cannot disperse on its own, and habitat suitable for its establishment and survival does not occur on the project site; **Not Expected**: Species moves freely and might disperse through or across the project site, but suitable habitat for residence or breeding does not occur on the project site; **Low**: Marginally suitable habitat is present on the project site but of low quality and no sign of the species was observed during surveys, however the species cannot be excluded with certainty; **Presumed Absent**: Quality and extent of suitable habitat are sufficient to support residence and breeding, however protocol-level focused surveys have been conducted for the current project and results were negative; **High**: Suitable habitat occurs on the project site and the species has been recorded recently on or near the project site, but was not observed during surveys for the current project; **Presumed Present**: The species was observed during biological surveys for the current project and is assumed to occupy the project site.

THIS PAGE INTENTIONALLY LEFT BLANK

Photo 1. Looking southwest at Camino del Rey and adjacent disturbed habitat in the northern portion of the study area. The former San Luis Rey Downs Golf Course is visible in the right side of the photo.

Photo 2. Looking northwest from Camino del Rey at disturbed habitat within the former San Luis Rey Downs Golf Course in the northern portion of the study area.

Photo 3. Looking northeast at Camino del Rey and adjacent disturbed habitat in the northern portion of the study area.

Photo 4. Looking southeast across Camino del Rey where the proposed pipeline would cross a portion of the former San Luis Rey Downs Golf Course.

Photo 5. Looking east at non-native grassland and developed land in the northern portion of the study area.

Photo 6. Looking northwest at disturbed habitat and a brick golf cart path that crosses below Camino del Rey in the northern portion of the study area.

Photo 7. Looking southeast at Old River Road where it crosses Moosa Creek.

Photo 8. Looking southwest at Old River Road and adjacent riparian forest to the west, in the central portion of the study area.

Photo 9. Looking north at Camino del Rey and adjacent developed land in the northern portion of the study area.

Photo 10. Looking east at disturbed habitat for proposed Lift Station 1A in northern portion of the study area.

Appendix C

Cultural Resources Study

January 5, 2018

Joanne M. Dramko, AICP
HELIX Environmental Planning, Inc.
7578 El Cajon Blvd.
La Mesa, California 91941

Re: Cultural Resources Study Augment for the Rainbow Municipal Water District Lift Station #1 Replacement Project, Bonsall, San Diego County, California

Dear Ms. Dramko,

This letter report presents the results of a cultural resources survey for an alignment addition to the Rainbow Municipal Water District (RMWD) Lift Station #1 Replacement Project (Project) conducted by ASM Affiliates, Inc. (ASM). After the Project area was originally surveyed by ASM on August 16, 2016, (Castells 2016), modifications were made to the original Project area including the addition of an alignment connecting from Old River Rd. west onto Camino Del Rey and continuing northbound along the west side of Highway 76. The additional alignment also included a proposed location for the construction of the Lift Station LS1A on the southwest corner of the intersection of the Highway 76 and Thoroughbred Lane. The following report presents the results of the additional alignment study area only. The Rainbow Municipal Water District is the lead agency. This study is being undertaken in compliance with the California Environmental Quality Act (CEQA).

Included in this report are a brief archaeological and historical background of the area; the results of a review of literature and site records on file with the South Coastal Information Center (SCIC), a description of the field methodology employed during the investigation, the results of the field survey, and recommendations for CEQA compliance. Cultural resources are located within the vicinity of the Project, however no cultural resources were identified with the Project's Area of Potential Effects (APE) and no known cultural resources will be impacted by the Project. It is recommended that all ground disturbance for the Project be monitored by a qualified archaeologist due to the high potential for subsurface cultural resources along the San Luis Rey River.

Project Description and Location

The RMWD is a special district that provides water and wastewater collection to the unincorporated communities of Rainbow, Bonsall, and portions of Vista, Oceanside and Fallbrook in northern inland San Diego County. The augmented proposed Project APE would entail improvements to facilities associated with the RMWD's existing Lift Station 1 (LS1); LS1 would be retained in place and protected during construction of adjacent facilities. The proposed LS1A would be installed in a lot on the southwest corner of the intersection of Thoroughbred Lane and Highway 76. Castells 2016 presents the archaeological inventory results for the original Project area.

The Project area is located on the Bonsall USGS 7.5-minute Quad, within Township 10 South, Range 3 West, Sections 20, 29, 30, and 31 (Figures 1, 2, and 3). Geographically, the project area is adjacent to the San Luis Rey River. The northern terminus of the Project area is just south of Sweetgrass Lane along the west side of Highway 76 and the southern terminus of the Project is west of Old River Rd. just north of Golf Club Dr.

This cultural resource study inventoried the amended Project alignment that was not included in the original Project area in addition to the newly proposed location for LS1A. The Project's APE includes only areas in which ground disturbance associated with the Project will take place and is shown on Figures 2 and 3.

Environmental Setting

The Project lies within the floodplain of the middle course of the San Luis Rey River. It is located within the foothills geomorphic province of western San Diego County, but closely approaches the western margin of the mountains province (Bowman 1973).

The climate in the project vicinity is classified as Mediterranean hot summer (Pryde 2004). The mean January minimum daily temperature is about 4°C, and the mean July maximum daily temperature is approximately 32°C. The annual precipitation averages about 35 cm, falling primarily in the winter and early spring.

The San Luis Rey River is one of the region's larger drainages. Its headwaters lie to the east of Lake Henshaw, about 20 km east of the study area. It is fed by waters from Palomar Mountain and finally enters the Pacific Ocean about 20 km southwest of the study area.

The natural vegetation zone surrounding the Project area is chaparral (Pryde 2004). Characteristic chaparral species include chamise (*Adenostoma fasciculatum*), California lilac (*Ceanothus* spp.), manzanita (*Arctostaphylos* spp.), redshank (*Adenostoma sparsifolium*), and various species of oak (*Quercus* spp.). Much of the natural vegetation has been displaced as a result of historic and modern land uses, including grazing, agriculture, transportation and modern urbanization.

Culture History

Archaeological investigations have documented human occupations in San Diego County spanning at least the last 10,000 years. Various chronological divisions and sets of terms are used to sort the archaeological evidence into temporal and, to a lesser extent, geographical units. Some confusion has resulted from the mixing of analytical units that were defined on the basis of chronology with units defined by cultural assemblage content or by inferred ethnicity. The present discussion is framed in terms of five main divisions: an initial period, linking the terminal Pleistocene with the early Holocene, about 10,000 B.P. to 7500 B.P.; a long middle Holocene period, stretching from about 7500 B.P. to about 3500 B.P.; a late Holocene period, between about 3500 B.P. and A.D. 1769; an "ethnographic period," representing conditions existing just prior to European contact as they have been inferred from ethnographic studies; and the historical period, subsequent to A.D. 1769.

