DRAFT MITIGATED NEGATIVE DECLARATION AND INITIAL STUDY STORAGE TANKS AND TRANSMISSION PIPELINE IMPROVEMENTS

February 2019

State Water Resources Control Board
DFA Project Number 3600009-001P
DFA Funding Agreement Number D17-02032

Prepared For:

Apple Valley Heights County Water District
9429 Cerra Vista Street
Apple Valley, CA 92308

NV5

15092 Avenue of Science, Suite 200
San Diego, CA 92128

NV5 PROJECT NUMBER 226817-0000211.03

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

Date: February 19, 2019
To: Interested Parties
SWRCB FA No. D17-02032
From: Apple Valley Heights County Water District
RE: Storage Tanks and Transmission Pipeline Improvements

Project Location and Description

Apple Valley Heights County Water District (AVHCWD) is located within the Victor Valley of unincorporated western San Bernardino County, less than 0.5 miles southeast of the Town of Apple Valley, California (Figure 1). AVHCWD's service area is approximately 10 miles southeast of Victorville, 25 miles north of San Bernardino, and covers an area of approximately 1.4 square miles. AVHCWD's service area ranges in elevation from 3,110 to 3,640 feet above mean sea level, sloping downward generally to the north. The main land uses in this area are residential, small commercial, and small agricultural. Residences utilize individual septic systems for wastewater treatment and disposal.

AVHCWD supplies potable water service to residents within its service area for domestic use. Sections of AVHCWD's potable water system have a history of pipeline breaks that result in shutdowns of water supply to AVHCWD customers. AVHCWD has also received documentation from State Water Resources Control Board, Division of Drinking Water (formerly the California Department of Public Health), which noted potential deficiencies in storage capacity and source capacity.

AVHCWD is proposing to improve an existing water storage tank site (Mesa Vista Tank Site), install a direct transmission pipeline to the tank site, install a distribution pipeline parallel to the transmission pipeline, make improvements to the existing well sites and install interconnections with two adjacent water systems.

Declaration

AVHCWD has determined that the above project, with mitigation measures, would have no significant impact on the environment and is therefore exempt from the requirement of an environmental impact report. The determination is based on the attached Initial Study and the following findings:

1. The Project will not degrade environmental quality, substantially reduce habitat, cause a wildlife population to drop below self-sustaining levels, reduce the number or restrict the range of special-status species, or eliminate important examples of California history or prehistory.
2. The Project does not have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
3. The Project will not have impacts that are individually limited but cumulatively considerable.
4. The Project will not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.
5. No substantial evidence exists that the Project will have a negative or adverse effect on the environment.
6. The Project incorporates all applicable mitigation measures or environmental commitments identified in the Initial Study (attached).

7. This Draft Mitigated Negative Declaration reflects the independent judgment of the lead agency.

Mitigation Monitoring and Reporting Program (MMRP)

A Draft Mitigation Monitoring and Reporting Program (MMRP) was prepared for the project and made part of the Draft Mitigated Negative Declaration to address and mitigate potential impacts to cultural and paleontological resources.

Document Review and Availability

The public comment period will be until 5:00pm on March 25, 2019. The Initial Study and Draft Mitigated Negative Declaration are available for public review Monday through Thursday, 9:00AM to 3:00PM at the following locations:

Apple Valley Heights County Water District
9429 Cerra Vista Street
Apple Valley, CA 92308

Newton T. Bass Branch Library
14901 Dale Evans Parkway
Apple Valley, CA 92307

on line: http://www.applevalleyheightscountywaterdistrict.com/

Submit comments to:

by mail,

Apple Valley Heights County Water District
P.O. Box 938
Apple Valley, CA 92307
Attn: Daniel Smith, General Manager

by e-mail,

avhcwd@yahoo.com

Comments on the Draft Mitigated Negative Declaration will be received until 5:00pm on March 25, 2019.

Public Hearing

On Tuesday, April 9, 2019 the Board of the Apple Valley Heights County Water District will conduct a public hearing to consider adoption of the proposed Storage Tanks and Transmission Pipeline Improvements Project for the Apple Valley Heights County Water District and the adoption of a Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program pursuant to the California Environmental Quality Act (CEQA). The hearing will be held at 6:00pm at the Apple Valley Heights County Water District's office, located at 9429 Cerra Vista Street, Apple Valley, California.

DRAFT MITIGATED NEGATIVE DECLARATION

Project Title: Storage Tanks and Transmission Pipeline Improvements
Date: February 19, 2019
SWRCB FA No. D17-02032
Lead Agency: Apple Valley Heights County Water District
Contact Person: Daniel Smith, General Manager

Project Description and Location

Apple Valley Heights County Water District (AVHCWD) is located within the Victor Valley of unincorporated western San Bernardino County, less than 0.5 miles southeast of the Town of Apple Valley, California (Figure 1). AVHCWD's service area is approximately 10 miles southeast of Victorville, 25 miles north of San Bernardino, and covers an area of approximately 1.4 square miles. AVHCWD's service area ranges in elevation from 3,110 to 3,640 feet above mean sea level, sloping downward generally to the north. The main land uses in this area are residential, small commercial, and small agricultural. Residences utilize individual septic systems for wastewater treatment and disposal.

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3. The Project will not have impacts that are individually limited but cumulatively considerable.
4. The Project will not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.
5. No substantial evidence exists that the Project will have a negative or adverse effect on the environment.

6. The Project incorporates all applicable mitigation measures or environmental commitments identified in the Initial Study (attached).
7. This draft Mitigated Negative Declaration reflects the independent judgment of the lead agency.

Public Review

Written comments on the draft Initial Study and Proposed Mitigated Negative Declaration should be submitted to the following address no later than 5:00 p.m. on March 25, 2019.

Apple Valley Heights County Water District
P.O. BOX 938
Apple Valley, CA 92307
Attn.: Daniel Smith, General Manager
avhcwd@yahoo.com

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ATTACHMENTS

1.0 INTRODUCTION

The Apple Valley Heights County Water District (AVHCWD) has prepared this Initial Study/draft Mitigated Negative Declaration (IS/MND) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of construction and operation of the proposed Storage Tanks and Transmission Pipeline Improvements (Project). The Project is described in depth in Chapter 2. This document was prepared in accordance with the requirements of the California Environmental Quality Act (CEQA) of 1970 (as amended) and the CEQA Guidelines (14 California Code of Regulations (CCR) § 15000 et seq.).

1.1 INTENT AND SCOPE OF THIS DOCUMENT

This IS/MND has been prepared in accordance with CEQA, under which the Project is evaluated at a project level (CEQA Guidelines § 15378). AVHCWD is the CEQA lead agency for this project and will use this document to decide on the proposed action of approving the project. The State Water Resources Control Board (Water Board) will consider the project's potential environmental impacts when considering whether to approve funding for the project. This IS/MND is an informational document to be used in the planning and decision-making process for the project and does not recommend approval or denial of the project.

The site plans for the Project included in this IS/MND are conceptual. AVHCWD anticipates that the final design for the Project would include some modifications to these conceptual plans, and the environmental analysis has been developed with conservative assumptions to accommodate some level of modification.

This IS/MND describes the Project; its environmental setting, including existing conditions and regulatory setting, as necessary; and the potential environmental impacts of the Project on or with regard to the following topics:

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

Public Involvement Process

Public disclosure and dialogue are priorities under CEQA. CEQA Guidelines § 15073 and § 15105(b) require that the lead agency designate a period during the IS/MND process when the public and other agencies can provide comments on the potential impacts of the Project. Accordingly, AVHCWD is now circulating this document for a 30-day public and agency review period.

All comments received before 5:00 p.m. from the date identified for closure of the public comment period in the Notice of Intent will be considered by AVHCWD during its deliberations on whether to approve the Project. The Water Board will review comments received and the responses prepared to comments; however, it is the responsibility of the CEQA lead agency to use these comments in determining whether to approve the project.

To provide input on this Project, please send comments to the following contact:

Apple Valley Heights County Water District
P.O. BOX 938
Apple Valley, CA 92307
Att: Daniel Smith, General Manager
avhcwd@yahoo.com

1.2 ORGANIZATION OF THIS DOCUMENT

This IS/MND contains the following components:

Chapter 1, Introduction, provides a brief description of the intent and scope of this IS/MND, the public involvement process under CEQA, and the organization of and terminology used in this IS/MND.

Chapter 2, Project Description, describes the Project, including its purpose and goals, the Project site where the Project would be constructed, the construction approach and activities, operation-related activities, and related permits and approvals.

Chapter 3, Environmental Checklist, presents the environmental checklist used to assess the Project's potential environmental effects, which is based on the model provided in Appendix G of the CEQA Guidelines. This chapter also includes a brief environmental setting description for each resource topic and identifies the Project's anticipated environmental impacts, as well as any mitigation measures that would be required to reduce potentially significant impacts to a less-than-significant level.

Chapter 4, Draft Mitigation Monitoring and Reporting Program.

Chapter 5, References, provides a bibliography of printed references, websites, and personal communications used in preparing this IS/MND.

1.3 IMPACT TERMINOLOGY

This IS/MND uses the following terminology to describe the environmental effects of the Project:

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

- An impact is considered less than significant with mitigation if the analysis concludes that no substantial adverse change in the environment would result with the implementation of the mitigation measures described.
- An impact is considered significant or potentially significant if the analysis concludes that a substantial effect on the environment could result.
- Mitigation refers to specific measures or activities that would be adopted by the lead agency to avoid, minimize, rectify, reduce, eliminate, or compensate for an otherwise significant impact.
- A cumulative impact refers to one that can result when a change in the environment would result from the incremental impacts of a Project along with other related past, present, or reasonably foreseeable future projects. Significant cumulative impacts might result from impacts that are individually minor but collectively significant. The cumulative impact analysis in this IS/MND focuses on whether the Project's incremental contribution to significant cumulative impacts caused by the Project in combination with past, present, or probable future projects is cumulatively considerable.
- Because the term "significant" has a specific usage in evaluating the impacts under CEQA, it is used to describe only the significance of impacts and is not used in other contexts within this document. Synonyms such as "substantial" are used when not discussing the significance of an environmental impact.

2.0 PROJECT DESCRIPTION

Apple Valley Heights County Water District (AVHCWD) is proposing to improve two existing water storage tank sites, install a direct transmission pipeline to the Mesa Vista Water Tank Site, install a distribution pipeline parallel to the transmission pipeline, and install interconnections with two adjacent water systems.

2.1 BACKGROUND AND NEED FOR THE PROJECT

AVHCWD owns and operates a public water system that supplies potable water to its customers within its service area (Public Water System No. 3600009). AVHCWD's current system has multiple deficiencies that are described below.

Health, Sanitation, and Security

AVHCWD received a 2010 Sanitary Survey from the State Water Resources Control Board, Division of Drinking Water (DDW), which noted potential deficiencies in storage capacity and source capacity. Based on recent water sales data provided by AVHCWD and maximum day demand (MDD) and peak hourly demand (PHD) calculations prepared per California Drinking Water Standards, AVHCWD is in compliance with Drinking Water Standards for source capacity requirements.

AVHCWD is not in compliance with the Drinking Water Standard storage capacity requirements, which specify that MDD storage be available in each individual pressure zone. AVHCWD's Lower Zones, served by the Mesa Vista tanks, combined 60,000-gallons of storage does not meet the zone's calculated 79,771-gallon MDD storage requirements.

Pipeline failures such as those experienced by AVHCWD could increase the risk of contamination to AVHCWD's system by allowing outside contaminants to enter and be distributed through the distribution system.

Infrastructure and O&M

Production: The current electrical service to AVHCWD's well site only allows for operation of one well at a time. The capacity of each well is greater than AVHCWD's MDD; reductions to the horsepower of the well pumps/motors could allow for individual production to remain above MDD while also allowing for the wells to be operated concurrently if required.

Pipelines: AVHCWD's pipeline system was installed in 1958. Portions of the pipeline system, as previously discussed, have been prone to failure. These pipeline breaks have generally occurred along Mesa Vista Street, which is a primary alignment for the delivery of water from AVHCWD's wells to the rest of its system. Based on inspection of pipe that has been removed doing repairs, this portion of pipeline is also encountering extensive issues with encrustation, which can reduce the conveyance capacity through this alignment.

Water produced from AVHCWD's wells is delivered directly to the distribution system at Ocotillo Way, with excess water filling the Mesa Vista tanks. AVHCWD does not have a dedicated transmission pipeline for the full length necessary to directly connect its production and storage facilities. Lack of a transmission pipeline reduces the level of cycling that occurs at the Mesa Vista tanks.

Storage Facilities: AVHCWD's Mesa Vista Storage Tank Site is the location of three bolted steel thanks that were constructed in 1958 and are reaching the end of their useful lives. Interior inspections of these tanks in 2015 by Inland Potable Services showed high levels of corrosion that had not been present in inspections conducted in 2011. The Mesa Vista tanks pressurize AVHCWD's Lower Zone, which also provides the source of water for the Roundup Booster Station to transfer water to the Upper Zone (including the Central Tank). Failure of one or more of the Mesa Vista tanks would cause a significant disruption to AVHCWD's operations, as well as cause AVHCWD to fall further out of compliance with Drinking Water Standards storage capacity requirements.

Booster Station: A pump station would be installed at AVHCWD's well site to transfer water purchased from AVFCWD and/or GSWC to AVHCWD's Mesa Vista tank site. The proposed pump station will contain pumps sized to deliver AVHCWD's MDD (139-gpm) to the Mesa Vista tank site.

Backup Power: AVHCWD's well site and proposed booster station do not have backup sources of power to allow them to remain in operation during a power outage. The sites also do not have manual transfer switches that would allow a portable generator to operate the facilities. When grid power is unavailable, the distribution system maintains pressure until the elevated tanks at the Mesa Vista and Central Tank sites are emptied.

System Interconnection: AVHCWD does not have an active interconnection with a nearby water system to utilize as a backup water supply in the event of a power disruption or system facilities failure. An inactive interconnection with Golden State Water Company (GSWC) is located north of its service area at the intersection of Tussing Ranch Road and Pioneer Road. This interconnection has not been used in many years.

Reasonable Growth

Growth within AVHCWD's service area is not expected to be substantial. There are no anticipated projects, such as a housing development, that would cause a large growth in the number of customers for the AVHCWD. With the population projected as stable, a growth rate of approximately 0.5% per year is anticipated.

2.2 PROJECT PURPOSE AND OBJECTIVES

The proposed water lines include approximately 4,800 linear feet of new, 6-inch transmission pipeline along Mesa Vista Street from Ocotillo Way to the Mesa Vista Tank Site. Parallel and adjacent to portions of the proposed transmission pipeline, approximately 1,300 linear feet of new, 8-inch water distribution pipeline will be installed. The new water lines will consist of PVC (polyvinyl chloride) C900 or HDPE (high-density polyethylene) pipes. The project also includes construction of two, 22-ft diameter, 24-ft high, bolted steel potable water tanks (approximately 50,000 gallons each) to replace the three existing water tanks (20,000 gallons each) at the Mesa Vista Tank Site (Figure 2). Existing pipeline, approximately 1,300 linear feet, will be either abandoned in place or removed.

The proposed interconnection pipeline will run from an existing well site (Well Nos. 3 and 4) north to Tussing Ranch Road for an interconnection with GSWC (Public Water System No. CA3610043). The pipeline will continue east along Tussing Ranch Road to Central Road, then north along Central Road to Houston Street, then east to Blackfoot Road. At Blackfoot Road, the pipeline will interconnect with the existing distribution system of Apple Valley Foothill County Water District (AVFCWD) (Public Water

System No. CA3600008) (Figure 2). The interconnection is intended to increase system reliability and will generally be used only during emergency periods. It will also meet the need for an increase in storage requirements, as required by the state Drinking Water Standards.

2.3 PROJECT LOCATION AND SETTING

AVHCWD (Public Water System No. CA3600009) is a special district of the State of California that was formed in 1957 to provide potable water service to the population within its service area. The AVHCWD is governed by a five-member board of directors elected for four-year terms. AVHCWD currently serves approximately 280 residential, service connections. AVHCWD does not have any industrial or commercial service connections. The State Water Resources Control Board's Division of Drinking Water, District 13, regulates AVHCWD.

AVHCWD is located within the Victor Valley of unincorporated, western San Bernardino County, less than 0.5 miles southeast of the town of Apple Valley, California. AVHCWD's service area is approximately 10 miles southeast of Victorville, 25 miles north of San Bernardino, and covers an area of approximately 1.4 square miles (Figure 1). AVHCWD's service area ranges in elevation from 3,110 to 3,640 feet above mean sea level, sloping downward generally to the north. The main land uses in this area are residential, small commercial, and small agricultural. Residences utilize individual septic systems for wastewater treatment and disposal.

The climate of the area is designated as arid. Victorville has an annual average precipitation of 5.5 inches with an average summer high temperature of 95.7°F and an average low winter temperature of 30.7°F (Western Regional Climate Center, wrcc@dri.edu, accessed 10/25/2018).

2.4 PROJECT CHARACTERISTICS

The following activities make up the proposed actions evaluated in this document.

Replace Mesa Vista Street Pipeline

AVHCWD will install approximately 4,800 linear feet of 6-inch transmission pipeline and 1,300 linear feet of 8-inch C900 PVC distribution pipeline along Mesa Vista Street, south of Ocotillo Way. This portion of distribution pipeline has been the site of numerous recent breaks, affecting the supply of water the rest of AVHCWD's system. The existing distribution pipeline, approximately 1,300 linear feet, may be abandoned in place or removed depending on the final alignment of the new facilities. This transmission pipeline would provide a direct connection from AVHCWD's wells to the Mesa Vista Tank Site.

Replace Mesa Vista Storage Tanks

To provide AVHCWD's Lower Zone the amount of storage required to comply with Drinking Water Standards, the three aging Mesa Vista Storage Tanks be removed and replaced with two new bolted steel tanks. The three existing tanks have a capacity of 20,000 gallons each. These three tanks are approaching the end of their useful lives and have advancing levels of interior corrosion as noted during 2015 interior inspections. The two new tanks are proposed to have a combined storage capacity greater than the required 79,771 gallons (50,000 gallons each). The Mesa Vista Tank Site

is located on Bureau of Land Management (BLM) property. AVHCWD has an agreement with BLM for use of this property.

Well Site Electrical Improvements

AVHCWD's wells are in generally good operating condition. The pumps/motors of the wells were replaced in 2013 and repaired in 2018. The well screens were cleaned and videoed at the same time as the pump/motor replacements. However, the power supply to the site is insufficient to supply the current required to operate both wells simultaneously. Consequently, AVHCWD only operates one well at a time. There is no provision for backup power onsite.

A pump station would be installed at AVHCWD's well site to transfer water purchased from AVFCWD and/or GSWC to AVHCWD's Mesa Vista tank site. The proposed pump station will contain pumps sized to deliver AVHCWD's MDD (139-gpm) to the Mesa Vista tank site. A permanent or portable generator will be added to the site.

This involves replacing the existing pumps and motors of Well Nos. 3 and 4 to reduce the combined electrical load at the site near the load of one of the site's existing wells. This would allow for concurrent use of the well pumps when required. The proposed well pumps/motors would be reduced to a capacity that would still allow for one of the pumps to be able to deliver MDD (139-gpm) with the other pump out of service. Reduction of each well's capacity to approximately 155-gpm would still allow AVHCWD to meet MDD requirements with one well out of service and allow for an 11% increase in the MDD of the system.

Interconnections with AVFCWD and GSWC

Construct interconnections with two nearby water systems, AVFCWD (System No. CA3600008) and GSWC – Apple Valley South System (Public Water System No. CA3610043). These interconnections would supply AVHCWD with additional sources of water in the event of power and/or system failures. AVHCWD could also supply water to AVFCWD and/or GSWC with this improvement. The interconnection is intended to increase system reliability and will generally be used only during emergency periods.

2.4.1 Existing AVHCWD Facilities

AVHCWD currently serves approximately 280 residential service connections (Figures 1, 2). AVHCWD does not have any industrial or commercial service connections. AVHCWD owns and operates two active wells that pump into a potable water storage and distribution system that consists of four storage tanks, a booster pump station, and pipelines of various sizes and materials. AVHCWD's distribution system has two pressure zones, designated the Upper and Lower Zones. The Upper Zone serves approximately 60% of AVHCWD's service connections (approximately 168 connections), with the remaining connections served from the Lower Zone (approximately 112 connections).

- AVHCWD owns, operates, and maintains two permitted production wells, Well Nos. 3 and 4. These wells are both located on the same AVHCWD owned property (APN 0438-043-07).
- AVHCWD has an out-of-service interconnection with the GSWC – Apple Valley South System that is currently inactive. The interconnection is located along Tussing Ranch Road, north of AVHCWD's service area.

- The AVHCWD system has four existing bolted steel potable water storage tanks. AVHCWD has a combined storage capacity of 260,000 gallons.
- AVHCWD's distribution system consists of pipelines, standpipes, valves, meters, and other appurtenances. It is estimated that AVHCWD has approximately 13 miles of water pipelines, which range in size between 4 to 8-inches in diameter.
- AVHCWD operates the Roundup Booster Station. The booster station is housed within a small building located north of Roundup Way between Buena Vista Street and Central Road.

2.4.2 Construction

Site Preparation and Earthwork

Project earthwork will be performed in accordance with the following recommendations from NV5 (2015a):

Clearing and Grubbing Prior to grading, the project area will be cleared of all significant surface vegetation, demolition rubble, trash, pavement, debris, etc. Any buried organic debris or other unsuitable contaminated material encountered during subsequent excavation and grading work will also be removed. Removed material and debris will be properly disposed of offsite. Holes resulting from removal of buried obstruction which extend below finished site grades will be filled with properly compacted soils. Any utilities within tank footprints will be appropriately abandoned.

Site Grading The proposed water tanks will be founded entirely on a cut pad in native bedrock. A cut-fill transition condition will not be allowed underlying the tanks. In order to create a uniform bearing condition for the proposed water tanks, including any adjacent perimeter hardscape features (i.e., walls, walkways, etc.), all areas to receive surface improvements or fill soils will be treated as follows:

Tank Pad: To create a uniform pad, the cut pad will be scarified 8 to 10 inches, moisture conditioned to within 2 percent of the optimum moisture content, and recompacted to a minimum of 95% relative compaction (based on ASTM D1557).

Paved Areas, Flatwork: Paved areas will be excavated to a depth of at least 12 inches below the proposed or existing subgrade elevation, whichever is greater and replace with non-expansive compacted fill (Expansion index not exceeding 20). These excavations will extend a horizontal distance of at least two feet beyond the outside perimeter.

Excavatability: Based upon subsurface conditions, it is anticipated that the majority of onsite surface soils can be excavated by conventional methods. Deep excavation of resistant bedrock at the Mesa Vista Tank Site may require jack hammering or excavation techniques. Jack hammering maybe needed at the Mesa Vista Tank Site for foundation excavations deeper than 2.5 feet below ground surface.

Structural Fill Placement: Areas to receive fill and/or surface improvements will be scarified to a minimum depth of six inches, brought to near-optimum moisture conditions, and compacted to at least 95 percent relative compaction, based on laboratory standard ASTM D1557. Fill soils will be brought to near-optimum moisture conditions and compacted in

uniform lifts to at least 95 percent relative compaction (ASTM D1557). Rocks with a maximum dimension greater than 4 inches will not be placed in the upper 3 feet of pad grade. The optimum lift thickness to produce a uniformly compacted fill will depend on the size and type of construction equipment used. In general, fill will be placed in uniform lifts not exceeding 8 inches in loose thickness. Placement and compaction of fill will be observed and tested by the geotechnical consultant.

Graded Slopes: Graded slopes will be constructed at a gradient of 2:1 (H:V) or flatter. To reduce the potential for surface runoff over slope faces, cut slopes will be provided with brow ditches and berms will be constructed at the top of fill slopes. Minor slopes (less than 10 feet in height) may be allowed and will be considered on a case-by-case basis.

Imported soils: Imported soils will be sampled and tested for suitability prior to delivery to the site. Imported fill materials will consist of clean granular soils free from vegetation, debris, or rocks larger than 3 inches in maximum dimension. The Expansion Index (EI) value will not exceed a maximum of 20 (i.e., essentially non-expansive).

Pipelines

A new water transmission pipeline will be installed along Mesa Vista Street between Ocotillo Way and the Mesa Vista Tank Site. This pipeline will be installed using trenching methods. The length of the pipeline will be approximately 6,100 feet. Along this pipeline, appurtenant facilities will be installed, including valves. Mesa Vista Street is an unpaved road that travels north-south through rural, residential communities.

Parallel and adjacent to portions of the proposed transmission pipeline, a new water distribution pipeline will be installed using trenching methods. Along this pipeline, appurtenant facilities will be installed, including valves, hydrants, and reconnections of services to existing customers. The existing 1,300 linear-foot pipeline will be either abandoned in place or removed.

Staging Areas

The project proponent will have two temporary staging sites where the construction contractor may store equipment and material for the project. One staging area will be located the Apple Valley Heights County Water District office off Cerra Vista Road with an accessor's parcel number (APN) 043-810-448.

The second staging site is an AVHCWD-owned property located off of Rancho Road (APN 043-811-205). This site is fully enclosed with a chain link fence and has been cleared of vegetation several years; although some re-vegetation has occurred.

Site Restoration

Site restoration would generally involve repaving, or installing erosion controls, as necessary. Site restoration activities would include repairing or replacing any damaged features to pre-construction condition. Previously paved areas in the street right-of-way would be restored to match existing conditions and comply with San Bernardino County specifications, in the case of Roundup Way, or TOAV requirements.

2.4.3 Project Operations

Best Management Practices

Project construction would include a range of environmental Best Management Practices (BMPs), to avoid adverse effects on people and the environment. BMPs are developed to address anticipated effects from various construction activities and would be implemented pre-construction, during construction, and post-construction, as specified in Table 1.

Table 1. Best Management Practices to be Implemented for the Project

Number	Title	BMP Description
BMP-1	**Best Management Practices for Construction Air Quality**	The contractor will use construction equipment that minimizes air emissions to the extent feasible such that overall fleet emissions are equal to or less than emissions compared to the most recent CARB fleet average. Acceptable options for reducing emissions include the use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
BMP-2	**Best Management Practices for Construction Emissions, Including Fugitive Dust Emissions**	The implementation of construction BMPs to limit construction emissions, particularly fugitive dust emissions, includes the following actions: • All exposed areas of bare soil (e.g., parking areas, staging areas, soil piles) should be watered twice per day to minimize fugitive dust emissions. • All haul trucks transporting soil, sand, or other loose material off-site should be covered or maintain at least two feet of free board space. Any haul trucks traveling along freeways or major roadways should be covered. • All visible mud or dirt track-out onto adjacent public roads should be removed using wet power-vacuum street sweepers at least once per day. The use of dry power sweeping should be prohibited. • All vehicle speeds on unpaved roads should be limited to 15 miles per hour (mph). • Idling times should be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13 CCR § 2485). Clear signage regarding this requirement should be provided for construction workers at all access points. • All construction equipment should be maintained and properly tuned in accordance with manufacturer's specifications. All equipment should be checked by a certified visible emissions evaluator and determined to be running in proper condition before it is operated. • The project would implement these measures as required.
BMP-3	**Best Management Practices for Sediment Control**	AVHCWD and/or its contractor(s) will implement site specific BMPs to control sediments during construction activities, which may include but not be limited to:

Number	Title	BMP Description
		Install, implement, and maintain BMPs consistent with the California Storm Water Quality Association Best Management Practice Handbook (California Storm Water Quality Association (CASQA) 2015) or equivalent to minimize the discharge of pollutants, consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit 2009-0009-DWQ, as amended by 2010-0014-DWQ & 2012-0006-DWQ applicable to the State of California. • Implement practices to reduce erosion of exposed soil, including stabilization of soil stockpiles, watering for dust control, establishment of perimeter silt fences, and/or placement of fiber rolls. • Minimize soil disturbance area. • Implement other practices to maintain water quality, including use of silt fences, stabilized construction entrances, and storm-drain inlet protection. Where feasible, limit construction to dry periods. Revegetate or repave disturbed areas. • BMPs will be regularly monitored for effectiveness using appropriate methods (visual observation, sampling) at appropriate intervals (e.g., daily or weekly) and corrected immediately if determined to not be effective.
BMP-4	**Best Management Practices for Hazardous Materials**	AVHCWD and/or its contractor(s) will implement site-specific hazardous materials BMPs during construction activities, which may include but not be limited to: • Develop (before initiation of construction activities) and implement (during construction and operational activities) a spill prevention and emergency response plan to handle potential spills of fuel or other pollutants. • Install, implement, and maintain BMPs consistent with the California Storm Water Quality Association Best Management Practice Handbook (California Storm Water Quality Association (CASQA) 2015) or equivalent to minimize the discharge of pollutants, consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit 2009-0009-DWQ, as amended by 2010-0014-DWQ & 2012-0006-DWQ applicable to the State of California. • Implement practices to minimize the contact of construction materials, equipment, and maintenance supplies with stormwater. • Limit fueling and other activities involving hazardous materials to designated areas only; provide drip pans under equipment and conduct daily checks of vehicle condition. • Require the proper disposal of trash and any other construction-related waste. • Ensure that any dewatered groundwater is not polluted prior to discharging into the local stormwater infrastructure or use; if dewatered groundwater becomes polluted, dispose of it off-site at an appropriate facility.

2.5 PERMITS AND APPROVALS

Permit requirements and approvals will include:

Table 2. Applicable Permits and Regulatory Requirements

Regulatory Agency	Law/Regulation	Purpose	Permit/Authorization Type
County of San Bernardino Public Works Department	County Policies and Requirements	Establish compliance with County right-of-way policies	Encroachment Permit
San Bernardino County	County Policies and Requirements	Establish compliance with County Noise Ordinance	Emergency Construction Work Approval
County of San Bernardino Land Use Services Department	County Policies and Requirements	Division of Building & Safety requirement	New water storage tanks
State Water Resources Control Board, Division of Drinking Water	California Safe Drinking Water Act,7 §116550	Domestic Water Supply Permit Amendment	Approval of project/operation of facilities for AVHCWD, AVFCWD, and GSWC
Mojave Desert Air Quality Management District	CCR 5, §2460(b)	Statewide Portable Equipment Registration Program	Operate generator
Town of Apple Valley	Town Ordinance Section 9.40.040	Application For Encroachment Permit	Work in the public right-of-way

3.0 ENVIRONMENTAL CHECKLIST

1.	Project Title	Storage Tanks and Transmission Pipeline Improvements for the Apple Valley Heights County Water District
2.	Lead Agency Name and Address	Apple Valley Heights County Water District P.O. BOX 938 Apple Valley, CA 92307
3.	Contact Person, Phone Number and Email	Daniel Smith, General Manager 760-524-2037 avhcwd@yahoo.com
4.	Project Location and APN	Apple Valley Heights County Water District (AVHCWD) is located within the Victor Valley of unincorporated western San Bernardino County, less than 0.5 miles southeast of the Town of Apple Valley, California
5.	Property Owner(s)	AVHCWD, BLM, Town of Apple Valley, private owners
6.	General Plan Designation	Resource Conservation (RC), Rural Living (RL), Single Residential -1 Acre Minimum (RS-1) (Figure 6)
7.	Zoning	Apple Valley/Resource Conservation, Apple Valley/Rural Living, Apple Valley/Single Residential -1 Acre Minimum (Figure 7)
8.	Description of Project	See Chapter 2, Project Description
9.	Surrounding Land Uses and Setting	Rural Residential
10.	Other Public Agencies whose Approval or Input May Be Needed	San Bernardino County, Mojave Water Agency, State Water Resources Control Board, Division of Drinking Water, State Water Resources Control Board, Division of Financial Assistance - Funding Agency, Golden State Water Company - Interconnecting Water System, Apple Valley Foothill County Water District - Interconnecting Water System, Bureau of Land Management - Property Owner
11.	Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?	Yes.

This chapter of the Initial Study/draft Mitigated Negative Declaration (IS/MND) assesses the environmental effects of the Project based on the environmental checklist provided in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The environmental resources and potential environmental impacts of the Project are described in the individual subsections below. Each section (3.1 through 3.18) provides a brief overview of regulations and regulatory agencies that address the resource and describes the existing environmental conditions for that resource to help the reader understand the conditions that could be affected by the Project. Relevant local laws, regulations, and policies are described in each section. In addition, each section includes a discussion of the rationale used to determine the significance level of the Project's environmental effect for each checklist question. For environmental effects that have the potential to be significant, mitigation measures are identified that would reduce the severity of the effect to a less-than-significant level.

Environmental Factors Potentially Affected

The environmental factors checked below would potentially be affected by the Project, as indicated by the checklist on the following pages.

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

Each of the environmental categories was fully evaluated, and one of the following four determinations was made for each checklist question:

- "No Impact" means that no impact to the resource would occur as a result of implementing the Project.
- "Less than Significant Impact" means that implementation of the Project would not result in a substantial and/or adverse change to the resource, and no mitigation measures are required.
- "Less Than Significant With Mitigation Incorporated" means that the incorporation of one or more mitigation measures is necessary to reduce the effect from potentially significant to less than significant.
- "Potentially Significant Impact" means that there is either substantial evidence that a Project-related effect may be significant, or, due to a lack of existing information, could have the potential to be significant.
- "Substantial" is a qualitative word indicating an effect of the action that is analyzed for a less than or potentially significant impact.

3.1 AESTHETICS

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?				X
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

3.1.1 Regulatory Setting

Federal Laws, Regulations, and Policies

No federal regulations are applicable to aesthetics in relation to the Project.

State Laws, Regulations, and Policies

In 1963, the California State Legislature established the California Scenic Highway Program, a provision of the Streets and Highways Code, to preserve and enhance the natural beauty of California (California Department of Transportation (Caltrans) 2015). The state highway system includes designated scenic highways and those that are eligible for designation as scenic highways.

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (San Bernardino County 2007) contains goals and policies to protect the aesthetic values of the County, including the protection of its scenic corridors and highways, and recommends incorporating Project design elements that improve visual aesthetics.

3.1.2 Environmental Setting

The Project area is in a semi-rural community in western San Bernardino County. Residential and commercial development in the Town of Apple Valley (TOAV) dominates the visual setting of the Project. Lands surrounding the developed areas are broad desert slopes and playas that offer a scenic vista around the community. Distant views of the San Bernardino Mountains provide a background. The visual quality of most of the Project area is variously affected by the existing developments, such as housing developments and roads to be less than scenic.

Visual Character and Quality of the Site

Residential neighborhoods, open desert, dirt roads, and small agricultural areas adjoin the Project corridor.

Light and Glare

Nighttime lighting is necessary to provide and maintain safe, secure, and attractive environments. Light that falls beyond the intended area of illumination is referred to as "light trespass." The most common cause of light trespass is spillover light, which occurs when a lighting source illuminates surfaces beyond the intended area, such as when building security lighting or parking lot lights shine onto neighboring properties. Spillover light can adversely affect light-sensitive uses, such as residences, at nighttime. Both light intensity and fixtures can affect the amount of any light spillover. Modern, energy-efficient fixtures that face downward, such as shielded light fixtures, are typically less obtrusive than older, upward-facing light fixtures.

Glare is caused by light reflections from pavement, vehicles, and building materials such as reflective glass, polished surfaces, or metallic architectural features. During daylight hours, the amount of glare depends on the intensity and direction of sunlight.

The most intense lighting in or near the Project sites is from the surrounding residential and commercial buildings. These structures are continuous light sources, including the nighttime hours. Parking lot lighting and vehicle headlights illuminate the surrounding roadways.

3.1.3 Discussion of Impacts

a) Less Than Significant Impact. The Project would not permanently alter views of scenic vistas around the TOAV or surroundings. The pipelines would be installed underground and would not be visible after construction. Two tanks will replace existing three tanks with only a minimal change in size and height. Surfaces will be painted to blend with the desert surroundings.

b) No Impact. The Project would not permanently damage scenic resources. There are no state scenic highways or resources within, adjacent, or near the Project area.

c) No Impact. The Project would not have an effect on the visual character of the Project area. Construction activities would result in temporary visual effects due to the presence of equipment and staged materials in the Project area and vegetation removal and ground disturbance activities, which would be visible from some residences and commercial areas and for travelers along nearby roads. These activities would take place in a developed area and are similar to other construction activities that periodically occur. No long-term visual changes would take place because the pipeline would be underground and the surface would be restored to its current, or better, condition.

d) Less Than Significant Impact. The Project would not create a substantial new source of light or glare. It would involve installation of underground pipelines and the replacement of water storage tanks. No nighttime construction would take place. The closest residences or otherwise occupied buildings are approximately 500 feet away. During operation, lights will

illuminate the pump station and well site; however, these lights will be designed to minimize light trespass.

3.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
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?				X

3.2.1 Regulatory Setting

Federal Laws, Regulations, and Policies

No federal regulations are applicable to Agriculture and Forest Resources in relation to the Project.

State Laws, Regulations, and Policies

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is a non-mandated State program for counties and cities to preserve agricultural land, and discourage the premature conversion of agricultural land to urban uses.

The California Department of Conservation (CDC) provides Williamson Act maps and maps of important farmland for counties in California, including San Bernardino County. Each map indicates areas of urban/built-up land in addition to illustrating the locations of various agricultural-related (Williamson Act or farmland designation) categories (CDC 2010, 2014).

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (San Bernardino County 2007) contains goals and policies to protect the agricultural use of the County, including the zoning of land for such purposes.

3.2.2 Environmental Setting

The Project area does not contain any lands under a Williamson Act contract (California Department of Conservation 2013). Both Bryman loamy fine sand and Lucerne sandy loam are considered prime farmland if irrigated. These two soils occur throughout the Project area, however, none of these areas will be significantly disturbed by the Project and no impact or loss of use will occur. All excavation will be made in the existing AVHCWD property, easements and public right-of way (ROW) or on land not categorized as prime farmland, farmland of statewide importance or unique farmland.

3.2.3 Discussion of Impacts

a) No Impact. The Project area is located on existing AVHCWD properties, BLM easements and public ROWs and public/semi-public facilities land not used for agriculture. Therefore, it would not convert farmland.

b) No Impact. The Project area is located on existing AVHCWD properties, BLM easements and public ROWs and public/semi-public facilities land. It would not conflict with existing zoning for agricultural use, or a Williamson Act contract.

c) No Impact. The Project area is located on existing AVHCWD properties, BLM easements and public ROWs and public/semi-public facilities land. No forest land is located within the Project area.

d) No Impact. The Project would not affect forest land or uses and would not convert forest land.

e) No Impact. The Project would not cause other changes to the environment that could convert farmland or forest lands to non-farmland or non-forest uses. It is not considered a growth-inducing Project because the new pipeline has been designed to meet pressure, fire flow, and redundancy requirements and would not accommodate an unplanned increase in growth in or near the Town of Apple Valley. Pumping capacity of existing wells will be reduced. Most of the project is outside of the Apple Valley town limits.

3.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?				X
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			X	
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?			X	

3.3.1 Regulatory Setting

The Clean Air Act (CAA) is implemented by the U.S. Environmental Protection Agency (USEPA) and sets ambient air limits, the National Ambient Air Quality Standards (NAAQS), for six criteria pollutants: particulate matter of aerodynamic radius of 10 micrometers or less (PM_{10}), particulate matter of aerodynamic radius of 2.5 micrometers or less ($PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), ground-level ozone, and lead. Of these criteria pollutants, particulate matter and ground-level ozone pose the greatest threats to human health.

The California Air Resources Board (CARB) sets standards for criteria pollutants in California that are more stringent than the NAAQS and include the following additional contaminants: visibility-reducing particles, hydrogen sulfide, sulfates, and vinyl chloride. The Project is located in the desert portion of San Bernardino County (Figure 1). The Mojave Desert Air Quality Management District (MDAQMD) manages air quality and the General Conformity Rule within this area.