Terminal Pleistocene/Early Holocene

This initial period includes archaeological manifestations that have variously been labeled as Clovis, Paleoindian, Lake Mohave, San Dieguito, Scraper Maker, and Western Pluvial Lakes Tradition, as well as some of the components that have been termed Archaic, La Jolla, or Encinitas.

Archaeological evidence assignable to the Clovis complex of the terminal Pleistocene (ca. 10,000 B.P.) is fairly well documented in North America, including several parts of California (Davis and Shutler 1969) and Baja California (Hyland 1997). However, Clovis remains appear to be scarce or absent within San Diego County.

The earliest generally accepted local archaeological pattern is the San Dieguito Complex. Dates for the San Dieguito component at the C. W. Harris site begin at 9,030 radiocarbon years before the present (RCYBP). Warren et al. (2008) projected a starting date for the component at about 10,500 RCYBP. Building on the discussion of North American cultural stages by Willey and Phillips (1958), some scholars have viewed the San Dieguito pattern as a Lithic or Paleoindian phenomenon, representing lifeways characterized by high mobility and an emphasis on big game hunting. Others would classify San Dieguito as belonging to the early Archaic stage, rooted in a more diversified and plant-oriented adaptation. Remains that have been considered to be characteristic of San Dieguito components include large stemmed projectile points (Lake Mohave and Silver Lake forms), crescents, heavy unifacial tools (scraper planes), a focused use of the local metavolcanic rock for flaking, a scarcity of milling tools, and little emphasis on shellfish harvesting (but see Becker and Iversen 2007).

Middle Holocene

A long middle Holocene period (ca. 7500 B.P. to 3500 B.P.) encompasses most of the assemblages assigned to the Archaic (or Early Archaic, or Middle Archaic), La Jolla, Millingstone, Littoral, Shell Midden, Encinitas, Campbell, and Pauma analytical units. Such components are frequently characterized by shell middens, fairly abundant ground stone, generally simple flaked stone assemblages, and inhumations.

Spanning six millennia or more, the middle Holocene pattern in western San Diego County is notable for its apparent continuity and conservatism, as compared with somewhat more dynamic contemporaneous patterns in other parts of southern California, including the Santa Barbara coast and the Mojave Desert. Several proposals have been made to subdivide the period locally into two or three separate chronological units (e.g., Harding 1951; Moriarty 1966; Rogers 1945; Warren 1964; Warren et al. 2008). However, firm criteria for making such distinctions have not been identified, and even the general directions of cultural change during this period remain uncertain.

At inland San Diego County locations, sites dating from the middle Holocene have sometimes been labeled Pauma, Campbell, or Inland La Jolla. Most of the Pauma complex sites have been identified either in the San Luis Rey River valley upstream from Pala or on the Valley Center plateau. Various relationships between middle Holocene coastal sites and the sparser contemporaneous manifestations inland have been suggested. Possible interpretations are that

coastal and inland sites were produced by the movements of members of a single population, on a seasonal or episodic basis; by separate but related populations that were economically complementary to each other; or by ethnically distinct groups, with inland and some coastal components reflecting intrusions of people from the eastern deserts (True 1958, 1980; Warren 1968; Warren et al. 2008).

Late Holocene

The latest period in the prehistory of the Project area is known by such labels as Late Prehistoric, Late Archaic, Shoshonean, and San Luis Rey. Hallmarks of the period include the mortar and pestle, arrow-sized projectile points, ceramics, and human cremations. The chronologies for the external introduction or local innovation of these traits are only imprecisely known, and the new patterns probably arose at separate times, perhaps extending over a period spanning as much as 1,500 years. San Luis Rey I is the label generally applied to components with small, arrow-sized projectile points but no pottery in northern San Diego County, while the more numerous San Luis Rey II components contain pottery as well as small points.

In most inland areas of San Diego County, archaeological sites that are assignable to the late Holocene appear to be much more numerous than earlier sites (Christenson 1989). The general pattern is suggestive of population growth and subsistence intensification, with seeds and other inland resources playing an increasingly important role. However, late Holocene use of coastal resources seems to have continued more strongly in the northern portion of the county—which was historically occupied by Luiseño speakers—than farther south in the central and southern portions of the county (Byrd 1998; Pigniolo 2005; Rosenthal et al. 2001). Only limited success has been achieved in attempts to distinguish archaeologically between the remains left by the Luiseño and the linguistically unrelated but culturally similar Ipai/ Kumeyaay (Pigniolo 2004; True 1966).

Ethnographic Period

The project area is within the ethnographic territory of the Luiseño. Early descriptions of the lifeways of the Luiseño were provided by missionaries, administrators, and other travelers, who gave attention primarily to the coastal populations (Boscana 1846; Fages 1937; Geiger and Meighan 1976; Harrington 1934; Laylander 2000). Subsequent ethnographers during the early twentieth century were able to give much more objective, detailed, and penetrating accounts. In most cases, the later investigators described inland rather than coastal lifeways. Most of the ethnographers attempted to distinguish between observations of the customs of surviving Native Americans and orally transmitted or inferred information relating to the lifeways of native groups prior to European intrusion into the region (Drucker 1939; DuBois 1908; Kroeber 1925; Sparkman 1908; Strong 1929; White 1963).

The Luiseño language belongs to the Takic linguistic group within the Uto-Aztecan family, and has its closest relatives to the north and east. The debatable technique of glottochronology suggests that the separation of Luiseño from its relatives may have occurred on the order of 2,500-3,000 years ago, and this may perhaps correspond to the time when the ancestral form of the language first appeared in northwestern San Diego County (Laylander 1985).

Aboriginal subsistence in the region was almost entirely based on the harvesting of natural plants and animals, rather than on agriculture. Acorns were a staple food source for the western groups, while agave and mesquite were staples for people living to the east of the crest of the Peninsular Range. Numerous other plants were exploited for the food value of their seeds, fruit, roots, stalks, or greens, and a still larger number of species had known medicinal uses. Game animals included deer, first and foremost, but mountain sheep and pronghorn antelope were also present, as well as bears, mountain lions, bobcats, coyotes, badgers, and other medium-size mammals. Small mammals were probably as important as larger animals in aboriginal diets. Jackrabbits and cottontails were preeminent, but woodrats and other rodents were also commonly exploited. Various birds, reptiles, and amphibians were caught and eaten. Food taboos were few in number and inconsistently applied, to judge from the ethnographic record. The only precontact domesticated animal was the dog. It is not clear whether marine fish and shellfish were a mainstay for some groups who were based on the coast, or whether marine resources served merely as supplemental foods used by groups whose primary focus was on terrestrial resources. Interregional exchange systems are known to have linked western San Diego County with areas to the east in particular (Davis 1961), but such exchange may have been motivated primarily by social and ceremonial objectives rather than to meet material needs.

The Luiseño developed a varied material culture that functioned well, but it was not highly elaborated by worldwide standards. An array of tools was made from stone, wood, bone, and shell, and these served to procure and process the region's resources. Needs for shelter and clothing were minimal in the forgiving climate, but considerable attention was devoted to personal decoration in ornaments, painting, and tattooing. The local pottery was well made, although it was not elaborately decorated. The craft of basketry was particularly refined.

The Luiseño were subdivided into essentially sovereign local communities or tribelets. Community membership was generally inherited through the male line. However, in practice some degree of geographical intermixing of these patriclans was probably present during the historical period, and this may have reflected a degree of flexibility in community membership during prehistoric times as well. Later descriptions of the settlement systems were inconsistent, and there may have been considerable variability in practice (cf. Laylander 1997). In some areas, substantial permanent, year-round villages seem to have existed, with more remote resources beyond the daily foraging range being acquired by special task groups. In other areas, communities appear to have followed an annual circuit among seasonal settlements, or to have oscillated between summer and winter settlements, often with the community splitting up into its constituent families during certain seasons. Rights of ownership over the land and its various resources were vested both in individual families and in the clan or the community as a whole. Leadership within communities had at least a tendency to be hereditary, but it was relatively weak; authority was more ceremonial and advisory than administrative or judicial in character. Headmen had various formally designated assistants, and shamans exerted an important influence in community affairs, beyond their role in curing individual illness.

Historical Period

European activity within the region began as early as A.D. 1542, when Juan Rodríguez Cabrillo landed in San Diego Bay. It is possible that other contacts between local Native Americans and

Europeans occurred during the next 150 years but went unrecorded. These brief encounters made the local native people aware of the existence of other cultures that were technologically and socially different than their own. Epidemic diseases may also have been introduced into the region at an early date, either through direct contacts with the infrequent European visitors or in waves of diffusion emanating from other native groups farther to the east or south. It is possible, but as yet unproven, that the precipitous demographic decline of native peoples had already begun prior to the arrival of Gaspar de Portolá and Junípero Serra in 1769. Any archaeological evidence concerning biological and cultural changes in the San Diego area during the protohistoric centuries between 1542 and 1769 would potentially hold considerable research interest.

Spanish colonial settlement began in 1769. Multiple expeditions arrived in San Diego by land and sea in that year. They then continued northward toward Monterey through the coastal plain a short distance to the west of the study area. Initially, a military presidio and a mission were established at San Diego. In 1776, the Luiseño were brought first to the mission at San Juan Capistrano in southern Orange County, and after 1798 they were moved to Mission San Luis Rey, about 10 km southwest of the study area. Farther inland, the middle San Luis Rey River had been explored by Juan Mariner and Juan Pablo Grijalva in 1795. An outstation (or *asistencia*) for Mission San Luis Rey was established in 1816 at Pala.

Further disruptions of native peoples in western San Diego County occurred in the early nineteenth century. These resulted from a growing number of private land grants, Mexico's separation from the Spanish Empire in 1821, and the secularization of the California missions in the 1830s. Pauma Rancho, including the eastern portion of the study area, was granted to José Antonio Serrano in 1844 (Moyer 1969). Some of the former mission neophytes were absorbed into the work forces on the ranchos, while others drifted toward the urban centers at San Diego and Los Angeles or moved to the eastern portions of the county where they were able to join still largely autonomous native communities.

United States conquest and the annexation of California, together with the gold rush in the northern part of the state, drew many additional outsiders into the region. During the Mexican-American War of 1847, the Mormon Battalion opened the first wagon road to San Diego from the east. The upper San Luis Rey River valley was a refuge area for the Luiseño, and formal reservations were established at Pala (1875), Rincon (1875), Pauma-Yuima (1891), and La Jolla (1892) (Trafzer 2004).

Development in San Diego County during the late nineteenth and early twentieth centuries was fitful, undergoing cycles of economic boom and bust. The study area was bypassed by much of this development, and local development has also been sporadic. In addition to ranching and agriculture (notably avocado and citrus orchards), mining for metal and gems has been a significant activity.

Study Methods

Methods used to assess the presence or absence of cultural resources within the Project area included a search of existing records and an intensive field survey. A search of records held at

the California Historical Resources Information System (CHRIS) South Coastal Information Center (SCIC) was conducted for the augmented project area and a 0.5-mile radius around it on November 21, 2017 (Appendix A).

Historic aerial photographs and historic USGS topographic maps of the Project area were consulted from historicaerials.com and the USGS Historical Topographic Map Explorer.

The field survey was conducted on October 5, 2017, by ASM Associate Archaeologist Doug Drake. Field methods consisted of a pedestrian survey of the Project area by the archaeologist in transects spaced at 15-m intervals, depending on terrain. Any isolates, sites, and features were recorded. All site and isolate locations were recorded in Universal Transverse Mercator (UTM) coordinates using handheld GeoExplorer Trimble units with sub-meter accuracy. Resources were plotted on project maps using NAD 83 UTM coordinates. As applicable, site information was recorded on State of California DPR 523 series forms to State of California standards.

Study Results

SCIC RESULTS

The records search identified 66 previous cultural resources reports that addressed areas within a 0.5-mile radius of the project area. Thirty-six of those reports intersect with a portion of the Project area (Table 1). One hundred percent of the Project's APE has been previously surveyed for cultural resources. The majority of these studies were conducted in association with improvements to SR-76 including road widening, bridge replacement, and curve straightening projects. Studies within or adjacent to the current project alignment include a study conducted by Gallegos & Associates in 2004 for the 12-Inch Forcemain Replacement, Lift Stations 1 And 2 Project; and a study conducted by Roger Mason in 2009 for the RMWD Lift Station 2 Project.

Table 1. Previous Cultural Resources Reports Within a 0.5-Mile Radius of the Project Area

SCIC Project Number	Author	Year	Report Title	Relation to the Project's APE
SD-00006	Daly, Kenneth	1976	Environmental Impact Evaluation: Archaeological Survey of a Portion of the San Luis Rey River Valley Near Bonsall, San Diego County, California	Intersect
SD-00009	DeCosta, Joan	1982	An Archaeological Survey of Route 76 East of Bonsall, 11-SD-76, P.M. 13.0-1.3,11245-185060	Outside
SD-00388	Carrico, Richard	1973	Environmental Impact Statement Golf Greens Estates 28.5 Acres	Intersect
SD-00629	Eckhardt, Leslie C.	1978	Archaeological - Historical Survey of the San Luis Rey Highlands	Outside
SD-01398	Norwood, Richard	1977	Rancho Montclaire an Archaeological Survey Near Fallbrook, California	Outside
SD-01375	Rosen, Martin D.	1985	First Addendum Archaeological Survey Report 11-SD-76, P.M. 11.7/12.2 11212-184551	Outside