Section 176(c) of the CAA provides that federal agencies cannot engage, support, or provide financial assistance for licensing, permitting, or approving any project unless the project conforms to the applicable State Implementation Plans (SIP). Under CAA Section 176(c) requirements, USEPA promulgated 40 Code of Federal Regulations (CFR) Part 51, Subpart W, and 40 CFR Part 93, Subpart B, "Determining Conformity of General Federal Actions to State or Federal Implementation Plans" (see 58 Federal Register (FR) 63214 (November 30, 1993), as amended; 75 FR 17272 (April 5, 2010) and 75 FR 17274.) These regulations, commonly referred to as the General Conformity Rule, apply to all federal actions except for those federal actions that are specifically excluded from review (e.g., stationary-source emissions) or are related to transportation plans, programs, and projects under Title 23 U.S. Code (USC) or the Federal Transit Act, which are subject to Transportation Conformity.

In states that have an approved SIP revision adopting General Conformity regulations, 40 CFR Part 51, Subpart W, applies; in states that do not have an approved SIP revision adopting General Conformity regulations, 40 CFR Part 93, Subpart B, applies. The Project sites are located in an area of California with approved SIPs adopting General Conformity regulations.

The General Conformity Rule is used to determine if federal actions meet the requirements of the CAA and the applicable SIP by ensuring that air emissions related to the action do not:

- Cause or contribute to new violations of a NAAQS;
- Increase the frequency or severity of any existing violation of a NAAQS; or
- Delay timely attainment of a NAAQS or interim emission reduction.

A conformity determination under the General Conformity Rule is required if the federal agency determines that the action would occur in a nonattainment or maintenance area; no specific exemptions apply to the action; the action is not included in the federal agency's "presumed to conform" list; emissions from the proposed action are not within the approved emissions budget for an applicable facility; and the total direct and indirect emissions of a pollutant (or its precursors) are at or above the de minimis levels established in the General Conformity Rule (75 FR 17274). Applicable de minimis levels are shown in Table 3.

Six methods are available for demonstrating conformity:

- Document that the emissions from the action are identified and accounted for in the SIP;
- Obtain a statement from the applicable state or local air quality agency indicating that the emissions from the action, along with all other emissions in the area, would not exceed the budget for those emissions in the SIP;
- Obtain from the local Metropolitan Planning Organization a statement indicating that the emissions are included in transportation plan modeling;
- Obtain agreement from the state to include the emissions in the SIP;
- Conduct air quality modeling to demonstrate that the emissions would not cause or contribute to a violation of the NAAQS; this modeling option is not available for areas in nonattainment for ozone or NO_2 and some $PM_{2.5}$ areas; or
- Mitigate or offset the increase in emissions; offset emissions must be offset to zero for ozone precursors, nitrogen dioxide and PM, not to the de minimis levels.

In addition, federal activities may not cause or contribute to new violations of air quality standards, exacerbate existing violations, or interfere with timely attainment or required interim emissions reductions toward attainment. The Project is subject to review under the General Conformity Rule. At this time a formal General Conformity determination is not presented, but a comparison to de minimis thresholds is discussed as an indication of the potential General Conformity applicability and/or determination which will need to occur prior to the start of construction.

Table 3. Attainment Status of the State and Federal Ambient Air Quality Standards

Ambient Air Quality Standard	MDAQMD
One-hour Ozone (Federal) – standard has been revoked, this is historical information only	Proposed attainment in 2014; historical classification Severe-17 (portion of MDAQMD outside of Southeast Desert Modified AQMA is unclassified/attainment)
Eight-hour Ozone (Federal 84 ppb (1997))	Subpart 2 Nonattainment; classified Severe-15 (portion of MDAQMD outside of Western Mojave Desert Ozone Nonattainment Area is unclassifiable/attainment)
Eight-hour Ozone (Federal 75 ppb (2008))	Nonattainment, classified Severe-15
Eight-hour Ozone (Federal 70 ppb (2015))	Expected nonattainment; classification to be determined
Ozone (State)	Nonattainment; classified Moderate
PM_{10} 24-hour (Federal)	Nonattainment; classified Moderate (portion of MDAQMD in Riverside County is unclassifiable/attainment)
$PM_{2.5}$ Annual (Federal)	Unclassified/attainment
$PM_{2.5}$ 24-hour (Federal)	Unclassified/attainment
$PM_{2.5}$ (State)	Nonattainment (portion of MDAQMD outside of Western Mojave Desert Ozone Nonattainment Area is unclassified/attainment)
PM_{10} (State)	Nonattainment
Carbon Monoxide (State and Federal)	Unclassifiable/Attainment
Nitrogen Dioxide (State and Federal)	Unclassifiable/Attainment
Sulfur Dioxide (State and Federal)	Attainment/unclassified
Lead (State and Federal)	Unclassifiable/Attainment
Particulate Sulfate (State)	Attainment
Hydrogen Sulfide (State)	Unclassified (Searles Valley Planning Area is nonattainment)
Visibility Reducing Particles (State)	Unclassified

Source: MDAQMD 2016

Table 4. Applicable Significance Thresholds

Criteria Pollutant	Annual Threshold (tons)	Daily Threshold (pounds)
Greenhouse Gases (CO_2e)	100,000	548,000
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NO_x)	25	137
Volatile Organic Compounds (VOC)	25	137
Sulfur Oxides (SO_x)h	25	137
Particulate Matter (PM_{10})	15	82
Particulate Matter ($PM_{2.5}$)	12	65
Hydrogen Sulfide (H_2S)	10	54
Lead (Pb)	0.6	3

Source: MDAQMD 2016

Toxic Air Pollutants

USEPA and CARB regulate various stationary sources, area sources, and mobile sources. USEPA has regulations involving performance standards for specific sources that may release toxic air contaminants (TACs), known as hazardous air pollutants (HAPs) at the federal level. In addition, USEPA has regulations involving emission criteria for off-road sources such as emergency generators, construction equipment, and vehicles. CARB has been granted permission to establish emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB also establishes passenger vehicle fuel specifications. Airborne Toxic Control Measures (ATCMs), including the following relevant measures, are implemented to address sources of TACs:

- ATCM for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower (hp) and Greater

Local Laws, Regulations, and Policies

The MDAQMD has adopted several plans to address ozone and particulate matter issues in the planning area (Table 5).

Table 5. MDAQMD Attainment Plans

Name of Plan	Date of Adoption	Standard(s) Targeted	Applicable Area	Pollutant(s) Targeted	Attainment Date*
Federal 8-Hour Ozone Attainment Plan (Western Mojave Desert Nonattainment Area)	9-Jun-08	Federal eight hour ozone (84 ppb)	Western Mojave Desert Nonattainment Area (MDAQMD portion)	NO_x and VOC	2019 (revised from 2021)
2004 Ozone Attainment Plan (State and Federal)	26-Apr-04	Federal one hour ozone	Entire District	NO_x and VOC	2007
Triennial Revision to the 1991 Air Quality Attainment Plan	22-Jan-96	State one hour ozone	Entire District	NO_x and VOC	2005
Mojave Desert Planning Area Federal Particulate Matter Attainment Plan	31-Jul-95	Federal daily and annual PM10	Mojave Desert Planning Area	PM_{10}	2000
Post 1996 Attainment Demonstration and Reasonable Further Progress Plan	26-Oct-94	Federal one hour ozone	Southeast Desert Modified AQMA	NO_x and VOC	2007
Reasonable Further Progress Rate-Of-Progress Plan	26-Oct-94	Federal one hour ozone	Southeast Desert Modified AQMA	NO_x and VOC	2007
1991 Air Quality Attainment Plan	26-Aug-91	State one hour ozone	San Bernardino County portion	NO_x and VOC	1994

The MDAQMD maintains a set of Rules and Regulations to implement these plans. During construction, for example,

"The owner or operator of any Construction/Demolition source shall:

(a) Use periodic watering for short-term stabilization of Disturbed Surface Area to minimize visible fugitive dust emissions. For purposes of this Rule, use of a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes shall be considered sufficient to maintain compliance;

(b) Take actions sufficient to prevent project-related track out onto paved surfaces, such as grates at site exits;

(c) Cover loaded haul vehicles while operating on Publicly Maintained paved surfaces;

(d) Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than thirty days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate Visible Fugitive Dust emissions;

(e) Cleanup project-related track out or spills on Publicly Maintained paved surfaces within twenty-four hours; and

(f) Reduce non-essential Earth-Moving Activity under High Wind conditions. For purposes of this Rule, a reduction in Earth-Moving Activity when visible dusting occurs from moist and dry surfaces due to wind erosion shall be considered sufficient to maintain compliance."

-Rule 403a – The San Bernardino County General Plan (San Bernardino County 2007) contains goals and policies to protect and improve air quality in the plan area through cost-effective and sustainable means, while also assuring county's compliance with state and federal air quality standards.

3.3.2 Environmental Setting

The primary pollution sources in the vicinity of the Project area are vehicles and nearby residential and commercial activities. The nearest sensitive receptors are residences in the community, which are scattered throughout the Project vicinity. The Project area does not contain ultramafic soils and is not in an area known to contain naturally occurring asbestos (Van Gosen and Clinkenbeard 2011).

3.3.3 Discussion of Impacts

a) No Impact. The Project would not conflict with or obstruct implementation of the applicable air quality plan. Minimal and temporary air emissions, as discussed under item b) below, would be consistent with applicable air quality plans and regulations for the region. In order to limit the production of fugitive dust during implementation of the Project, construction activities will be conducted in accordance with MDAQMD Rules 403 - Fugitive Dust and 403.2 - Fugitive Dust Control for the Mojave Desert Planning Area. This includes using water trucks to minimize the production of visible dust emissions to 20 percent opacity in areas where grading, blasting or vegetation removal occurs, within the staging areas, and on any

unpaved roads utilized during Project construction. The proposed booster station will only operate under extended emergency or maintenance events.

b) Less than Significant Impact. The Project would not violate any air quality standard or contribute to an existing or projected air quality violation. Construction activities would result in short-term increases in emissions from the use of heavy equipment that generates dust, exhaust, and tire-wear emissions; soil disturbance; materials used in construction; and construction traffic. Long-term emissions from system operations, testing, and periodic maintenance would be minimal and similar to current conditions. Emissions modeling was not conducted for the Project because of the nature of the emissions (construction only). No new long-term sources of emissions would be created by the Project. Operation of the pump station and generator would only occur during testing, maintenance and emergency operations.

c) Less than Significant Impact. The Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). As discussed under item b), the Project would result in temporary minor construction-related emissions. It would not result in a cumulatively considerable net increase of any criteria pollutant. The Project would cause short-term air quality effects as a result of construction activities; however, it would not result in long-term or cumulatively considerable increases in air quality pollutant emissions.

d) Less than Significant Impact. The Project would not expose sensitive receptors to substantial pollutant concentrations. Although a school and day care center is within a half mile of the proposed booster pump station (APN 0438-043-07), any air quality effects of construction and operation would be expected to dissipate. Desert Valley Hospital is about seven miles to the northwest and is the closest hospital.

e) Less than Significant Impact. The Project would not create objectionable odors affecting a substantial number of people. Temporary construction activities would involve the use of gasoline or diesel-powered equipment that emits exhaust fumes and asphalt paving, which has a distinctive odor during application. These activities would take place intermittently throughout the workday during the construction period, and the associated odors are expected to dissipate within the immediate vicinity of the work area. Persons near the work area may find these odors objectionable. However, the infrequency of the emissions, rapid dissipation of the exhaust into the air, and short-term nature of the construction activities would ensure a substantial number of people are not affected by odors generated during construction. The generators will only operate if no power is available from the electrical grid. Many work sites are not near residential areas.

3.4 BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
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 US Fish and Wildlife Service?				X
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?				X
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?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
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?				X

3.4.1 Regulatory Setting

Federal Laws, Regulations, and Policies

Endangered Species Act

The Endangered Species Act (ESA) (16 USC § 1531 et seq.; 50 CFR Parts 17 and 222) provides for conservation of species that are endangered or threatened throughout all or a substantial portion of their range, as well as protection of the habitats on which they depend. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. In general, USFWS manages terrestrial and freshwater species, whereas NMFS manages marine and anadromous species.

Section 9 of the ESA and its implementing regulations prohibit the "take" of any fish or wildlife species listed under the ESA as endangered or threatened, unless otherwise authorized by federal regulations. The ESA defines the term "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC § 1532). Section 7 of the ESA (16 USC § 1531 et seq.) outlines the procedures for federal interagency cooperation to conserve federally-listed species and designated critical habitats. Section 10(a)(1)(B) of the ESA provides a process by which nonfederal entities may obtain an incidental take permit from USFWS or NMFS for otherwise lawful activities that incidentally may result in "take" of endangered or threatened species, subject to specific conditions.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC Chapter 7, Subchapter II) protects migratory birds. Most actions that result in take, or the permanent or temporary possession of, a migratory bird, or the parts, nests, or eggs of such a bird, constitute violations of the MBTA. The MBTA also prohibits destruction of occupied nests. USFWS is responsible for overseeing compliance with the MBTA.

Executive Order 11990, Protection of Wetlands

Executive Order (EO) 11990 provides for protection of wetlands from federal or federally approved projects when a practicable alternative is available. If impacts on wetlands cannot be avoided, all practicable measures to minimize harm must be included. The U.S. Army Corps of Engineers (USACE) is the administering agency.

State Laws, Regulations, and Policies

California Fish and Game Code

The California Fish and Game Code (F&G) includes various statutes that protect biological resources, including the Native Plant Protection Act of 1977 (NPPA) and the California Endangered Species Act (CESA). The NPPA (F&G §§ 1900-1913) authorizes the Fish and Game Commission to designate plants as endangered or rare and prohibits take of any such plants, except as authorized in limited circumstances.

CESA (F&G §§ 2050–2098) prohibits state agencies from approving a project that would jeopardize the continued existence of a species listed under CESA as endangered or threatened. F&G § 2080

prohibits the take of any species that is state listed as endangered or threatened, or designated as a candidate for such listing. The California Department of Fish and Wildlife (CDFW) may issue an incidental take permit authorizing take of listed and candidate species if that take is incidental to an otherwise lawful activity, subject to specified conditions. F&G §§ 3503, 3513, and 3800 protect native and migratory birds, including their active or inactive nests and eggs, from all forms of take. In addition, F&G §§ 3511, 4700, 5050, and 5515 identify species that are fully protected from all forms of take. F&G Section 3511 lists fully protected birds, § 5515 lists fully protected fish, § 4700 lists fully protected mammals, and § 5050 lists fully protected amphibians.

Local Laws, Regulations, and Policies

The Conservation Element of the San Bernardino County General Plan (San Bernardino County 2007) outlines many goals and polices pertinent to biological resources. General themes of include: preservation and management of terrestrial and aquatic habitats, and riparian corridors; adaptive management of special status species; conservation and management of mature trees; and restoration of natural ecological functions. The General Plan constructs a framework of policies to achieve these goals through pre-project design considerations, the use of biotechnical alternatives, established setbacks and work exclusionary-zones, removal of invasive species and promotion of native species, and compensatory mitigation measures (San Bernardino County 2007).

3.4.2 Environmental Setting

Sensitive Species

Based on data from USFWS, CDFW, and a search of the California Natural Diversity Database (CNDDB, 2018), there are eleven sensitive species that have been documented in the region within the Apple Valley South quadrant where the project sites are located. Sensitive wildlife species include desert tortoise (*Gopherus agassizii*), burrowing owl (*Athene cunicularia*), Mohave ground squirrel (*Xerospermophilus mohavensis*), Townsend's big-eared bat (*Corynorhinus townsendii*), coast horned lizard (*Phrynosoma blainvillii*), Le Conte's thrasher (*Toxostoma lecontei*), Mohave tui chub (*Siphateles bicolor mohavensis*), and pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*). Three sensitive plant species have also been documented within the Apple Valley South quad including Booth's evening-primrose (*Eremothera boothii ssp. boothii*), San Bernardino Mountains dudleya (*Dudleya abramsii ssp. affinis*), and pinyon rockcress (*Boechera dispar*).

General Biological Survey Results

Project activities are not expected to result in the removal of vegetation from the site; however, cumulative impacts to the general biological resources (plants and animals) in the surrounding area are expected to be negligible. This assumption is based on the presence of habitat on the site which is very common throughout the Mojave Desert. In addition, future development activities are not expected to have any impact on any State or Federal listed or State special status plant or animal species.

Results of Focused Desert Tortoise Survey

No desert tortoises or tortoise scats were observed within the proposed work areas or in the zone of influence, and no tortoise burrows were observed during the field investigations. The project is

located within the known distribution of the species. Tortoises have been observed within approximately six miles of the site according to the California Natural Diversity Data Base (CNDDB, 2018).

Results of Focused Burrowing Owl Survey

No burrowing owls or owl sign were observed during the surveys and no suitable burrows were identified. Based on these factors and lack of suitable habitat, there is very little potential for the property to support populations of the burrowing owl in the future.

Mohave Ground Squirrel

A habitat assessment was performed for the Mohave ground squirrel as per CDFW protocol including an analysis of the on-site habitat, evaluation of local populations, and assessment of connectivity with habitats in the surrounding area which might support populations of the Mohave ground squirrel. If a site supports suitable habitat for the Mohave ground squirrel, CDFW would require payment of a mitigation fee for the acquisition of mitigation lands to compensate for impacts to the species. In lieu of payment of mitigation fees, the proponent may choose to conduct a live-trapping survey to definitively determine the presence/absence following consultations with CDFW. No Mohave ground squirrels were observed during field investigations; however, the site does provide marginal habitat for the species.

Migratory Birds and Raptors

Prior to any brushing, clearing and/or grading activities during the breeding season of nesting migratory birds and raptors (January 1st and August 31st), a survey must be performed by a qualified biologist that documents that no actively nesting migratory birds or raptors would be affected. If active migratory bird or raptor nests are detected, an area 300 ft. from the nest shall be staked and posted to prohibit all clearing, grubbing and construction work within the perimeter until the qualified biologist determines that the nests are no longer occupied.

3.4.3 Discussion of Impacts

a) Less than Significant Impact with Mitigation Incorporated. The Project is not expected to have a substantial adverse effect, either directly or through habitat modifications, on any candidate, sensitive, or status species. The project sites are located within the known distribution of the desert tortoise and burrowing owl; therefore, focused surveys were performed for the two species. No desert tortoises or tortoise scats or burrowing owls were observed within the proposed work areas or in the area of impact, and no tortoise burrows were observed during the field investigations. If nesting migratory birds or raptors are encountered during clearing of the site, work will be delayed until the site is no longer occupied. Several other special status species occur in the region; however, these species are unlikely to occur on the site based on the low population levels in the region.

    Biological Resources Mitigation Measure BR-1 – Migratory Birds:

    If vegetation removal or ground disturbance activities occur during the nesting season (January 1st to August 31st), a pre-construction nesting survey shall be

conducted by a qualified biologist to identify active nests in and adjacent to the work area. The survey shall be conducted no more than two weeks prior to the initiation of construction. If construction activities are delayed or suspended for more than two weeks after the preconstruction survey, the site shall be resurveyed.

If nesting birds are found, the nest sites shall not be disturbed until after the young have fledged, as determined through additional monitoring by a qualified biologist. Further, to prevent nest abandonment and mortality of chicks and eggs, no construction activities shall occur within 300 feet of an active nest unless a smaller buffer zone is authorized by a qualified biologist in consultation with the CDFW and the USFWS (the size of the construction buffer zone may vary depending on the species of nesting birds present). A qualified biologist shall delineate the buffer zone with construction tape or pin flags that shall remain in place until the young have fledged, as determined through additional monitoring by a qualified biologist.

The qualified biologist shall monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. If any active nests associated with migratory bird species or raptors are encountered during Project construction, construction activities within the 300-foot zone will be delayed until nesting activities have ceased as determined by a focused survey to be performed by the qualified biologist. Guidance from CDFW shall be requested if the nestlings within an active nest appear disturbed. The qualified biologist shall have the authority to stop any work determined to be adversely affecting the nesting activity. The qualified biologist shall report any “take” of active nests to CDFW.

Biological Resources Mitigation Measure BR-2 – Desert Tortoise:

Pre-construction surveys for desert tortoise shall be conducted by a qualified biologist no more than two weeks prior to the commencement of Project-related ground disturbance. Pre-construction surveys shall encompass all areas within the potential footprint of disturbance for the Project, as well as a reasonable buffer around these areas. Should desert tortoise be encountered, CDFW and USFWS shall be contacted to discuss additional mitigation measures which may be required.

Biological Resources Mitigation Measure BR-3 – Construction Measures:

- Clearing of the Project area including blading of new access or work areas shall be minimized to the extent possible. Disturbance to shrubs shall be avoided if possible. If shrubs cannot be avoided during equipment operation or vehicle use, wherever possible they should be crushed rather than excavated or bladed and removed.
- Project features that might trap or entangle desert tortoises, such as open trenches, pits, open pipes, etc. shall be covered at the end of each work day or modified to prevent entrapment through the installation of escape ramps or sloped at the ends at a 3:1 ratio.
- After completion of the Project, trenches, pits, and other features in which tortoises could be entrapped or entangled, shall be filled in, covered, or otherwise modified so they are no longer a hazard to desert tortoises.

- Unleashed dogs shall be prohibited in Project areas.
- Temporary fencing, such as chicken wire, snow fencing, chain link, and other suitable materials shall be used in designated areas to reduce encounters with tortoises.
- In potential desert tortoise habitat project-related vehicles shall not exceed 15 miles per hour on unpaved roads.

b) No Impact. The Project will not have an effect on riparian habitat or other sensitive natural communities. No riparian vegetation (e.g., cottonwoods, willows, etc.) is present on the site.

c) No Impact. The Project will not have a substantial adverse effect on any federally protected wetlands. No wetlands and/or areas where water would pool were observed within or near the Project site.

d) No Impact. The Project will not interfere with the movement of fish or wildlife species or impede the use of native wildlife nursery sites. No sensitive habitats or wildlife movement corridors were noted on the property during general biological resources assessment and/or focused surveys. No aquatic resources will be affected by the project.

e) No Impact. The Project will not affect biological resources and would not conflict with any local policies or ordinances protecting biological resources. Construction and maintenance of the proposed Project would not result in the immediate loss of habitat or vegetation, nor would it displace any wildlife immediately.

f) No Impact. TOAV, the California Department of Fish and Wildlife, and the United States Fish and Wildlife Service have agreed to prepare a combined federal multi-species habitat conservation plan (HCP) and state natural community conservation plan (NCCP) (TOAV 2017). The objective of the effort is to satisfy the requirements for an HCP under Section 10(a)(1)(B) of FESA (Federal Endangered Species Act), and an NCCP under the Natural Community Conservation Planning Act (NCCPA), and to serve as the basis for take authorizations under both acts. The HCP will cover all listed species and will apply to routine improvements to TOAV public works such as this Project. The Project will not conflict with the HCP, as it is envisioned in the agreement (TOAV 2017).

3.5 CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		X		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X
d) Disturb any human remains, including those interred outside of formal cemeteries?				X

3.5.1 Regulatory Setting

Federal Laws, Regulations, and Policies

If federal funding in the form of State Revolving Funds are applied to this project, the National Environmental Policy Act requires that the National Historic Preservation Act and the Archeological and Historic Preservation Act (AHPA) applies to this project. This requirement will also apply to the BLM agreement that authorizes a modification to the use of the land.

The National Historic Preservation Act (NHPA) embodies a long-standing national policy to preserve historic sites, buildings, structures, districts and objects of national, state, tribal, local, and regional significance and, among other things, to protect such historic properties from adverse impacts caused by activities undertaken or funded by federal agencies. The NHPA is administered by the Department of Interior (DOI) and the Advisory Council on Historic Preservation (the Council). The Council implements section 106 of the NHPA and has promulgated regulations for consultation regarding how to determine the effects of federal agency undertakings on historic properties. 36 C.F.R. Part 800. Although under certain circumstances the Council may become directly involved in such consultations, the procedures generally call for consultation between the federal agency and relevant state or tribal historic preservation officers (SHPOs and THPOs) and other interested parties.

The intent of the Archeological and Historic Preservation Act (AHPA) is to limit the loss of important historical data that would result from federal, or federally authorized, construction activities. Unlike section 106 of the NHPA, which principally addresses adverse effects to historic properties identified within a project area prior to project initiation, the requirements of the AHPA are typically invoked

when historic properties are discovered after the project has begun and potential adverse effects may occur.

State Laws, Regulations, and Policies

CEQA and CEQA Guidelines

Section 21083.2 of the California Public Resources Code (Public Resources Code) requires that the lead agency determine whether a project may have a significant effect on unique archaeological resources. A unique archaeological resource is defined in the Public Resources Code as an archaeological artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it:

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

Although not specifically inclusive of paleontological resources, these criteria may also help to define "a unique paleontological resource or site."

Measures to avoid, conserve, preserve, or mitigate significant effects on these resources are also provided under Public Resources Code § 21083.2.

Section 15064.5 of the CEQA Guidelines notes that "a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Substantial adverse changes include physical changes to the historical resource or to its immediate surroundings, such that the significance of the historical resource would be materially impaired. CEQA lead agencies are expected to identify potentially feasible measures to mitigate significant adverse changes in the significance of a historical resource before they approve such projects. Historical resources are those that are:

- listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR) (Public Resources Code §5024.1[k]);
- included in a local register of historic resources (Public Resources Code §5020.1) or identified as significant in an historic resource survey meeting the requirements of Public Resources Code §5024.1(g); or
- determined by a lead agency to be historically significant.

CEQA Guidelines § 15064.5 also prescribes the processes and procedures found under Health and Safety Code § 7050.5 and Public Resources Code § 5097.95 for addressing the existence of, or probable likelihood of, Native American human remains, as well as the unexpected discovery of any human remains within the Project site. This includes consultation with the appropriate Native American tribes.

CEQA Guidelines § 15126.4 provides further guidance about minimizing effects to historical resources through the application of mitigation measures. Mitigation measures must be legally binding and fully enforceable.

California Register of Historical Resources

Public Resources Code § 5024.1 establishes the CRHR. The register lists all California properties considered to be significant historical resources. The CRHR includes all properties listed as or determined to be eligible for listing in the National Register of Historic Places (NRHP), including properties evaluated under Section 106 of the National Historic Preservation Act (NHPA). The criteria for listing are similar to those of the NRHP. Criteria for listing in the CRHR include resources that:

- are associated with the events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- are associated with the lives of persons important in our past;
- embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or
- have yielded, or may be likely to yield, information important in prehistory or history.

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

Local Regulations, and Policies

The San Bernardino County General Plan Update for 2007 (San Bernardino County 2007) contains policies related to cultural and paleontological resources under the Conservation Element. The Plan contains an overarching goal to protect and interpret the cultural resources within the County. There are two objectives of the goal: to maintain an inventory of the cultural resources within the county, and to conduct a cultural resources review of new projects to ensure that known or previously unidentified cultural and paleontological resources are protected. There are, furthermore, three policies to support the goal. The policies include the involvement of Native American tribes when ancestral sites are found within a development project; requiring that cultural resources are taken into account when new planning documents are prepared; and requiring appropriate review, protection, and mitigation of impacts to cultural and paleontological resources. A key component of the goal is the establishment of a Cultural Resources Committee to help with implementing the policies and ensure that cultural and paleontological resources are protected.

Under ordinance (Ord. 193, 2-10-98), the TOAV Historical Advisory Committee makes recommendations about the designation and preservation of cultural landmarks and historic properties important to local values; however, the Committee has no regulatory power, which resides with the Town Council and other boards and commissions.

3.5.2 Environmental Setting

A cultural resources study for the Project area was conducted by RCA Associates, Inc. (RCA 2018d). The study included a records search of the California Historical Resources Information System (March 2018), tribal outreach, and a field survey. The records search indicated one historic resource previously recorded within the project area, as well as two historic resources previously recorded

within a half-mile radius of project boundaries. The historic site which lies within the project area is known as Coxey Road and is a portion of the historic Van Dusen Road (P-36-004276). The two historic sites located within a half-mile from project areas are a dumped refuse scatter and a can scatter. The resource recorded in the project area is not a historical-resource or unique archaeological resources under CEQA.

The Sacred Lands File Search completed on May 9, 2018 by the Native American Heritage Commission (NAHC) returned negative results for the project area. The NAHC provided a list of tribes culturally affiliated with the project area including the Morongo Band of Mission Indians, the San Fernando Band of Mission Indians, the San Manuel Band of Mission Indians, the Serrano Nation of Mission Indians, and the Twenty-Nine Palms Band of Mission Indians. All potentially interested tribes identified by the NAHC were contacted by RCA by mail, email, and telephone. The list of these contacts is contained in Appendix B of the Cultural Resources Assessment (RCA). RCA contacted each of these tribes via mail on May 10, 2018. The Morongo Band of Mission Indians replied via email message on May 30, 2018 to express interest in the project and requested a copy of the cultural assessment report to further assess the risk to Native American cultural resources. Other tribes did not respond to the letter or to follow-up email and voicemail.

In accordance with AB52, AVHCWD submitted notification letters to initiate consultation. The letters were submitted to the San Manuel Band of Mission Indians, Morongo Band of Mission Indians, and the Twenty-Nine Palms Band of Mission Indians on November 19, 2018. The San Manuel Band of Mission Indians and the Morongo Band of Mission Indians replied requesting participation in the consultation process. The Twenty-Nine Palms Band of Mission Indians did not reply to follow-up voicemail. Consultation with the Morongo Band of Mission Indians and the San Manuel Band of Mission Indians was complete in February 2019. The consultation yielded the cultural resource mitigation measure (CR-1) below and Tribal Cultural Resources mitigation measures that are contained in the Section 3.17, Tribal Cultural Resources. These mitigation measure were reviewed and approved via email by each tribe as part of the consultation process. Each tribe noted in email correspondence with AVHCWD that the AB52 was considered complete.

3.5.3 Discussion of Impacts

a) No Impact. No historical resources as defined in § 15064.5 of the CEQA Guidelines were identified within the project site. Therefore, the project would not cause a substantial adverse change to a historical resource. If previously undocumented cultural resources are identified during earthmoving construction activities, a qualified archaeologist must be contacted to assess the nature and significance of the find. Construction activities shall be diverted if necessary.

b) Less Than Significant With Mitigation Incorporated. No archeological resources as defined in § 15064.5 of the CEQA Guidelines were identified within the project site. Therefore, the project would not cause a substantial adverse change to an archeological resource. However, during the AB52 consultation process, the Morongo Band of Mission Indians and the San Manuel Band of Mission Indians requested that a cultural resources mitigation measure be included in the event that pre-contact cultural resources were discovered during project activities. See Mitigation Measure CR-1 below.

Cultural Resources Mitigation Measure CR-1 – Resource Discovery

1. In the event that pre-contact cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI), the Morongo Band of Mission Indians (MBMI), and other affiliated Native American groups shall be contacted, as detailed within Tribal Cultural Resources Mitigation Measure (TCR) 1 (see Section 3.17). If any such find occurs, SMBMI, MBMI, and other affiliated Native American groups shall be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to allow Tribal input with regard to significance and treatment.
2. If significant Native American resources are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan. The drafts of the Monitoring and Treatment Plan shall be provided to SMBMI, MBMI, and other affiliated Native American groups for review and comment, as detailed within TCR-1. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.
3. If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the project.

c) No Impact. No paleontological resources were identified within the project site. Paleontological resources may be buried with no surface appearance.

d) No impact. No human remains were identified in the Project footprint and there was no evidence found in the course of preparing the cultural resources assessment that the area has been used as a cemetery or burial ground in the past. The Project is not expected to disturb human remains. Regardless, it is always possible that human remains may be present at subsurface levels.

State law prescribes measure that must be taken in the event that any human remains are discovered. Section 7050.5 of the California Health and Safety Code requires that the County Coroner shall be immediately notified of the discovery and no further excavation or disturbance of the site or nearby area may occur (100-foot buffer) until the County Coroner has determined, within two working days of notification of the discovery, the nature of the remains. If the Coroner determines that the remains are, or are believed to be, Native American, he or she is required to notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant (MLD) from the deceased Native American. The MLD shall complete their inspection within 48 hours of being granted access to the site. The MLD would then determine, in consultation with the property

owner, the disposition of the human remains. Compliance with state and federal law would ensure that no impacts occur to any human remains that may be discovered on site.

3.6 GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				X
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.				X
ii) Strong seismic ground shaking?				X
iii) Seismic-related ground failure, including liquefaction?				X
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
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?				X
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				X
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?				X

3.6.1 Regulatory Setting

Federal Laws, Regulations, and Policies

The National Earthquake Hazards Reduction Act

The National Earthquake Hazards Reduction Act of 1977 (Public Law 95-124) and creation of the National Earthquake Hazards Reduction Program (NEHRP) established a long-term earthquake risk reduction program to better understand, predict, and mitigate risks associated with seismic events. Four federal agencies are responsible for coordinating activities under NEHRP; U.S. Geological Survey (USGS); National Science Foundation (NSF); Federal Emergency Management Agency (FEMA); and National Institute of Standards and Technology (NIST). Since its inception, NEHRP has shifted its focus from earthquake prediction to hazard reduction. The current program objectives (NEHRP 2016) are as follows:

- developing effective measures to reduce earthquake hazards;
- promoting the adoption of earthquake hazard reduction activities by federal, state, and local governments, national building standards and model building code organizations, engineers, architects, building owners, and others who play a role in planning and constructing buildings, bridges, structures, and critical infrastructure or "lifelines";
- improving the basic understanding of earthquakes and their effects on people and infrastructure through interdisciplinary research involving engineering, natural sciences, and social, economic, and decision sciences; and
- developing and maintaining the USGS seismic monitoring system (Advanced National Seismic System); the NSF-funded project aimed at improving materials, designs, and construction techniques (George E. Brown Jr. Network for Earthquake Engineering Simulation); and the global earthquake monitoring network (Global Seismic Network).

Implementation of NEHRP objectives is accomplished primarily through original research, publications, and recommendations and guidelines for state, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

State Laws, Regulations, and Policies

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code § 2621 et seq.) was passed to reduce the risk to life and property from surface faulting in California. The Alquist-Priolo Act prohibits construction of most types of structures intended for human occupancy on the surface traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as "active," and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones. Under the Alquist-Priolo Act, faults are zoned and construction along or across them is strictly regulated if they are "sufficiently active" and "well defined." Before a project can be permitted, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (Public Resources Code §§ 2690–2699.6) establishes statewide minimum public safety standards for mitigation of earthquake hazards. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: The state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other seismic hazards, and cities and counties are required to regulate development within mapped seismic hazard zones. In addition, the act addresses not only seismically induced hazards but also expansive soils, settlement, and slope stability. Under the Seismic Hazards Mapping Act, cities and counties may withhold the development permits for a site within seismic hazard zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans.

California Building Standards Code

Title 24 CCR, also known as the California Building Standards Code (CBC), specifies standards for geologic and seismic hazards other than surface faulting. These codes are administered and updated by the California Building Standards Commission. The CBC specifies criteria for open excavation, seismic design, and load-bearing capacity directly related to construction in California.

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (San Bernardino County 2007) contains a number of goals related to geology and soils, including measures related to minimizing risks associated with seismic and geologic hazards, and measures to reduce erosion and soil transport.

3.6.2 Environmental Setting

The project site is located in San Bernardino County traversing the Mojave Desert and Transverse Ranges geomorphic provinces. The Mojave Desert province is a broad interior region of isolated mountain ranges separated by expanses of desert plains. It has an interior enclosed drainage and many playas. There are two important fault trends that control topography, a prominent NW-SE trend and a secondary east-west trend (apparent alignment with Transverse Ranges is significant). The Mojave Desert province is wedged in a sharp angle between the Garlock fault (southern boundary Sierra Nevada) and the San Andreas Fault, where it bends east from its northwest trend. The northern boundary of the Mojave is separated from the prominent Basin and Range by the eastern extension of the Garlock fault. Typical stratigraphy includes pre-Mesozoic and Mesozoic (between approximately 250 and 65 million years old) igneous intrusive and metamorphic rocks, Cenozoic (less than 65 million years old) marine and non-marine sedimentary units, and Quaternary (less than approximately 2 million years old) sedimentary deposits (Powell and Matti, 1971).

The Transverse Ranges province consist of easterly trending mountains and geologic structures that are distinct from the other provinces of California that generally trend northwest-southeast. The project site is partially located within the San Bernardino Mountains of the eastern portion of the Transverse Ranges. The San Andreas Fault Zone divides the San Bernardino Mountains into two physiographic blocks with the south end of the project site being located in the northern block. This

block is terminated along the northern edge by a zone of south dipping thrust faults, referred to as the North Frontal Fault Zone. The North Frontal fault zone of the San Bernardino Mountains is a zone consisting of numerous fault segments. The primary sense of slip is south-dipping thrust. This zone interacts with several other faults in a variety of intersections. Although, traces of the fault may be present near the Project, there is no indication that they will affect the Project (Bryant 1986).

3.6.3 Discussion of Impacts

a) No Impact. The Project area is not near any Alquist-Priolo faults, and the potential for seismic-related ground failure or landslides is considered low based on soil and geologic conditions detailed in the geotechnical report (NV5 2018a). The Project would not expose people to seismic-related soil or geologic hazards. The Project is not within a San Bernardino County Geologic Hazard Zone (San Bernardino County 2007).

b) Less than Significant Impact. The Project would not result in substantial soil erosion or the loss of topsoil. Construction activities would result in temporary soil disturbance throughout the Project area. The majority of soil disturbance would occur in previously disturbed areas without native topsoil. Along the pipeline alignments, excavated soil would be used to backfill the trenches and to restore disturbed areas to pre-disturbance conditions (contours and vegetation). The Project is not expected to result in the loss of topsoil because very little native topsoil is present, and topsoil would be used along the pipeline alignment to restore disturbed areas to pre-disturbance conditions. AVHCWD will be required to obtain an excavation permit from San Bernardino County and TOAV, and the construction contractor(s) will be monitored for compliance with the permit during construction.

c) No Impact. The Project area is underlain by stable soil, as indicated in the USDA NRCS Soil Survey and the Project geotechnical report (NV5 2018a).

d) No Impact. The project site is underlain predominantly by granular alluvial soils with gravel and rock fragments. These materials are generally considered to have very low to low expansion potential. These materials are generally considered suitable for use as structural fills, backfill of pipeline trenches, temporary excavations, or other underground structures. (NV5 2018a).

e) No Impact. The Project does not involve construction of septic tanks or alternative wastewater disposal systems.

3.7 GREENHOUSE GAS EMISSIONS

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a substantial effect on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				X

3.7.1 Regulatory Setting

Federal Laws, Regulations, and Policies

At the federal level, USEPA has developed regulations to reduce greenhouse gas (GHG) emissions from motor vehicles and has developed permitting and reporting requirements for large stationary emitters of GHGs. On April 1, 2010, USEPA and the National Highway Traffic Safety Administration (NHTSA) established a program to reduce GHG emissions and improve fuel economy standards for new model year 2012–2016 cars and light trucks. On August 9, 2011, USEPA and the NHTSA announced standards to reduce GHG emissions and improve fuel efficiency for heavy-duty trucks and buses.

On October 5, 2009, EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance, was issued by the Council on Environmental Quality (CEQ). The EO required federal agencies to set a 2020 GHG emissions reduction target within 90 days, increase energy efficiency, reduce fleet petroleum consumption, conserve water, reduce waste, support sustainable communities, and leverage federal purchasing power to promote environmentally responsible products and technologies.

On December 18, 2014, the CEQ released revised draft guidance on the consideration of GHG emissions and climate change in National Environmental Policy Act (NEPA) review (CEQ 2014). This is an update to guidance issued in draft form in February 2010. The guidance encourages agencies to include a quantitative assessment of GHG emissions for projects expected to have direct GHG emissions of 25,000 metric tons (MT) or more on an annual basis. The guidance states that the assessment of direct and indirect climate change effects should account for upstream and downstream emissions and includes guidance on biogenic sources of GHG emissions from land management actions. The guidance provides recommendations that projects conducting a cost-benefit analysis should include the federal social cost of carbon estimates.

State Laws, Regulations, and Policies

In recent years, California has enacted a number of policies and plans to address GHG emissions and climate change. In 2006, the California State Legislature enacted AB 32, the Global Warming Solutions Act, which set the overall goals for reducing California's GHG emissions to 1990 levels by 2020. EOs S-3-05 and B-16-2012 further extend this goal to 80 percent below 1990 levels by 2050.