SCIC Project Number	Author	Year	Report Title	Relation to the Project's APE
SD-01409	Rosen, Martin D.	1985	Report of an Archaeological Survey on State Route 76 11-SD-76 P.M. 12.4/16.8 11209-116740	Intersect
SD-01482	Rosen, Martin D.	1984	Curve Realignment and Road Widening Along State Route 76 11-SD-76 10.5/11.0 11359-18450	Outside
SD-01484	Rosen, Martin D.	1984	Final Report of an Archaeological Test Excavation at CA-SDI-674 Bonsall, California 11-SD-76 P.M. 12.0 11359-184550	Intersect
SD-01488	Rosen, Martin D.	1982	Archaeological Phase I Survey Report for Proposed Intersection Realignment and Highway Widening on 11-SD-76 P.M. (11359-184550)	Intersect
SD-01694	Polan, H. Keith	1981	San Luis Rey Highlands: A Report on a Phase II Testing Program	Outside
SD-01951	Smith, Brian F.	1990	An Archaeological Survey of the California Sand & Gravel, Inc. Project County of San Diego Major Use Permit No. 81-087	Intersect
SD-02050	Browne & Vogt	1983	Draft Environmental Impact Report San Luis Rey Vistas Proposed Mobile Home Park	Intersect
SD-02056	American Pacific Environmental Consultants, Inc.	1979	Golf Green Estates Draft Environmental Impact Report TM3787; P79; Log#78-2-129	Intersect
SD-02558	Wade, Sue	1992	Archaeological Survey of Parcels 126-310-3 and 126-050-54 for the Leeds/Strauss Tentative Subdivision	Outside
SD-02866	Coleman Planning Group	1992	Draft Environmental Impact Report for Hidden Hills, a Proposed Residential Subdivision of 55 Lots on 131 Acres in Bonsall, California.	Outside
SD-02916	Peak & Associates, Inc	1990	Cultural Resources Assessment of AT&T's Proposed San Bernardino to San Diego Fiber Optic Cable, San Bernardino, Riverside, and San Diego Counties, California	Intersect
SD-03103	Smith, Brian	1993	The Results of an Archaeological Survey and Evaluation of Cultural Resources at the Bonsall Subdivision Project	Outside
SD-03368	Smith, Brian F. and Larry Pierson	1996	The Results of an Evaluation of Cultural Resources at the Bonsall Subdivision Project (TM 4998) Bonsall, County of San Diego, California LOG #91-2-87	Outside
SD-04061	RECON	1977	Draft Environmental Impact Report for Dulin Ranch Specific Plan	Outside
SD-04470	Rosen, Martin	1983	1st Supplemental Historic Property Survey 11-Sd-76	Intersect
SD-04588	Caltrans and Martin Rosen	1991	Negative Archaeological Survey Report: Widening & Realignment of a 550-Foot Section of State Route 76, East of Oceanside, Ca	Outside
SD-04848	Rosen, Martin	1982	Historical Property Survey Realignment & Widening	Intersect
SD-04907	Rosen, Martin	1985	Report of an Archaeological Survey on State Route 76	Intersect
SD-06637	Rosen, Martin	1996	Historic Property Survey-S.R. 76 Temporary Bridge-Camino Del Rey	Outside

SCIC Project Number	Author	Year	Report Title	Relation to the Project's APE
SD-06773	Rosen, Martin	1982	Archaeological Phase I Survey Report for Proposed Intersection Realignment and Highway Widening on 11-SD-766 P.M.12.0	Intersect
SD-06788	Caltrans	1982	Archaeological Survey Report of Route 76 East of Bonsall 11-SD-76, P.M. 13.0-14.3	Outside
SD-07458	Joyner, Kathie and Anna Noah	1989	Fallbrook Drainage and Flood Control	Outside
SD-08512	Browne & Vogt	1983	Proposed Reclamation Plan and Major Use Permit for Sand Mining	Intersect
SD-08540	Westec	1976	Archaeological Survey of Borrow Pit Site at State Highway 76 and Mission Road	Intersect
SD-08543	Westec	1978	Archaeological/Historical Survey of Golf Green Estates	Outside
SD-08787	Coleman Planning Group	1991	Appendix to the Groves Draft Environmental Impact Report	Intersect
SD-08810	McGinnis, Patrick and Michael Baksh	2003	Cultural Resource Survey of the North County Bus Stops Replacement Project, San Diego County, California	Intersect
SD-09577	Guerrero, Monica C. and Dennis R. Gallegos	2004	Cultural Resource Report for the 12-Inch Forcemain Replacement/Lift Stations 1 and 2 Project San Diego County, California	Outside
SD-09704	Smith, Brian F. and James Clifford	2005	Cultural Resources Study for the Bether Project, Bonsall, San Diego County, California	Outside
SD-09982	Clifford, James and Alex Wesson	2006	Cultural Resources Study for the Bether Project, Bonsall, San Diego County, California	Outside
SD-10672	Lorenzen, Karl James and Brian F. Smith	2006	An Archaeological Assessment of the Golf Green Estates Project	Intersect
SD-10707	Shalom, Diane	2006	Cultural Resources Survey for the San Luis Rey River Park Master Plan San Diego, California	Intersect
SD-11371	Shalom, Diane	2007	Cultural Resources Survey Report for Sycamore Downs - S06-006, Log No. 06-02-004, APN 126-230-22, Negative Findings	Outside
SD-11379	Shalom, Diane	2007	Cultural Resources Survey Report for: Sycamore Downs S06-006, Log No. 06-02-004 - Negative Survey	Outside
SD-11704	Robbins-Wade, Mary	2005	Archaeological Resources Survey, Topmark Property, Bonsall, San Diego County, California	Outside
SD-11773	Robbins-Wade, Mary	2004	Archaeological Resources Survey, Tabata Property, Bonsall, San Diego County, California, Tpm 20729; Account # Cp 15717; Er 03-02-010	Intersect
SD-11822	Rosen, Martin D.	2008	First Supplemental Historic Property Survey Report (Hpsr-S1) for the State Route 76 Widening and Realignment Project, San Diego County, California	Intersect