The California Air Resources Board (CARB) has completed rulemaking to implement several GHG emission reduction regulations and continues to investigate the feasibility of implementing additional GHG emission reduction regulations. These include the low carbon fuel standard, which reduces GHG emissions associated with fuel usage, and the renewable portfolio standard, which requires electricity suppliers to increase the amount of electricity generated from renewable sources to 33 percent by 2020. The CBC (Title 24) governs construction of buildings in California. Parts 6 and 11 of Title 24 are relevant for energy use and green building standards, which reduce the amount of indirect GHG emissions associated with buildings.

CARB approved the First Update to the AB 32 Scoping Plan on May 22, 2014 (CARB 2014). This update defines climate change priorities for the next 5 years and also sets the groundwork to reach long-term goals set forth in EOs S-3-05 and B-16-2012. The update also highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals and evaluates how to align the State's longer term GHG reduction strategies with other state policy priorities for water, waste, natural resources, clean energy, transportation, and land use. The update outlines that the Water Board will implement measures to maintain water supply reliability and reduce GHG emissions.

In April 2015, Governor Brown issued EO B-30-15 which established a GHG reduction target of 40 percent below 1990 levels by 2030. This is a target between previously established targets of achieving 1990 levels by 2020 and 80 percent below 1990 levels by 2050. The executive order also directs the state to incorporate climate change impacts in the Five-Year Infrastructure Plan, updating the state's climate adaptation strategy, and implement measures under existing agency and departmental authority to reduce GHG emissions.

Local Laws, Regulations, and Policies

San Bernardino County Regional Greenhouse Gas Reduction Plan

In San Bernardino County, San Bernardino Council of Governments (SBCOG) develops guidance for conforming to State GHG targets. In 2014 SBCOG (then called San Bernardino Associated Governments), issued the San Bernardino County Regional Greenhouse Gas Reduction Plan (SBCOG 2014). This Reduction Plan summarizes the actions that each city has selected in order to reduce GHG emissions, state-mandated actions, GHG emissions avoided in 2020 associated with each local and state action, and each city's predicted progress towards their selected GHG reduction goal.

Town of Apple Valley Climate Action Plan (CAP)

On July 13, 2010, the TOAV adopted the Town of Apple Valley Climate Action Plan (CAP), which was updated in 2016 (TOAV 2018). The Apple Valley CAP identifies measures to reduce community-wide GHG emissions to a target of 15% below 2005 levels by 2020. The Apple Valley CAP also includes the same goal for municipal GHG emissions. Major actions outlined in the Apple Valley CAP include

land use-related measures which reduce VMT by 20%, vehicle fuel efficiency measures which increase average fuel efficiency to 46 miles per gallon, residential retrofits of over 22,000 homes, and 29 gigawatt-hours (GWh) of solar energy production.

3.7.2 Environmental Setting

Climate change results from the accumulation in the atmosphere of GHGs, which are produced primarily by the burning of fossil fuels for energy. Because GHGs (carbon dioxide (CO_2), methane (CH_4), and nitrous oxide) persist and mix in the atmosphere, emissions anywhere in the world affect the climate everywhere in the world. GHG emissions are typically reported in terms of carbon dioxide equivalents (CO_2e) which converts all GHGs to an equivalent basis taking into account their global warming potential compared to CO_2.

Anthropogenic (human-caused) emissions of GHGs are widely accepted in the scientific community as contributing to global warming. Temperature increases associated with climate change are expected to adversely affect plant and animal species, cause ocean acidification and sea level rise, affect water supplies, affect agriculture, and harm public health.

Global climate change is already affecting ecosystems and societies throughout the world. Climate change adaptation refers to the efforts undertaken by societies and ecosystems to adjust to and prepare for current and future climate change, thereby reducing vulnerability to those changes. Human adaptation has occurred naturally over history; people move to more suitable living locations, adjust food sources, and more recently, change energy sources. Similarly, plant and animal species also adapt over time to changing conditions; they migrate or alter behaviors in accordance with changing climates, food sources, and predators.

Many national, as well as local and regional, governments are implementing adaptive practices to address changes in climate, as well as planning for expected future impacts from climate change. Some examples of adaptations that are already in practice or under consideration include conserving water and minimizing runoff with climate-appropriate landscaping, capturing excess rainfall to minimize flooding and maintain a constant water supply through dry spells and droughts, protecting valuable resources and infrastructure from flood damage and sea level rise, and using water-efficient appliances. In 2014, the USEPA adopted a Climate Change Adaptation Plan, which identifies vulnerabilities from climate change, and provides guiding principles for adaptation and performance measures, California has an adopted statewide Climate Adaptation Strategy and its update, the Safeguarding California Plan, which combined summarize climate change impacts, recommend adaptation strategies, and make realistic sector-1 specific recommendations for the nine sectors identified in the plans, including water and energy sectors.

In 2013, the transportation sector of the California economy was the largest source of emissions, accounting for approximately 37 percent of the total emissions. On-road vehicles accounted for more than 90 percent of emissions in the transportation sector. The industrial sector accounted for approximately 20 percent of the total emissions, and emissions from electricity generation were about 20 percent of the total. The rest of the emissions are made up of various sources (CARB 2014).

3.7.3 Discussion of Impacts

a) Less than Significant Impact. The Project would not generate greenhouse gas emissions, either directly or indirectly that would have a significant effect on the environment. The Project would not increase the generation of emissions after construction is complete because water production and distribution operations would be similar to the current operations. The replaced pipeline could improve distribution operations and potentially reduce the long-term operational emissions, which could result in a slight decrease in GHG emissions over the long term. GHG emissions resulting from construction activities would be short term and minor. The emergency power generator would only be operated during extended power outages and scheduled maintenance and testing.

b) No Impact. The Project would not generate significant emissions of GHGs and, therefore, would not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing the emission of greenhouse gases.

3.8 HAZARDS AND HAZARDOUS MATERIALS

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a substantial hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
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?				X
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 for people residing or working in the project area?				X

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
h) Expose people or structures to a substantial risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X

3.8.1 Regulatory Setting

Hazardous materials and hazardous wastes are subject to extensive federal, state, and local regulations to protect public health and the environment. These regulations provide definitions of hazardous materials, establish reporting requirements, set guidelines for handling, storage, transport, and disposal of hazardous wastes, and require health and safety provisions for workers and the public. The major federal, state, and regional agencies enforcing these regulations are USEPA; Occupational Safety and Health Administration (OSHA); California Department of Toxic Substances Control (DTSC); California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA); California Governor's Office of Emergency Services (Cal OES); State Water Resources Control Board (SWRCB); Central Valley Regional Water Quality Control Board (Central Valley RWQCB); and MDAQMD.

Federal Laws, Regulations, and Policies

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also called the Superfund Act; 42 USC § 9601 et seq.) is intended to protect the public and the environment from the effects of past hazardous waste disposal activities and new hazardous material spills. Under CERCLA, USEPA has the authority to seek the parties responsible for hazardous materials releases and to ensure their cooperation in site remediation. CERCLA also provides federal funding (through the "Superfund") for the remediation of hazardous materials contamination. The Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499) amends some provisions of CERCLA and provides for a Community Right-to-Know program.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act of 1976 (RCRA; 42 USC § 6901 et seq.), as amended by the Hazardous and Solid Waste Amendments of 1984, is the primary federal law for the regulation of solid waste and hazardous waste in the United States. These laws provide for the "cradle-to-grave" regulation of hazardous wastes, including generation, transportation, treatment, storage, and disposal. Any business, institution, or other entity that generates hazardous waste is required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed of.

USEPA has primary responsibility for implementing RCRA, but individual states are encouraged to seek authorization to implement some or all RCRA provisions. California received authority to implement the RCRA program in August 1992. DTSC is responsible for implementing the RCRA program in California, in addition to California's own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law.

Spill Prevention, Control, and Countermeasure Rule

USEPA's Spill Prevention, Control, and Countermeasure (SPCC) Rule (40 CFR, Part 112) apply to facilities with a single above-ground storage tank (AST) with a storage capacity greater than 660 gallons, or multiple tanks with a combined capacity greater than 1,320 gallons. The rule includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule requires specific facilities to prepare, amend, and implement SPCC Plans.

Occupational Safety and Health Administration

OSHA is responsible at the federal level for ensuring worker safety. OSHA sets federal standards for implementation of workplace training, exposure limits, and safety procedures for the handling of hazardous substances (as well as other hazards). OSHA also establishes criteria by which each state can implement its own health and safety program.

State Laws, Regulations, and Policies

Safe Drinking Water and Toxic Enforcement Act of 1986 - Proposition 65

The Safe Drinking Water and Toxic Enforcement Act of 1986, more commonly known as Proposition 65, protects the state's drinking water sources from contamination with chemicals known to cause cancer, birth defects, or other reproductive harm. Proposition 65 also requires businesses to inform the public about exposure to such chemicals in the products they purchase, in their homes or workplaces, or that are released into the environment. In accordance with Proposition 65, the California Governor's Office publishes, at least annually, a list of such chemicals. OEHHA, an agency under the California Environmental Protection Agency (CalEPA), is the Lead Agency for implementation of the Proposition 65 program. Proposition 65 is enforced through the California Attorney General's Office; however, district and city attorneys and any individual acting in the public interest may also file a lawsuit against a business alleged to be in violation of Proposition 65 regulations.

California Occupational Safety and Health Administration

Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations in California. Cal/OSHA regulations pertaining to the use of hazardous materials in the workplace (CCR Title 8) include requirements for safety training, availability of safety equipment, accident and illness prevention programs, warnings about exposure to hazardous substances, and preparation of emergency action and fire prevention plans. Hazard communication program regulations that are enforced by Cal/OSHA require workplaces to maintain procedures for identifying and labeling hazardous substances, inform workers about the hazards associated with hazardous substances and their handling, and prepare health and safety plans to protect workers at hazardous waste sites. Employers also must make material safety data sheets available to employees and document employee information and training programs. In addition, Cal/OSHA has established maximum permissible radiofrequency (RF) radiation exposure limits for workers (Title 8 CCR § 5085(b)) and requires warning signs where RF radiation may exceed the specified limits (Title 8 CCR § 5085(c)).

California Accidental Release Prevention

The purpose of the California Accidental Release Prevention (CalARP) program is to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy community right-to-know laws. In accordance with this program, businesses that handle more than a threshold quantity of regulated substance are required to develop a risk management plan (RMP). This RMP must provide a detailed analysis of potential risk factors and associated mitigation measures that can be implemented to reduce accident potential. Certified Unified Program Agencies (CUPAs) implement the CalARP program through review of RMPs, facility inspections, and public access to information that is not confidential or trade secret.

CAL FIRE Wildland Fire Management

The Office of the State Fire Marshal and the California Department of Forestry and Fire Protection (CAL FIRE) administer state policies regarding wildland fire safety. Construction contractors must comply with the following requirements in the Public Resources Code during construction activities at any sites with forest-, brush-, or grass-covered land:

- Earthmoving and portable equipment with internal combustion engines must be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (Public Resources Code § 4442).
- Appropriate fire-suppression equipment must be maintained from April 1 to December 1, the highest-danger period for fires (Public Resources Code § 4428).
- On days when a burning permit is required, flammable materials must be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor must maintain the appropriate fire suppression equipment (Public Resources Code § 4427).
- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines must not be used within 25 feet of any flammable materials (Public Resources Code § 4431).

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (San Bernardino County 2007) contains a Hazardous Materials Element, which specifies a variety of goals and policies related to the appropriate handling, storage, and transport of hazardous materials, hazardous waste disposal, and protection of soils and water quality from hazardous materials.

The TOAV Municipal Code 9.70.020 - Performance Standards, defines the hazardous materials requirements for land uses within its jurisdiction. These standards apply to: storage, handling, or processing of hazardous materials in sufficient quantities that would require permits as hazardous chemicals and Hazardous Materials Response Plans (HMRP), storage of flammable or explosive materials

3.8.2 Environmental Setting

The general geographic and site description of the project are provided in Section 2.3, Project Location and Setting.

The San Bernardino County Operational Area Multi-Jurisdictional Multi-Hazard Mitigation Plan is a countywide plan that identifies risks and ways to minimize damage by natural and manmade disasters.

Existing Hazards and Hazardous Materials

No potential or confirmed state or federal Superfund sites are located in or within a 1-mile radius or immediately adjacent to the Project sites (GeoSearch 2018). There are no Formerly Used Defense Sites (FUDS) within a 1-mile radius of the Project sites.

Wildfire Hazards

The region surrounding the Project site is zoned as having moderate to very high fire hazard severity.

3.8.3 Discussion of Impacts

a) Less than Significant Impact. The Project would not create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Small amounts of hazardous materials would be used during construction activities for equipment maintenance (e.g., fuel and solvents) and re-paving roads and parking areas where needed. Hazardous materials may also be stored in staging areas, which would be located in paved areas or previously disturbed areas along easements.

   Use of hazardous materials would be limited to the construction phase and would comply with applicable local, state, and federal standards associated with the handling and storage of hazardous materials. Generators and pumps would use fuels and lubricants; however, a HMRP plan would be written to address any potential release of these materials.

b) Less than Significant Impact. The Project would not create a substantial hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving

the release of hazardous materials into the environment. The Project will comply with applicable local, state, and federal standards associated with the handling and storage of hazardous materials.

c) Less than Significant Impact. The Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste. Although a school and day care center is within a half mile of the pump station, any spills of hazardous materials would be contained on site in compliance with the HMRP plan. Desert Valley Hospital is about seven miles to the northwest and is the closest hospital.

d) No Impact. The Project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, therefore, would it not create a significant hazard to the public or the environment.

e) No Impact. The Project area is not located within an airport land use plan or near a public or private airport.

f) No Impact. The Project area is not within the vicinity of a private airstrip.

g) No Impact. The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Construction activities would require temporary lane or road closures and detours around the work areas. Adequate road access would be available in the event of an emergency to allow vehicles to drive around the work area, which would ensure the Project does not prevent emergency access to the residences or conflict with an emergency response or evacuation plan.

h) No Impact. The Project would not expose people or structures to a substantial risk of loss, injury or death involving wildland fires over the long term. The fire hazard rating of the area would not be altered by the Project. Water supply reliability and storage capacity would be improved in the area. The specific improvements of the project (increased storage volume, interconnections and hydrants) would results in more water available for use for extinguishing wildland fires.

3.9 HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?				X
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?			X	
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			X	
e) 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?				X
f) Otherwise substantially degrade water quality?				X
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j) Inundation by seiche, tsunami, or mudflow?				X

3.9.1 Regulatory Setting

Federal Laws, Regulations, and Policies

Clean Water Act

The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The key sections pertaining to water quality regulation for the Project are CWA § 303 and § 402.

Section 303(d) - Listing of Impaired Water Bodies

Under CWA § 303(d), states are required to identify "impaired water bodies" (those not meeting established water quality standards), identify the pollutants causing the impairment, establish priority rankings for waters on the list, and develop a schedule for development of control plans to improve water quality. USEPA then approves the state's recommended list of impaired waters or adds and/or removes water bodies.

Section 402 - National Pollutant Discharge Elimination System (NPDES) Permits for Stormwater Discharge

CWA § 402 regulates construction-related stormwater discharges to surface waters through the NPDES. The NPDES is officially administered by USEPA. In California, USEPA has delegated its authority to the SWRCB; the SWRCB in turn delegates implementation responsibility to the nine RWQCBs, as discussed with regard to the Porter-Cologne Water Quality Control Act below.

The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual (activity- or project-specific) permits.

Municipal Separate Stormwater Sewer System (MS4) Permitting Program

Under CWA § 402, MS4s must obtain coverage under an NPDES or USEPA-delegated state program. The SWRCB regulates stormwater discharges from MS4s through its Municipal Storm Water Permitting Program. Permits are issued under two phases depending on the size of the urbanized area/municipality. Phase I MS4 permits are issued for medium (population between 100,000 and 250,000 people) and large (population of 250,000 people or more) municipalities, and are often issued to a group of co-permittees within a metropolitan area. Phase I permits have been issued since 1990. In 2003, the SWRCB issued the first statewide Phase II MS4 General Permit, which applies to smaller municipalities (generally population less than 100,000 but greater than 50,000, or as specified by SWRCB).

Federal Emergency Management Agency

FEMA produces flood insurance rate maps that identify special flood hazard areas. The maps further classify these areas into "zones" that broadly characterize the potential risk of an area being inundated by a 100-year or 500-year flood in any given year.

Wild and Scenic Rivers Act

In 1968, Congress created the National Wild and Scenic Rivers System Act to designate and preserve certain rivers in a free-flowing condition for the enjoyment of present and future generations. Designated wild and scenic rivers have outstanding natural, cultural, and recreational values and are administered by a federal or state agency. Rivers are classified as wild, scenic, or recreational with the wild classification indicating river areas that are not impounded, only accessible by trail, and have unpolluted waters and essentially primitive watersheds or shorelines. The scenic and recreational classifications indicate rivers with perhaps more development or accessibility and/or past impoundment or diversion.

State Laws, Regulations, and Policies

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (known as the Porter-Cologne Act), passed in 1969, dovetails with the CWA (see discussion of the CWA above). It established the SWRCB and divided the state into nine regions, each overseen by an RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface water and groundwater supplies. However, much of the SWRCB's daily implementation authority is delegated to the nine RWQCBs, which are responsible for implementing CWA §§ 401, 402, and 303(d). In general, the SWRCB manages water rights and regulates statewide water quality, whereas the RWQCBs focus on water quality within their respective regions.

The Porter-Cologne Act requires the RWQCBs to develop water quality control plans (also known as Basin Plans) that designate beneficial uses of California's major surface water bodies and groundwater basins and establish specific narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a water body - i.e., the reasons why the water body is considered valuable. Water quality objectives reflect the standards necessary to protect and support those beneficial uses. Basin Plan standards are primarily implemented by regulating waste discharges so that water quality objectives are met. Under the Porter-Cologne Act, Basin Plans must be updated every 3 years.

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (San Bernardino County 2007) contains a number of goals related to hydrology and water quality, including conservation of surface and ground water supplies; safeguard and maintenance of natural waterways, levees, and drainage facilities to ensure water quality; and reduction of flood hazards.

The San Bernardino County Code of Ordinances 85.11.020 specifies that the San Bernardino County Land Development Division must approve grading plans such that drainage from the site shall not adversely affect adjacent structures and properties.

The TOAV Municipal Code 9.28.100 - Drainage Facilities and Storm Water Runoff, defines the site drainage requirements for construction projects within its jurisdiction. All construction must be reviewed by the Town Engineer for conformity with County of San Bernardino Hydrology Manual. The design storm event is a 100-year storm.

3.9.2 Environmental Setting

The Project area has no integrated natural drainage other than constructed stormwater conveyance structures.

A flood map search (FEMA 2011) for Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel ID number 06071C6520H and 06071C6515J confirms the area has not been mapped by FEMA for flood zone hazards, and is therefore classified as an "Area of Undetermined Flood Hazard." The County of San Bernardino also has no flood zone hazard mapping for this area.

The Project area is not situated over a U.S. Environmental Protection Agency sole source aquifer (EPA 2016).

3.9.3 Discussion of Impacts

a) No Impact. The Project would not violate any water quality standards or waste discharge requirements. The Project would address violations received from SWRCB/DDW, allow the AVHCWD to meet Drinking Water Standards for storage capacity, improve system reliability, and customer service.

b) No Impact. The Project would not affect groundwater recharge and groundwater supplies because the Project would obtain its water from the same sources as the existing systems and not additionally deplete groundwater supplies. The project is located within an adjudicated basin and will operate within permitted pumping rates.

c) Less Than Significant Impact. The Project would not alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site. Minor increases of impervious surfaces at the Mesa Vista Tank Site and pump station would slightly increase runoff.

d) Less Than Significant Impact. The Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. The pipelines would be located underground. Minor increases of impervious surfaces at the Mesa Vista Tank Site and pump station would slightly increase runoff.

e) No Impact. The Project would not create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

f) No Impact. The Project would not degrade water quality.

g) No Impact. The Project would not involve the construction of housing.

h) No Impact. The Project area would not place structures within a 100-year flood hazard area which would impede or redirect flood flows.

i) No Impact. The Project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

j) No Impact. The Project would not expose people or structures to risks from inundation by seiche, tsunami, or mudflow.

3.10 LAND USE AND PLANNING

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

3.10.1 Regulatory Setting

Federal Laws, Regulations, and Policies

The Federal Land Policy and Management Act, or *FLPMA* (Pub.L. 94–579), is a United States federal law that governs the way in which the public lands administered by the BLM are managed. Public land is included in the project. Under FLPMA, each BLM office develop a Resource Management Plan intended to balance multiple uses of public lands. For the areas around Apple Valley, the BLM has developed the California Desert Conservation Area (CDCA) plan (BLM 1999).

San Bernardino County General Plan

The San Bernardino County General Plan, which was adopted in 2007 guides development in unincorporated San Bernardino County (San Bernardino County 2007). The general plan land use designation for the Project sites and immediate vicinity is primarily Single Residential (RS) and Resource Conservation (RC).

San Bernardino County Zoning Code

The San Bernardino County Zoning Code (San Bernardino County 2017) establishes land use zones and standards and regulations for development in those zones, within unincorporated San Bernardino County. The Project sites and immediately adjacent areas are located within the following zoning districts: Single Residential (RS-1) and Resource Conservations (RC).

3.10.2 Environmental Setting

The main land uses in the vicinity of the Project are residential and resource conservation. Land ownership in and adjacent to the Project area is mostly private. The Project area is not in a Coastal Zone Management Area or near a Wild and Scenic River (or its watershed area), Designated National Monument, or National Park.

3.10.3 Discussion of Impacts

a) No Impact. The Project would not physically divide an established community. The Project involves construction of underground pipelines under existing roads and in previously developed or disturbed areas. The project actually will connect three existing water systems, providing improved system reliability and customer service.

b) No Impact. The Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project. The use of public land for the purposes of this project are fully compatible with the California Desert Conservation Area plan. No zone changes would be necessary to accommodate the Project.

c) No Impact. The Project would not conflict with any applicable habitat conservation plan or natural communities' conservation plan. The Town of Apple Valley, the California Department of Fish and Wildlife, and the United States Fish and Wildlife Service have agreed to prepare a combined federal multi-species habitat conservation plan (HCP) and state natural community conservation plan (NCCP) (TOAV 2017). The objective of the effort is to satisfy the requirements for an HCP under Section 10(a)(1)(B) of FESA (federal Endangered Species Act), and an NCCP under the Natural Community Conservation Planning Act (NCCPA), and to serve as the basis for take authorizations under both acts. The HCP will cover all listed species and will apply to routine improvements to TOAV public works such as this Project. The Project will not conflict with the HCP, as it is envisioned in the agreement (TOAV 2017).

3.11 MINERAL RESOURCES

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
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?				X

3.11.1 Regulatory Setting

Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies apply to mineral resources within the Project.

State Laws, Regulations, and Policies

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act of 1975 (SMARA) requires that the State Mining and Geology Board identify, map, and classify aggregate resources throughout California that contain regionally significant mineral resources. Designations of land areas are assigned by the CDC and CGS following analysis of geologic reports and maps, field investigations, and using information about the locations of active sand and gravel mining operations (Miller 1993). Local jurisdictions are required to enact planning procedures to guide mineral conservation and extraction at particular sites, and to incorporate mineral resource management policies into their general plans.

Local Laws, Regulations, and Policies

The Conservation Element of the San Bernardino County General Plan (San Bernardino County 2007) provides goals and policies related to the conservation, development, and utilization of mineral resources.

3.11.2 Environmental Setting

The Project area does not contain any known mineral resources or locally important mineral resource recovery sites. It is in a rural developed area.

3.11.3 Discussion of Impacts

a) No Impact. The Project is not in an area of known mineral resource potential. There are no mineral resource recovery sites delineated in a land use plan within the project area (San Bernardino County 2007).

b) No Impact. Most excavations would be backfilled with excavated spoil If the Project would require the use of additional soil for backfilling trenches and re-paving roads, these resources would come from local sources and native materials, not resulting in the loss of availability of a valuable mineral resource.

3.12 NOISE

Would the project result in:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
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 expose people residing or working in the project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X

Noise

In the CEQA context, noise can be defined as unwanted sound. Sound is characterized by various parameters, including the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound level, or sound intensity. The decibel (dB) scale is used to quantify sound intensity. Because sound pressure can vary enormously within the range of human hearing, a logarithmic scale is used to keep sound intensity numbers at a convenient and manageable level. The human ear is not equally sensitive to all frequencies in the spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive, creating the A-weighted decibel (dBA) scale.

Different types of measurements are used to characterize the time-varying nature of sound. Below are brief definitions of these measurements and other terminology used in this chapter.

- Decibel (dB) is a measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
- A-weighted decibel (dBA) is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- Maximum sound level (L_{max}) is the maximum sound level measured during a given measurement period.
- Minimum sound level (L_{min}) is the minimum sound level measured during a given measurement period.
- Equivalent sound level (L_{eq}) is the equivalent steady-state sound level that, in a given period, would contain the same acoustical energy as a time-varying sound level during that same period.
- Day-night sound level (L_{dn}) is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels during the period from 10:00 p.m. to 7:00 a.m. (typical sleeping hours). This weighting adjustment reflects the elevated sensitivity of individuals to ambient sound during nighttime hours.
- Community noise equivalent level (CNEL) is the energy average of the A-weighted sound levels during a 24-hour period, with 5 dB added to the A-weighted sound levels between 7:00 p.m. and 10:00 p.m. and 10 dB added to the A-weighted sound levels between 10:00 p.m. and 7:00 a.m.

In general, human sound perception is such that a change in sound level of 3 dB is barely noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving the sound level. Table 6 presents approximate noise levels for common noise sources, measured adjacent to the source.

Table 6. Examples of Common Noise Levels

Common Outdoor Activities Noise Level (dBA)	Noise Level (dBA)
Jet flyover at 1,000 feet	110
Gas lawnmower at 3 feet	100
Diesel truck at 50 feet traveling 50 miles per hour	90
Noisy urban area, daytime	80
Gas lawnmower at 100 feet, commercial area	70
Heavy traffic at 300 feet	60
Quiet urban area, daytime	50
Quiet urban area, nighttime	40
Quiet suburban area, nighttime	30

Source: Caltrans 2009

Ground-borne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration may be composed of a single pulse, a series of pulses, or a continuous oscillatory motion. The frequency of a vibrating object describes how rapidly it is oscillating, measured in Hertz (Hz). Most environmental vibrations consist of a composite, or "spectrum," of many frequencies. The normal frequency range of most ground-borne vibrations that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz. Vibration information for this analysis has been described in terms of the peak particle velocity (PPV), measured in inches per second, or of the vibration level measured with respect to root-mean-square vibration velocity in decibels (VdB), with a reference quantity of 1 micro-inch per second.

Vibration energy dissipates as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. High-frequency vibrations reduce much more rapidly than do those characterized by low frequencies, so that in a far field zone distant from a source, the vibrations with lower frequency amplitudes tend to dominate. Soil properties also affect the propagation of vibration. When ground-borne vibration interacts with a building, a ground-to-foundation coupling loss usually results but the vibration also can be amplified by the structural resonances of the walls and floors. Vibration in buildings is typically perceived as rattling of windows, shaking of loose items, or the motion of building surfaces. In some cases, the vibration of building surfaces also can be radiated as sound and heard as a low-frequency rumbling noise, known as ground-borne noise.

Ground-borne vibration is generally limited to areas within a few hundred feet of certain types of industrial operations and construction/demolition activities, such as pile driving. Road vehicles rarely create enough ground-borne vibration amplitude to be perceptible to humans unless the receiver is in immediate proximity to the source or the road surface is poorly maintained and has potholes or bumps. Human sensitivity to vibration varies by frequency and by receiver. Generally, people are more sensitive to low-frequency vibration. Human annoyance also is related to the number and duration of events; the more events or the greater the duration, the more annoying it becomes.

3.12.1 Regulatory Setting

Federal Laws, Regulations, and Policies

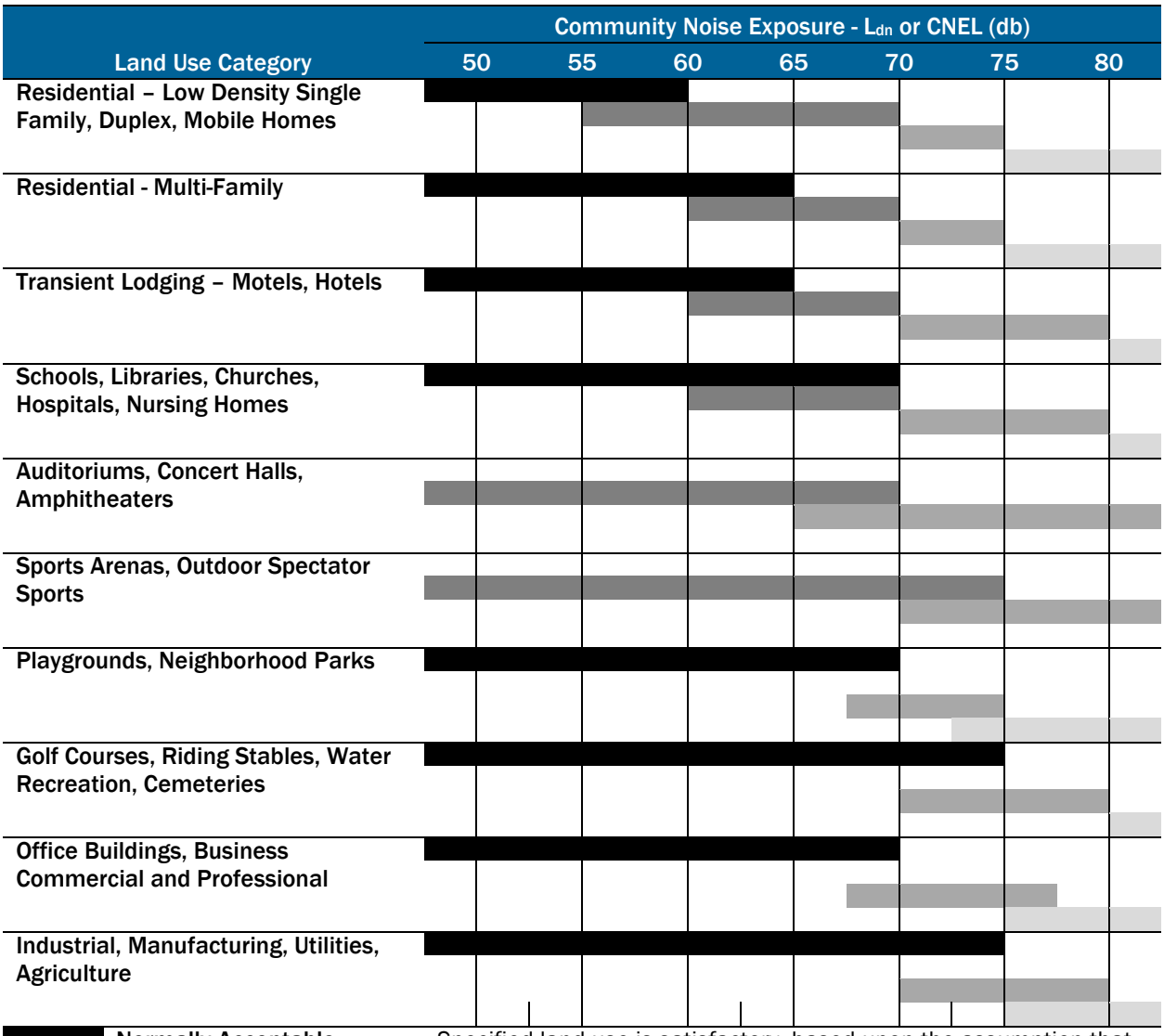
No federal laws, regulations, or policies for construction-related noise and vibration apply to the Project. However, the Federal Transit Administration (FTA) Guidelines for Construction Vibration in Transit Noise and Vibration Impact Assessment state that for evaluating daytime construction noise impacts in outdoor areas, a noise threshold of 90 dBA L_{eq} should be used for residential areas (FTA 2006).

For construction vibration effects, the FTA guidelines use an annoyance threshold of 80 VdB for infrequent events (fewer than 30 vibration events per day) and a damage threshold of 0.3 inch per second (in/sec) PPV for engineered concrete and masonry structures and 0.12 in/sec PPV for buildings extremely susceptible to vibration damage (FTA 2006).

State Laws, Regulations, and Policies

California requires each local government entity to implement a noise element as part of its general plan. California Administrative Code, Title 4, presents guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The state land use compatibility guidelines are listed in Table 7.

Table 7. State Land Use Compatibility Standards for Community Noise Environment



Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
Normally Unacceptable	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
Clearly Unacceptable	New construction or development generally should not be undertaken.

Local Laws, Regulations and Policies

San Bernardino County Noise Ordinance

The San Bernardino County Noise Ordinance (San Bernardino County Code, General Performance Standards) provides daytime and nighttime noise standards, and identifies exemptions to these noise standards. Construction-related noise would occur between the hours of seven a.m. and seven p.m. Monday through Saturday. In addition, any mechanical device, apparatus or equipment related to or connected with emergency activities or emergency work would be exempt from the noise ordinance. The daytime exterior noise standard in residential areas is an hourly L_{eq} of 55 dB. The nighttime residential area exterior noise standard for L_{eq} is 45 dB. (San Bernardino County 2007).

Noise

The San Bernardino County General Plan (San Bernardino County 2007) contains a number of goals and policies related to noise, including to protect citizens of San Bernardino County from exposure to excessive noise; to control and abate environmental noise; and to protect existing noise-producing industries from encroachment by noise-sensitive land-uses. The General Plan establishes detailed noise thresholds based on land use, indoor vs. outdoor, and day vs. night. Construction noise within the County is subject to San Bernardino County Code requirements, specifically in General Performance Standards, as described above.

3.12.2 Environmental Setting

The Project area is in a rural developed setting with some noise sources typical of residential and commercial uses and local roads. Generally, noise levels in the TOAV is relatively low compared to urbanized areas, with pockets of higher noise such as in the commercial areas. Vehicles using nearby roads and day-to-day residential and commercial activities are the primary noise sources. In addition, periodic noise sources such as construction activities and rail traffic are present in the communities. Residences near the Project area may be sensitive to high noise levels.

3.12.3 Discussion of Impacts

a) Less than Significant Impact. The Project would not expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Installation of the pipelines and construction at other sites would generate temporary noise from construction equipment use. Actual noise levels would vary throughout the day, depending on the type of construction equipment involved, activities being implemented, and distance between the source of the noise and receptors. During construction activity, construction noise is estimated to be approximately 86dB at 50 feet from equipment (Caltrans 2009). No construction noise is anticipated during non-working hours or when no construction activity is taking place.

   In most areas where pipelines will be installed, the nearest receptor (residence) is greater than 200 feet from construction activity, at which distance the construction noise level would be approximately 74dB or less. In some areas, the distance to the nearest receptor will be approximately 50 feet. These areas include the pipeline installation on Pioneer/Mesa Vista Road, Tussing Ranch Road, and Blackfoot Road and adjacent neighborhoods.

In areas of pipeline construction where receptors are located within approximately 70 feet of construction activity, construction contractors will be instructed to expedite construction in these areas. Contractors shall not be permitted to idle construction equipment in these areas.

In other construction areas, the noise level will be significantly less at the nearest receptor due to the distance from construction activity. At the Well Site, the nearest receptor is approximately 700 feet away. At the proposed tank site, the nearest receptor is approximately 400 feet away. The tank site is located on property owned by, and under use agreement from, BLM. The site currently contains three storage tanks and a maintenance facility.

To further reduce noise during construction, each internal combustion engine on site, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without the muffler.

The proposed pump station will be located on property owned by AVHWCD. The total horsepower of the pump station will be approximately 30hp (two 15 hp motors). This is the only noise-generating component of the proposed improvements. The pump station will only operate during maintenance and extended emergencies when Apple Valley Heights County Water District purchases water from GSWC or AVFCWD. The pump station will be located within a proposed enclosed, roofed, block wall building. When operational, only one pump (15hp) will normally operate. The pumps will operate at constant speed, not variable speed, and will generally operate continuously during the length of the emergency use.

b) Less than Significant Impact. The Project would not result in exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.

c) Less than Significant Impact. The Project would not create a permanent increase in ambient noise levels in the Project vicinity above existing levels. The nearest dwelling to the proposed pump station is approximately 500 feet away. The nearest property line that abuts a developed residential property is approximately 400 feet from the proposed pump station. The railroad tracks that divide the pump station/well site and the nearest residence are slightly elevated, which will provide further noise attenuation. During normal operation (one pump operating), the noise generated will be 75 dB at 5 feet. However, with building enclosure, the noise level will be approximately 25dB just outside the building. During very rare occasions when both pumps would operate simultaneously, the pump station would generate noise level of approximately 78dB at 5 feet. Just outside the building, the noise level would be approximately 28 dB.

d) Less than Significant Impact. The Project would not create a temporary or periodic increase in ambient noise levels in the Project vicinity above existing levels. The pump station will only operate during maintenance and extended emergencies when Apple Valley Heights County Water District purchases water from GSWC or AVFCWD. The pump station will be located within a proposed enclosed, roofed, block wall building. When operational, only one pump (15hp) will normally operate. The pumps will operate at constant speed, not variable speed, and will generally operate continuously during the length of the emergency use.

e) No Impact. The Project is not located within an airport land use plan or where such a plan has not been adopted.

f) No Impact. The Project is not in located the vicinity of a private airstrip.

3.13 POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

3.13.1 Regulatory Setting

No federal or state laws, regulations or policies are applicable to population and housing in relation to the Project.

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (San Bernardino County 2007) contains goals and policies related to the provision of adequate housing in the County; promotion of infill developments; and revitalization of neighborhoods through public facility improvements, including water supply.

3.13.2 Environmental Setting

AVHCWD lies within Block Groups 2 and 3 of Census Tract 97.08. These Block Groups are considerably larger than AVHCWD's service area. AVHCWD has 280 residential connections and an approximate population of 924. The median household income within Block Groups 2 and 3 are $43,860 and $32,969 per year, respectively.

Near term future growth in the AVHCWD service area is not expected to be significant. There are no anticipated projects, such as a housing development, that would cause a large growth in the number of customers for AVHCWD. With the population projected as relatively stable, a growth rate of approximately 0.5% per year is anticipated.

This annual growth rate was also used to project population within AVHCWD's service area through 2038. Table 8 summarizes the projected population through 2038.

Table 8. AVHCWD Population Growth Projection (2018-2038) (from NV5 2018b)

Year	2018	2023	2028	2033	2038	Annual Growth
Population	924	949	974	999	1,024	0.5%

Note: 2018 service area population data provided by AVHCWD

3.13.3 Discussion of Impacts

a) No Impact. The proposed pipelines would improve existing water service in the current AVHCWD's service area, reliability for AVHCWD. AVFCWD and GSWC customers, and would accommodate existing and planned capacity for the area. It is not designed to encourage new, unplanned development. The Project would not induce growth.

b) No Impact. The Project would not displace existing housing.

c) No Impact. The Project would not displace people.

3.14 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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:				X
Fire protection?				X
Police protection?				X
Schools?				X
Parks?				X
Other public facilities?				X

3.14.1 Regulatory Setting

Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies apply to public services and the Project.