SCIC Project Number	Author	Year	Report Title	Relation to the Project's APE
SD-11986	Laylander, Don	2003	Archaeological Survey Report for the State Route 76 Widening and Realignment Project Near Bonsall, San Diego County, California	Intersect
SD-11987	Laylander, Don	2003	Negative Archaeological Survey Report - First Supplemental - for the Proposed Widening of SR-76 Between Melrose Drive and South Mission Road	Intersect
SD-11988	Laylander, Don	2004	Negative Archaeological Survey Report - Second Supplemental – for the Proposed Widening of SR-76 Between Melrose Drive and South Mission Road	Intersect
SD-11989	Laylander, Don	2004	Negative Archaeological Survey Report - Third Supplemental - for the Proposed Widening of SR-76 Between Melrose Drive and South Mission Road	Intersect
SD-11990	Laylander, Don	2005	Archaeological Evaluation Report for Prehistoric Sites SDI-14,047 and SDI-16,497 near Bonsall, San Diego County, California	Outside
SD-11991	ASM Affiliates	2006	Treatment Plan for Buried Cultural Resources: State Route 76 Widening and Realignment Project Near Bonsall, San Diego County, California	Intersect
SD-11992	Laylander, Don	2004	Extended Phase I Testing at Five Prehistoric Archaeological Sites (SDI-1250, -6003, -14,047, -16,497, and -16,499) Near Bonsall, San Diego County, California	Intersect
SD-11993	Laylander, Don	2006	Extended Phase I Testing at Prehistoric Sites Ca-SDI-10,879, Ca-SDI-10,880, and Ca-SDI-12,155 Near Bonsall, San Diego County, California	Outside
SD-11996	Hovey, Kevin	2007	Fifth Supplemental Archaeological Survey Report: State Route 76 Widening and Realignment Project Near Bonsall, San Diego County, California	Intersect
SD-11997	Baksh, Michael	2006	Native American Consultation for the State Route 76 Melrose to Mission Corridor Improvement Project	Intersect
SD-11998	Lortie, Frank	2004	Historic Resource Evaluation Report for Existing Alignment Alternative and Southern Alignment Alternative for State Route 76 at Bonsall	Intersect
SD-11999	Hovey, Kevin	2007	Historic Property Survey Report for the State Route 76 Melrose to Mission Realignment and Widening Project	Intersect
SD-12001	Rosen, Martin	2007	First Supplemental Historic Property Survey Report for the State Route 76 Melrose to Mission Realignment and Widening Project	Intersect
SD-12004	Laylander, Don	2006	Archaeological Survey Report for the Groves Advanced Mitigation Parcels Near Bonsall, San Diego County, California	Outside
SD-12164	Rosen, Martin	2009	First Addendum Archaeological Survey Report for the Groves Biological Mitigation Parcel, State Route 76 Widening and Realignment Project Near Bonsall, San Diego County, California	Outside
SD-12360	Underwood, Jackson, et al.	2009	Cultural Resources Services at Site CA-SDI-222 (Border Field State Park) and Site Ca-SDI-4281 (Lichty Mesa) for the San Diego Border Barrier Project, San Diego County, California	Outside

SCIC Project Number	Author	Year	Report Title	Relation to the Project's APE
SD-12992	Shalom-Buell, Diane	2011	North County Fire Protection District Bonsall Fire Station Number 5 Site Plan B Designator, 3500 11-003 (S) APN 126-230-35 Negative Findings	Outside
SD-13210	EDAW, Inc.	2009	State Route 76 Corridor- SR-76 Highway Improvement Project Historic Property Survey Report	Intersect
SD-13855	Ní Ghabhláin, Sinéad, Sarah Stringer-Bowsher, and Shelby Gunderman	2011	Archaeological Survey Report for the San Luis Rey River Park San Diego County, California	Outside
SD-14145	Stropes, Tracy A. and Brian F. Smith	2013	A Class III Cultural Resources Study for the Mossa Creek Mitigation Bank Project	Intersect
SD-14827	Tsunoda, Koji	2013	Third Supplemental Historic Property Survey Report (HPSR): State Route (SR) 76 Widening Project Between South Mission Road and Interstate 15	Intersect
SD-14828	Tsunoda, Koji	2013	Revised- Third Supplemental Historic Property Survey Report (HPSR): State Route (SR) 76 Widening Project Between South Mission Road and Interstate 15	Intersect
SD-15763	Robbins-Wade, Mary and Andrew Giletti	2014	Lilac Del Cielo Cultural Resources Survey, Bonsall, San Diego County, California	Outside

The search also identified a total of 19 previously recorded cultural resources within a 0.5-mile radius of the Project survey area (Table 2). Of the 20 previously recorded resources, 14 are prehistoric sites, two are historic resources associated with trails and roads, one is a historic trash scatter, one is a historic isolate, one is a prehistoric isolate, and one is unknown. Two of the resources, SDI-674 and SDI-8663, are adjacent to the Project's survey area, but are not within the Project's APE.

Table 2. Previously Recorded Cultural Resources within a 0.5-Mile Radius of the Project Area

Designation		Relation to the Project's APE	Contents	Recorder, Date
Primary Number P-37-	Trinomial CA-SDI-			
000674	00674	Adjacent	AP4 – bedrock milling feature; AP2 – lithic scatter; AP15 – habitation debris	True 1960; RECON 1981; Rosen 1982; Moslak 2003
000679	00679	Outside	AP15 – habitation debris	True 1960
000680	00680	Outside	AP3 – ceramic scatter	True 1960
000782	00782	Outside	unknown	Site Record Missing

Designation		Relation to the Project's APE	Contents	Recorder, Date
Primary Number P-37-	Trinomial CA-SDI-			
008663	08663	Outside	AP2 – lithic scatter; AP3 – ceramic scatter; AP4 – bedrock milling features	Walker 1981
010879	10879	Outside	AP2 – lithic scatter; AP3 – ceramic scatter; AP15 – habitation debris	White 1987; Moslak 2003; Laylander 2006
12948	12948	Outside	AP16 – shell scatter	Saunders 1992
024923	16497	Outside	AP2 – lithic scatter; AP3 – ceramic scatter; AP4 – bedrock milling features; AP15 – habitation debris	Moslak 2003; Laylander and Pallette 2004
27206	17795	Outside	AP4 – bedrock milling feature	Miller Jason 2006
028134	-	Outside	HP37 – Road	Gergory 2006
028135	-	Outside	HP37 - Road- Historic Highway 395	Gregory and Bowden-Renna 2006
030071	-	Outside	AP16 – other (handstone isolate)	Bowden-Renna 2006
030439	19341	Outside	AP4 – bedrock milling feature	Crafts and Tsunoda 2009
031759	-	Outside	AH4 - isolate – historic trash scatter	Gunderman, Pham, Muirhead, and Mojado 2011
033870	-	Outside	AP4 – bedrock milling feature	Giletti, Davison, and Castaneda 2014
033871	-	Outside	AP4 – bedrock milling feature	Giletti, Davison, and Castaneda 2014
033872	-	Outside	AP4 – bedrock milling feature	Giletti, Davison, and Castaneda 2014
034895	021709	Outside	AP2 – lithic scatter; AP4 – bedrock milling feature; AP11 – hearth	James and Briggs 2004, Price 2015
034896	021710	Outside	AH4 – historic trash scatter	Bruce and Shultz 2015
035966	-	Outside	AP4 – bedrock milling feature	Blake and Tsunoda 2015

P-37-000674/ CA-SDI-674

The Project's survey area is adjacent to the northern boundary of SDI-674. The site was originally recorded by True in 1960 as a camp site covering one-quarter of an acre. The site included a midden deposit with several bedrock milling stations. Pestles, manos and "chipping waste" were noted. The site record was updated in 1980 during a resurvey by RECON, when another nearby site SDI-8663 with several loci, was also recorded. In 1982, these sites were combined into a single site, SDI-674, by Rosen et al. This site is probably the location of the ethnohistoric site of "Kwalam" (Oxendine 1983). SDI-674 was recorded as consisting of five loci, extending for about 400 m north-south along the western margin of the San Luis Rey River floodplain and at least 76 bedrock milling features, including seven cupules, were recorded.