State Laws, Regulations, and Policies

California Fire Code

The California Fire Code (Title 24 CCR Part 9) establishes minimum requirements to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. Chapter 33 of the code contains the following requirements for fire safety during construction and demolition:

> 3304.4 Spontaneous ignition. Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a listed disposal container.
>
> 3308.1 Program superintendent. The owner shall designate a person to be the fire prevention program superintendent who shall be responsible for the fire prevention program and ensure that it is carried out through completion of the Project. The fire prevention program superintendent shall have the authority to enforce the provisions of this chapter and other provisions as necessary to secure the intent of this chapter. Where guard service is provided, the superintendent shall be responsible for the guard service.
>
> 3308.2 Prefire plans. The fire prevention program superintendent shall develop and maintain an approved prefire plan in cooperation with the fire chief. The fire chief and the fire code official shall be notified of changes affecting the utilization of information contained in such prefire plans.
>
> 3310.1 Required access. Approved vehicle access for firefighting shall be provided to all construction or demolition sites. Vehicle access shall be provided by either temporary or permanent roads, capable of support vehicle loading under all weather conditions. Vehicle access shall be maintained until permanent fire apparatus access roads are available.
>
> 3316.1 Conditions of use. Internal-combustion-powered construction equipment shall be used in accordance with all of the following conditions:
>
> 1. Equipment shall be located so that exhausts do not discharge against combustible material.
> 2. Equipment shall not be refueled while in operation.
> 3. Fuel for equipment shall be stored in an approved area.

3.14.2 Environmental Setting

The TOAV is served by various public facilities in and near the community. Most of the project is in unincorporated San Bernardino Country. No public facilities are located within the Project area except AVHWCD offices.

3.14.3 Discussion of Impacts

a) No Impact. The Project would not affect public services in the local communities, increase the demand for public services, or require construction of new governmental facilities. The Project will comply with the requirements of Apple Valley Fire Protection District (AVFPD) Ordinance 42 which sets minimum standards for fire protection water systems within AVFPD's service area and increase the reliability of water supplies for fire suppression. New hydrants would be installed along Mesa Vista Street. The nearest park is 1,978 feet to the northwest and the nearest school is 2,282 feet in the approximate same direction. Neither would be affected by the project.

3.15 RECREATION

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
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?				X

3.15.1 Regulatory Setting

Federal and State Laws, Regulations, and Policies

No federal or state laws, regulations, or policies apply to recreation and the Project.

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (San Bernardino County 2007) contains goals and policies for protection of open areas and greenbelts for enjoyment by residents; promotion of development and preservation of adequate recreational facilities and parks; and maintenance of trails and parkways.

3.15.2 Environmental Setting

No recreational facilities are located in or near the Project area, although pedestrians and bicyclists may use the local roads for recreation or other travel purposes.

3.15.3 Discussion of Impacts

a) No Impact. The Project would not affect the use of or access to parks or other recreational facilities in the Town of Apple Valley or affected unincorporated areas. The nearest park is approximately 1400 feet west of the project on Tussing Ranch Road. Local roads affected during construction will be returned to a pre-constructions equivalent or better surface condition.

b) No Impact. The Project does not involve construction or expansion of recreational facilities.

3.16 TRANSPORTATION/TRAFFIC

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			X	
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				X
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
e) Result in inadequate emergency access?			X	
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				X

Following are definitions of key traffic and transportation terms used in this section, based on the San Bernardino County General Plan (San Bernardino County 2007) and the San Bernardino County General Plan Final Environmental Impact Report (San Bernardino County 2007), which in turn refer to the Highway Capacity Manual, 4th edition (Transportation Research Board 2000).

Level of Service – A qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Roadway level of service (LOS) is defined according to methodologies presented in the Highway Capacity Manual (Transportation Research Board 2000). Using the Highway Capacity Manual procedures, the quality of traffic operation is graded using six designations, LOS A through F (See Table 6).

Table 9. Level of Service Definitions

Level of Service	Description
A	Primarily free-flow operations at average travel speeds, usually 90 percent of the freeflow speed for the given street class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.
B	Reasonably free-flow operations at average travel speeds, usually 70 percent of the freeflow speed for the given street class. The ability to maneuver within the traffic stream is only slightly restricted and control delay at signalized intersections are not significant.
C	Stable operations; however, ability to maneuver and change lanes in midblock locations may be more restricted than at LOS B and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the free-flow speed for the street class.
D	Borders on a range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or a combination of these factors. Average travel speeds are about 40 percent of the free-flow speed.
E	Characterized by significant delays and average travel speeds of 33 percent or less of the free-flow speed. Such operations are caused by a combination of adverse progression, high signal delay, high volumes, extensive delays at critical intersections and inappropriate signal timing.
F	Characterized by urban street flow at extremely low speeds, typically one-third to one fourth of the free-flow speed. Intersection congestion is likely at critical signalized locations, with high delays, high volumes and extensive queuing.

Source: San Bernardino County General Plan Final EIR (2007)

Delay - The additional travel time experienced by a vehicle or traveler that results from the inability to travel at optimal speed, and stops due to congestion or traffic control.

Volume-to-capacity ratio - The ratio of traffic flow rate (usually expressed as vehicles per hour) to capacity for a transportation facility. For example, a volume-to-capacity ratio of 1.00 indicates the roadway facility is operating at its capacity.

Thoroughfares - provide for mobility within the County, carrying through traffic on continuous routes and providing transportation links between major residential, employment, commercial, and retail areas. Access to abutting private property and intersecting local streets is generally restricted.

Local streets - These roads provide direct access to abutting property and connect with other local streets and collectors. Local streets are typically developed as two-lane, undivided roadways and provide access to abutting private property and intersecting streets.

3.16.1 Regulatory Setting

State Laws, Regulations, and Policies

Caltrans manages the state highway system and ramp interchange intersections. The state agency is also responsible for highway, bridge, and rail transportation planning, construction, and maintenance.

Local Regulations and Policies

The Circulation Element of the San Bernardino County General Plan (San Bernardino County 2007) provides the framework for San Bernardino County decisions concerning the countywide transportation system. It also provides for coordination with the cities and unincorporated communities within the county, with the Metropolitan Transportation Plan adopted by the San Bernardino Area Council of Governments, and with State and Federal agencies that fund and manage transportation facilities within the county.

3.16.2 Environmental Setting

Construction schedules will be limited to minimize traffic effects in major areas of concern, such as schools or churches. There are several school bus stops located along the proposed route. In school bus stop areas, construction hours will be limited to avoid effects to student transportation. Coordination with AVUSD's transportation department will take place prior to construction to confirm transportation schedules and holiday breaks.

3.16.3 Discussion of Impacts

a) Less than Significant Impact. The project could potentially temporarily increase traffic in construction areas. Traffic effects to existing roads during construction will be minimal. The proposed pipelines will be constructed at a proper schedule to avoid minimize disturbance to school and transit bus routes, and during traditional church services. A school and day care center is within a half mile of the proposed pump station and the closest place of worship is approximately one-mile northeast of the proposed pump station. Desert Valley Hospital is about seven miles to the northwest and is the closest hospital.

b) No Impact. The Project would not exceed a level of service standard established by the local congestion management agency for designated roads or highways.

c) No Impact. The Project would not affect air traffic patterns and would have no effect on air traffic levels or safety.

d) No Impact. The Project would not involve activities that could increase hazards due to a design feature or incompatible uses.

e) Less than Significant Impact. Construction activities would not result in inadequate emergency access. Construction activities would require temporary lane or road closures and detours around the work areas. Adequate road access would be available in the event of an emergency to allow vehicles to drive around the work area, which would ensure the Project does not prevent emergency access to the residences or conflict with an emergency response or evacuation plan.

f) No Impact. The Project would not conflict with alternative transportation policies, programs, or plans for the region. Construction schedule will avoid scheduled public transportation.

3.17 TRIBAL CULTURAL RESOURCES

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

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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				X
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.		X		

3.17.1 Regulatory Setting

State Laws, Regulations, and Policies

CEQA and CEQA Guidelines

Assembly Bill (AB) 52, which was approved in September 2014 and which went into effect on July 1, 2015, requires that state lead agencies consult with any California Native American tribe that is traditionally and culturally affiliated with the geographic area of a Project, if so requested by the tribe. The bill, chaptered in Public Resources Code § 21084.2, also specifies that a Project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource (TCR) is a Project that may have a significant effect on the environment.

TCRs are further defined under Public Resources Code § 21074 as follows:

- A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape; and
- A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Mitigation measures for TCRs must be developed in consultation with the affected California Native American tribe pursuant to newly chaptered § 21080.3.2 of the Public Resources Code, or according to § 21084.3. Section 21084.3 of the Public Resources Code identifies mitigation measures that include avoidance and preservation of TCRs and treating TCRs with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource.

3.17.2 Environmental Setting

The Sacred Lands File Search completed on May 9, 2018 by the Native American Heritage Commission (NAHC) returned negative results for the project area. The NAHC provided a list of tribes culturally affiliated with the project area including the Morongo Band of Mission Indians, the San Fernando Band of Mission Indians, the San Manuel Band of Mission Indians, the Serrano Nation of Mission Indians, and the Twenty-Nine Palms Band of Mission Indians. All potentially interested tribes identified by the NAHC were contacted by RCA by mail, email, and telephone. The list of these contacts is contained in Appendix B of the Cultural Resources Assessment (RCA). RCA contacted each of these tribes via mail on May 10, 2018. The Morongo Band of Mission Indians replied via email message on May 30, 2018 to express interest in the project and requested a copy of the cultural assessment report to further assess the risk to Native American cultural resources. Other tribes did not respond to the letter or to follow-up email and voicemail.

In accordance with AB52, AVHCWD submitted notification letters to initiate consultation. The letters were submitted to the San Manuel Band of Mission Indians, Morongo Band of Mission Indians, and the Twenty-Nine Palms Band of Mission Indians on November 19, 2018. The San Manuel Band of Mission Indians and the Morongo Band of Mission Indians replied requesting participation in the consultation process. The Twenty-Nine Palms Band of Mission Indians did not reply to follow-up voicemail. Consultation with the Morongo Band of Mission Indians and the San Manuel Band of Mission Indians was complete in February 2019. The consultation yielded the cultural resource mitigation measure (CR-1) (see Section 3.5) and Tribal Cultural Resources mitigation measures below. These mitigation measure were reviewed and approved via email by each tribe as part of the consultation process. Each tribe noted in email correspondence with AVHCWD that the AB52 was considered complete.

3.17.3 Discussion of Impacts

a) No Impact. The project site is not 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) Less Than Significant With Mitigation Incorporated. No cultural resources, including tribal cultural resources, were found by the NAHC or discovered during field surveys. Therefore, the project site is not believed to contain cultural resources. However, some project locations include deeper excavations (crossings of Round Up Way, Tussing Ranch Road, and Central Road) or are located where minimal excavation has previously occurred (Mesa Vista Tank Site, Staging Area at APN 0438-112-05). In these areas, Native American and archeological monitors will be present during excavation and ground clearing activities.

Tribal Cultural Resources TCR-1 – Notification Regarding Resource Identification

1. The San Manuel Band of Mission Indians Cultural Resources Department (SMBMI), the Morongo Band of Mission Indians (MBMI), and other affiliated Native American groups shall be contacted, as detailed in CR (Cultural Resources Mitigation Measure) 1 (Section 3.5)). When any pre-contact cultural resource is discovered during project implementation, SMBMI and other affiliated Native American groups shall be contacted and provided with information regarding the nature of the find. This information is to be provided so that Tribal input can be developed with regard to resource significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a cultural resources Monitoring and Treatment Plan shall be created by the archaeologist, in coordination with SMBMI, MBMI, and other Native American groups, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents SMBMI, MBMI, or other Native American groups for the remainder of the project, should SMBMI, MBMI, or other Native American groups elect to place a monitor on-site.
2. Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the Lead Agency for dissemination to SMBMI, MBMI, and any other affiliated Native American groups. The Lead Agency shall, in good faith, consult with SMBMI, MBMI, and other affiliated Native American groups throughout the life of the project.

Tribal Cultural Resources TCR-2 - Cultural Resources Monitoring

Several culturally sensitive areas require Native American and Archaeological Monitoring. These areas have not seen extensive impacts and appear to be relatively pristine in their naturally settings. The areas to be monitored include the area identified for the installation of the new tanks (Mesa Vista Tank Site area) and the intersections (crossings of paved roads [Roundup Way, Tussing Ranch Road, and Central Road]) where the water line installations may be deeper than the project's other installations and under prior utility lines. Also, the grubbing and grading of Staging Area 1 (APN 0438-112-05) will require monitoring. The Mesa Vista Tank Site area is projected to require about 10 days of monitoring. The intersections and Staging Area 1 would need up to two days of active monitoring at each site. This monitoring shall be conducted with a Native American monitor retained from the Morongo Band of Mission Indians and with an archaeological monitor supplied by the consultant to the Lead Agency (e.g. RCA Associates).

3.18 UTILITIES AND SERVICE SYSTEMS

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
e) 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?				X
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?				X
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X

3.18.1 Regulatory Setting

Federal and State Laws, Regulations, and Policies

The Division of Drinking Water (DDW) of the State Water Resources Control Board regulates drinking water standards throughout California, utilizing and augmenting federal standards. DDW is the regulatory agency of AVHCWD, AVFCWD and GSWC and issues State drinking water permits.

Local Laws, Regulations, and Policies

The San Bernardino County General Plan (San Bernardino County 2007) contains goals and policies generally to ensure adequate quality and quantity of water is delivered to residents, and that adequate sewer and other services are provided to residents, and encourages waste reduction to decrease the amount of solid waste disposed in landfills.

3.18.2 Environmental Setting

AVHCWD currently serves approximately 280 residential service connections. AVHCWD does not have any industrial or commercial service connections. AVHCWD owns and operates two active wells that pump into a potable water storage and distribution system that consists of 4 storage tanks, a booster pump station, and pipelines of various sizes and materials. AVHCWD's distribution system has two pressure zones, designated the Upper and Lower Zones. The Upper Zone serves approximately 60% of AVHCWD's service connections (approximately 168 connections), with the remaining connections served from the Lower Zone (approximately 112 connections).

3.18.3 Discussion of Impacts

a) No Impact. The Project would not involve the treatment of wastewater or require a new water supply. Water supply for the AVHCWD system would come from existing sources. If water supply is needed for dust control, it could be provided by existing service providers and would not exceed allotted limits.

b) No Impact. The Project involves installation of a new water pipelines in existing road ROWs and AVHCWD-owned property, easements and public land (BLM), which would involve temporary construction impacts. The water tank improvements are proposed to address existing drinking water quality violations for storage volumes. Existing utilities in the roads and other areas would be avoided, to the extent feasible, and if relocation is needed, AVHCWD will coordinate with the appropriate provider to ensure minimal disruptions to other services.

c) No Impact. No storm drainage facilities would be constructed as part of the Project, and no culverts are expected to be affected.

d) No Impact. Water supply for the AVHCWD system would come from existing sources and not require any new resources. If water supply is needed for dust control, it would be provided by existing service providers and would not exceed allotted limits.

e) No Impact. The proposed pipelines and storage tanks have been sized to accommodate existing and planned water supply requirements of the AVHCWD water system. Although water supply demand may increase as new development increases in the community, the Project is not designed to accommodate unplanned growth and would not distribute water beyond its current service area, except in emergencies. The pipelines and storage tanks would improve the service capability of the AVHCWD system and ensure its water distribution system meets the pressure, fire flow, and redundancy requirements necessary for operation. The project area is not currently served by a community wastewater collection, treatment or disposal system. Wastewater is treated and disposed of at septic tanks and leach lines on

individual lots. Wastewater generation rates and disposal methods will not change as a result of the Project.

f) No Impact. Solid waste generated during construction would be properly disposed or recycled in a nearby landfill or disposal facility with capacity to receive the waste. Some materials removed during construction and demolition (e.g. concrete, steel, wood) will be diverted to a certified recycling center.

g) No Impact. Any hazardous materials used during construction would be properly disposed in accordance with California Department of Resource Recycling and Recovery. In most Project locations, existing infrastructure will be abandoned in place.

3.19 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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?			X	
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

3.19.1 Discussion

a) Less than Significant Effect. Based upon the analysis, performed in this Initial Study, the Project does not have the potential to significantly affect biological, cultural, or tribal cultural resources or degrade the quality of the environment.

Biological mitigation measures related to the Desert Tortoise and migratory birds will ensure that these biological resources, if present at the project sites, are identified prior to construction to ensure no impact to these species.

AVHCWD's consultation with the Morongo Band of Mission Indians and the San Manuel Band of Mission Indians, as part of the AB52 consultation process, yielded Cultural Resources and Tribal Cultural Resources mitigation measures will provide Native American and archeological monitoring during construction in select areas. If cultural resources are encountered at any project location, the cultural and tribal cultural resources mitigation measures outline the measures the Lead Agency will take related to resource preservation, notification of Tribes, and coordination with Tribes and other interested parties.

The biological resources, cultural resources, and tribal cultural resources mitigation measures shall be implemented to reduce the potential impacts to these species to less than significant.

b) No Impact. Based upon the analysis, performed in this Initial Study, the Project is not expected to have a cumulatively considerable impact to past, present, or future projects. Several projects might be initiated in the foreseeable future; however, they are not expected to provide any cumulative effects.

AVFCWD is considering improvements to its water production, storage, and pumping systems. These improvements are currently in the pre-design stages. The construction schedule is unknown, and it is unknown if Apple Valley Foothill County Water District's proposed construction will coincide with the proposed construction of improvements to the Apple Valley Heights County Water District system. Apple Valley Foothill's proposed improvements are not likely to impact or be impacted by the proposed improvements to the Apple Valley Heights system.

GSWC's Apple Valley South system is currently engaged in water production and storage system improvements. Construction of these improvements will likely be complete prior to the commencement of construction of the Apple Valley Heights County Water District improvements.

The Capital Improvement Plan of the Town of Apple Valley (2018-2019) does not indicate roadway or other improvements that would impact or be impacted by the proposed Apple Valley Heights improvements along Tussing Ranch Road, Central Road, or Houston Street.

San Bernardino County Public Works does not anticipate roadway improvements to Roundup Way in the coming years, other than regular maintenance. Apple Valley Heights has conferred with Public Works staff to review the potential for interfering projects. To date, no conflicting projects have been identified.

c) Less than Significant Effect. Based upon the analysis, performed in this Initial Study, the construction phase of the Project would result in several temporary effects to human beings including temporary increases in air pollutants and noise. No long term negative impacts are anticipated.

4.0 MITIGATION MONITORING AND REPORTING PROGRAM

4.1 PURPOSE

The Apple Valley Heights County Water District (AVHCWD) has prepared an Initial Study and draft Mitigated Negative Declaration (IS/MND) for the proposed Storage Tanks and Transmission Pipeline Improvements Project. The proposed project consists of efforts to improve two existing water storage tank sites, install a direct transmission pipeline to the Mesa Vista Water Tank Site, install a distribution pipeline parallel to the transmission pipeline, and install interconnections with two adjacent water systems. and administrative activities to advance consolidation of community water systems in this portion of Apple Valley, San Bernardino County, California.

AVHCWD, as the lead agency under the California Environmental Quality Act (CEQA), is responsible for overseeing the implementation and administration of this draft Mitigation Monitoring and Reporting Program (MMRP). AVHCWD will designate a consultant to manage the MMRP. Duties of the consultant will include ensuring AVHCWD that construction contractors are aware of the mitigation measures noted below and that qualified personnel are retained (i.e. archeologist and biologist), and that Native American monitors are present at select project areas during required timeframes.

4.2 REGULATORY FRAMEWORK

California Public Resources Code Section 21081.6 and California Code of Regulations Title 14, Chapter 3, Section 15097 require public agencies to adopt mitigation monitoring or reporting plans when they approve projects under an MND. The reporting and monitoring plans must be adopted when a public agency makes its findings pursuant to CEQA so that the mitigation requirements can be made conditions of project approval.

4.3 FORMAT OF THIS PLAN

The draft MMRP describes the construction phase measure included in the proposed project and identified in the IS/MND. This draft MMRP also includes a summary statement of the impact discussed in the IS/MND to correspond with the mitigation measure. The mitigation measure is followed by an implementation description, the criteria used to determine the effectiveness of the mitigation, the timeframe for implementation, and the party responsible for monitoring implementation of the measure.

Implementation of mitigation measure is ultimately the responsibility of the CEQA Lead Agency; during construction, the delegated responsibility is shared by the AVHCWD and construction contractors. The mitigation measure in this plan contains a “Verified By” signature line, which will be signed by AVHCWD when the measure has been fully implemented and no further actions or monitoring are necessary for the implementation or effectiveness of the measure.

4.4 IMPACTS AND ASSOCIATED MITIGATION MEASURES

The San Manuel Band of Mission Indians (SMBMI) consulted with the CEQA Lead Agency for the Project, and noted that although Project area was not in a sensitive area for tribal cultural resources,

the SMBMI requested standard mitigation measures for inadvertent discovery be included in the environmental document.

AVHCWD also consulted with the Morongo Band of Mission Indians' Tribal Historic Preservation Office and shared with them the mitigation measures negotiated with the SMBMI. The Morongo Band concurred with the proposed mitigation measures.

Tribal cultural resources listed or eligible for listing on the California Register of Historical Resources were not identified in the Project area (See Section 3.5.2 for additional information on identification efforts).

Mitigation Measure CR-1 – Resource Discovery:

1. In the event that pre-contact cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI), the Morongo Band of Mission Indians (MBMI), and other affiliated Native American groups shall be contacted, as detailed within Tribal Cultural Resources Mitigation Measure (TCR) 1. If any such find occurs, SMBMI, MBMI, and other affiliated Native American groups shall be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to allow Tribal input with regard to significance and treatment.
2. If significant Native American resources are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan. The drafts of the Monitoring and Treatment Plan shall be provided to SMBMI, MBMI, and other affiliated Native American groups for review and comment, as detailed within TCR-1. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.
3. If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the project.

Implementation: Prior to initiating construction activity, AVHCWD will retain a qualified archeologist to assist when potentially significant Native-American historical resources are discovered during earthmoving and excavation activities. The archeologist shall be prepared to respond immediately to the construction site when potentially significant Native American historical resources are discovered.

Prior to initiating construction activity, AVHCWD shall inform the construction contractor that if cultural resources are encountered, the contractor is to immediately stop construction activity within a 60-foot buffer and is to inform AVHCWD immediately upon the discovery.

Should potentially significant Native American historical resources be discovered, the discovering party shall immediately notify the Project's

archeologist. All construction activity within a 60-foot buffer shall cease until receiving approval to resume work by the archeologist.

Timing: During construction activities that involve excavation or earth moving.

Effectiveness Criteria: The archeologist's report(s) on potentially significant Native American Historical Resources. Reports shall include any related correspondence or documentation received from a Native American Tribe or public agency. Reports shall be maintained in the project file.

Monitoring: AVHCWD will prepare and keep on file documentation verifying the implementation of the above-referenced measure. These files shall be provided to the State Water Resources Control Board upon request and following completion of construction.

Verified By:

Apple Valley Heights County Water District

Project Manager Date:

Tribal Cultural Resources TCR-1 – Notification Regarding Resource Identification

1. The San Manuel Band of Mission Indians Cultural Resources Department (SMBMI), the Morongo Band of Mission Indians (MBMI), and other affiliated Native American groups shall be contacted, as detailed in CR (Cultural Resources Mitigation Measure) 1 (Section 3.5 and above). When any pre-contact cultural resource is discovered during project implementation, SMBMI and other affiliated Native American groups shall be contacted and provided with information regarding the nature of the find. This information is to be provided so that Tribal input can be developed with regard to resource significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a cultural resources Monitoring and Treatment Plan shall be created by the archaeologist, in coordination with SMBMI, MBMI, and other Native American groups, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents SMBMI, MBMI, or other Native American groups for the remainder of the project, should SMBMI, MBMI, or other Native American groups elect to place a monitor on-site.
2. Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the Lead Agency for dissemination to SMBMI, MBMI, and any other affiliated Native American groups. The Lead Agency shall, in good faith, consult with SMBMI, MBMI, and other affiliated Native American groups throughout the life of the project.

Implementation: Prior to initiating construction activity, AVHCWD will retain a qualified archeologist to assist when potentially significant Native-American historical resources are discovered during earthmoving and excavation activities. The archeologist shall be prepared to respond immediately to the construction site when potentially significant Native American historical resources are discovered.

Approximately 15 calendar days prior to initiating construction activity, AVHCWD shall inform the MBMI and SMBMI that construction activities are to commence.

If a resource is discovered, AVHCWD's archeologist shall determine if the find is deemed significant. AVHCWD's archeologist shall then prepare a Monitoring and Treatment Plan and shall notify and coordinate with SMBMI, MBMI, and other Native American groups.

Timing: Prior to commencing construction activity and when cultural resources are discovered.

Effectiveness Criteria: The archeologist's report(s) on potentially significant Native American Historical Resources. Reports shall include any related correspondence or documentation with a Native American Tribe or public agency. Reports shall be maintained in the project file.

Monitoring: AVHCWD will prepare and keep on file documentation verifying the implementation of the above-referenced measure. These files shall be

provided to the State Water Resources Control Board upon request and following completion of construction.

Verified By:

Apple Valley Heights County Water District

Project Manager Date:

Tribal Cultural Resources TCR-2 - Cultural Resources Monitoring

Several culturally sensitive areas require Native American and Archaeological Monitoring. These areas have not seen extensive impacts and appear to be relatively pristine in their naturally settings. The areas to be monitored include the area identified for the installation of the new tanks (Mesa Vista Tank Site area) and the intersections (crossings of paved roads [Roundup Way, Tussing Ranch Road, and Central Road]) where the water line installations may be deeper than the project's other installations and under prior utility lines. Also, the grubbing and grading of Staging Area 1 (APN 0438-112-05) will require monitoring. The Mesa Vista Tank Site area is projected to require about 10 days of monitoring. The intersections and Staging Area 1 would need up to two days of active monitoring at each site. This monitoring shall be conducted with a Native American monitor retained from the Morongo Band of Mission Indians and with an archaeological monitor supplied by the consultant to the Lead Agency (e.g. RCA Associates).

Implementation: Prior to initiating construction activity, AVHCWD will retain a qualified archeologist to assist when potentially significant Native-American historical resources are discovered during earthmoving and excavation activities. The archeologist shall be prepared to respond immediately to the construction site when potentially significant Native American historical resources are discovered.

30 calendar days prior to initiating construction activity, AVHCWD shall inform Morongo Band of Mission Indians of the proposed construction schedule to enable the MBMI to provide a Native American Monitor.

Timing: During construction activities that involve excavation or earth moving at the select locations noted above.

Effectiveness Criteria: The archeologist's report(s) on monitoring activity and potentially significant Native American Historical Resources encountered. Reports shall include any related correspondence or documentation received from a Native American Tribe or public agency. Reports shall be maintained in the project file. Retain copy of any report provided by MBMI's monitoring team.

Monitoring: AVHCWD will prepare and keep on file documentation verifying the implementation of the above-referenced measure. These files shall be provided to the State Water Resources Control Board upon request and following completion of construction.

Verified By:

Apple Valley Heights County Water District

Project Manager Date:

Mitigation Measure BR-1 – Migratory Birds:

If vegetation removal or ground disturbance activities occur during the nesting season (January 1st to August 31st), a pre-construction nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the work area. The survey shall be conducted no more than two weeks prior to the initiation of construction. If construction activities are delayed or suspended for more than two weeks after the preconstruction survey, the site shall be resurveyed.

If nesting birds are found, the nest sites shall not be disturbed until after the young have fledged, as determined through additional monitoring by a qualified biologist. Further, to prevent nest abandonment and mortality of chicks and eggs, no construction activities shall occur within 300 feet of an active nest unless a smaller buffer zone is authorized by a qualified biologist in consultation with the CDFW and the USFWS (the size of the construction buffer zone may vary depending on the species of nesting birds present). A qualified biologist shall delineate the buffer zone with construction tape or pin flags that shall remain in place until the young have fledged, as determined through additional monitoring by a qualified biologist.

The qualified biologist shall monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. If any active nests associated with migratory bird species or raptors are encountered during Project construction, construction activities within the 300-foot zone will be delayed until nesting activities have ceased as determined by a focused survey to be performed by the qualified biologist. Guidance from CDFW shall be requested if the nestlings within an active nest appear disturbed. The qualified biologist shall have the authority to stop any work determined to be adversely affecting the nesting activity. The qualified biologist shall report any "take" of active nests to CDFW.

Implementation: Prior to initiating construction activity, AVHCWD will retain a qualified biologist to perform pre-construction surveys for burrowing owls and nesting birds protected under the Migratory Bird Treaty Act and Section 3503 of the California Fish and Wildlife Code. A qualified biologist shall monitor nests during construction.

Should listed species be encountered, authorization from the USFWS and CDFW shall be obtained.

Timing: Within two weeks of the start of construction activity and during construction activity.

Effectiveness Criteria: The biologist's report(s) on pre-construction surveys. Reports shall be maintained in the project file.

Monitoring: AVHCWD will prepare and keep on file documentation verifying the implementation of the above-referenced measure. These files shall be provided to the State Water Resources Control Board upon request and following completion of construction.

Verified By:

Apple Valley Heights County Water District

Project Manager Date:

Mitigation Measure BR-2 – Desert Tortoise:

Pre-construction surveys for desert tortoise shall be conducted by a qualified biologist no more than two weeks prior to the commencement of Project-related ground disturbance. Pre-construction surveys shall encompass all areas within the potential footprint of disturbance for the Project, as well as a reasonable buffer around these areas. Should desert tortoise be encountered, CDFW and USFWS shall be contacted to discuss additional mitigation measures which may be required.

Implementation: Prior to initiating construction activity, AVHCWD will retain a qualified biologist to perform pre-construction surveys for desert tortoise.

Should listed species be encountered, authorization from the USFWS and CDFW shall be obtained.

Timing: Within two weeks of the start of construction activity.

Effectiveness Criteria: The biologist's report(s) on pre-construction surveys. Reports shall be maintained in the project file.

Monitoring: AVHCWD will prepare and keep on file documentation verifying the implementation of the above-referenced measure. These files shall be provided to the State Water Resources Control Board upon request and following completion of construction.

Verified By:

Apple Valley Heights County Water District

Project Manager Date:

Mitigation Measure BR-3 – Construction Measures:

- Clearing of the Project area including blading of new access or work areas shall be minimized to the extent possible. Disturbance to shrubs shall be avoided if possible. If shrubs cannot be avoided during equipment operation or vehicle use, wherever possible they should be crushed rather than excavated or bladed and removed.
- Project features that might trap or entangle desert tortoises, such as open trenches, pits, open pipes, etc. shall be covered at the end of each work day or modified to prevent entrapment through the installation of escape ramps or sloped at the ends at a 3:1 ratio.
- After completion of the Project, trenches, pits, and other features in which tortoises could be entrapped or entangled, shall be filled in, covered, or otherwise modified so they are no longer a hazard to desert tortoises.
- Unleashed dogs shall be prohibited in Project areas.
- Temporary fencing, such as chicken wire, snow fencing, chain link, and other suitable materials shall be used in designated areas to reduce encounters with tortoises.
- In potential desert tortoise habitat project-related vehicles shall not exceed 15 miles per hour on unpaved roads.

Implementation: The construction contractor shall be responsible for implementing these measures.

Timing: During construction activity.

Effectiveness Criteria: The construction supervisor, or his designee, shall maintain a checklist in the project file that verifies mitigation steps taken each day to avoid impact to any listed species.

Monitoring: AVHCWD will prepare and keep on file documentation verifying the implementation of the above-referenced measure. These files shall be provided to the State Water Resources Control Board upon request and following completion of construction.

Verified By:

Apple Valley Heights County Water District

Project Manager Date:

5.0 REFERENCES

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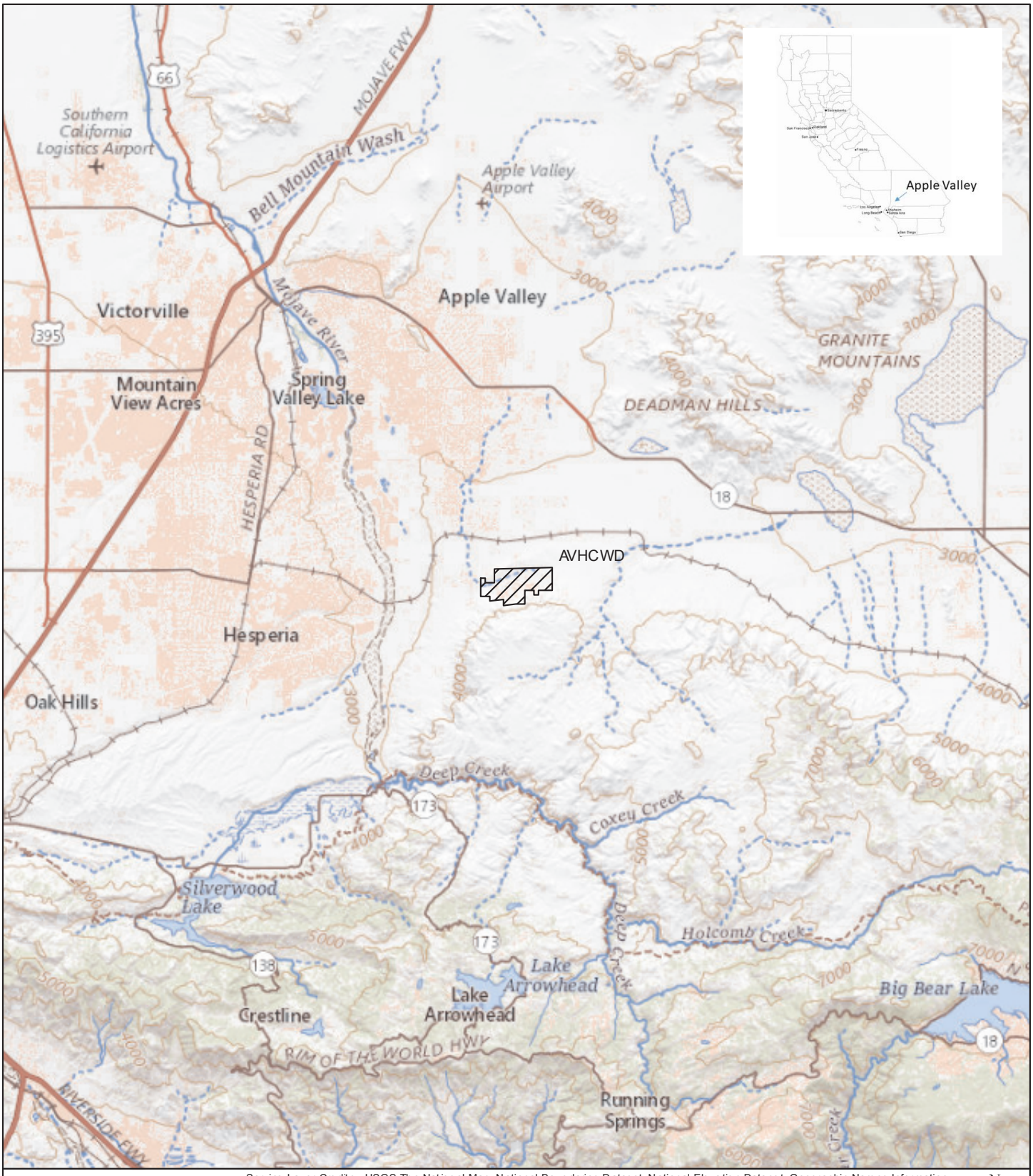


4 Miles

Service Layer Credits: USGS The National Map: National Boundaries Dataset, National Elevation Dataset, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; U.S. Census Bureau - TIGER/Line; HERE Road Data

N

NV5

1 W DEER VALLEY ROAD
BUILDING 2, SUITE 305
PHOENIX, ARIZONA 85027
Tel: 623.374.6637 Fax: 623.738.3690

PROJECT VICINITY

INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

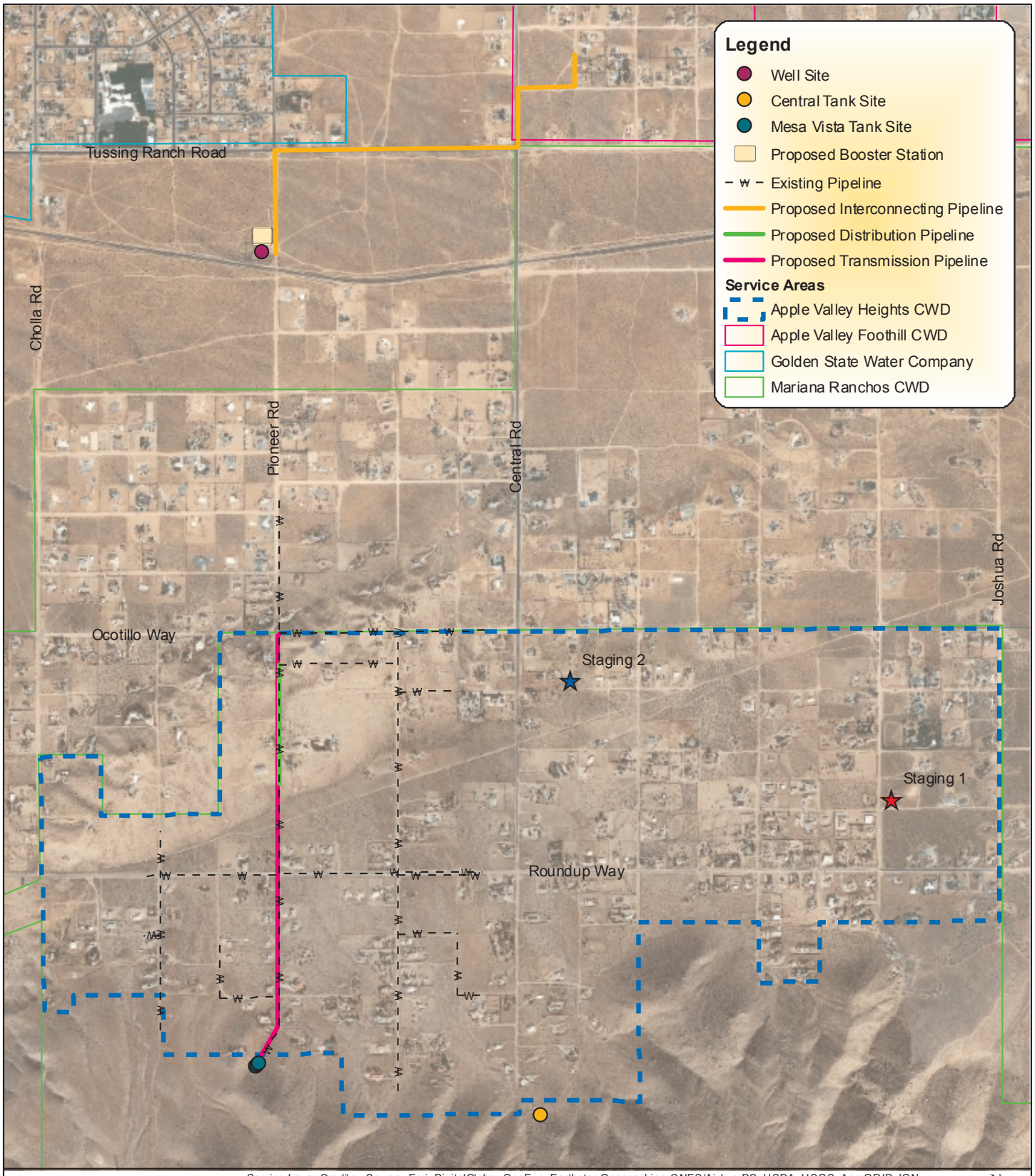
FIGURE 1

FOR:
Apple Valley Heights
County Water District

DES: RDD	DR: RDD	CHK:

PROJECT NO. 226817-0000211.00 | DATE: 9/28/2018 | SHT 1 OF 7

Document Path: E:\Projects\AppleValleyHeights\GIS\Figure 1 - Project Vicinity.mxd



0.3 Miles

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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NV5