Excavations within the site were conducted in 1983. Thirteen 1-x-1-m units were excavated, and three .2-x-.2-m column samples were also sorted. Recovered prehistoric artifacts included a metate fragment, 21 manos and three mano/pestles, a mano/hammerstone, 16 bifacial tools

(including six large bifaces, five Cottonwood Triangular projectile points, one Desert Side-notched projectile point, and four untypeable fragments that were probably projectile points), four unifacial tools, two core/unifaces, six utilized flakes, 12 cores, 1,281 pieces of debitage, one fragment of a stone pipe or bead, one quartz crystal (an item possibly used in ceremonial contexts), and 190 pieces of Tizon Brown Ware pottery. Other culturally deposited materials included 43.4 g of marine shell (primarily *Donax gouldii* and *Chione* sp.) and 7,347 pieces of animal bone (with *Sylvilagus audubonii* predominant for identifiable specimens, but also including nine fish bones). At that time the site was identified as a San Luis Rey II site. However, obsidian studies provided some indication that there were earlier components as well. Sixteen obsidian specimens were chemically matched to the Obsidian Butte source and two specimens were identified as being from the Coso Volcanic Fields source. Coso obsidian is much rarer than Obsidian Butte material in the San Diego region, and it is associated primarily with earlier components dated to before the late prehistoric. On February 24, 1984 the California Office of Historic Preservation concurred with the Federal Highway Administration that the site was not eligible for the National Register of Historic Places.

The site record was updated in 2003 by ASM during a survey conducted in association with the SR-76 Widening and Realignment project near Bonsall. This survey recorded that the central portion of Locus A and a strip near SR-76 was relatively intact, but that Locus B had been destroyed by road construction since 1982. At the time ASM's survey recorded 15 boulders containing milling features.

P-37-008663/ CA-SDI-8663A

The Project survey area is adjacent to the northern portion of SDI-8663A. It consists of a midden deposit and approximately 50 milling features on six granitic boulders. The site measures approximately 50 x 25 m. It was recorded in 1981 by C. Walker and D. Cheever. In 1982, this site was combined with CA-SDI-674 (described above).

The records search results identified four previously recorded historic addresses within the search radius (Table 3). None of the historic addresses are within the Project's APE. Only one of the historic addresses has been previously evaluated, 0 Pala Road (Bridge 57-0151, Bonsall Creek Bridge), and was given a National Register of Historic Places (NRHP) Status Code 5, Properties Recognized as Historically Significant by Local Government.

Table 3. Previously Recorded Historic Addresses within a 0.5-Mile Radius of the Project Area

Address	City, Zip	Relation to Project Area	Historic and Common Name	NRHP Status Code
0 Pala Road	Bonsall, 92003	Outside	Bridge 57-0151, Bonsall Creek Bridge	5
31542 and 31552 Old River Road	Bonsall, 92003	Outside	-	-
5580 and 5584 Old River Road	Bonsall, 92003	Outside	-	-
0	Bonsall, 92003	Outside	-	-

Native American Correspondence

A record search of the Sacred Lands File held by the Native American Heritage Commission (NAHC) was conducted for the original project area in 2016. At that time, the NAHC responded that the record search had negative results. An additional record search of the Sacred Lands File was not conducted for the augmented Project alignment.

Archaeological Field Survey Results

During ASM's pedestrian survey, it was noted the ground surface visibility ranged from very good to poor. Ground surface visibility was hindered by pavement and other disturbances along Highway 76 and Olive Hill Rd. (Figure 5). Visibility at the northern end of the Project area was excellent, and ground surface visibility was fair at the newly proposed location for LS1A. Other portions of the project area contained native and non-native vegetation (Figure 6).

No new cultural resources were identified during the survey.

The Project's survey area is adjacent to SDI-674/8663, which was relocated in the same condition and location as previously recorded. No cultural resources pertaining to the site were identified within the Project's alignment, however previously recorded bedrock milling features were identified within 35 m of the Project's survey area. This site is not within the Project's APE and will not be impacted by the Project.

Conclusions and Recommendations

Much of the Project APE has been developed and/or modified and is now covered with asphalt. Per the Project description, ground disturbance will take place within the Project's APE, including the new alignment and Lift Station LS1A only. No cultural resources have been identified within the Project's APE. The Project's survey area is adjacent to SDI-674/8663, and SDI-674/8663 will not be impacted by the project and no further archaeological work is recommended regarding SDI-674/8663.

Due to the extensive prehistoric use of the area, the proximity of the ground disturbance to a possible prehistoric village location, SDI-674/8663, and the alluvial nature of the soils adjacent to the San Luis Rey River possibly containing subsurface cultural resources, it is recommended that all ground disturbance associated with the Project be monitored by a qualified archaeological monitor.

Should you have any questions regarding this study, please do not hesitate to contact me.

Respectfully submitted,

Douglas Drake, M.A., RPA
Associate Archaeologist

Attachments

Figure 1. Project vicinity.
Figure 2. Project APE shown on the Bonsall USGS 7.5-minute Quad.
Figure 3. Project survey area shown on an aerial photograph.
Figure 4. Photograph of the Project area showing disturbance from roadway construction and landscaping, facing north.
Figure 5. Photograph of the Project area showing ground surface visibility, facing west.
Figure 6. Photograph of the proposed LS1A area showing adjacent construction and ground surface visibility, facing east.

Appendix A. SCIC Record Search Confirmation

References

Becker, Mark S., and David R. Iversen (editors)
2007 *Data Recovery at SDI-10723: The Early Archaic and Late Prehistoric Occupation of a Coastal Residential Site from Camp Pendleton, California.* Report on file at ASM Affiliates, Inc. Prepared for NAVFAC Southwest.

Boscana, Geronimo
1846 *Chinigchinich; A Historical Account of the Origin, Customs, and Traditions of the Indians at the Missionary Establishment of San Juan Capistrano, Alta California; called The Acagchemem Nation.* Translated by Alfred Robinson. Wiley and Putnam, New York.

Bowman, Roy H.
1973 *Soil Survey: San Diego Area, California*. United States Department of Agriculture, Washington, D.C.

Byrd, Brian F.
1998 Harvesting the Littoral Landscape During the Late Holocene: New Perspectives from Northern San Diego County. *Journal of California and Great Basin Anthropology* 20:195-218.

Castells, Shelby
2016 Cultural Resources Survey for the Rainbow Municipal Water District Lift Station #1 Replacement Project, Bonsall, San Diego County, California. ASM Affiliates, Inc. Letter Report submitted to Helix Environmental Planning, Inc.

Christenson, Lynne E.
1989 The Late Prehistoric Yuman People of San Diego County, California: Their Settlement and Subsistence Systems. Unpublished Ph.D. dissertation, Department of Anthropology, Arizona State University.

Davis, Emma L., and Richard Shutler, Jr.

1969 Recent Discoveries of Fluted Points in California and Nevada. *Anthropological Papers* 14:154–169. Nevada State Museum, Carson City.

Davis, James T.
1961 *Trade Routes and Economic Exchange Among the Indians of California*. University of California Archaeological Survey Reports No. 54. Berkeley.

Drucker, Philip
1939 Culture Element Distributions V: Southern California. *Anthropological Records* 1:1-52. University of California Press, Berkeley.

DuBois, Constance Goddard
1908 The Religion of the Luiseño Indians. *University of California Publications in American Archaeology and Ethnology* 8:69-173. Berkeley.

Fages, Pedro
1937 *A Historical, Political, and Natural Description of California* (1775). Translated by Herbert Ingram Priestly. University of California Press, Berkeley.

Geiger, Maynard, and Clement W. Meighan
1976 *As the Padres Saw Them: California Indian Life and Customs as Reported by the Franciscan Missionaries, 1813-1815*. Santa Barbara Mission Archive Library.

Harding, Mabel
1951 La Jollan Culture. *El Museo* 1(1):10-11, 31-38, San Diego.

Harrington, John P.
1934 *A New Original Version of Boscana's Historical Account of the San Juan Capistrano Indians of Southern California*. Smithsonian Miscellaneous Collections 92(4). Washington, D.C.

Hyland, Justin R.
1997 Image, Land, and Lineage: Hunter-Gatherer Archaeology in Central Baja California, Mexico. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Berkeley.

Kroeber, A. L.
1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin No. 78. Smithsonian Institution, Washington, D.C.

Laylander, Don
1985 Some Linguistic Approaches to Southern California's Prehistory. *San Diego State University Cultural Resource Management Casual Papers* 2(1):14-58.
1997 Inferring Settlement Systems for the Prehistoric Hunter-Gatherers of San Diego County, California. *Journal of California and Great Basin Anthropology* 19:179-196.

2000 *Early Ethnography of the Californias, 1533-1825*. Coyote Press Archives of California Prehistory No. 47, Salinas.

Moriarty, James R., III
1966 Cultural Phase Divisions Suggested by Typological Change Coordinated with Stratigraphically Controlled Radiocarbon Dating at San Diego. *Anthropological Journal of Canada* 4:20-30.

Moyer, Cecil C.
1969 *Historic Ranchos of San Diego*. Union-Tribune Publishing Company, San Diego.

Pigniolo, Andrew R.
2004 Points, Patterns, and People: Distribution of the Desert Side-notched Point in San Diego. *Proceedings of the Society for California Archaeology* 14:27-39.
2005 Subsistence, Settlement, and Environmental Change at San Diego Bay. *Proceedings of the Society for California Archaeology* 18:255-259.

Pryde, Philip R.
2004 The Nature of the County: San Diego's Climate, Soils, Vegetation, and Wildlife. In *San Diego: An Introduction to the Region*, by Philip R. Pryde, pp. 31-51. Sunbelt Publications, San Diego.

Rogers, Malcolm J.
1945 An Outline of Yuman Prehistory. *Southwestern Journal of Anthropology* 1:167-198.

Rosenthal, Jeffrey S., William R. Hildebrandt, and Jerome H. King
2001 *Donax* Don't Tell: Reassessing Late Holocene Land Use in Northern San Diego County. *Journal of California and Great Basin Anthropology* 23:179-214.

Sparkman, Philip Stedman
1908 The Culture of the Luiseño Indians. *University of California Publications in American Archaeology and Ethnology* 8:187-234. Berkeley.

Strong, William Duncan
1929 Aboriginal Society in Southern California. *University of California Publications in American Archaeology and Ethnology* 26:1-249. Berkeley.

Trafzer, Clifford E.
2004 American Indians: The County's First Residents. In *San Diego: An Introduction to the Region*, by Philip R. Pryde, pp. 53-74. Sunbelt Publications, San Diego.

True, D. L.
1958 An Early Complex in San Diego County. *American Antiquity* 23:255-263.
1966 Archaeological Differentiation of Shoshonean and Yuman Speaking Groups in Southern California. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles.

1980 The Pauma Complex in Northern San Diego County: 1978. *Journal of New World Archaeology* 3(4):1-39.

Warren, Claude N.

1964 *Cultural Change and Continuity on the San Diego Coast*. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles.

1968 Cultural Tradition and Ecological Adaptation on the Southern California Coast. In *Archaic Prehistory in the Western United States*, edited by Cynthia Irwin-Williams, pp. 1-14. Eastern New Mexico University Contributions in Anthropology 1. Portales.

Warren, Claude N., Gretchen Siegler, and Frank Dittmer

2008 Paleoindian and Early Archaic Periods. In *Prehistoric and Historic Archaeology of Metropolitan San Diego: A Historic Properties Background Study*, pp. 13-107. Prepared by ASM Affiliates, Inc., for the Metropolitan Wastewater Department, City of San Diego.

White, Raymond C.

1963 Luiseño Social Organization. *University of California Publications in American Archaeology and Ethnology* 48:91-194. Berkeley.

Willey, Gordon R., and Philip Phillips

1958 *Method and Theory in American Archaeology*. University of Chicago Press, Chicago.

Figure 1. Project vicinity.