1 W DEER VALLEY ROAD
BUILDING 2, SUITE 305
PHOENIX, ARIZONA 85027
Tel: 623.374.6637 Fax: 623.738.3690

PROJECT LOCATION

INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

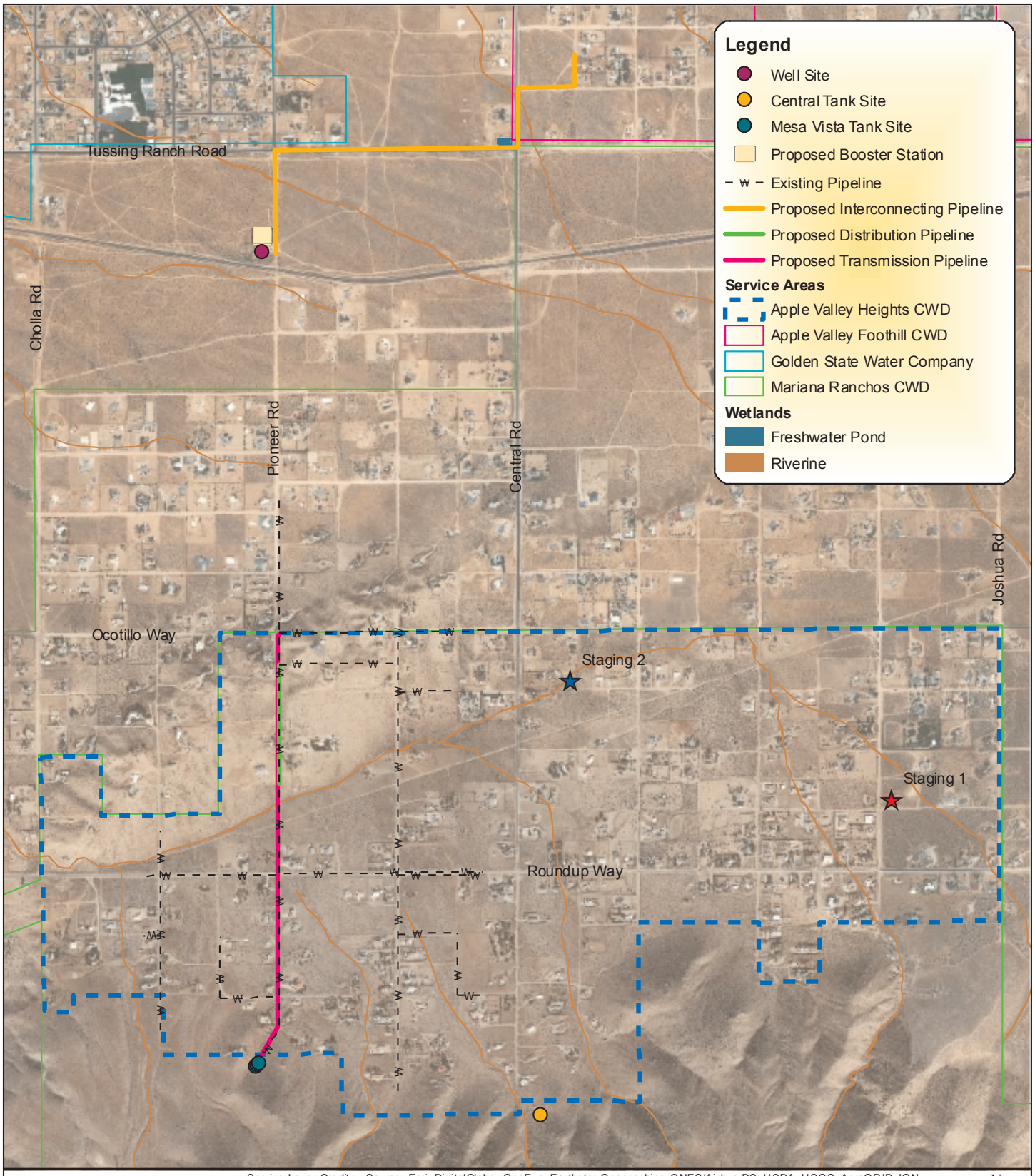
FIGURE 2

FOR:
Apple Valley Heights
County Water District

DES: RDD	DR: RDD	CHK:

PROJECT NO. 226817-0000211.00 | DATE: 11/29/2018 | SHT 2 OF 7

Document Path: E:\Projects\AppleValleyHeights\GIS\Figure 2 - Project Location R2.mxd



0.3 Miles

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The National Wetlands Inventory - Version 2

N

NV5
1 W DEER VALLEY ROAD
BUILDING 2, SUITE 305
PHOENIX, ARIZONA 85027
Tel: 623.374.6637 Fax: 623.738.3690

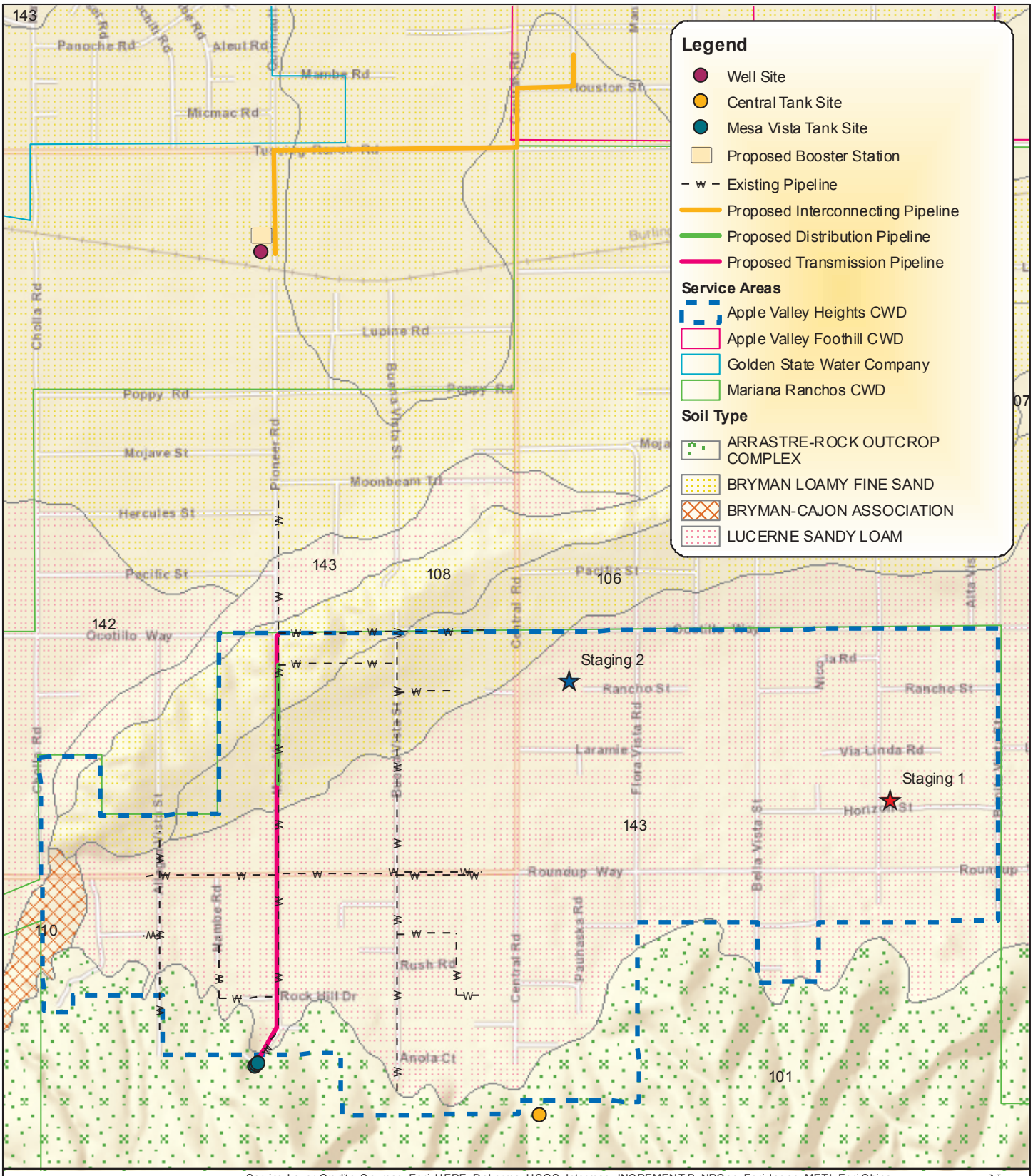
NATIONAL WETLANDS INVENTORY MAP
INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

FIGURE 3

FOR:
Apple Valley Heights
County Water District

DES: RDD	DR: RDD	CHK:
PROJECT NO. 226817-0000211.00	DATE: 11/29/2018	SHT 3 OF 7

Document Path: E:\Projects\AppleValleyHeights\GIS\Figure 3 - National Wetlands Inventory Map R2.mxd



Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community
Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey.

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SOIL MAP

INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

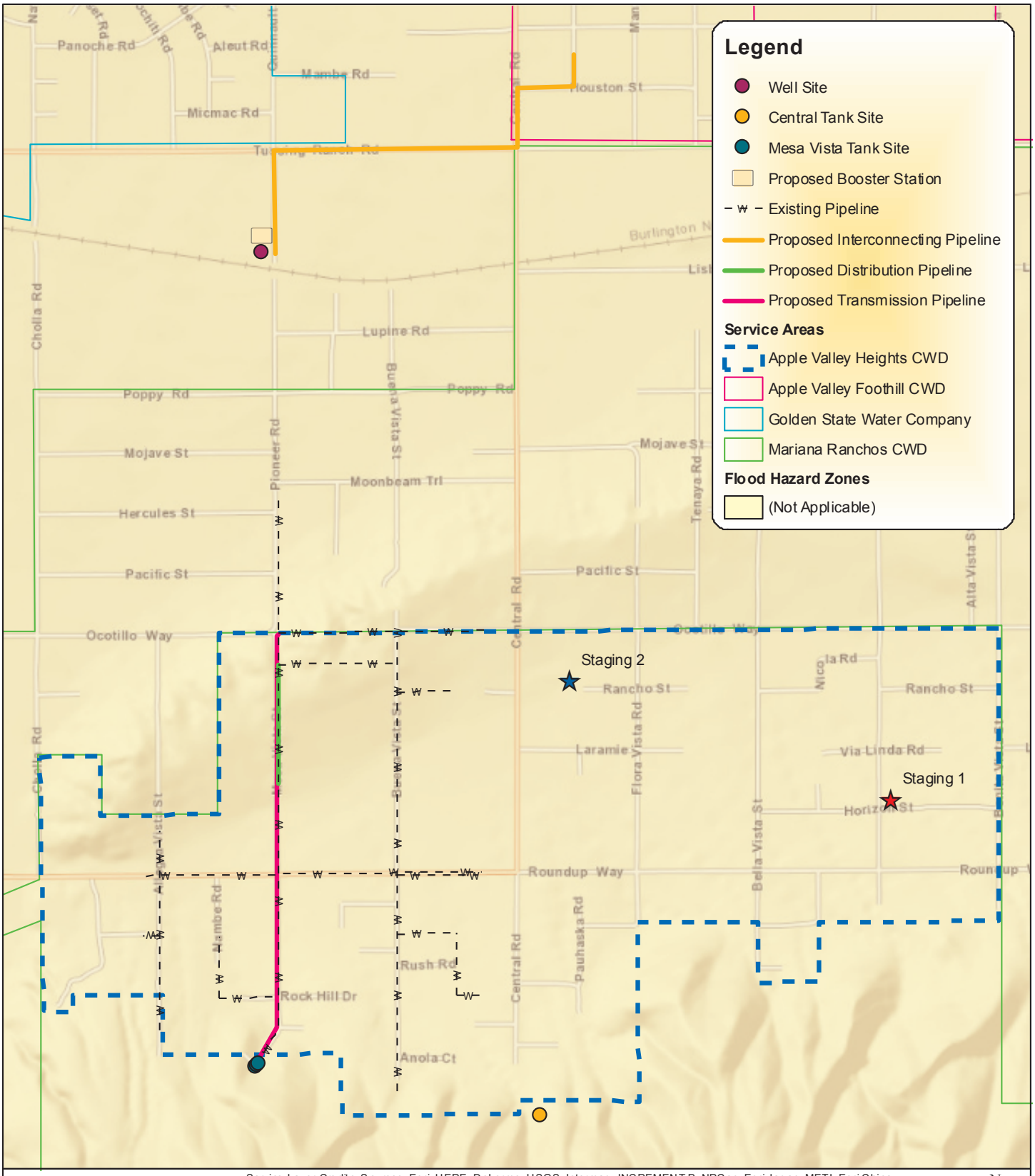
FIGURE 4

FOR:
Apple Valley Heights
County Water District

DES: RDD	DR: RDD	CHK:

PROJECT NO. 226817-0000211.00 | DATE: 11/30/2018 | SHT 4 OF 7

Document Path: E:\Projects\AppleValleyHeights\GIS\Figure 4 - Soil Map R2.mxd



0.3 Miles

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community
The S_Fld_Haz_Ar table contains information about the flood hazards within the flood risk project area. These zones are used by FEMA to designate the SFHA and for insurance rating purposes. These data are the regulatory flood zones designated by FEMA.

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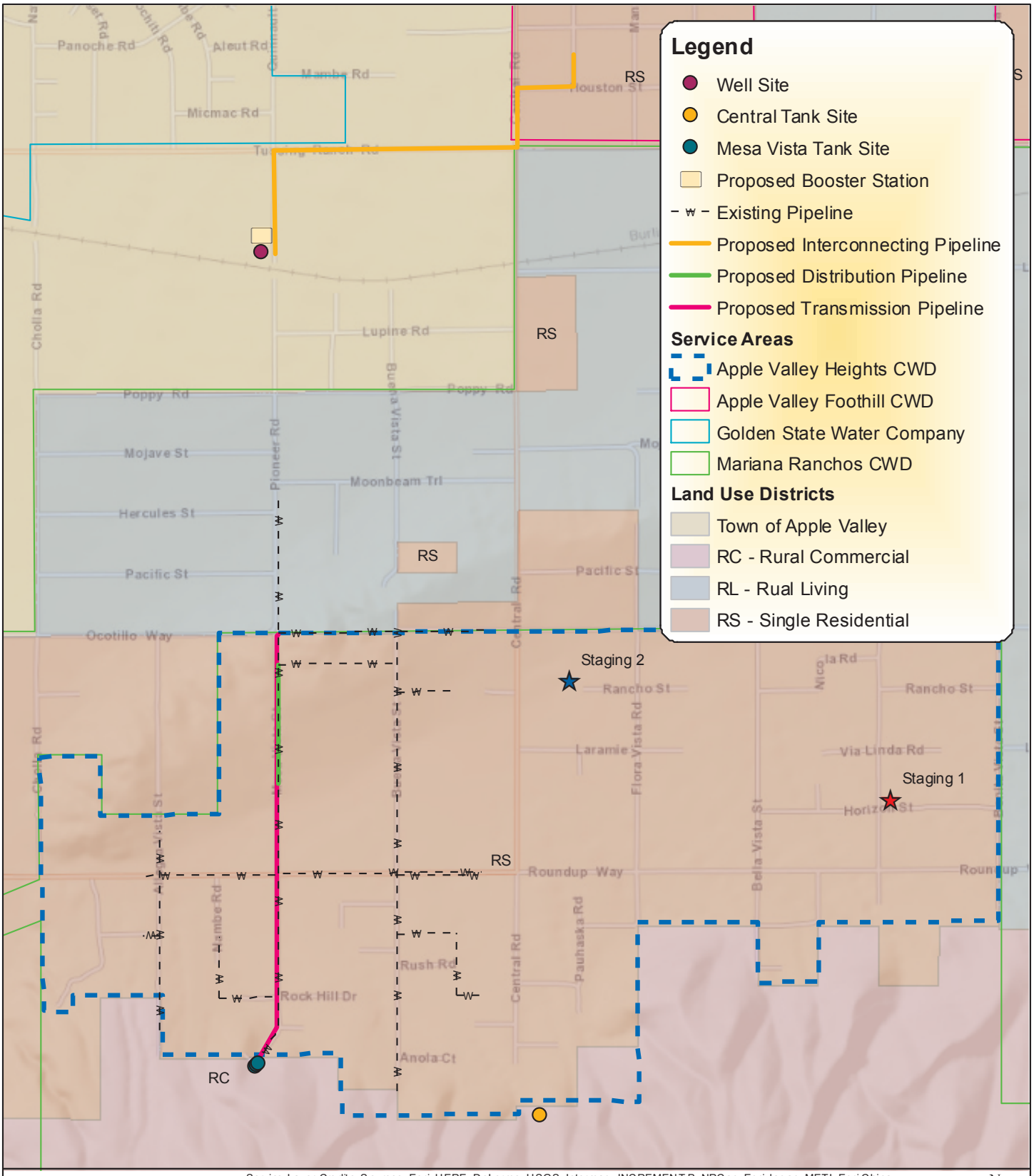
FLOOD ZONE MAP
INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

FIGURE 5

FOR:
Apple Valley Heights
County Water District

DES: RDD	DR: RDD	CHK:
PROJECT NO. 226817-0000211.00	DATE: 11/29/2018	SHT 5 OF 7

Document Path: E:\Projects\AppleValleyHeights\GIS\Figure 5 - Flood Zone Map R2.mxd



0.3 Miles

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community
Land Use Districts (Zoning) for the County of San Bernardino, Land Use Services Department. For more information on zoning for the County of San Bernardino, please visit the Land Use Services Zoning and Overlay maps webpage..

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LAND USE MAP

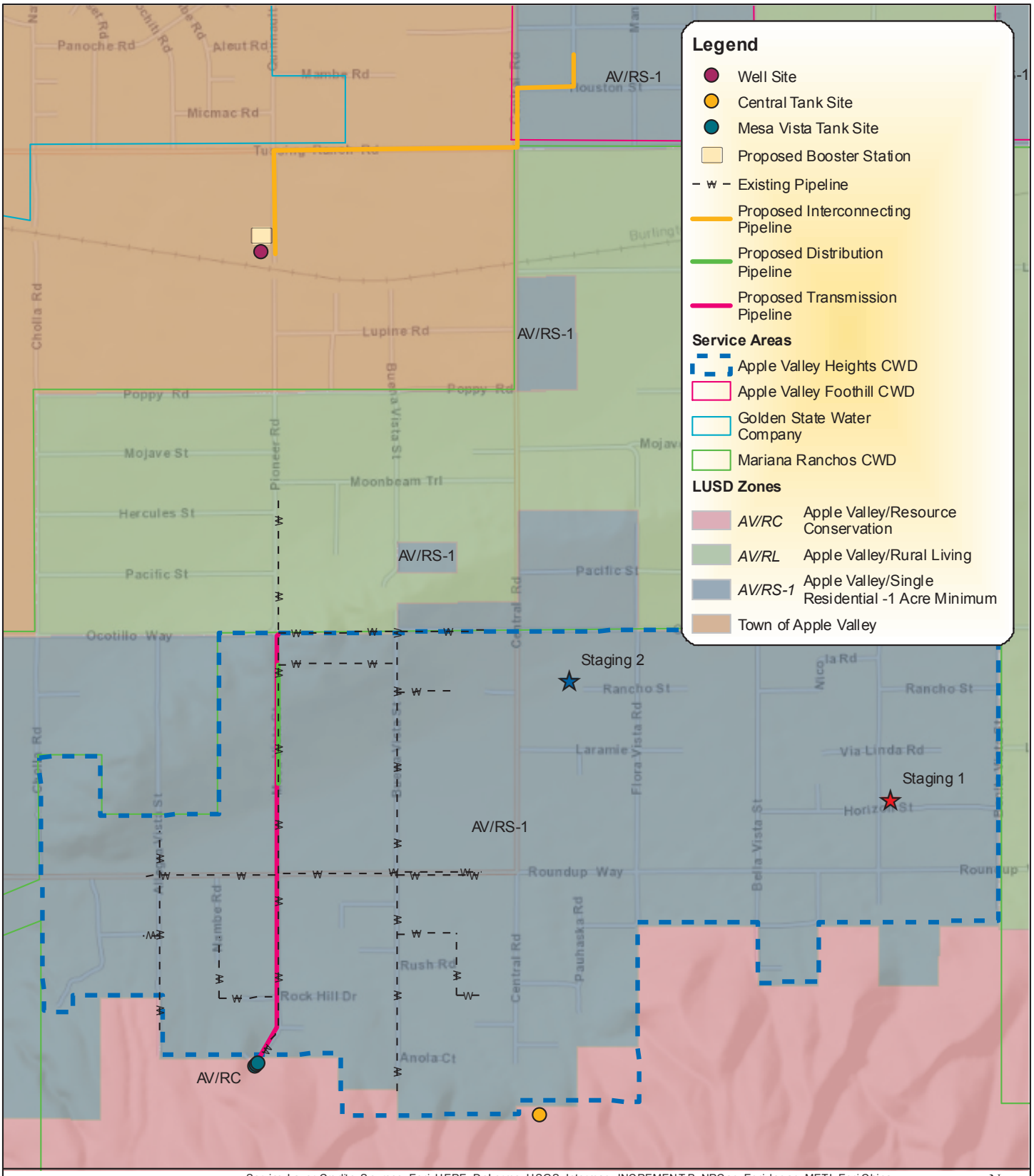
INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

FIGURE 6

FOR:
Apple Valley Heights
County Water District

DES: RDD	DR: RDD	CHK:
PROJECT NO. 226817-0000211.00	DATE: 11/29/2018	SHT 6 OF 7

Document Path: E:\Projects\AppleValleyHeights\GIS\Figure 6 - Land Use Map R2.mxd



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Tel: 623.374.6637 Fax: 623.738.3690

ZONING MAP

INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

FIGURE 7

FOR:
Apple Valley Heights
County Water District

DES: RDD	DR: RDD	CHK:
PROJECT NO. 226817-0000211.00	DATE: 11/29/2018	SHT 7 OF 7

Document Path: E:\Projects\AppleValleyHeights\GIS\Figure 7 - Zoning Map R2.mxd

NV5

Delivering Solutions
Improving Lives

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GENERAL BIOLOGICAL RESOURCES ASSESSMENT

Apple Valley Heights County Water District

SAN BERNARDINO COUNTY, CALIFORNIA

(Township 4 North, Range 3 West, USGS Apple Valley South, California Quadrangle)

Owner/Applicant

Apple Valley Heights County Water District
9429 Cerra Vista St
Apple Valley, CA 92308

Prepared by:

RCA Associates, Inc.
15555 Main Street, #D4-235
Hesperia, California 92345

Principal Investigators:
Randall Arnold, Senior Biologist
Blake Curran, Environmental Biologist
Parker Smith, Project Manager

Project No: RCA#2017-112

May 2018

TITLE PAGE

Date Report Written: **May 3, 2018**

Date Field Work Completed: **January 10, 2018**

Report Title: **General Biological Resources Assessment**

Assessor's Parcel Number: **043-303-102, 043-813-206, 043-810-448, & 043-811-205**

Prepared for:
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(760)247-7330

Principal Investigators:
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Parker L. Smith, Biological Field Technician
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Table of Contents

1.0 INTRODUCTION AND PROJECT DESCRIPTION

Biological surveys were conducted on January 10, 2018, on four separate locations in the County of San Bernadino, California (Township 4 North, Range 3 West, USGS Apple Valley South, California Quadrangle, 1956) (Appendix A: Figures 1, 2, 3, 4, 5, and 6). As part of the environmental process, California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS) data sources were reviewed.

Following the data review, surveys were performed on the site during which the biological resources on the property and in the surrounding areas were documented by biologists from RCA Associates, Inc. As part of the surveys, the property site and the adjoining lands were evaluated for the presence of native habitats which could potentially support populations of sensitive wildlife species. Focused surveys were conducted for the desert tortoise and burrowing owl, and a habitat assessment was also performed for the Mohave ground squirrel. A focused survey report for desert tortoise and burrowing owl are being prepared and will be submitted under two separate cover. The property was also evaluated for the presence of sensitive habitats including wetlands, vernal pools, riparian habitats, and jurisdictional areas.

Based on data from USFWS, CDFW, and a search of the California Natural Diversity Database (CNDDB, 2018), there are eleven sensitive species that have been documented in the region within the Apple Valley South quadrant where the project sites are located. Sensitive wildlife species include desert tortoise (*Gopherus agassizii*), burrowing owl (*Athene cunicularia*), Mohave ground squirrel (*Xerospermophilus mohavensis*), Townsend's big-eared bat (*Corynorhinus townsendii*), coast horned lizard *(Phrynosoma blainvillii*), Le Conte's thrasher (*Toxostoma lecontei*), Mohave tui chub (*Siphateles bicolor mohavensis*), and pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*). Three sensitive plant species have also been documented within the Apple Valley South quad including Booth's evening-primrose *(Eremothera boothii ssp. boothii*), San Bernardino Mountains dudleya (*Dudleya abramsii ssp. affinis*), and pinyon rockcress *(Boechera dispar*). Scientific nomenclature for this report is based on the following references: Hickman (1993), Munz (1974), Stebbins (2003), Sibley (2000) and Whitaker (1980). Tables 1 and 2 provides information on the various special status plants and animal species which occur in the area.

The project proponent, Apple Valley Heights County Water District, is proposing to improve two existing water storage tank sites, install a direct transmission pipeline to the Mesa Vista Water Tank Site, install a distribution pipeline parallel to the transmission pipeline, and install interconnections with two adjacent water systems. These improvements are described further below.

Central Water Tank Site: This site is located at the southern end of Central Road (APN 043-303-102). The site is located in the northwestern corner of the property. There are two existing water tanks. The two tanks are enclosed within a chain link fence. The terrain is rocky with steep slopes. (Appendix A, Figure 5). One existing tank is currently in use and will remain in service. The second existing tank is inactive and is being considered for removal. A new tank is being considered and would be located adjacent to the tank that is currently in use.

Mesa Vista Water Tank Site: This site is located at the southern end of Mesa Vista Street (APN 043-813-206). The site is located in the northeast corner of the property. There are three water tanks that will be replaced on site in the existing location. The tanks are enclosed within a chain link fence. The terrain consists of rocky steep slopes. (Appendix A, Figure 4). The three existing tanks will be replaced with two, larger tanks. The new tanks will occupy the site of the existing tanks. The existing tanks will be removed from the site. Minor grading toward the south is anticipated to accommodate the new tanks' larger diameters.

Transmission Pipeline Corridor: A new water transmission pipeline will be installed along Mesa Vista Street between Ocotillo Way and the Mesa Vista Tank Site. This pipeline will be installed using trenching methods. The length of the pipeline will be approximately two miles with an 8 in diameter pipe. Along this pipeline, appurtenant facilities will be installed, including valves. Mesa Vista Road is an unpaved road that is maintained by the county that travels north-south through rural residential communities.

Distribution Pipeline Corridor: Parallel and adjacent to portions of the proposed transmission pipeline, a new water distribution pipeline will be installed using trenching methods. Along this pipeline, appurtenant facilities will be installed, including valves, hydrants, and reconnections of

services to existing customers. The existing pipeline will be either abandoned in place or removed.

Interconnecting Pipeline Corridor: The installation of a transmission pipeline will run from existing well site (Well Nos. 3 and 4) north to Tussing Ranch Road for a future tie-in with Golden State Water Company. The pipeline will continue east along Tussing Ranch Road to Central Road, then north along Central Road to Houston Street, then north to Blackfoot Road. At Blackfoot Road, the pipeline will interconnect with the existing distribution system of Apple Valley Foothill County Water District. The length of the pipeline will be approximately 6,700 feet. At Apple Valley Heights County Water District's existing well site, a booster pump station will be installed. At the connection with Golden State Water Company, a metering, pressure reducing, and backflow prevention assembly will be installed. At the connection with Apple Valley Foothill County Water District, a metering, pressure reducing, and backflow prevention assembly will be installed.

Staging: The project proponent is going to have two staging sites where they will be storing equipment and material for the project. One staging area will be located the Apple Valley Heights County Water District office off Cerra Vista Road with an APN 043-810-448.

The second staging site is located off of Rancho Road (APN 043-811-205). This site is fully enclosed with a chain link fence and has been cleared of vegetation several years; although some re-vegetation has occurred. (Appendix, Figure 6)

2.0 EXISTING CONDITIONS

There are four separate sites in the County of San Bernadino, California (Township 4 North, Range 3 West, USGS Apple Valley South, California Quadrangle, 1956). All of the work will take place in a rural residential community. Two of the project sites, Central and Mesa Vista, are located on a steep rocky hill facing north, while the staging areas are on more even terrain. Each site is broken down in more comprehensive conditions of each site refer to section 5.1 in the text.

The site supports a mixed desert shrub plant community dominated by brittlebush (*Encelia farinose*), bladder sage (*Salazaria Mexicana),* rabbitbrush (*Ericameria nauseosa*), Mojave yucca (*Yucca schidigera*), and Joshua tree (*Yucca brevifolia*). Other plants noted included schismus (*Schismus barbatus*), golden cholla (*Cylindropuntia echinocarpa),* ephedra (*Ephedra nevadensis),* white bursage (*Ambrosia dumosa),* California buckwheat (*Eriogonum fasciculatum),* and brome grasses *(Bromus sp.).* Table 1 provides a list of all plants occurring on the site and in the immediate surrounding area.

The site is expected to support a variety of wildlife species on the site; however, only a few species were observed during the field investigations of which none are listed species. Mammals observed on the site or which are expected to inhabit the site include jackrabbits (*Lepus californicus*), desert cottontails (*Sylvilagus auduboni*), California ground squirrel (*Otospermophilus beecheyi*), and Merriam's kangaroo rat (*Dipodomys auduboni*). Coyotes (*Canis latrans*), which are very common in the region, also utilize the site during hunting activities.

Birds observed included ravens (*Corvus corax*), white-crowned sparrow (*Zonotrichia leucophrys*), house finch (*Carpodacus mexicanus*), mourning dove (*Zenaida macroura*), rock pigeon *(Columba livia*), and sage sparrow (*Amphispiza bellii*).

No reptiles were observed during the surveys due in large part to the time of year the field investigations were conducted (i.e., January). However, species are known to be common in the area and which are expected to inhabit the site, include desert spiny lizard (*Sceloporus magister*), side-blotched lizard (*Uta stansburiana*), western whiptail lizard (*Cnemidophorus tigris*), and

Mohave rattlesnake (*Crotolus cerastes*). Table 2 provides a compendium of wildlife species. No Federal or State listed species were observed on any of the project sites and it is RCA Associates opinion that the likely hood of them occurring onsite is minimal.

No sensitive habitats (e.g., wetlands, vernal pools, critical habitats for sensitive species, etc.) were observed on the site during the field investigations. The topography of the site is such so that water is unable to pool.

3.0 METHODOLOGIES

General biological surveys were conducted in January 2018 during which biologists from RCA Associates, Inc. initially walked meandering transects throughout the site to collect data on the plant and wildlife communities. Following completion of the initial reconnaissance survey, comprehensive surveys were performed throughout the site to document the vegetation present on the property and the wildlife species which inhabit the area. In addition to the general biological investigations, focused surveys were conducted for the desert tortoise and burrowing owl, and a habitat assessment was also performed for the Mohave ground squirrel. The applicable methodologies for the various field investigations performed are summarized below.

Initial assessment surveys were performed on the site and in the surrounding area from about 0800 to 1230 hours on January 10, 2018, specifically for the desert tortoise and burrowing owl. Weather conditions during the surveys consisted of winds 0 to 5 mph, temperatures from 45 (F) to 55(ºF) with cloud cover ranging from 0 to 25 percent. All plants and wildlife detected during the field investigations were recorded and are provided in Tables 1 & 2 along with other species that have been documented in the area (Appendix A).

General Plant and Animal Surveys: Meandering transects were walked throughout the site and in the surrounding area (i.e., the zone of influence) at a pace that allowed for careful documentation of the plant and animal present on the site. All plants observed were identified in the field and wildlife was identified through visual observations and/or by vocalizations. Tables 1 and 2 (Appendix A) provide a comprehensive compendium of the various plant and animal species observed during the field investigations.

Desert Tortoise: A habitat assessment was conducted on the site for the desert tortoises and a survey was also performed for the presence of any potential tortoise burrows by biologists from RCA Associates, Inc. Ten-meter, parallel belt transects were walked in a north-south direction until the entire property had been checked for any tortoise sign (burrows, tracks, scats, etc.). Surveys in the zone of influence (ZOI) were also conducted in the area north, east, south, and west of the site. Comprehensive field investigations were conducted throughout the site during the biological surveys and no tortoise sign was identified on the site or zone of influence.

During the various biological surveys, all transects were walked at a pace that allowed careful observations along the transect routes and in the immediate vicinity. Field notes were recorded regarding native plant assemblages, wildlife sign, and human effects in order to determine the presence or absence of suitable tortoise foraging habitat. If tortoises are found to inhabit the site in the future, a Section 10(a) incidental take permit from the USFWS and a Section 2081 permit from CDFW will be required to mitigate for impacts to the species.

Burrowing Owl: A habitat assessment (Phase 1) was conducted for the burrowing owl in conjunction with the general biological surveys to determine if the site supports suitable habitat for the species. Following completion of the habitat assessment, it was determined that the site does support suitable habitat for the burrowing owl. Therefore, a focused survey (Phase II) was conducted for burrowing owls and for the presence of occupiable (i.e., suitable) burrows which could potentially be utilized by owls. As part of the burrow survey, transects were walked throughout the site during which any suitable burrows were evaluated for owls and owl sign. The Phase II requires 4 focused surveys, as well as burrow survey which can be done concurrently as the first focused survey. These surveys are required to be on separate days separated by a reasonable amount of time, and they must be conducted during BUOW breeding season (February 1st to August 31st). Burrowing owls typically utilize burrows which have been excavated by other animals (squirrels, coyotes, foxes, dogs, etc.) since owls rarely dig their own burrows. CDFW protocol also requires surveys be conducted in the surrounding area out to a distance of about 500 feet; therefore, the zone of influence (ZOI) surveys was performed in the surrounding area of the site. If present on a site, CDFW typically requires the owls to be passively relocated during the non-breeding season.

Mohave Ground Squirrel: A habitat assessment was performed for the Mohave ground squirrel as per CDFW protocol including an analysis of the on-site habitat, evaluation of local populations, and assessment of connectivity with habitats in the surrounding area which might support populations of the Mohave ground squirrel. If a site supports suitable habitat for the Mohave ground squirrel, CDFW will require payment of a mitigation fee for the acquisition of mitigation lands to compensate for impacts to the species. In lieu of payment of mitigation fees, the proponent

may choose to conduct a live-trapping survey to definitively determine the presence/absence following consultations with CDFW.

3.1 Migratory Bird Treaty Act Provisions

Prior to any brushing, clearing and/or grading activities during the breeding season of nesting migratory birds and raptors (January 1st and August 31st), a survey must be performed by a qualified biologist that documents that no actively nesting migratory birds or raptors would be affected. If an active migratory bird or raptor nests are detected, an area 300 ft from the nest shall be staked and posted to prohibit all clearing, grubbing and construction work within the perimeter until the qualified biologist determines that the nests are no longer occupied.

4.0 LITERATURE SEARCH

As part of the environmental process, a search of the California Natural Diversity Database (CNDDB, 2018) was performed. Based on this review, it was determined that eight special status species have been documented within the Apple Valley South quadrant. The following tables provide data on each special status species which has been documented in the area.

Table 4-1: Federal and State Listed Species and State Species of Special Concern.
T = Threatened; E = Endangered; SSC = Species of special concern; CNDDB = California Natural Diversity Data Base

Name	Listing Status	Habitat Requirements	Presence/Absence
Desert tortoise (*Gopherus agassizii*)	Fed: T State: T	Desert scrub	The site is located within the known distribution of the species. Focused surveys conducted on site did not identify any tortoises.
Burrowing owl (*Athene cunicularia*)	Fed: None State: None	Grasslands and desert habitats	One occupied owl burrow observed on the site and eight burrows noted.
Mohave ground squirrel (*Xerospermophilus mohavensis*)	Fed: None State: T	Desert scrub	The site supports suitable habitat for the species. Species has been identified in the area; therefore, species may inhabit the site.
Townsend's big-eared bat (*Corynorhinus townsendii*)	Fed: None State: None	Chaparral Chenopod scrub Joshua tree woodland Meadow & seep Mojavean desert scrub	The site does not support suitable habitat for the species.
Coast horned lizard (*Phrynosoma blainvillii*)	Fed: None State: None	Desert scrub Sandy washes	The site does support suitable habitat for the species; however, no coast horned lizard observed during field surveys.
Le Conte's thrasher (*Toxostoma lecontei*)	Fed: None State: None	Desert wash Mojavean desert scrub	The site supports suitable habitat for the species. Species has been identified in the area; therefore, species may inhabit the site.
Mohave tui chub (*Siphateles bicolor mohavensis*)	Fed: E State: E	Aquatic Artificial flowing waters Artificial standing waters	The site does not support suitable habitat for the species.
pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*)	Fed: None State: None	Desert wash Pinon & juniper woodlands	The site does support suitable habitat for the species; however, no pocket mice observed during field surveys.
Booth's evening-primrose (*Eremothera boothii ssp. boothii*)	Fed: None State: None	Joshua tree woodland Pinon & juniper woodlands	The site does support suitable habitat for the species; however, no primrose observed during field surveys.

San Bernardino Mountains dudleya (*Dudleya abramsii ssp. affinis*)	Fed: None State: None	Limestone Pavement plain Pinon & juniper woodlands	The site does support suitable habitat for the species; however, no dudleya observed during field surveys.
pinyon rockcress *(Boechera dispar*)	Fed: None State: None	Joshua tree woodland Mojavean desert scrub Pinon & juniper woodlands	The site does support suitable habitat for the species; however, no rockcress observed during field surveys.

5.0 RESULTS

5.1 General Biological Resources

The site supports a mixed shrub community which covers most of the property. Species present on the site include brittlebush (*Encelia farinose*), bladder sage (*Salazaria Mexicana)*, rabbitbrush (*Ericameria nauseosa*), Mojave yucca (*Yucca schidigera*), and Joshua tree (*Yucca brevifolia*). Other plants noted included schismus (*Schismus barbatus*), cholla (*Cylindropuntia echinocarpa),* ephedra (*Ephedra nevadensis),* white bursage (*Ambrosia dumosa),* California buckwheat (*Eriogonum fasciculatum),* and brome grasses *(Bromus sp.).* Table 1 provides a compendium of all plants occurring on the site and/or in the immediate surrounding area.

Wildlife species typically found in association with creosote bush, and which were observed included jackrabbits (*Lepus californicus*), desert cottontails (*Sylvilagus auduboni*), California ground squirrel (*Otospermophilus beecheyi*), and kangaroo rat (*Dipodomys auduboni*). Coyotes (*Canis latrans*) also traverse the site regularly based on the presence of scats throughout the property. Birds observed included ravens (*Corvus corax*), American kestrel (*Falco sparverius*), house finch (*Carpodacus mexicanus*), rock pigeon *(Columba livia*), mourning dove (*Zenaida macroura*), sage sparrow (*Amphispiza bellii*), and white-crowned sparrow (*Zonotrichia leucophrys*).

Reptiles are typically inactive during the winter months; however, species common in the region which is expected to inhabit the site include desert spiny lizard (*Sceloporus magister*), side-blotched lizard (*Uta stansburiana*), western whiptail lizard (*Cnemidophorus tigris*), and Mohave rattlesnake (*Crotolus cerastes*). Table 2 provides a compendium of wildlife species observed during the various surveys and those likely to occur in the area.

No sensitive habitats (e.g., wetlands, vernal pools, critical habitats for sensitive species, etc.) were observed on the site during the field investigations.

Central Water Tanks: This project site contains two water tanks. These tanks are located approximately 50 feet away from each other and both have been enclosed with chain link fencing.

Vegetation has been cleared from inside the fenced area and also around the fence perimeter. No suitable burrows or owl activity signs (e.g., white-washing, scat) were found at this location. (Appendix A, Figure 5)

Mesa Vista Water Tanks: There are three water tanks located onsite at this project site. All three tanks exist within the same chain link fence. The site has been cleared of vegetation in the fenced area and also around the fence perimeter; however, some re-vegetation has occurred. A cottonwood tree has taken root right outside of the fenced area and seems to have established itself due to water runoff from the tanks. The site sits on the northern base of a small hill which consists of a rocky steep slope. No suitable burrows or owl activity signs (e.g., white-washing, scat, feathers) were found at this location. (Appendix A, Figure 4)

Transmission Pipeline Corridor: The pipeline corridor will encompass roughly 2 miles of linear road. The road is not paved. In the ZOI the plants consist of shrubs and grasses.