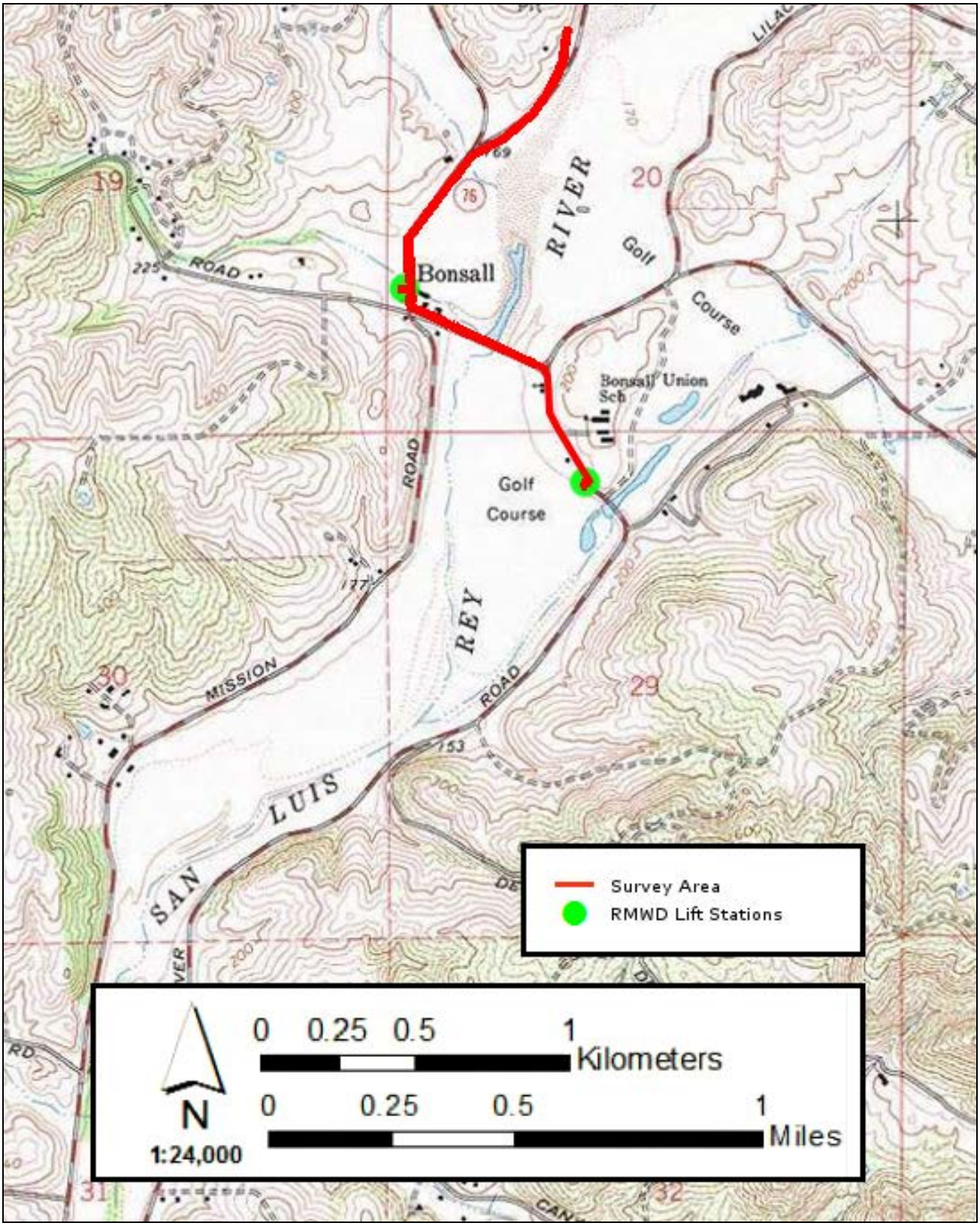


Figure 2. Current survey area shown on the Bonsall USGS 7.5-minute Quad.

Figure 3. Current survey area shown on an aerial photograph.

Figure 4. Photograph of the Project area showing disturbance from roadway construction and landscaping facing south.

Figure 5. Photograph of the Project area showing ground surface visibility, facing west.

Figure 6. Photograph of the LS1A location showing adjacent construction and ground surface visibility, facing east.

Appendix A. SCIC Records Search Confirmation

South Coastal Information Center
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-5320
Office: (619) 594-5682
www.scic.org
nick@scic.org

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM RECORDS SEARCH

Company: ASM Affiliates

Company Representative: Mark Becker

Date Processed: 11/21/2017

Project Identification: RMWD Lift Station #1 Augment #23530.01

Search Radius: 1/2 mile

Historical Resources: YES

Trinomial and Primary site maps have been reviewed. All sites within the project boundaries and the specified radius of the project area have been plotted. Copies of the site record forms have been included for all recorded sites.

Previous Survey Report Boundaries: YES

Project boundary maps have been reviewed. National Archaeological Database (NADB) citations for reports within the project boundaries and within the specified radius of the project area have been included.

Historic Addresses: YES

A map and database of historic properties (formerly Geofinder) has been included.

Historic Maps: YES

The historic maps on file at the South Coastal Information Center have been reviewed, and copies have been included.

Summary of SHRC Approved CHRIS IC Records Search Elements	
RSID:	2401
RUSH:	no
Hours:	1
Spatial Features:	98
Address-Mapped Shapes:	yes
Digital Database Records:	4
Quads:	1
Aerial Photos:	0
PDFs:	Yes
PDF Pages:	106

This is not an invoice. Please pay from the monthly billing statement

Appendix D

Construction Noise Modeling Outputs

Construction Noise Modeling Outputs

Lift Station - General Construction Assumptions											
Equipment	dBA L_{MAX}	Percentage	Use Per Day	Ordinance Hour Day	L_{EQ} dBA (Daily)		Distance	L_{EQ} dBA (Daily)		Distance Too:	Distance
Noise Sum	80.7	N/A	N/A	N/A	79.9	97376466.5	30.0	84.3	270490184.8	75	87.7
Excavator	80.7	40%	8	8	76.7	46995902.2	30.0	81.2	130544172.8	75	61.0
Loader	79.1	40%	8	8	75.1	32513220.6	30.0	79.6	90314501.8	75	50.7
Truck (Dump Truck, Flatbed Truck)	76.5	40%	8	8	72.5	17867343.7	30.0	77.0	49631510.2	75	37.6
Lift Station - Cement Pouring Assumptions											
Equipment	dBA L_{MAX}	Percentage	Use Per Day	Ordinance Hour Day	L_{EQ} dBA (Daily)		Distance	L_{EQ} dBA (Daily)		Distance Too:	Distance
Noise Sum	86.0	N/A	N/A	N/A	82.8	189585971.2	30.0	87.2	526627697.8	75	122.4
Cement Truck	78.8	40%	8	8	74.8	30343103.0	30.0	79.3	84286397.2	75	49.0
Cement (reed boom)	86.0	40%	8	8	82.0	159242868.2	30.0	86.5	442341300.6	75	112.2
Pipeline Construction - General Construction Assumptions											
Equipment	dBA L_{MAX}	Percentage	Use Per Day	Ordinance Hour Day	L_{EQ} dBA (Daily)		Distance	L_{EQ} dBA (Daily)		Distance Too:	Distance
Noise Sum	80.7	N/A	N/A	N/A	80.9	122345706.6	30.0	85.3	339849184.9	75	98.3
Excavator	80.7	40%	6	8	75.5	35246926.6	30.0	79.9	97908129.6	75	52.8
Loader	79.1	40%	8	8	75.1	32513220.6	30.0	79.6	90314501.8	75	50.7
Pump	77.0	100%	8	8	77.0	50118723.4	30.0	81.4	139218676.0	75	62.9
Truck (Dump Truck, Flatbed Truck)	76.5	40%	2	8	66.5	4466835.9	30.0	70.9	12407877.6	75	18.8
Lift Station - Cement Pouring Assumptions											
Equipment	dBA L_{MAX}	Percentage	Use Per Day	Ordinance Hour Day	L_{EQ} dBA (Daily)		Distance	L_{EQ} dBA (Daily)		Distance Too:	Distance
Noise Sum	86.0	N/A	N/A	N/A	82.8	189585971.2	30.0	87.2	526627697.8	60	688.5
Cement Truck	78.8	40%	8	8	74.8	30343103.0	30.0	79.3	84286397.2	60	275.4
Cement (reed boom)	86.0	40%	8	8	82.0	159242868.2	30.0	86.5	442341300.6	60	631.0