Staging Area 1: This staging area is located in the Apple Valley Heights County Water District office. The site has been cleared of vegetation some years ago; however, some re-vegetation has occurred. The office area is enclosed with a chain-link fence while the western portion is not fenced. No suitable burrows or owl activity signs (e.g., white-washing, scat, feathers) were found at this location. (Appendix A, Figure 6)

Staging Area 2: The site has been cleared of vegetation some years ago; however, some re-vegetation has occurred primarily with rabbitbrush (*Ericameria nauseosa*). The site is fully enclosed with a chain-link fence. No suitable burrows or owl activity signs (e.g., white-washing, scat, feathers) were found at this location. (Appendix A, Figure 6)

5.2 Federal and State Listed Species

Mohave Ground Squirrel: Mohave ground squirrel populations have been documented in the area (Occurrence #33, Apple Valley South quad., California quad., CNDDB, 2018), and the nearest observation was recorded in 1955 about four miles northeast of the property (CNDDB, 2018). No Mohave ground squirrels were observed during field investigations; however, the site does provide marginal habitat for the species. It is the opinion of RCA Associates, Inc that the

habitat is not prime Mohave ground squirrel habitat and is very unlikely to support populations of the species based on the following criteria:

1. The terrain of the site.
2. No connectivity with habitat which may support the species.
3. No recent documented observations in the general region.

Desert Tortoise: Desert tortoise has been documented in the area (Turtle Valley quad, California quad., CNDDB, 2018), and the nearest observation was recorded in 2000 about 15 miles northwest of the property (CNDDB, 2018). Although the site does support vegetation associated with the species, the site is not expected to support a population of the species given the absence of any tortoise sign (e.g., scats, burrows, tracks, etc.) as documented during the field investigations conducted by RCA Associates, Inc.

5.3 Wildlife Species of Special Concern and Special Status Plants

Burrowing Owl: There are owl colonies that have been observed in the region (Occurrence #924, Apple Valley South quad, California quad, 2018) with the nearest observation about 1.5 miles north of the site. This sighting was recorded in 2006 (CNDDB, 2018). No owls or owl sign (whitewash, etc.) were seen on the property during the survey, and no suitable (i.e., "occupiable") burrows were observed. The probability of owls moving onto the site in the future is low based on the results of the field investigations and the absence of any suitable burrows that the species could utilize.

Booth's evening-primrose: Booth's evening-primrose are readily identifiable and if present on the site would have been observed during the extensive field investigations conducted throughout the site. Booth's evening-primrose has been observed in the region (Occurrence #1, Apple Valley South quad, California Quad, 2018), with the most recent documented observation (1989) approximately five miles to the southwest (CNDDB, 2018). The species is not expected to occur on the site in the near future.

Mojave tui chub: Mojave tui chub have been observed within a region only in the northwest corner of the Mojave River basin (CNDDB, 2018). The most recent observation (1967) was about seven miles to the northeast of the property region (Occurrence #16, Apple Valley South quad,

California Quad, 2018). Mojave tui chub would not occur on the site, for the habitat that the warbler would use is not present.

Le Conte's thrasher: Le Conte's thrashers have been documented in the region (Occurrence #162, Apple Valley South quad, California Quad, 2018), with the most recent observation in 1991 about three miles west of the property (CNDDB, 2018). Thrashers could potentially occur on the site; although, the use of the site by thrashers may be very infrequent given the low population levels in the region as well as the lack of any recent sightings according to the CNDDB.

Coast horned lizard: Coast horned lizard has been documented in the region (Occurrence # 405, Apple Valley South quad, California Quad, 2018), with the most recent observation (1978) about four miles west of the property (CNDDB, 2018). The use of the site by coast horned lizards may be very infrequent given the low population levels in the region as well as the lack of any recent sightings according to the CNDDB.

Pinyon rockcress: Pinyon rockcress has been documented in the region (Occurrence #55, Apple Valley South quad, California Quad, 2018), with the most recent documented observation (2011) in the region was approximately 1.5 miles to the southwest (CNDDB, 2018). The species is not expected to occur on the site in the near future.

Pallid San Diego pocket mouse: Pallid San Diego pocket mouse has been documented in the region (Occurrence # 49, Apple Valley South quad, California Quad, 2018), with the most recent observation (1976) about four miles east of the property (CNDDB, 2018). The use of the site by pallid San Diego pocket mouse may be very infrequent given the low population levels in the region as well as the lack of any recent sightings according to the CNDDB.

Townsend's big-eared bat: Townsend's big-eared bat has been documented in the region (Occurrence # 18, Apple Valley South quad, California Quad, 2018), with the most recent observation (1955) about four miles north of the property (CNDDB, 2018). The use of the site by Townsend's big-eared bat may be very infrequent given the low population levels in the region as well as the lack of any recent sightings according to the CNDDB.

San Bernadino mountain dudleya: San Bernadino mountain dudleya has been documented in the region (Occurrence # 46, Apple Valley South quad, California Quad, 2018), with the most

recent observation (2011) about two miles south of the property (CNDDB, 2018). The species is not expected to occur on the site in the near future.

5.4 Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools

No wetlands and/or areas where water would pool were observed within or near the project site. In addition, no vernal pools were observed during the field investigations on the project site; consequently, the site does not support suitable habitat for fairy shrimp. The lack of suitable habitat for fairy shrimp is due to the soil that is made up of sandy loam soil which cannot hold water long enough. Thus, the site is also unable to support any sensitive vegetable that is associated with wetland features. The topography of the site is such so that water is unable to pool. Other non-vernal pool features such as depressions, drainages, and road ruts were examined for suitable fairy shrimp habitat; it is RCA Associates opinion that there is a lack of suitable habitat required for fairy shrimp.

5.5 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a Federal fisheries management plan. The project does not include any direct or indirect effects from construction activities or changes in quality/quantity that may affect Essential Fish Habitat. Due to the lack of water on the project site that might support fish species, there will be no additional surveys required.

Essential fish habitat means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (§3). For the purpose of interpreting this definition of EFH, waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR §600.10). Adverse effect means any

impact which reduces quality and/or quantity of EFH, and may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), site-specific, or habitat wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR §600.810).

5.6 Protected Plants

The California Desert Native Plant Act was passed in 1981 to protect non-listed California desert native plants from unlawful harvesting on both public and privately-owned lands. Harvest, transport, sale, or possession of specific native desert plants is prohibited unless a person has a valid permit. The following plants are under the protection of the California Desert Native Plants Act:

- Dalea spinosa (smoketree)
- All species of the genus Prosopis (mesquites)
- All species of the family Agavaceae (century plants, nolinas, yuccas)
- All species of Cactus
- Creosote Rings, ten feet in diameter or greater
- All Joshua Trees

The project site contains many types of native desert plants which are protected under the County of San Bernardino Development Code Desert Native Plant Protection Ordinance. The project would be required to comply with the County of San Bernardino Desert Native Plant Protection Ordinance. The removal of any trees listed under Section 88.01.060 would be required to comply with Section 88.01.050, which requires the project applicant to apply for a Tree or Plant Removal Permit prior to removal from the project site.

6.0 IMPACTS AND MITIGATION MEASURES

6.1 General Biological Resources

Future development of the site will impact the general biological resources present on the site, and most of the vegetation will likely be removed during future construction activities. Wildlife will also be impacted by development activities and those species with limited mobility (i.e., small mammals and reptiles) will experience increases in mortality during the construction phase. However, more mobile species (i.e., birds, large mammals) will be displaced into adjacent areas and will likely experience minimal impacts. Therefore, the minimal disturbance of desert vegetation is not expected to have a significant cumulative impact on the overall biological resources in the region given the presence of similar habitat throughout the surrounding desert region.

6.2 Federal and State Listed and Species of Special Concern

No federal or State-listed species were observed on the site during the field investigations including the Mohave ground squirrel and desert tortoise. In addition, there are no documented observations of these species either on the site or in the immediate area. The site is not expected to support populations of the desert tortoise based on the absence of any tortoise sign (e.g., burrows, scats, tracks, etc.), and although suitable habitat is present on site, the probability of the species inhabiting the site is very low. If a Federal or State listed species is observed onsite than a Section 7 Consultation would be carried out.

As per CDFW protocol, the burrowing owl survey results are valid for only 30 days; therefore, CDFW may require a 30-day pre-construction survey be performed prior to any clearing/grading activities to determine if owls have moved on to the site since the April 2018 surveys.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Future development activities are not expected to result in the removal of vegetation from the site; however, cumulative impacts to the general biological resources (plants and animals) in the surrounding area are expected to be negligible. This assumption is based on the presence of habitat on the site which is very common throughout the Mojave Desert. In addition, future development activities are not expected to have any impact on any State or Federal listed or State special status plant or animal species. As discussed above, the site does not support any desert tortoises. In addition, burrowing owls do not inhabit the site and are not expected to be impacted given the absence of any suitable burrows. Focused survey reports for desert tortoise and burrowing owl are being prepared and will be submitted under separate covers.

CDFW will require a 30-day pre-construction survey be performed immediately prior (i.e., 30-days or less) to the start of any future construction activities to determine if any owls have moved onto the site since the April 2018 surveys.

If any sensitive species are observed on the property during future activities, CDFW and USFWS (as applicable) should be contacted to discuss specific mitigation measures which may be required for the individual species. CDFW and USFWS are the only agencies which can grant authorization for the "take" of any sensitive species and can approve the implementation of any applicable mitigation measures.

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CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits, present the data and information required for this biological evaluation and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Fieldwork conducted for this assessment was performed by me or other biologists under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project.

Date: 05/03/2018 Signed: Blake Curran

Report Author

Field Work Performed By: Randall Arnold
Senior Biologist

Field Work Performed By: Parker Smith
Biological Field Technician

Field Work Performed By: Blake Curran
Environmental Biologist

Appendix A

Tables and Figures

Figure 1

Regional Vicinity Map

Credit: Google Imagery 2017, ESRI

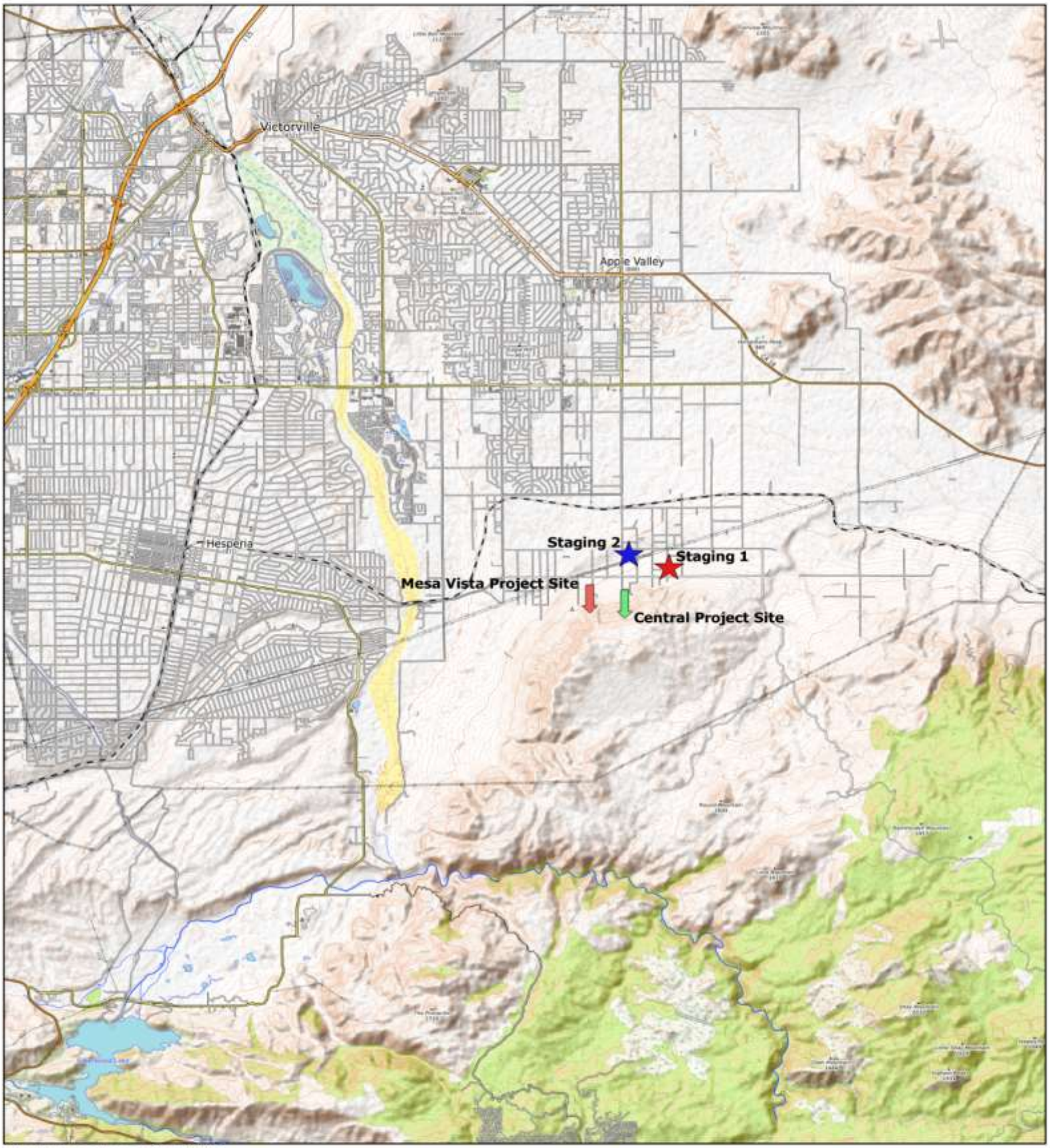
7.5 0 7.5 15 22.5 30 km

N

RCA ASSOCIATES, INC

Figure 2

Local Topographic Map



Credit: Google Imagery 2017, ESRI

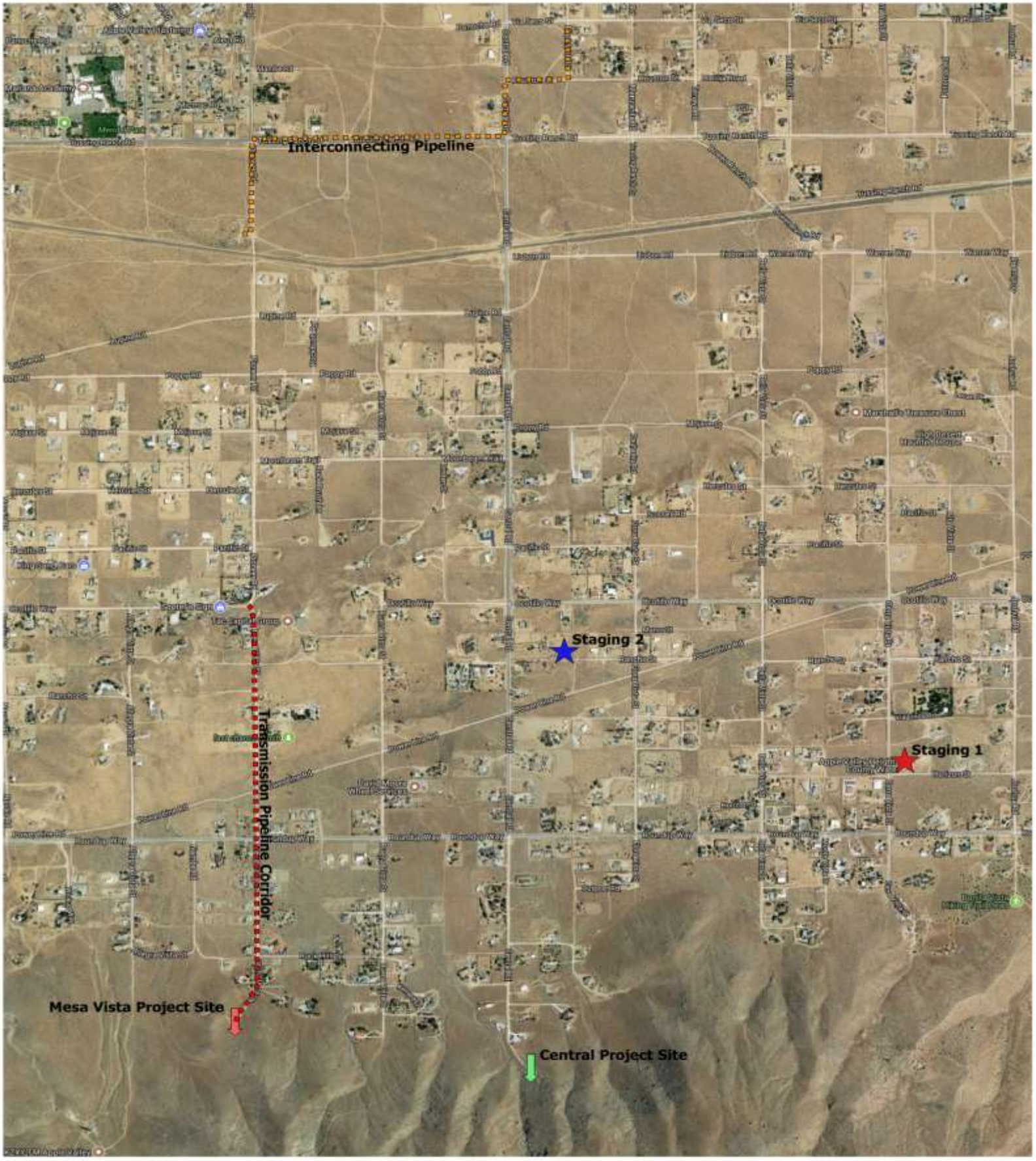
2.5 0 2.5 5 7.5 10 km

N

RCA ASSOCIATES, INC

Figure 3

Project Site Locations



Credit: Google Imagery 2018

250 0 250 500 750 1000 m

N

RCA ASSOCIATES, INC

Figure 4

MESA VISTA WATER TANK SITE

SITE LOOKING NORTH

SITE LOOKING WEST

Figure 5

CENTRAL WATER TANK SITE

SITE LOOKING WEST

SITE LOOKING NORTH

Figure 6

STAGING SITE PHOTOGRAPHS

STAGING AREA 2 SITE LOOKING NORTH

Table 1 - Plants observed on the site and known to occur in the immediate surrounding area.

Common Name	Scientific Name	Location
Joshua tree	*Yucca brevifolia*	On site
Chaparral yucca	*Hesperoyucca whipplei*	"
Mojave yucca	*Yucca schidigera*	"
Creosote bush	*Larrea tridentate*	"
Brome grass	*Bromus* sp.	"
Schismus	*Schismus barbatus*	"
Annual bursage	*Ambrosia acanthicarpa*	"
Bladder sage	*Salazaria mexicana*	"
Hedgehog cactus	*Echinocereus engelmannii*	"
Rabbitbrush	*Ericamertia nauseosus.*	"
Bladderpod	Peritoma arborea	"
Ephedra	*Ephedra nevadensis*	"
Beavertail cactus	*Cylindropuntia basilaris*	"
Fremont Cottonwood	Populus fremontii	"
Yellow-green matchweed	*Gutierrezia sarothrae*	"
Lycium	*Lycium cooperi*	"
California buckwheat	*Eriogonum fasciculatum*	"
White bursage	*Ambrosia dumosa*	"
Cheesebush	*Hymenoclea salsola*	Surrounding area
Gilia	*Gilia sp.*	"
Fiddleneck	*Amsinckia tessellata*	"
Saltbush	*Atriplex canescens*	"
Mustard	*Descurainia pinnata*	"
Golden cholla	*Cylindropuntia echinocarpa*	On-site
Indian Rice grass	*Stipa hymenoides*	"
California Juniper	*Juniperus californica*	"
Bunch grass	*Phleum sp.*	"

Note: The above list is not intended to be a comprehensive list of every plant which may occur on the site or in the zone of influence.

Table 2 - Wildlife observed on the site during the field investigations.

Common Name	Scientific Name	Location
Common raven	*Corvus corax*	On-site and in the surrounding area.
California ground squirrel	*Spermophilus beecheyi*	"
Sage sparrow	*Amphispiza belli*	"
Jackrabbit	*Lepus Californicus*	"
House sparrow	*Passer domesticus*	"
House finch	*Carpodacus mexicanus*	"
American kestrel	*Falco sparverius*	"
Rock Pigeon	*Columba livia*	"
Mourning dove	*Zenaida macroura*	"
Gambel's quail	*Callipepla californicus*	Surrounding area
Western flycatcher	*Tyrannus verticalis*	"
Western whiptail lizard	*Cnemidophorus tigris*	"
Side-blotched lizard	*Uta stansburiana*	"
Desert spiny lizard	*Sceloporus magister*	"
Say's Phoebe	*Sayornis saya*	"
Cactus wren	*Campylorhynchus brunneicapillus*	"
Antelope ground squirrel	*Ammospermophilus leucurus*	"
Merriam's kangaroo rat	*Dipodomys merriami*	"
Song sparrow	*Melospiza melodia*	"
Desert cottontail	*Sylvilagus auduboni*	"
Coyotes	*Canis latrans*	"

Note: The above Table is not a comprehensive list of every animal species which may occur in the area, but is a list of those common species which were identified on the site or which have been observed in the region by biologists from RCA Associates, Inc.

REGULATORY CONTEXT

The following provides a summary of federal and state regulatory jurisdiction over biological and wetland resources. Although most of these regulations do not directly apply to the site, given the general lack of sensitive resource, they provide important background information.

Federal Endangered Species Act

The USFWS has jurisdiction over federally listed threatened and endangered plant and animal species. The federal Endangered Species Act (ESA) and its implementing regulations prohibit the take of any fish or wildlife species that is federally listed as threatened or endangered without prior approval pursuant to either Section 7 or Section 10 of the ESA. ESA defines "take" as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Federal regulation 50CFR17.3 defines the term "harass" as an intentional or negligent act that creates the likelihood of injuring wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns such as breeding, feeding, or sheltering (50CFR17.3). Furthermore, federal regulation 50CFR17.3 defines "harm" as an act that either kills or injures a listed species. By definition, "harm" includes habitat modification or degradation that actually kills or injures a listed species by significantly impairing essential behavior patterns such as breeding, spawning, rearing, migrating, feeding, or sheltering (50CFR217.12).

Section10(a) of the ESA establishes a process for obtaining an incidental take permit that authorizes nonfederal entities to incidentally take federally listed wildlife or fish. Incidental take is defined by ESA as take that is "incidental to, and not the purpose of, the carrying out of another wise lawful activity." Preparation of a habitat conservation plan, generally referred to as an HCP, is required for all Section 10(a) permit applications. The USFWS and National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) have joint authority under the ESA for administering the incidental take program. NOAA Fisheries Service has jurisdiction over anadromous fish species and USFWS has jurisdiction over all other fish and wildlife species.

Section 7 of the ESA requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any species listed under the ESA,

or result in the destruction or adverse modification of its habitat. Federal agencies are also required to minimize impacts to all listed species resulting from their actions, including issuance or permits or funding. Section 7 requires consideration of the indirect effects of a project, effects on federally listed plants, and effects on critical habitat (ESA requires that the USFWS identify critical habitat to the maximum extent that it is prudent and determinable when a species is listed as threatened or endangered). This consultation results in a Biological Opinion prepared by the USFWS stating whether implementation of the HCP will result in jeopardy to any HCP Covered Species or will adversely modify critical habitat and the measures necessary to avoid or minimize effects to listed species.

Although federally listed animals are legally protected from harm no matter where they occur, the Section 9 of the ESA provides protection for endangered plants by prohibiting the malicious destruction on federal land and other "take" that violates State law. Protection for plants not living on federal lands is provided by the California Endangered Species Act.

California Endangered Species Act

CDFG has jurisdiction over species listed as threatened or endangered under Section 2080 of the California Fish and Game Code. Section 2080 prohibits the take of a species listed by CDFG as threatened or endangered. The state definition of take is similar to the federal definition, except that Section 2080 does not prohibit indirect harm to listed species by way of habitat modification. To qualify as take under the state ESA, an action must have direct, demonstrable detrimental effect on individuals of the species. Impacts on habitat that may ultimately result in effects on individuals are not considered take under the state ESA but can be considered take under the federal ESA.

Proponents of a project affecting a state-listed species must consult with CDFG and enter into a management agreement and take permit under Section 2081. The state ESA consultation process is similar to the federal process. California ESA does not require preparation of a state biological assessment; the federal biological assessment and the CEQA analysis or any other relevant information can provide the basis for consultation. California ESA requires that CDFG coordinate consultation for joint federally listed and state-listed species to the extent possible; generally, the state opinion for the listed species is brief and references provisions under the federal opinion.

Clean Water Act, Section 404

The COE and the U.S. Environmental Protection Agency regulate the placement of dredged or fill material into "Waters of the United States" under Section 404 of the Clean Water Act. Waters of the United States include lakes, rivers, streams, and their tributaries, and wetlands. Wetlands are defined for regulatory purposes as "areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] 328.3, 40 CFR 230.3).

The COE may issue either individual permits on a case-by-case basis or general permits on a program level. General permits are pre-authorized and are issued to cover similar activities that are expected to cause only minimal adverse environmental effects. Nationwide permits (NWP's) are general permits issued to cover particular fill activities. All NWP's have general conditions that must be met for the permits to apply to a particular project, as well as specific conditions that apply to each NWP.

Clean Water Act, Section 401

Section 401 of the Clean Water Act requires water quality certification and authorization of placement of dredged or fills material in wetlands and Other Waters of the United States. In accordance with Section 401 of the Clean Water Act, criteria for allowable discharges into surface waters have been developed by the State Water Resources Control Board, Division of Water Quality. As such, proponents of any new project which may impair water quality as a result of the project are required to create a post construction storm water management plan to insure offsite water quality is not degraded. The resulting requirements are used as criteria in granting National Pollution Discharge Elimination System (NPDES) permits or waivers, which are obtained through the Central Valley Regional Water Quality Control Board (RWQCB). Any activity or facility that will discharge waste (such as soils from construction) into surface waters, or from which waste may be discharged, must obtain an NPDES permit or waiver from the RWQCB. The RWQCB evaluates an NPDES permit application to determine whether the proposed discharge is consistent with the adopted water quality objectives of the basin plan.

California Fish and Game Code, Sections 1600-1616

Under the California Fish and Game Code, Sections1600-1616 CDFG regulates projects that divert, obstruct, or change the natural flow or bed, channel, or bank of any river, stream, or lake. Proponents of such projects must notify CDFG and enter into streambed alteration agreement with them.

Section 1602 of the California Fish and Game Code requires a state or local government agency, public utility, or private entity to notify CDFG before it begins a construction project that will: (1) divert, obstruct, or change the natural flow or the bed, bank, channel, or bank of any river, stream, or lake; (2) use materials from a streambed; or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. Once the notification is filed and determined to be complete, CDFG issues a streambed alteration agreement that contains conditions for construction and operations of the proposed project.

California Fish and Game Code, Section 3503.5

Under the California Fish and Game Code, Section 3503.5, it is unlawful to take, possess, or destroy any birds in the orders Falconiformes (hawks, eagles, and flacons) or Strigiformes (owls). Take would include the disturbance of an active nest resulting in the abandonment or loss of young.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) prohibits the taking, hunting, killing, selling, purchasing, etc. of migratory birds, parts of migratory birds, or their eggs and nests. As used in the MBTA, the term "take" is defined as "to pursue, hunt, shoot, capture, collect, kill, or attempt to pursue, hunt, shoot, capture, collect, or kill, unless the context otherwise requires." Most bird species native to North America are covered by this act.

Sensitive Natural Communities

The California Office of Planning and Research and the Office of Permit Assistance (1986) define project effects that substantially diminish habitat for fish, wildlife, or plants, or that disrupt or divide the physical arrangement of an established community as significant impacts under CEQA.

This definition applies to certain natural communities because of their scarcity and ecological values and because the remaining occurrences are vulnerable to elimination. For this study, the term "sensitive natural community" includes those communities that, if eliminated or substantially degraded, would sustain a significant adverse impact as defined under CEQA. Sensitive natural communities are important ecologically because their degradation and destruction could threaten populations of dependent plant and wildlife species and significantly reduce the regional distribution and viability of the community. If the number and extent of sensitive natural communities continue to diminish, the status of rare, threatened, or endangered species could become more precarious, and populations of common species (i.e., not special status species) could become less viable. Loss of sensitive natural communities also can eliminate or reduce important ecosystem functions, such as water filtration by wetlands and bank stabilization by riparian woodlands for example.

BURROWING OWL FOCUSED SURVEY REPORT

Apple Valley Heights County Water District

SAN BERNARDINO COUNTY, CALIFORNIA

(Township 4 North, Range 3 West, USGS Apple Valley South, California Quadrangle**)**

Owner/Applicant

Apple Valley Heights County Water District
9429 Cerra Vista St
Apple Valley, CA 92308

Prepared by:

RCA Associates, Inc.
15555 Main Street, #D4-235
Hesperia, California 92345

Principal Investigators:
Randall Arnold, Senior Biologist
Blake Curran, Environmental Biologist
Parker Smith, Project Manager

Project No: RCA#2017-112

May 2018

TITLE PAGE

Date Report Written: May 3, 2018

Date Field Work Completed: February 22th, March 7th, March 15th, and April 11th of 2018

Report Title: Burrowing Owl Focused Survey Report

Assessor's Parcel Number: 043-303-102, 043-813-206, 043-810-448, & 043-811-205

Prepared for:
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Table of Contents

EXECUTIVE SUMMARY

A focused burrowing owl (*Athene cunicularia*) survey was performed on four separate locations in the County of San Bernadino, California (Township 4 North, Range 3 West, USGS Apple Valley South, California Quadrangle, 1956) (Figures 1, 2, 3, and 4). The project proponent, Apple Valley Heights County Water District, is proposing to improve two existing water storage tank sites, install a direct transmission pipeline to the Mesa Vista Water Tank Site, install a distribution pipeline parallel to the transmission pipeline, and install interconnections with two adjacent water systems. The proposed project is broken up into several work sites and they are discussed below in greater detail in section 1.0.

It was determined during an initial assessment that the site supports potential habitat for burrowing owls. Therefore, focused surveys were required to be completed prior to the start of any construction activities. Four site visits were completed between February and April 2018 during which transects were walked throughout the site to determine the presence or absence of suitable (i.e., occupiable) burrows and/or burrowing owls. The survey was performed as per the requirements of the California Department of Fish and Wildlife (CDFW) survey protocol (CDFW, 2012).

No burrowing owls or owl sign were observed during the surveys and no suitable burrows were identified. Based on these factors and lack of suitable, there is very little potential for the property to support populations of the burrowing owl in the future. The following sections provide a discussion of the survey results which are valid for 30-days as per CDFW requirements. If burrowing owls are observed on the property in the future, the owls should not be removed, harassed, or in any way disturbed regardless of the results of this survey. To do so may constitute a violation of State and City regulations.

If owls are encountered during future development activities, all activities should cease and CDFW should be notified.

1.0 PROJECT AND PROPERTY DESCRIPTION

There are four separate sites in the County of San Bernadino, California (Township 4 North, Range 3 West, USGS Apple Valley South, California Quadrangle, 1956). All of the work will take place in a rural residential community. The project proponent, Apple Valley Heights County Water District, is proposing to improve two existing water storage tank sites, install a direct transmission pipeline to the Mesa Vista Water Tank Site, install a distribution pipeline parallel to the transmission pipeline, and install interconnections with two adjacent water systems.

Central Water Tank Site: This site is located at the southern end of Central Road (APN 043-303-102). The site is located in the northwestern corner of the property. There are two existing water tanks. The two tanks are enclosed within a chain link fence. The terrain is rocky with steep slopes. (Figure 3). One existing tank is currently in use and will remain in service. The second existing tank is inactive and is being considered for removal. A new tank is being considered and would be located adjacent to the tank that is currently in use.

Mesa Vista Water Tank Site: This site is located at the southern end of Mesa Vista Street (APN 043-813-206). The site is located in the northeast corner of the property. There are three water tanks that will be replaced on site in the existing location. The tanks are enclosed within a chain link fence. The terrain consists of rocky steep slopes. (Figure 3). The three existing tanks will be replaced with two, larger tanks. The new tanks will occupy the site of the existing tanks. The existing tanks will be removed from the site. Minor grading toward the south is anticipated to accommodate the new tanks' larger diameters.

Transmission Pipeline Corridor: A new water transmission pipeline will be installed along Mesa Vista Street between Ocotillo Way and the Mesa Vista Tank Site. This pipeline will be installed using trenching methods. The length of the pipeline will be approximately two miles with an 8 in diameter pipe. Along this pipeline, appurtenant facilities will be installed, including valves. Mesa Vista Road is an unpaved road that is maintained by the county that travels north-south through rural residential communities.

Distribution Pipeline Corridor: Parallel and adjacent to portions of the proposed transmission pipeline, a new water distribution pipeline will be installed using trenching methods. Along this pipeline, appurtenant facilities will be installed, including valves, hydrants, and reconnections of services to existing customers. The existing pipeline will be either abandoned in place or removed.

Interconnecting Pipeline Corridor: The installation of a transmission pipeline will run from existing well site (Well Nos. 3 and 4) north to Tussing Ranch Road for a future tie-in with Golden State Water Company. The pipeline will continue east along Tussing Ranch Road to Central Road, then north along Central Road to Houston Street, then north to Blackfoot Road. At Blackfoot Road, the pipeline will interconnect with the existing distribution system of Apple Valley Foothill County Water District. The length of the pipeline will be approximately 6,700 feet. At Apple Valley Heights County Water District's existing well site, a booster pump station will be installed. At the connection with Golden State Water Company, a metering, pressure reducing, and backflow prevention assembly will be installed. At the connection with Apple Valley Foothill County Water District, a metering, pressure reducing, and backflow prevention assembly will be installed.

Staging: The project proponent is going to have two staging sites where they will be storing equipment and material for the project. One staging area will be located the Apple Valley Heights County Water District office off Cerra Vista Road with an APN 043-810-448.

The second staging site is located off of Rancho Road (APN 043-811-205). This site is fully enclosed with a chain link fence and has been cleared of vegetation several years; although some re-vegetation has occurred.

The site supports a mixed desert shrub plant community dominated by brittlebush (*Encelia farinose*), bladder sage (*Salazaria Mexicana),* rabbitbrush (*Ericameria nauseosa*), Mojave yucca (*Yucca schidigera*), and Joshua tree (*Yucca brevifolia*). Other plants noted included schismus (*Schismus barbatus*), golden cholla (*Cylindropuntia echinocarpa),* ephedra (*Ephedra nevadensis),* white bursage (*Ambrosia dumosa),* California buckwheat (*Eriogonum fasciculatum),* and brome

grasses *(Bromus sp.).* Table 1 provides a list of all plants occurring on the site and in the immediate surrounding area.

No sensitive habitats or wildlife movement corridors were noted on the property, and although intermittent blueline channels are present throughout the area of Apple Valley, CA Quad map, the proposed project will not have an effect on any of these channels.

A total of four (4) focused burrowing owl surveys were performed on February 22th, March 7th, March 15th, and April 11th of 2018 during which meandering 30-meter transects were walked throughout the site to determine the presence/absence of burrowing owls, active owl burrows, and/or owl sign (excrement, casting, etc.). Weather conditions during the 2018 surveys consisted of winds ranging from 0 to 5 mph, temperatures in the mid 40's (AM, °F) to mid-60's (AM, °F) with approximately 0-25 percent cloud coverage.

2.0 LITERATURE AND RECORD REVIEW - BURROWING OWL

As part of the environmental process, California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS) data sources were reviewed prior to initiation of field surveys to determine if burrowing owls have been documented on the site or in the area surrounding the property. Based on the literature review and evaluation of the CNDDB database for the area, it was determined that the property is located within the general distribution of the burrowing owl. In addition, ten (10) documented occurrences of burrowing owls have been identified in the surrounding area according to CNDDB (2018). However, owls have not been previously identified on the site. (CNDDB, 2018).

The burrowing owl is a year-long resident of open, dry grassland and desert habitats. The species was formerly common throughout central and southern California; however, the species has seen a significant reduction over the last few decades due to development activities; farming activities, predation by dogs and cats, and habitat destruction (Zeiner 1990). Conversions of grassland and desert habitats to agricultural fields and residential developments have contributed to the greatest amount of habitat destruction in recent decades. The reduction in population levels was noted as early as the 1940s. Burrowing owls primarily prey upon insects; although, small mammals, lizards, birds, and carrion make up a portion of the owl's diet (Zeiner 1990). Burrowing owls typically utilize abandoned California ground squirrel burrows for roosting and nesting.

The burrowing owl is a migratory bird species protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter, any migratory bird listed in 50 C.F.R.Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. 21). Sections 3503, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs. Implementation of the take provisions requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (January 1 - August 31st, annually). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or the loss of habitat upon which the birds depend is

considered “taking” and is potentially punishable by fines and/or imprisonment. Such taking would also violate federal law protecting migratory birds (e.g.,MBTA).

The burrowing owl is a Species of Special Concern to California because of declines of suitable habitat and both localized and statewide population declines. Guidelines for the Implementation of the California Environmental Quality Act (CEQA) provide that a species be considered as endangered or “rare” regardless of appearance on a formal list for the purposes of the CEQA (Guidelines, Section 15380, subsections b and d). The CEQA requires a mandatory finding of significance if impacts to threatened or endangered species are likely to occur (Sections 21001(c), 21083. Guidelines 15380, 15064, 15065). Avoidance or mitigation must be presented to reduce impacts to less than significant levels.

3.0 METHODOLOGY

The California Burrowing Owl Consortium's *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC 1993) recommend a four-step approach to surveying for this species. An initial assessment of the site by biologists from RCA Associates, Inc. (Blake Curran and Parker Smith) determined that suitable owl habitat was present on the property. Because the assessment indicated that the site does contain suitable burrowing owl habitat, the remaining three phases of the survey were performed. Burrowing owls are typically found in a wide variety of habitats including disturbed grasslands, agricultural areas, and developed areas. Therefore, focused surveys were performed on February 22th, March 7th, March 15th, and April 11th of 2018 to determine if any owls, owl sign, or suitable burrows are currently present on the site.

As required by survey protocol, 30-meter, parallel belt transects were walked in a north-south direction until the site had been checked for owls and/or owl sign (burrows, tracks, scats, etc.). The survey protocol also requires that zone of influence (ZOI) surveys be conducted in the surrounding area out to a distance of 500-feet. All transects were walked at a pace that allowed careful observations along the transect routes and in the immediate vicinity. Field notes were recorded regarding native plant assemblages, wildlife sign, and human effects in order to determine the presence or absence of suitable owl habitat. Each survey was performed from about 0700 to 1000 hours.

Focused surveys combined with the identification of the habitat on the site and in the surrounding area will provide data on the potential presence or absence of burrowing owls. Temperatures during the surveys were in the mid 40's - mid 60's (˚F) wind speeds of about 5 mph, and cloud coverage at 0-25 percent. No precipitation was recorded during the surveys.

Limitations:

The results of this report do not constitute authorization for the "take" (impact) of burrowing owls or any other listed or sensitive wildlife species. The authorization to impact the burrowing owl can only be granted by CDFW.

4.0 GENERAL BIOLOGICAL SURVEY RESULTS

The site supports a mixed shrub community which covers most of the property. Species present on the site include brittlebush (*Encelia farinose*), bladder sage (*Salazaria Mexicana)*, rabbitbrush (*Ericameria nauseosa*), Mojave yucca (*Yucca schidigera*), and Joshua tree (*Yucca brevifolia*). Other plants noted included schismus (*Schismus barbatus*), cholla (*Cylindropuntia echinocarpa),* ephedra (*Ephedra nevadensis),* white bursage (*Ambrosia dumosa),* California buckwheat (*Eriogonum fasciculatum),* and brome grasses *(Bromus sp.).* Table 1 provides a compendium of all plants occurring on the site and/or in the immediate surrounding area.

Wildlife species typically found in association with creosote bush, and which were observed included jackrabbits (*Lepus californicus*), desert cottontails (*Sylvilagus auduboni*), California ground squirrel (*Otospermophilus beecheyi*), and kangaroo rat (*Dipodomys auduboni*). Coyotes (*Canis latrans*) also traverse the site regularly based on the presence of scats throughout the property. Birds observed included ravens (*Corvus corax*), American kestrel (*Falco sparverius*), house finch (*Carpodacus mexicanus*), rock pigeon *(Columba livia*), mourning dove (*Zenaida macroura*), sage sparrow (*Amphispiza bellii*), and white-crowned sparrow (*Zonotrichia leucophrys*).

Reptiles are typically inactive during the winter months; however, species common in the region which is expected to inhabit the site include desert spiny lizard (*Sceloporus magister*), side-blotched lizard (*Uta stansburiana*), western whiptail lizard (*Cnemidophorus tigris*), and Mohave rattlesnake (*Crotolus cerastes*). Table 2 provides a compendium of wildlife species observed during the various surveys and those likely to occur in the area.

No sensitive habitats (e.g., wetlands, vernal pools, critical habitats for sensitive species, etc.) were observed on the site during the field investigations.

Central Water Tanks: This project site contains two water tanks. These tanks are located approximately 50 feet away from each other and both have been enclosed with chain link fencing. Vegetation has been cleared from inside the fenced area and also around the fence perimeter. No

suitable burrows or owl activity signs (e.g., white-washing, scat) were found at this location. (Figure 4)

Mesa Vista Water Tanks: There are three water tanks located onsite at this project site. All three tanks exist within the same chain link fence. The site has been cleared of vegetation in the fenced area and also around the fence perimeter; however, some re-vegetation has occurred. A cottonwood tree has taken root right outside of the fenced area and seems to have established itself due to water runoff from the tanks. The site sits on the northern base of a small hill which consists of a rocky steep slope. No suitable burrows or owl activity signs (e.g., white-washing, scat, feathers) were found at this location. (Figure 4)

Transmission/Interconnection Pipeline Corridor: The pipeline corridor will encompass roughly 2 miles of linear road. The road is not paved. In the ZOI the plants consist of shrubs and grasses.

Staging Area 1: This staging area is located in the Apple Valley Heights County Water District office. The site has been cleared of vegetation some years ago; however, some re-vegetation has occurred. The office area is enclosed with a chain-link fence while the western portion is not fenced. No suitable burrows or owl activity signs (e.g., white-washing, scat, feathers) were found at this location.

Staging Area 2: The site has been cleared of vegetation some years ago; however, some re-vegetation has occurred primarily with rabbitbrush (*Ericameria nauseosa*). The site is fully enclosed with a chain-link fence. No suitable burrows or owl activity signs (e.g., white-washing, scat, feathers) were found at this location.

5.0 RESULTS – BURROWING OWL

PHASE I HABITAT ASSESSMENT RESULTS

During the Phase I habitat assessment, physical and biological characteristics of the project site were compared to burrowing owl habitat requirements in an effort to determine whether the site is suitable for this species. The project site is within the geographic range of the burrowing owl, as depicted on current range maps, and on-site elevations are within the range occupied by the species (Haug et al. 1993). Vegetation on-site is composed of creosote-white burr sage scrub, a community that is well represented throughout the Mojave Desert and that is known to be capable of supporting burrowing owls. Based on this information, the project site contains suitable habitat for the burrowing owl.

PHASE II TRANSECT SURVEY RESULTS

During Phase II transect surveys, the overall density of animal burrows within the project site was observed to be low. Occasional small mammal burrows, likely those of kangaroo rats (*Dipodomys spp.*), pocket mouse (*Perognathus spp*.), and/or desert woodrat (*Neotoma lepida*) were observed but were not of sufficient size to accommodate a burrowing owl. From the results of the transect survey, it was determined the project site did not contain any suitable burrowing for the burrowing owl. As per requested by the CDFW, a full nesting season survey was to be performed for this particular project.

PHASE III OWL CENSUS AND OBSERVATION RESULTS

Phase III of the burrowing owl survey protocol was performed for the project site to monitor for any observations of owl sightings or activity.

The focused surveys for the burrowing owl conducted on February 22th, March 7th, March 15th, and April 11th of 2018 did not identify any owls or owl sign (i.e., whitewash, castings, etc.). In addition, no occupiable burrows were observed on the site reducing the likelihood the species will inhabit the site in the future given the fact burrowing owls rely upon abandoned burrows which have been excavated by other animals (i.e., coyotes, foxes, ground squirrels, etc.).

PHASE IV SURVEY REPORT

Phase IV of the burrowing owl survey protocol involves preparing a survey report that presents the results of the protocol surveys. This Focused Burrowing Owl Survey Report constitutes the Phase IV report for the project site.

6.0 IMPACTS AND RECOMMENDATIONS

Future development of the site is not expected to have any direct or indirect impacts on burrowing owls or occupied owl habitat based on the results of the focused surveys conducted on February 22th, March 7th, March 15th, and April 11th of 2018. No additional investigations are recommended at this time. However, CDFW requires a 30-day pre-construction survey be performed immediately prior (i.e., 30-days or less) to the start of any future construction activities to determine if any owls have moved onto the site since the April 2018 surveys.

If any special status wildlife species are observed on the property during future development activities, CDFW and USFWS (as applicable) should be contacted to discuss specific mitigation measures which may be required for the individual species. CDFW and USFWS are the only agencies which can grant authorization for the "take" of any sensitive species.

This Focused Burrowing Owl Survey Report and mitigation measures recommended herein do not constitute authorization for incidental take of migratory birds.

7.0 REFERENCES

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FIGURES

Figure 1

Regional Vicinity Map

Credit: Google Imagery 2017, ESRI

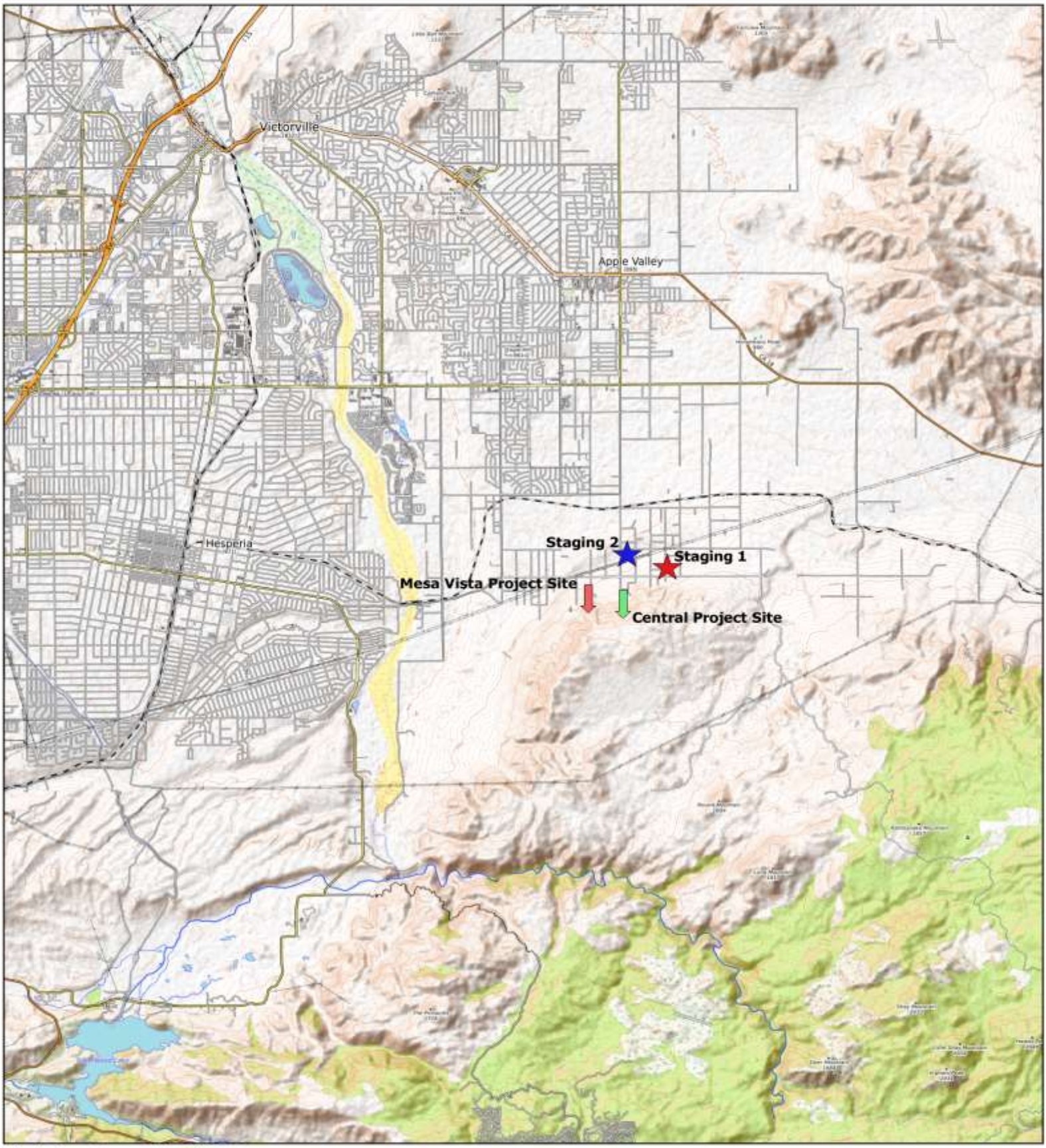
7.5 0 7.5 15 22.5 30 km

N

RCA ASSOCIATES, INC

Figure 2

Local Topographic Map



Credit: Google Imagery 2017, ESRI

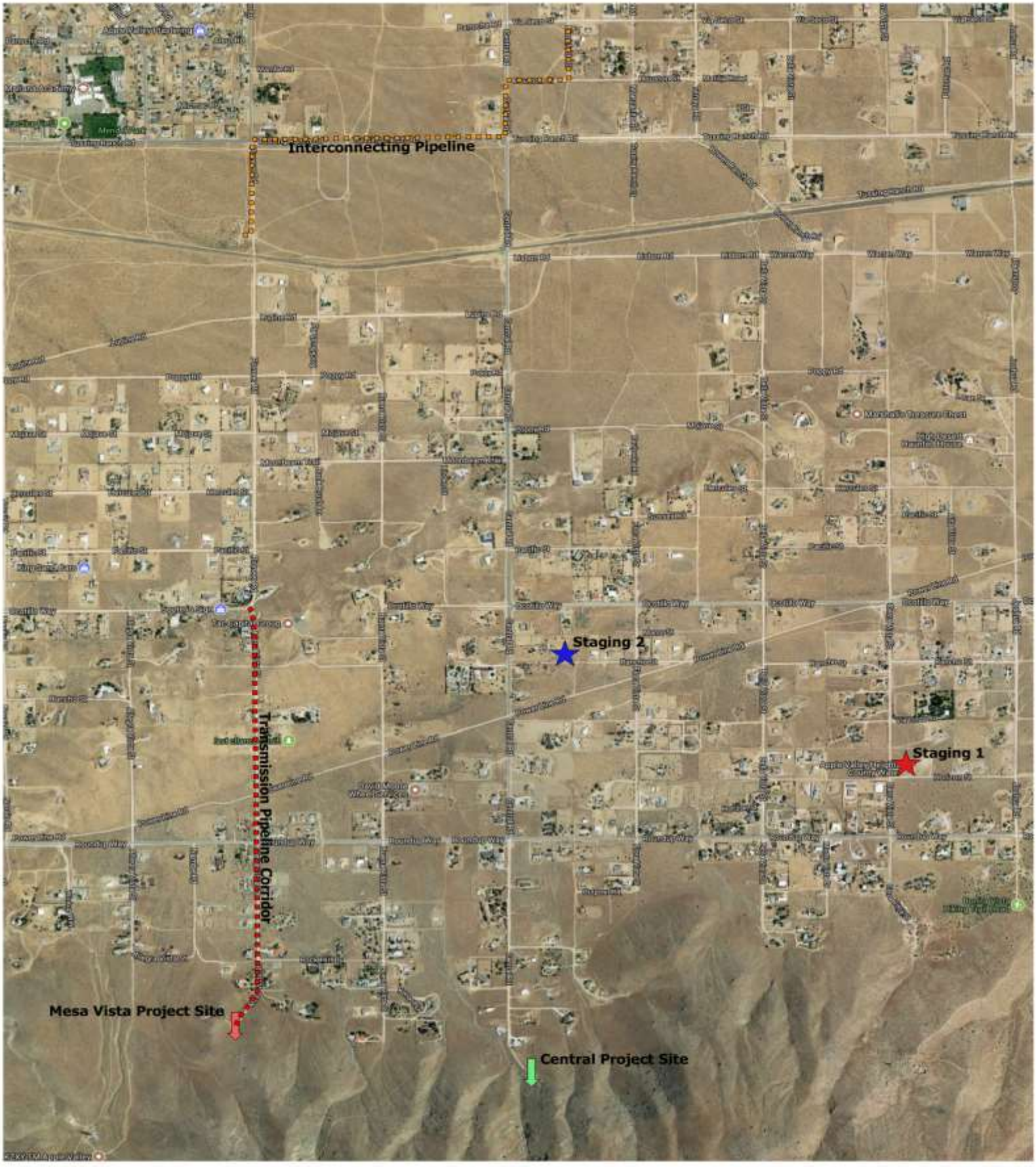
2.5 0 2.5 5 7.5 10 km

N

RCA ASSOCIATES, INC

Figure 3

Project Site Locations



Credit: Google Imagery 2018

250 0 250 500 750 1000 m

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RCA ASSOCIATES INC

Figure 4

Site Photographs

CENTRAL WATER TANK SITE

MESA VISTA WATER TANK SITE

Figure 4 Cont.

Site Photographs

STAGING AREA

APPENDIX A

Burrowing Owl Occurrences

Burrowing Owl occurrences within the region based on the California Diversity Data Base (2015). (SC = Species of special concern)

Name	Listing Status	Habitat Requirements	Presence/Absence	Comments (Other owl colonies in the region.)
Burrowing owl (*Athene cuniculuria*)	CDFW: SC	Various: desert scrub, agricultural lands, disturbed areas	Site does support suitable habitat for the species; however, no burrowing owls or sign observed on site.	Ten (10) documented occurrences within approximately 5 miles of the property.

APPENDIX B

Flora and Fauna Compendia

Table 1 - Plants observed on the site and known to occur in the immediate surrounding area.

Common Name	Scientific Name	Location
Joshua tree	*Yucca brevifolia*	On site
Chaparral yucca	*Hesperoyucca whipplei*	“
Mojave yucca	*Yucca schidigera*	“
Creosote bush	*Larrea tridentate*	“
Brome grass	*Bromus* sp.	“
Schismus	*Schismus barbatus*	“
Annual bursage	*Ambrosia acanthicarpa*	“
Bladder sage	*Salazaria mexicana*	“
Hedgehog cactus	*Echinocereus engelmannii*	“
Rabbitbrush	*Ericamertia nauseosus.*	“
Bladderpod	Peritoma arborea	“
Ephedra	*Ephedra nevadensis*	“
Beavertail cactus	*Cylindropuntia basilaris*	“
Fremont Cottonwood	Populus fremontii	“
Yellow-green matchweed	*Gutierrezia sarothrae*	“
Lycium	*Lycium cooperi*	“
California buckwheat	*Eriogonum fasciculatum*	“
White bursage	*Ambrosia dumosa*	“
Cheesebush	*Hymenoclea salsola*	Surrounding area
Gilia	*Gilia sp.*	“
Fiddleneck	*Amsinckia tessellata*	“
Saltbush	*Atriplex canescens*	“
Mustard	*Descurainia pinnata*	“
Golden cholla	*Cylindropuntia echinocarpa*	On-site
Indian Rice grass	*Stipa hymenoides*	“
California Juniper	*Juniperus californica*	“
Bunch grass	*Phleum sp.*	“

Note: The above list is not intended to be a comprehensive list of every plant which may occur on the site or in the zone of influence.

Table 2 - Wildlife observed on the site during the field investigations.

Common Name	Scientific Name	Location
Common raven	*Corvus corax*	On-site and in the surrounding area.
California ground squirrel	*Spermophilus beecheyi*	“
Sage sparrow	*Amphispiza belli*	“
Jackrabbit	*Lepus Californicus*	“
House sparrow	*Passer domesticus*	“
House finch	*Carpodacus mexicanus*	“
American kestrel	*Falco sparverius*	“
Rock Pigeon	*Columba livia*	“
Mourning dove	*Zenaida macroura*	“
Gambel’s quail	*Callipepla californicus*	Surrounding area
Western flycatcher	*Tyrannus verticalis*	“
Western whiptail lizard	*Cnemidophorus tigris*	“
Side-blotched lizard	*Uta stansburiana*	“
Desert spiny lizard	*Sceloporus magister*	“
Say’s Phoebe	*Sayornis saya*	“
Cactus wren	*Campylorhynchus brunneicapillus*	“
Antelope ground squirrel	*Ammospermophilus leucurus*	“
Merriam’s kangaroo rat	*Dipodomys merriami*	“
Song sparrow	*Melospiza melodia*	“
Desert cottontail	*Sylvilagus auduboni*	“
Coyotes	*Canis latrans*	“

Note: The above Table is not a comprehensive list of every animal species which may occur in the area, but is a list of those common species which were identified on the site or which have been observed in the region by biologists from RCA Associates, Inc.

CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits, present the data and information required for this biological evaluation and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Fieldwork conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project.

Date: 05/03/2018 Signed: Blake Curran

Report Author

Field Work Performed By: Randall Arnold
Senior Biologist

Field Work Performed By: Parker Smith
Biological Technician

Field Work Performed By: Blake Curran
Environmental Biologist

REGULATORY BACKGROUND

The following provides a summary of federal and state regulatory jurisdiction over biological and wetland resources. Although most of these regulations do not directly apply to the site, given the general lack of sensitive resource, they provide important background information.

Burrowing Owl Context

The burrowing owl is a migratory bird species protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter, any migratory bird listed in 50 C.F.R.Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. 21). Sections 3503, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs. Implementation of the take provisions requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (March 1 - August 15, annually). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or the loss of habitat upon which the birds depend is considered "taking" and is potentially punishable by fines and/or imprisonment. Such taking would also violate federal law protecting migratory birds (e.g.,MBTA).

The burrowing owl is a Species of Special Concern to California because of declines of suitable habitat and both localized and statewide population declines. Guidelines for the Implementation of the California Environmental Quality Act (CEQA) provide that a species be considered as endangered or "rare" regardless of appearance on a formal list for the purposes of the CEQA (Guidelines, Section 15380, subsections b and d). The CEQA requires a mandatory finding of significance if impacts to threatened or endangered species are likely to occur (Sections 21001(c), 21083. Guidelines 15380, 15064, 15065). Avoidance or mitigation must be presented to reduce impacts to less than significant levels.

Federal Endangered Species Act

The USFWS has jurisdiction over federally listed threatened and endangered plant and animal species. The federal Endangered Species Act (ESA) and its implementing regulations prohibit the

take of any fish or wildlife species that is federally listed as threatened or endangered without prior approval pursuant to either Section 7 or Section 10 of the ESA. ESA defines "take" as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Federal regulation 50CFR17.3 defines the term "harass" as an intentional or negligent act that creates the likelihood of injuring wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns such as breeding, feeding, or sheltering (50CFR17.3). Furthermore, federal regulation 50CFR17.3 defines "harm" as an act that either kills or injures a listed species. By definition, "harm" includes habitat modification or degradation that actually kills or injures a listed species by significantly impairing essential behavior patterns such as breeding, spawning, rearing, migrating, feeding, or sheltering (50CFR217.12).

Section10(a) of the ESA establishes a process for obtaining an incidental take permit that authorizes nonfederal entities to incidentally take federally listed wildlife or fish. Incidental take is defined by ESA as take that is "incidental to, and not the purpose of, the carrying out of another wise lawful activity." Preparation of a habitat conservation plan, generally referred to as an HCP, is required for all Section 10(a) permit applications. The USFWS and National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) have joint authority under the ESA for administering the incidental take program. NOAA Fisheries Service has jurisdiction over anadromous fish species and USFWS has jurisdiction over all other fish and wildlife species.

Section 7 of the ESA requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any species listed under the ESA, or result in the destruction or adverse modification of its habitat. Federal agencies are also required to minimize impacts to all listed species resulting from their actions, including issuance or permits or funding. Section 7 requires consideration of the indirect effects of a project, effects on federally listed plants, and effects on critical habitat (ESA requires that the USFWS identify critical habitat to the maximum extent that it is prudent and determinable when a species is listed as threatened or endangered). This consultation results in a Biological Opinion prepared by the USFWS stating whether implementation of the HCP will result in jeopardy to any HCP Covered Species or will

adversely modify critical habitat and the measures necessary to avoid or minimize effects to listed species.

Although federally listed animals are legally protected from harm no matter where they occur, the Section 9 of the ESA provides protection for endangered plants by prohibiting the malicious destruction on federal land and other "take" that violates State law. Protection for plants not living on federal lands is provided by the California Endangered Species Act.

California Endangered Species Act

CDFG has jurisdiction over species listed as threatened or endangered under Section 2080 of the California Fish and Game Code. Section 2080 prohibits the take of a species listed by CDFG as threatened or endangered. The state definition of take is similar to the federal definition, except that Section 2080 does not prohibit indirect harm to listed species by way of habitat modification. To qualify as take under the state ESA, an action must have direct, demonstrable detrimental effect on individuals of the species. Impacts on habitat that may ultimately result in effects on individuals are not considered take under the state ESA but can be considered take under the federal ESA. Proponents of a project affecting a state-listed species must consult with CDFG and enter into a management agreement and take permit under Section 2081. The state ESA consultation process is similar to the federal process. California ESA does not require preparation of a state biological assessment; the federal biological assessment and the CEQA analysis or any other relevant information can provide the basis for consultation. California ESA requires that CDFG coordinate consultation for joint federally listed and state-listed species to the extent possible; generally, the state opinion for the listed species is brief and references provisions under the federal opinion.

CEQA AND SUBDIVISION MAP ACT

CEQA Guidelines Section 15065 directs that a mandatory finding of significance is required for projects that have the potential to substantially degrade or reduce the habitat of or restrict the range of a threatened or endangered species. CEQA requires agencies to implement feasible mitigation measures or feasible alternatives identified in EIR's for projects which will otherwise cause significant adverse impacts (Sections 21002, 21081, 21083; Guidelines, sections 15002, subd. (a)(3), 15021, subd. (a)(2), 15091, subd. (a).). To be legally adequate, mitigation measures must

be capable of “avoiding the impact altogether by not taking a certain action or parts of an action”; "minimizing impacts by limiting the degree or magnitude of the action and its implementation”; "rectifying the impact by repairing, rehabilitating or restoring the impacted environment”; "or reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.” (Guidelines, Section 15.370). Section 66474 (e) of the Subdivision Map Act states “a legislative body of a city or county shall deny approval of a tentative map or parcel map for which a tentative map was not required, if it makes any of the following findings: (e) that the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially and avoidably injure fish and wildlife or their habitat”. In recent court cases, the court upheld that Section 66474(e) provides for environmental impact review separate from and independent of the requirements of CEQA (Topanga Assn. for a Scenic Community v. County of Los Angeles, 263 Cal. Rptr. 214 (1989).).

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FOCUSED DESERT TORTOISE SURVEY REPORT

Apple Valley Heights County Water District

SAN BERNARDINO COUNTY, CALIFORNIA

(Township 4 North, Range 3 West, USGS Apple Valley South, California Quadrangle)

Owner/Applicant

Apple Valley Heights County Water District
9429 Cerra Vista St
Apple Valley, CA 92308

Prepared by:

RCA Associates, Inc.
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Project No: RCA#2017-98DT

May 2018

TITLE PAGE

Date Report Prepared:	**May 3, 2018**
Date Field Work Completed:	**January 10, 2018**
Report Title:	**Focused Desert Tortoise Survey Report**
Prepared for:	**Apple Valley Heights County Water District** **9429 Cerra Vista St** **Apple Valley, CA 92308** **(760)247-7330**
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EXECUTIVE SUMMARY

The project proponent, Apple Valley Heights County Water District, is proposing to improve two existing water storage tank sites, install a direct transmission pipeline to the Mesa Vista Water Tank Site, install a distribution pipeline parallel to the transmission pipeline, and install interconnections with two adjacent water systems. The proposed project is located in the County of San Bernadino, California (Township 4 North, Range 3 West, USGS Apple Valley South, California Quadrangle, 1956) (Figures 1, 2, & 3). A detailed discussion of each work site within the project area is discussed below in section 1.0.

The property is located within the known distribution of the desert tortoise; therefore, focused surveys were performed for desert tortoise on January 10, 2018. Surveys were also conducted in the zone of influence (ZOI) in the surrounding area. The surveys were performed by Blake Curran and Parker Smith using the standard survey protocol for the species as required by California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS).

No desert tortoises or tortoise scats were observed within the proposed work areas or in the ZOI, and no tortoise burrows were observed during the field investigations. The property is located within the known distribution of the species and tortoises have been observed within approximately six miles of the site according to the California Natural Diversity Data Base (CNDDB, 2018). The results of the focused tortoise survey are provided in the following sections.

1.0 PROJECT AND PROPERTY DESCRIPTION

The project proponent, Apple Valley Heights County Water District, is proposing to improve two existing water storage tank sites, install a direct transmission pipeline to the Mesa Vista Water Tank Site, install a distribution pipeline parallel to the transmission pipeline, and install interconnections with two adjacent water systems. These improvements are described further below.

Central Water Tank Site: This site is located at the southern end of Central Road (APN 043-303-102). The site is located in the northwestern corner of the property. There are two existing water tanks. The two tanks are enclosed within a chain link fence. The terrain is rocky with steep slopes. One existing tank is currently in use and will remain in service. The second existing tank is inactive and is being considered for removal. A new tank is being considered and would be located adjacent to the tank that is currently in use.

Mesa Vista Water Tank Site: This site is located at the southern end of Mesa Vista Street (APN 043-813-206). The site is located in the northeast corner of the property. There are three water tanks that will be replaced on site in the existing location. The tanks are enclosed within a chain link fence. The terrain consists of rocky steep slopes. The three existing tanks will be replaced with two, larger tanks. The new tanks will occupy the site of the existing tanks. The existing tanks will be removed from the site. Minor grading toward the south is anticipated to accommodate the new tanks' larger diameters.

Transmission Pipeline Corridor: A new water transmission pipeline will be installed along Mesa Vista Street between Ocotillo Way and the Mesa Vista Tank Site. This pipeline will be installed using trenching methods. The length of the pipeline will be approximately two miles with an 8 in diameter pipe. Along with this pipeline, appurtenant facilities will be installed, including valves. Mesa Vista Road is an unpaved road that is maintained by the county that travels north-south through rural residential communities.

Distribution Pipeline Corridor: Parallel and adjacent to portions of the proposed transmission pipeline, a new water distribution pipeline will be installed using trenching methods. Along with

this pipeline, appurtenant facilities will be installed, including valves, hydrants, and reconnections of services to existing customers. The existing pipeline will be either abandoned in place or removed.

Interconnecting Pipeline Corridor: The installation of a transmission pipeline will run from existing well site (Well Nos. 3 and 4) north to Tussing Ranch Road for a future tie-in with Golden State Water Company. The pipeline will continue east along Tussing Ranch Road to Central Road, then north along Central Road to Houston Street, then north to Blackfoot Road. At Blackfoot Road, the pipeline will interconnect with the existing distribution system of Apple Valley Foothill County Water District. The length of the pipeline will be approximately 6,700 feet. At Apple Valley Heights County Water District's existing well site, a booster pump station will be installed. At the connection with Golden State Water Company, a metering, pressure reducing, and backflow prevention assembly will be installed. At the connection with Apple Valley Foothill County Water District, a metering, pressure reducing, and backflow prevention assembly will be installed.

Staging: The project proponent is going to have two staging sites where they will be storing equipment and material for the project. One staging area will be located the Apple Valley Heights County Water District office off Cerra Vista Road with an APN 043-810-448.

The second staging site is located off of Rancho Road (APN 043-811-205). This site is fully enclosed with a chain link fence and has been cleared of vegetation several years; although some re-vegetation has occurred.

2.0 LITERATURE AND RECORDS REVIEW

As part of the environmental process, California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS) data sources were reviewed prior to initiation of field surveys to determine if the tortoises have been documented on the site or in the area surrounding the property. Based on the literature review and evaluation of the CNDDB database for the Apple Valley South quadrangle, it was determined that the site is located within the general distribution of the desert tortoise. However, there are no populations of desert tortoises have been identified within five miles of the property according to the CNDDB (2018). The nearest occurrence is approximately 10-miles northwest of the site (Occurrence #20, White Horse Mtn. Quad). Tortoise population levels in the immediate area surrounding the site are expected to be low to moderate (BLM, 1990). There are no USFWS designated critical habitats for the tortoise in the immediate area nor is there any proposed critical habitat in the area. The protocol survey results outlined in this report are valid for one year as per CDFW and USFWS requirements, and an additional survey may be required if the 12-month time limit is exceeded before construction activities are completed. However, regardless of the results of the tortoise survey, desert tortoises cannot be taken under State and Federal law. The survey report and any mitigation included do not constitute authorization for incidental take of the desert tortoise. If tortoises are observed during future activities on the property, CDFW and USFWS should be contacted.

The desert tortoise is the largest reptile in the arid southwest United States, and it historically occupied a range that included a variety of desert communities in southeastern California, southern Nevada, western and southern Arizona, southwestern Utah, and through Sonora and northern Sinaloa, Mexico (Luckenbach, 1982). Today populations are largely fragmented and studies indicate a steady and dramatic decline over most of its former range (BLM, 1988). A highly contagious respiratory disease has infected tortoise populations over the last 20+ years, primarily in the western Mojave Desert region, which has had a very detrimental impact on population levels. Given the continued habitat loss and the rapid decline in numbers of tortoises brought about by the disease, the U.S. Fish and Wildlife Service exercised its emergency authority and determined tortoise populations north and west of the Colorado River to be an endangered species under the Endangered Species Act of 1973, as amended (USFES, 1989). The emergency rule was published in the Federal Register on August 4, 1989, and remained in effect until April 1, 1990. On April 2,

1990, the U.S. Fish and Wildlife Service officially listed the desert tortoise as a threatened species under the Endangered Species Act of 1973, as amended.

Only the Mojave Desert population is federally and state–listed as threatened. Tortoise habitat consists of firm ground with soft sandy loams and loamy sands which allow burrow construction (Karl, 1983). The Mojave Desert tortoise populations occur primarily in four regions (Ord-Rodman, Superior-Cronese, Fremont-Kramer, and Joshua tree) and at lower population levels outside of these areas. Tortoises are found primarily in creosote bush scrub, Joshua tree woodlands, and saltbush flats between 2,000 to 4,000 feet. Tortoise diet consists of annual plants and perennial plants such as cacti and grasses, and native forbs. Tortoises are most active when plants are available, usually from about March through early June and between September and early November. Tortoises typically have home ranges from about 5 to 25 acres (Berry, 1986).

3.0 METHODOLOGY

The proposed project area was surveyed for desert tortoises on January 10, 2018. As required by the CDFW and USFWS survey protocol, 10 meters, parallel belt transects were walked in a north-south direction in the 0.1 to 2.5-acre work sites until each area had been checked for tortoises and/or tortoise sign (burrows, tracks, scats, etc.). Surveys in the zone of influence (ZOI) were only conducted in the surrounding areas to the north and west. ZOI surveys were also conducted in the surrounding area. Buffer zone surveys were also conducted at 100, 300, 600, 1,200, and 2,400-foot intervals along the linear areas of the proposed project. All transects were walked at a pace that allowed careful observations along the transect routes and in the immediate vicinity. Field notes were recorded regarding native plant assemblages, wildlife sign, and human effects in order to determine the presence or absence of suitable tortoise foraging habitat. Surveys were performed on the site and in the surrounding area each day from about 0800 to about 1600 hours.

USFWS and CDFW specify that surveys for tortoises can be conducted at any time if the project is no larger than 40 acres if it over that 40 acres than the survey must be conducted April through May and September through October (USFWS, 2010); therefore, surveys were conducted on January 10, 2018. Comprehensive surveys combined with the identification of the habitat on the site and in the surrounding area will provide data on the potential presence or absence of tortoises. Temperatures during the surveys were in the mid 40's (AM) to high 50's (PM, ˚F) with wind speeds of about 0 to 5 mph (mainly from the north), and cloud coverage of about 0 percent. No precipitation was recorded during the surveys.

Limitations:

(1) This report is valid for 12 months from the date of the survey as per CDFW and USFWS requirements. An updated report will be required if project activities do not occur within the next 12-month period as per CDFW and USFWS requirements.

(2) The results of this report do not constitute authorization for the "take" of the desert tortoise or any other listed or sensitive wildlife species. The authorization to impact the tortoise can only be granted by CDFW and USFWS. If desert tortoises are observed during future project activities, project activities should cease immediately and CDFW and USFWS should be contacted to discuss mitigation measures which may be required for the desert tortoise.

4.0 GENERAL BIOLOGICAL SURVEY RESULTS

In addition to the focused tortoise surveys, general biological surveys were conducted on the property on January 10, 2018, during which data on the existing biological conditions were recorded and the results of the general surveys are presented in the General Biological Resources Assessment report (prepared under separate cover). The proposed project area was evaluated for the potential presence of tortoises, as well as, other sensitive species that are known to occur in the region. As stated above, the site supports a mixed shrub community which covers most of the property. Species present on the site include brittlebush (*Encelia farinose*), bladder sage (*Salazaria Mexicana),* rabbitbrush (*Ericameria nauseosa*), Mojave yucca (*Yucca schidigera*), and Joshua tree (*Yucca brevifolia*). Other plants noted included schismus (*Schismus barbatus*), cholla (*Cylindropuntia echinocarpa),* ephedra (*Ephedra nevadensis)*, white bursage (*Ambrosia dumosa)*, California buckwheat (*Eriogonum fasciculatum),* and brome grasses *(Bromus sp.).* Table 1 provides a compendium of all plants occurring on the site and/or in the immediate surrounding area.

Wildlife species typically found in association with creosote bush, and which were observed included jackrabbits (*Lepus californicus*), desert cottontails (*Sylvilagus auduboni*), California ground squirrel (*Otospermophilus beecheyi*), and kangaroo rat (*Dipodomys auduboni*). Coyotes (*Canis latrans*) also traverse the site regularly based on the presence of scats throughout the property. Birds observed included ravens (*Corvus corax*), American kestrel (*Falco sparverius*), house finch (*Carpodacus mexicanus*), rock pigeon *(Columba livia*), mourning dove (*Zenaida macroura*), sage sparrow (*Amphispiza bellii*), and white-crowned sparrow (*Zonotrichia leucophrys*).

Reptiles are typically inactive during the winter months; however, species common in the region which is expected to inhabit the site include desert spiny lizard (*Sceloporus magister*), side-blotched lizard (*Uta stansburiana*), western whiptail lizard (*Cnemidophorus tigris*), and Mohave rattlesnake (*Crotolus cerastes*). Table 2 provides a compendium of wildlife species observed during the various surveys and those likely to occur in the area.

No sensitive habitats (e.g., wetlands, vernal pools, critical habitats for sensitive species, etc.) were

observed on the site during the field investigation.

5.0 RESULTS OF FOCUSED SURVEY

As part of the focused desert tortoise survey, each proposed work area was evaluated for the presence/absence of any tortoises, tortoise sign, or burrows. As previously stated, approximately 75% of the proposed project will take place in areas that already support development (maintained dirt roads, paved roads, intersections, etc.). Although these areas are not expected to support populations of desert tortoise, surveys were still performed in these areas to ensure 100% coverage of all work areas. Each area where surveys were completed are discussed below.

Central Water Tanks: This project site contains two water tanks. These tanks are located approximately 50 feet away from each other and both have been enclosed with chain link fencing. Vegetation has been cleared from inside the fenced area and also around the fence perimeter. No tortoises, tortoise sign, or burrows were observed during the focused surveys at this location.

Mesa Vista Water Tanks: There are three water tanks located onsite at this project site. All three tanks exist within the same chain link fence. The site has been cleared of vegetation in the fenced area and also around the fence perimeter; however, some re-vegetation has occurred. A cottonwood tree has taken root right outside of the fenced area and seems to have established itself due to water runoff from the tanks. The site sits on the northern base of a small hill which consists of a rocky steep slope. No tortoises, tortoise sign, or burrows were observed during the focused surveys at this location.

Transmission/Interconnection Pipeline Corridors: The pipeline corridor will encompass roughly 2 miles of linear road. The road is not paved. In the ZOI the plants consist of shrubs and grasses. No tortoises, tortoise sign, or burrows were observed during the focused surveys at this location.

Staging Area 1: This staging area is located in the Apple Valley Heights County Water District office. The site has been cleared of vegetation some years ago; however, some re-vegetation has occurred. The office area is enclosed with a chain-link fence while the western portion is not fenced. No tortoises, tortoise sign, or burrows were observed during the focused surveys at this location.

Staging Area 2: The site has been cleared of vegetation some years ago; however, some re-vegetation has occurred primarily with rabbitbrush (*Ericameria nauseosa*). The site is fully enclosed with a chain-link fence. No tortoises, tortoise sign, or burrows were observed during the focused surveys at this location.

Because the estimated tortoise abundance is directly proportional to the number of tortoises observed above ground, and because no tortoises were observed during the protocol survey, the estimated number of tortoises within the action area as calculated by the USFWS survey protocol equation is zero.

Although the project site appears to be suitable for the desert tortoise based on habitat requirements and nearby historical occurrences, survey results indicate that the desert tortoise does not currently occur within the project site. Further, the absence of any tortoise sign suggests that if desert tortoise occupies neighboring lands, their use of the project site for transitory purposes is extremely limited.

6.0 CONCLUSION

No desert tortoises or scats were observed within the boundaries of the project area or in the zone of influence (ZOI) and buffer zone during the January 10, 2018 surveys. In addition, no desert tortoise burrows were observed anywhere throughout the proposed work area or in the ZOI and buffer zone. The absence of tortoises and tortoise sign (e.g., scats, etc.) throughout the proposed work area and in the ZOI and buffer zone indicates that the species does not currently inhabit the immediate area surrounding the proposed work site. The population levels in the general area surrounding the site have seen a decline over the last two decades due to several factors such as disease, habitat loss, and significant predation of the young by ravens. Based on the results of the field investigations and the current regional population levels, it is the opinion of RCA Associates that tortoises are not expected to migrate onto or through the proposed work area in the near future.

7.0 IMPACTS

7.1 Significant Criteria

The California Environmental Quality Act (CEQA) Guidelines define "significant effect on the environment" as a "substantial or potentially substantial adverse change in the environment." The CEQA Guidelines further indicate that there may be a significant effect on biological resources if a project will:

1. Cause a fish or wildlife population to drop below self-sustaining levels.
2. Threaten or eliminate a plant or animal community.
3. Substantially affect, reduce the number, or restrict the range of unique, rare, or endangered species of animal or plant, or the habitat of the species.
4. Substantially diminish or reduce habitat for fish, wildlife, or plants.
5. Interfere substantially with the movement of resident or migratory fish and wildlife species.
6. Change the diversity of species or a number of any species of plants or animals.
7. Introduce new species of plants and animals into an area, or act as a barrier to the normal replenishment of existing species.
8. Deteriorate existing fish and wildlife habitat.
9. Conflict with any approved regional Habitat Conservation Plan.

7.2 Impacts

As described more fully in Section 5.0 of this Focused Desert Tortoise Survey Report, the Project site is a fairly representative sample of the western Mojave Desert from a biological perspective. The protocol-level surveys for desert tortoise were negative, and desert tortoises are not believed to occupy the site. Because this species is understood to be absent, the potential for project-related impacts to desert tortoises would be limited to individuals that either occupied the site but went undetected during protocol surveys or that were not present on-site during the surveys but colonized the area subsequently. Although unlikely, these impacts would be potentially significant, absent mitigation, due to the very high level of statutory protection afforded this species.

To reduce the likelihood of project-related impacts to desert tortoise individuals during construction, it is recommended that pre-construction surveys for this species be conducted. With the implementation of this mitigation measure, impacts to desert tortoise individuals would be less than significant.

8.0 MITIGATION MEASURES AND RECOMMENDATIONS

The site does not support desert tortoises at the present time and the proposed project is not expected to impact the species. These are the proposed mitigation measures to offset potential impacts on the desert tortoise.

1. Pre-construction Surveys. Pre-construction surveys for desert tortoise shall be conducted prior to the commencement of Project-related ground disturbance. Appropriate survey methods and timeframes shall be established, to ensure that chances of detecting the target species are maximized. In the event that desert tortoises are encountered, construction will not commence or proceed until authorization from the USFWS and CDFG has been obtained. Pre-construction surveys shall encompass all areas within the potential footprint of disturbance, as well as all other areas controlled by the applicant, including all drainages that would be preserved within the fenced facility. This survey can be performed in conjunction with the burrowing owl pre-construction survey.

CDFW and USFWS may require implementation of "standard" measures during future construction activities such as

- Participation of all construction personnel in a "desert tortoise awareness" program.
- Biological monitoring will the ground-disturbing construction activities take place.
- Minimize cross-country vehicle use during the construction phase.
- Keep vehicle speeds to 15-mph on the site.
- Implement proper disposal of all trash and construction waste to minimize the presence of ravens.

The desert tortoise survey results are only valid for 12-months based on CDFW and USFWS requirements, and an additional tortoise survey may be required by CDFW and USFWS immediately prior to the start of construction to ensure there have been no changes to the existing biological resources. In addition, the property cannot be modified, graded, or cleared prior to receipt of project approval. Such action prior to project approval may violate State and Federal endangered species laws and may be considered grounds for denial of the project. Mitigation and restoration plans may also be required under such actions. Although the proposed project is not expected to have any adverse impact on the desert tortoise, the project proponents are responsible

to contact CDFW and USFWS for concurrence with the conclusions presented in this report as per agency requirements (before CEQA/NEPA process).

In addition, if desert tortoises are observed on the property during future construction activities, CDFW and USFWS should be contacted to initiate consultations and to discuss additional mitigation measures which may be required. CDFW and USFWS are the only agencies which can grant authorization for the "take" of the desert tortoise.

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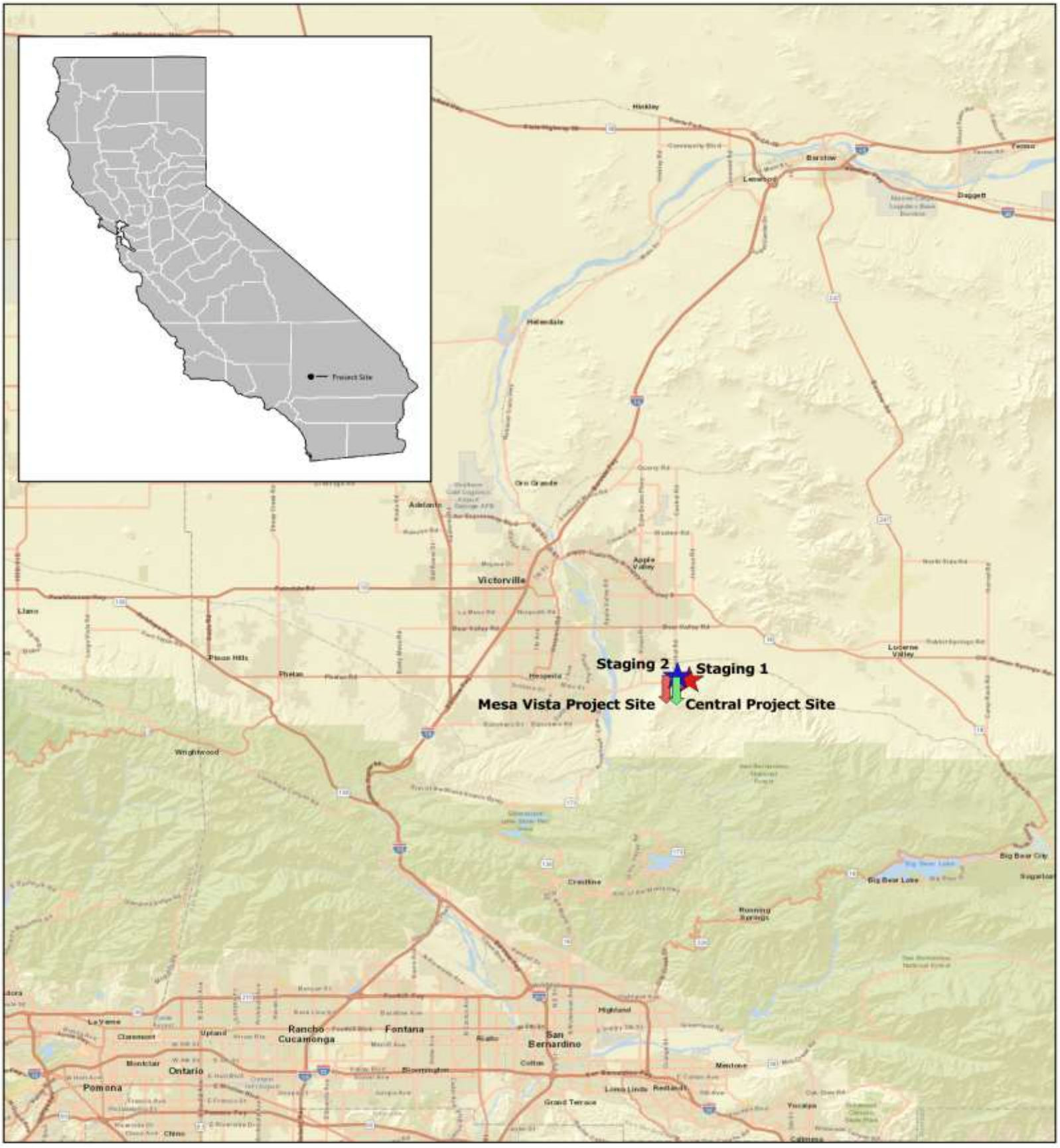
1990 Desert Tortoise Density Category Designation Maps. Maps obtained from Ray Bransfield, U.S.F.W.S. biologist, Laguna Niguel office, Laguna Niguel, CA.

APPENDIX A

Figures

Figure 1

Regional Vicinity Map



Credit: Google Imagery 2017, ESRI

7.5 0 7.5 15 22.5 30 km

N

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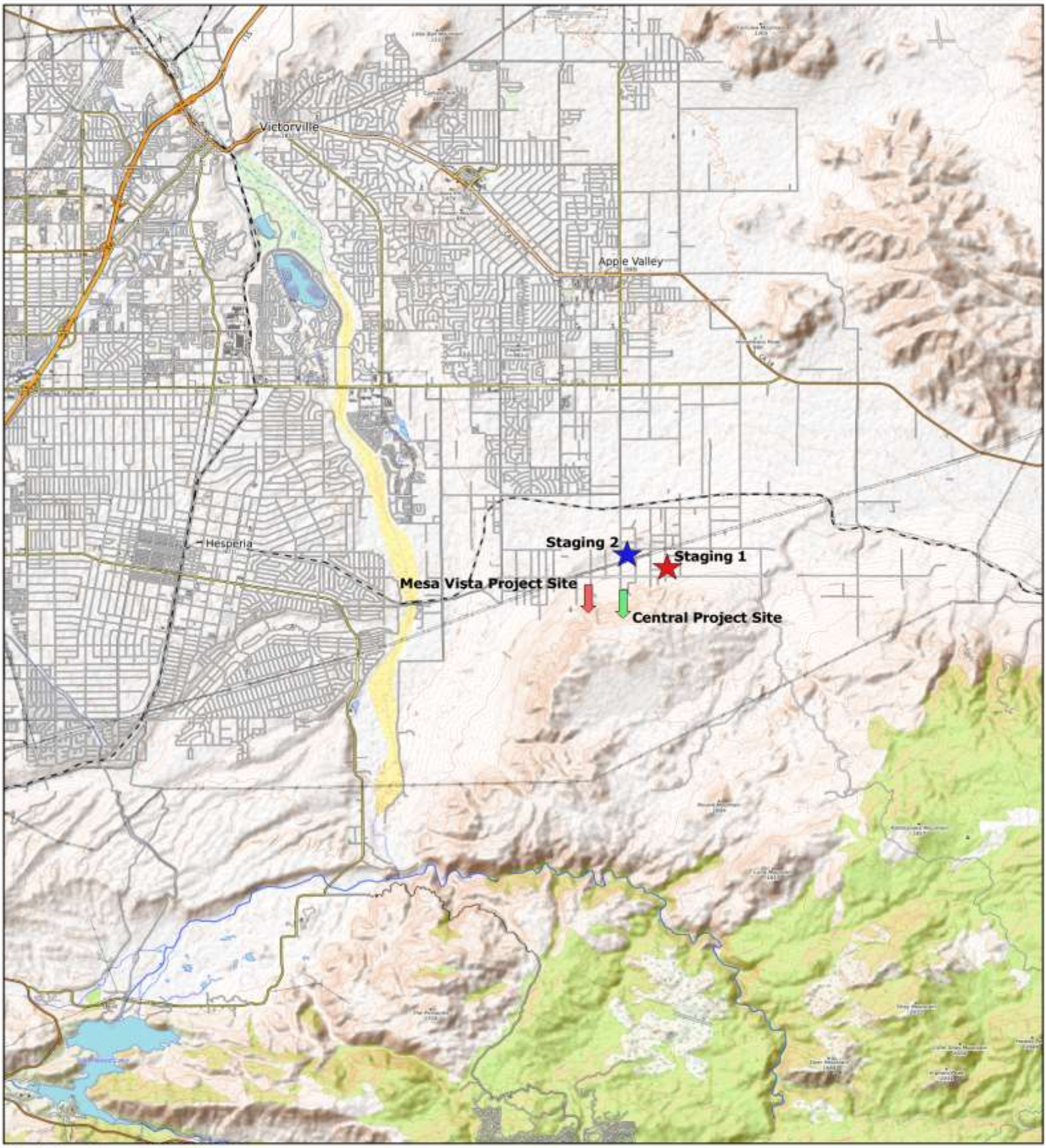
Figure 2

Local Topographic Map



Credit: Google Imagery 2017, ESRI

2.5 0 2.5 5 7.5 10 km

N

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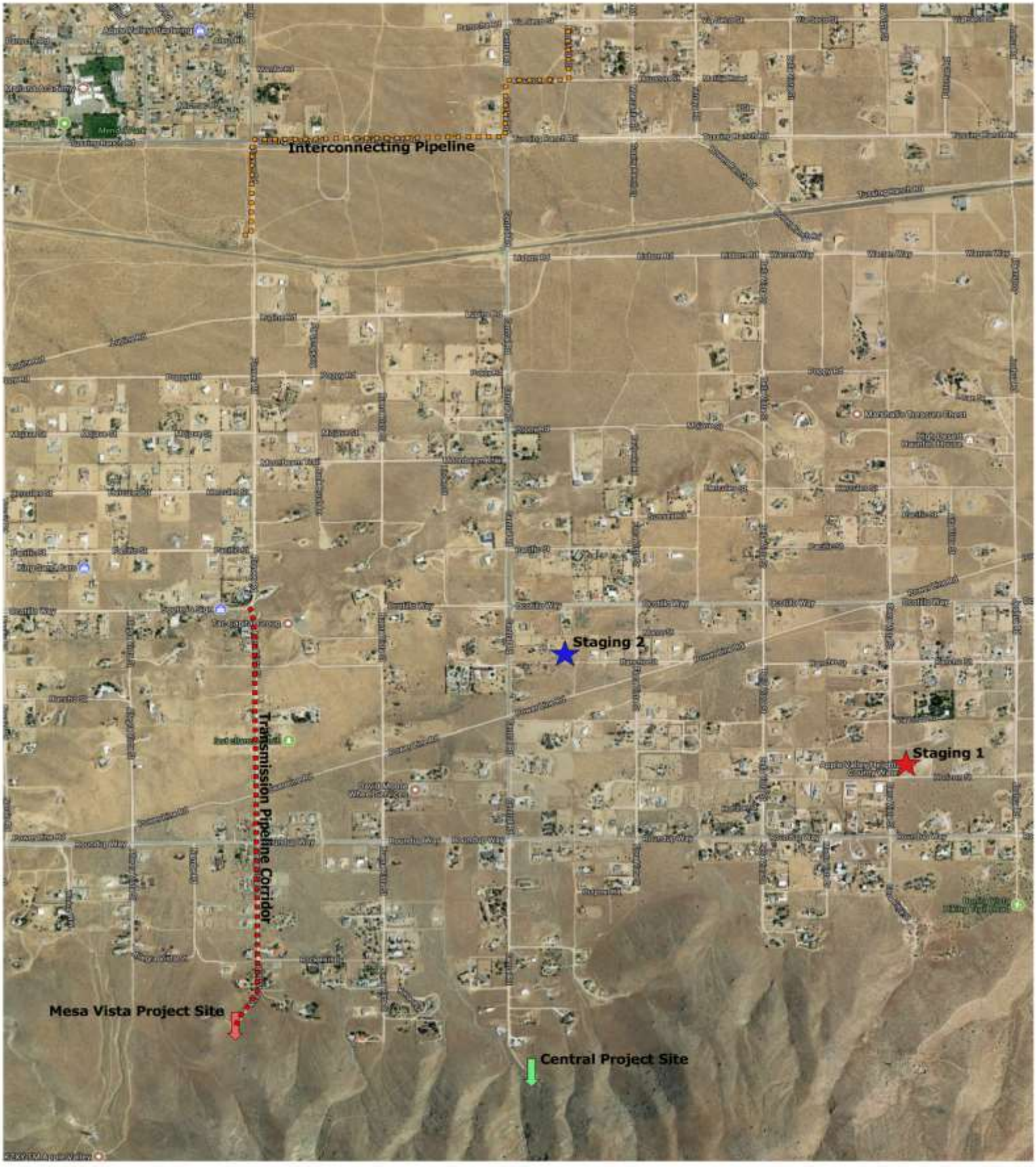
Figure 3

Project Site Locations



Credit: Google Imagery 2018

250 0 250 500 750 1000 m

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APPENDIX B

Flora and Fauna Compendia

Table 1 - Plants observed on the site and known to occur in the immediate surrounding area.

Common Name	Scientific Name	Location
Joshua tree	*Yucca brevifolia*	On site
Chaparral yucca	*Hesperoyucca whipplei*	"
Mojave yucca	*Yucca schidigera*	"
Creosote bush	*Larrea tridentate*	"
Brome grass	*Bromus* sp.	"
Schismus	*Schismus barbatus*	"
Annual bursage	*Ambrosia acanthicarpa*	"
Bladder sage	*Salazaria mexicana*	"
Hedgehog cactus	*Echinocereus engelmannii*	"
Rabbitbrush	*Ericamertia nauseosus.*	"
Bladderpod	Peritoma arborea	"
Ephedra	*Ephedra nevadensis*	"
Beavertail cactus	*Cylindropuntia basilaris*	"
Fremont Cottonwood	Populus fremontii	"
Yellow-green matchweed	*Gutierrezia sarothrae*	"
Lycium	*Lycium cooperi*	"
California buckwheat	*Eriogonum fasciculatum*	"
White bursage	*Ambrosia dumosa*	"
Cheesebush	*Hymenoclea salsola*	Surrounding area
Gilia	*Gilia sp.*	"
Fiddleneck	*Amsinckia tessellata*	"
Saltbush	*Atriplex canescens*	"
Mustard	*Descurainia pinnata*	"
Golden cholla	*Cylindropuntia echinocarpa*	On-site
Indian Rice grass	*Stipa hymenoides*	"
California Juniper	*Juniperus californica*	"
Bunch grass	*Phleum sp.*	"

Note: The above list is not intended to be a comprehensive list of every plant which may occur on the site or in the zone of influence.

Table 2 - Wildlife observed on the site during the field investigations.

Common Name	Scientific Name	Location
Common raven	*Corvus corax*	On-site and in the surrounding area.
California ground squirrel	*Spermophilus beecheyi*	"
Sage sparrow	*Amphispiza belli*	"
Jackrabbit	*Lepus Californicus*	"
House sparrow	*Passer domesticus*	"
House finch	*Carpodacus mexicanus*	"
American kestrel	*Falco sparverius*	"
Rock Pigeon	*Columba livia*	"
Mourning dove	*Zenaida macroura*	"
Gambel's quail	*Callipepla californicus*	Surrounding area
Western flycatcher	*Tyrannus verticalis*	"
Western whiptail lizard	*Cnemidophorus tigris*	"
Side-blotched lizard	*Uta stansburiana*	"
Desert spiny lizard	*Sceloporus magister*	"
Say's Phoebe	*Sayornis saya*	"
Cactus wren	*Campylorhynchus brunneicapillus*	"
Antelope ground squirrel	*Ammospermophilus leucurus*	"
Merriam's kangaroo rat	*Dipodomys merriami*	"
Song sparrow	*Melospiza melodia*	"
Desert cottontail	*Sylvilagus auduboni*	"
Coyotes	*Canis latrans*	"

Note: The above Table is not a comprehensive list of every animal species which may occur in the area, but is a list of those common species which were identified on the site or which have been observed in the region by biologists from RCA Associates, Inc.

CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits, present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Fieldwork conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project.

Date: 05/03/2018 Signed: Blake Curran
Report Author

Field Work Performed By: Randall Arnold
Senior Biologist

Field Work Performed By: Parker Smith
Project Manager

Field Work Performed By: Blake Curran
Environmental Biologist

REGULATORY CONTEXT

The following provides a summary of federal and state regulatory jurisdiction over biological and wetland resources. Although most of these regulations do not directly apply to the site, given the general lack of sensitive resource, they provide important background information.

Federal Endangered Species Act

The USFWS has jurisdiction over federally listed threatened and endangered plant and animal species. The federal Endangered Species Act (ESA) and its implementing regulations prohibit the take of any fish or wildlife species that is federally listed as threatened or endangered without prior approval pursuant to either Section 7 or Section 10 of the ESA. ESA defines "take" as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Federal regulation 50CFR17.3 defines the term "harass" as an intentional or negligent act that creates the likelihood of injuring wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns such as breeding, feeding, or sheltering (50CFR17.3). Furthermore, federal regulation 50CFR17.3 defines "harm" as an act that either kills or injures a listed species. By definition, "harm" includes habitat modification or degradation that actually kills or injures a listed species by significantly impairing essential behavior patterns such as breeding, spawning, rearing, migrating, feeding, or sheltering (50CFR217.12).

Section10(a) of the ESA establishes a process for obtaining an incidental take permit that authorizes nonfederal entities to incidentally take federally listed wildlife or fish. Incidental take is defined by ESA as take that is "incidental to, and not the purpose of, the carrying out of another wise lawful activity." Preparation of a habitat conservation plan, generally referred to as an HCP, is required for all Section 10(a) permit applications. The USFWS and National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) have joint authority under the ESA for administering the incidental take program. NOAA Fisheries Service has jurisdiction over anadromous fish species and USFWS has jurisdiction over all other fish and wildlife species.

Section 7 of the ESA requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any species listed under the ESA, or result in the destruction or adverse modification of its habitat. Federal agencies are also required to minimize impacts to all listed species resulting from their actions, including issuance or permits

or funding. Section 7 requires consideration of the indirect effects of a project, effects on federally listed plants, and effects on critical habitat (ESA requires that the USFWS identify critical habitat to the maximum extent that it is prudent and determinable when a species is listed as threatened or endangered). This consultation results in a Biological Opinion prepared by the USFWS stating whether implementation of the HCP will result in jeopardy to any HCP Covered Species or will adversely modify critical habitat and the measures necessary to avoid or minimize effects to listed species.

Although federally listed animals are legally protected from harm no matter where they occur, the Section 9 of the ESA provides protection for endangered plants by prohibiting the malicious destruction on federal land and other "take" that violates State law. Protection for plants not living on federal lands is provided by the California Endangered Species Act.

California Endangered Species Act

CDFG has jurisdiction over species listed as threatened or endangered under Section 2080 of the California Fish and Game Code. Section 2080 prohibits the take of a species listed by CDFG as threatened or endangered. The state definition of take is similar to the federal definition, except that Section 2080 does not prohibit indirect harm to listed species by way of habitat modification. To qualify as take under the state ESA, an action must have direct, demonstrable detrimental effect on individuals of the species. Impacts on habitat that may ultimately result in effects on individuals are not considered take under the state ESA but can be considered take under the federal ESA.

Proponents of a project affecting a state-listed species must consult with CDFG and enter into a management agreement and take permit under Section 2081. The state ESA consultation process is similar to the federal process. California ESA does not require preparation of a state biological assessment; the federal biological assessment and the CEQA analysis or any other relevant information can provide the basis for consultation. California ESA requires that CDFG coordinate consultation for joint federally listed and state-listed species to the extent possible; generally, the state opinion for the listed species is brief and references provisions under the federal opinion.

Clean Water Act, Section 404

The COE and the U.S. Environmental Protection Agency regulate the placement of dredged or fill material into "Waters of the United States" under Section 404 of the Clean Water Act. Waters of

the United States include lakes, rivers, streams, and their tributaries, and wetlands. Wetlands are defined for regulatory purposes as "areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] 328.3, 40 CFR 230.3).

The COE may issue either individual permits on a case-by-case basis or general permits on a program level. General permits are pre-authorized and are issued to cover similar activities that are expected to cause only minimal adverse environmental effects. Nationwide permits (NWP's) are general permits issued to cover particular fill activities. All NWP's have general conditions that must be met for the permits to apply to a particular project, as well as specific conditions that apply to each NWP.

Clean Water Act, Section 401

Section 401 of the Clean Water Act requires water quality certification and authorization of placement of dredged or fills material in wetlands and Other Waters of the United States. In accordance with Section 401 of the Clean Water Act, criteria for allowable discharges into surface waters have been developed by the State Water Resources Control Board, Division of Water Quality. As such, proponents of any new project which may impair water quality as a result of the project are required to create a post construction storm water management plan to insure offsite water quality is not degraded. The resulting requirements are used as criteria in granting National Pollution Discharge Elimination System (NPDES) permits or waivers, which are obtained through the Central Valley Regional Water Quality Control Board (RWQCB). Any activity or facility that will discharge waste (such as soils from construction) into surface waters, or from which waste may be discharged, must obtain an NPDES permit or waiver from the RWQCB. The RWQCB evaluates an NPDES permit application to determine whether the proposed discharge is consistent with the adopted water quality objectives of the basin plan.

California Fish and Game Code, Sections 1600-1616

Under the California Fish and Game Code, Sections1600-1616 CDFG regulates projects that divert, obstruct, or change the natural flow or bed, channel, or bank of any river, stream, or lake. Proponents of such projects must notify CDFG and enter into streambed alteration agreement with

them.

Section 1602 of the California Fish and Game Code requires a state or local government agency, public utility, or private entity to notify CDFG before it begins a construction project that will: (1) divert, obstruct, or change the natural flow or the bed, bank, channel, or bank of any river, stream, or lake; (2) use materials from a streambed; or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. Once the notification is filed and determined to be complete, CDFG issues a streambed alteration agreement that contains conditions for construction and operations of the proposed project.

California Fish and Game Code, Section 3503.5

Under the California Fish and Game Code, Section 3503.5, it is unlawful to take, possess, or destroy any birds in the orders Falconiformes (hawks, eagles, and flacons) or Strigiformes (owls). Take would include the disturbance of an active nest resulting in the abandonment or loss of young.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) prohibits the taking, hunting, killing, selling, purchasing, etc. of migratory birds, parts of migratory birds, or their eggs and nests. As used in the MBTA, the term "take" is defined as "to pursue, hunt, shoot, capture, collect, kill, or attempt to pursue, hunt, shoot, capture, collect, or kill, unless the context otherwise requires." Most bird species native to North America are covered by this act.

Sensitive Natural Communities

The California Office of Planning and Research and the Office of Permit Assistance (1986) define project effects that substantially diminish habitat for fish, wildlife, or plants, or that disrupt or divide the physical arrangement of an established community as significant impacts under CEQA. This definition applies to certain natural communities because of their scarcity and ecological values and because the remaining occurrences are vulnerable to elimination. For this study, the term "sensitive natural community" includes those communities that, if eliminated or substantially degraded, would sustain a significant adverse impact as defined under CEQA. Sensitive natural communities are important ecologically because their degradation and destruction could threaten populations of dependent plant and wildlife species and significantly reduce the regional

distribution and viability of the community. If the number and extent of sensitive natural communities continue to diminish, the status of rare, threatened, or endangered species could become more precarious, and populations of common species (i.e., not special status species) could become less viable. Loss of sensitive natural communities also can eliminate or reduce important ecosystem functions, such as water filtration by wetlands and bank stabilization by riparian woodlands for example.

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Phase I Cultural Resources Assessment for the Proposed Apple Valley Heights County Water District Tank Site and Transmission Line Corridor in Apple Valley, San Bernardino County, California

**(Township 4 North, Range 3 West, Section 19
Apple Valley South, California 1971)**

Prepared for:
Apple Valley Heights County Water District

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EXECUTIVE SUMMARY

RCA Associates, Inc. is under contract with Apple Valley Heights County Water District to conduct a Phase I Cultural Resources Assessment for the proposed Apple Valley Heights County Water District Tank Site and Transmission Line Corridor in Apple Valley, California. The project area encompasses several parcels within Township 4 North, Range 3 West, Section 19 as mapped on the Apple Valley South, California 7.5' USGS Topographic Quadrangle Map. The study was performed pursuant to the California Environmental Quality Act (CEQA).

Field survey investigations were initially conducted by Elliot D'Antin and Alina Landa on September 20th and 21st, 2018 and on October 23rd, 2018. An updated review and field survey of the portions of the Project on non-federal lands was completed by Alan Garfinkel Gold on January 5th and 6th 2019. These surveys resulted in the finding of a historic refuse site and a cement base structure formally recorded as RCA 2018-26-1.

A cultural resources records search was conducted at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton, which resulted in identification of one historic resource previously recorded within the project area, as well as two historic resources previously recorded within the half-mile buffer surrounding the Project. The historic site within the Project is Coxey Road and includes a portion of the historic Van Dusen Road (P-36-004276). The two historic sites located within the half-mile project buffer are a refuse scatter and can scatter.

The Native American Heritage Commission (NAHC) completed a Sacred Lands File Search, which resulted in positive findings for Sacred sites. Those positive findings were clarified with the NAHC and were recognized as sensitive cultural areas previously noted that are near but outside the Project. The NAHC created a list of Native American individuals and groups who are regionally and culturally affiliated with the general project area. This list can be found in Appendix B.

Two Native American groups responded to the Native American consultation and coordination outreach program. The Morongo Band of Mission Indians replied via email message to express interest in the project and requested a copy of the cultural report to further assess the risk to Native American cultural resources. The San Manuel Band of Mission Indians (SMBMI) replied two times via email message to advise that the Project area lies within Serrano ancestral territory and is therefore relevant to the Tribe. SMBMI provided the mitigations measures included in this cultural report. SMBMI also requested a copy of the cultural report and asked that an AB 52 consultation with the Lead Agency be completed to assess future risks to cultural resources.

If previously undocumented cultural resources are identified during earthmoving construction activities, a qualified archaeologist must be contacted to assess the nature and significance of the find. Construction activities shall be diverted if necessary. If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of the origin and disposition of the remains pursuant to Public Resources Code Section 5097.98. The County Coroner must also be notified of the find immediately. If the remains are determined to be prehistoric or protohistoric Native American in origin, the Coroner will notify the NAHC. The

NAHC shall determine and notify a Most Likely Descendant (MLD) that will consult with a qualified archaeologist and recommend the manner of treatment for any human remains and associated offerings. With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

INTRODUCTION

RCA Associates, Inc. is under contract with Apple Valley Heights County Water District to conduct a Phase 1 Cultural Resources Assessment of the proposed development project in Apple Valley, California (Township 4 North, Range 3 West, Section 19) Apple Valley South, California USGS Quadrangle, 1971 (Figures 1 and 2).

The California Environmental Quality Act (CEQA) requires consideration of project impacts on archaeological or historical sites deemed to be "historical resources." Under CEQA, a substantial adverse change in the significant qualities of a historical resource is considered a significant effect on the environment. For the purposes of CEQA, a "historical resource" is a resource listed, or determined to be eligible for listing, in the California Register of Historical Resources (Title 14 CCR §15064.5(a)(1)-(3)). Historical resources may include, but are not limited to, "any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (PRC §5020.1(j)).

The eligibility criteria for the California Register are the definitive characteristics for assessing the significance of historical resources for purposes of CEQA. Generally, a resource is considered "historically significant" if it meets one or more of the following criteria for listing on the California Register:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

Project Description

The project proponent, Apple Valley Heights County Water District (AVHCWD), is proposing to improve two existing water storage tank sites, install a direct transmission pipeline to the Mesa Vista Water Tank Site, install a distribution pipeline parallel to the transmission pipeline, and install interconnections with two adjacent water systems. These improvements are described further below.

Central Water Tank Site: This site is located at the southern end of Central Road (APN 043-303-102). The site is located in the northwestern corner of the property. There are two existing water tanks. The two tanks are enclosed within a chain link fence. The terrain is rocky with steep slopes. One existing tank is currently in use and will remain in service. The second

existing tank is inactive and is being considered for removal. A new tank is being considered and would be located adjacent to the tank that is currently in use.

Mesa Vista Water Tank Site: This site is located at the southern end of Mesa Vista Street (APN 043-813-206). The site is located in the northeast corner of the property. There are three existing water tanks that will be replaced on the site in the existing location with two new tanks. Approximate dimensions of each tank will be 30 feet in height and 23 feet in diameter. The three existing tanks will be replaced with two larger tanks. The new tanks will occupy the site of the existing tanks. The existing tanks will be removed from the site. The tanks are enclosed within a chain link fence. The terrain consists of rocky steep slopes. Minor grading toward the south and north is anticipated to accommodate the new tanks' larger diameters and the retaining walls on the north and south sides of the site. This will consist of cutting into the south side of the site and filling on the north side. The power line pole and overhead wire will be relocated

Transmission Pipeline Corridor: A new water transmission pipeline will be installed along Mesa Vista Street between Ocotillo Way and the Mesa Vista Tank Site. This pipeline will be installed using trenching methods. The length of the pipeline will be approximately two miles with an 8-inch diameter pipe. Along with this pipeline, appurtenant facilities will be installed, including valves. Mesa Vista Road is an unpaved road that is not maintained by the County and travels north-south through rural residential communities. The only County-maintained road within the Project area is Roundup Way.

Distribution Pipeline Corridor: Parallel and adjacent to portions of the proposed transmission pipeline, a new water distribution pipeline will be installed using trenching methods. Along with this pipeline, appurtenant facilities will be installed, including valves, hydrants, and reconnections of services to existing customers. The existing pipeline will be either abandoned in place or removed.

Existing Well Site Improvements: The location of this well site is APN (0438-043-07). The existing Well Nos. 3 and 4 will remain in operation. The wells' internal pumps, motors, column piping and wiring will be modified to a reduced size. The above-ground mechanical piping, valves, meters, gages and other instruments located immediately downstream will be replaced. Groundwater level monitors will be installed within each. Each well will be enclosed within one of two new block wall buildings with reinforced concrete foundations, replacing the existing shade structure at each well.

The electrical service to the site will be improved, which generally involves replacing the utility meter and wiring to the meter. A manual transfer switch will be installed to allow the deployment of a portable generator to power the wells and pump station.

The proposed pump station to convey water from Golden State Water Company and/or from Apple Valley Foothill County Water District will be constructed at the site. The proposed pump station will share one of the block wall buildings that will house an existing well. Yard piping, electrical conduits (power and signaling), and a valve vault will be installed adjacent to the building that will house the proposed pump station to facilitate operation of the interconnection between Apple Valley Heights County Water District, Golden State Water Company, and Apple

Valley Foothill County Water District. A thin communication pole will be mounted to the roof of one of the proposed buildings to enable wireless communication between AVHCWD facilities, extending up to four feet above the pitch of the proposed roof.

Interconnecting Pipeline Corridor: The installation of a transmission pipeline will run from existing well site (Well Nos. 3 and 4) north to Tussing Ranch Road for a future tie-in with Golden State Water Company. The pipeline will continue east along Tussing Ranch Road to Central Road, then north along Central Road to Houston Street, then north to Blackfoot Road. At Blackfoot Road, the pipeline will interconnect with the existing distribution system of Apple Valley Foothill County Water District. The length of the pipeline will be approximately 6,700 feet. At Apple Valley Heights County Water District's existing well site, a booster pump station will be installed. At the connection with Golden State Water Company, a metering, pressure reducing, and backflow prevention assembly will be installed. At the connection with Apple Valley Foothill County Water District, a metering, pressure reducing, and backflow prevention assembly will be installed.

Staging: The project proponent is going to have two staging sites where they will be storing equipment and material for the project. One staging area will be located at the Apple Valley Heights County Water District office on Cerra Vista Road located at APN 043-810-448. The second staging site is located on Rancho Road (APN 043-811-205). This site is fully enclosed with a chain link fence and has been cleared of vegetation for several years; although some re-growth has occurred.

NATURAL SETTING

The Mojave Desert incorporates an immense area of eastern California covering 31,000 square miles. This northern desert interfaces with the Colorado Desert to the south and the Yuma Desert to the southeast. It is separated from the Great Basin along the Garlock Fault that traverses the base of the El Paso Mountains. Throughout the Mojave Desert there exists numerous broad playas or dry lake beds that drain internally. These playas can become shallow ephemeral lakes when occasional heavy rains fall. However, in general, the Mojave Desert is a water impoverished region with only four to 13 inches of rain annually. In Death Valley, in certain years, virtually no measurable rainfall appears (less than one inch of precipitation annually). Temperatures vary greatly in the Mojave Desert but summers can be exceedingly hot - with the highest ground temperature ever recorded on earth posted for Death Valley at 134 degrees Fahrenheit. However, night-time temperatures drop dramatically and snow fall occurs regularly at higher elevations.

The Mojave Desert characteristically exhibits the grey-green shrubs of the creosote bush (*Larrea tridentata*) with areas exhibiting alkaline soils containing expressions of saltbush (*Atriplex* spp.). Plant species present in the general vicinity of the Project site include: juniper (*Juniperus californica*), annual bursage (*Ambrosia acanthicarpa),* Nevada jointfir (*Ephedra nevadensis*), bladder sage (*Scutellaria mexicana*), rabbitbrush (*Ericameria nauseosa*), and Joshua tree (*Yucca brevifolia*). Other plants noted in the area include schismus (*Schismus barbatus*), cholla (*Cylindropuntia echinocarpa),* bunchgrass (*Phleum pratense*), white bursage (*Ambrosia dumosa)*, California buckwheat (*Ambrosia dumosa),* and brome grasses *(Bromus.).*

Typical Mojave Desert fauna include: bighorn sheep (*Ovis canadensis*), mule deer (*Odocoileus hemionus*), jackrabbit (*Lepus californicus*), cottontail, coyote, pronghorn, various reptiles (including the venomous Mohave rattlesnake and the notable chuckwalla) and rodents. Other animals include various species of waterfowl and numerous birds.

A biological resources assessment report was prepared for the site and submitted under separate cover.

CULTURAL SETTING

Prehistory

Synthetic treatments of the prehistory of the Mojave Desert are found in a number of academic references. The latter sources include topical treatments in Basgall (1993), Basgall and Hall (1994), Basgall et al. (1988), Bettinger and Taylor (1974), Garfinkel (2007), Garfinkel and Williams (2011, 2015), Garfinkel et al. (2010), Gilreath and Hildebrandt (1997), Grayson (2011), Lengner (2013), Schneider et al. (2000), Sutton et al. (2007), Ugan and Rosenthal (2015), Van Tilburg et al. (2012), Warren (1984), Warren and Crabtree (1986), Whitley (1998), Ugan and Rosenthal (2015) and Yohe (1992).

Research into the prehistory of the Mojave Desert has a lengthy pedigree. Perhaps some of the earliest scientific investigations were those conducted by the husband-wife team of William and Elizabeth Campbell working out of the Southwest Museum (Campbell 1931; Campbell and Campbell 1935; Campbell et al. 1935). During this same general time period Malcolm Rogers was conducting studies through his association with the San Diego Museum of Man. His research emphasized the identification of the flaked stone artifacts and prehistoric cultures mainly found in the Colorado Desert but overlapping into the Mojave as well (Rogers 1939). Another very early researcher in the area was Mark Raymond Harrington who conducted archaeological studies at the Stahl Site, Stahl Site Cave and Fossil Falls sites in the Coso Range while engaged by the Southwest Museum (1948a, 1948b, 1949, 1950, 1951, 1952, 1953, 1957).

In the 1960s, Edward Lanning worked with the University of California, Berkeley and wrote up the previous research completed at Rose Spring (CA-INY-372) in the Coso Range. This work served as a critical benchmark and anchor to develop the regional chronology. Robert Yohe returned to the site much later and provided an even more detailed and well-supported chronology bolstered by a suite of precise radiocarbon dates for this physically and culturally stratified site (Yohe 1992).

Perhaps the most intensive early studies were at China Lake completed by Emma Lou Davis. Her work continued from the 1960s into the mid to late 1970s and included intensive surface explorations and pioneering geo-archaeological research (Davis 1978). Although her assertions of very early pre-Clovis age occupations have been widely rejected, her multidisciplinary

methods have provided well-grounded insights on late Pleistocene and early Holocene aboriginal land use. Excavations at China Lake also uncovered fluted points in putative association with burned; extinct megafaunal remains (Davis 1978). However, recent reassessments (Basgall 2007a, 2007b; Garfinkel et al. 2008) of Davis' findings failed to find support for the idea that artifacts and megafaunal bones were consistently related or that aboriginal activity is contemporaneous with the extinct megafauna.

Much of the scholarly research in the Mojave Desert has been completed under the umbrella of cultural resource management studies. Many federal and state agencies (Bureau of Land Management, California Department of Transportation, California Department of Parks and Recreation, and United States Department of Forests) and also private developers (relating to the construction of renewable energy initiatives employing both solar and wind) have been the major proponents and financial underwriters for these investigations.

The Mojave Desert has seen more archaeological study than perhaps many other areas of California. It has also spawned some of the most contentious dialogues in professional archaeology with respect to competing models attempting to illuminate the nature and antiquity of various prehistoric cultural manifestations. The focus of these debates relates to the nature and timing of various cultural transformations. Such discussions hinge on the age and character of technological shifts, settlement-subsistence change, economic developments, artistic and ideological transitions, prehistoric population movement / replacements and linguistic prehistory (cf. Garfinkel 2006, 2007; Garfinkel and Austin 2011; Garfinkel et al. 2007, 2009, 2010; Grant et al. 1968; Goldsmith and Garfinkel 2013; Gilreath 2007; Gilreath and Hildebrandt 2008, 2011; Hedges 2001; Hildebrandt and McGuire 2002; McGuire and Hildebrandt 2005; Stewart et al. 2005; Van Tilburg et al. 2012; Whitley 1987; 1998; 2003; Whitley and Dorn 1987, 2011). Given the central importance of chronological controls, the prehistoric cultural sequence and related temporal periods remains an important and salient topic for continuing research.

Cultural Sequence

Late Pleistocene: Paleo-Indian / Western Clovis Period

Basally-fluted, projectile points of the Clovis (aka Western Clovis) cultural complex are generally considered to be the most dominant, hallmark of prehistoric occupation during the Late Pleistocene era. These Clovis points and their associated cultural materials have been the focus of intensive study and the general consensus is that they date from about 13,500 to 12,500 calibrated radiocarbon years (cal) before present (BP). Some researchers have tried to pinpoint the duration of the Clovis tradition to an even more exacting and narrower time span (12,800 to 13,200 cal BP) but recent critiques of that perspective support the notion that at least a millennium of time was necessary for the wide-ranging Clovis tradition to have developed and spread within the continental United States (cf. Goebel et al. 2008; Waters and Stafford 2007).

Until recently, the Clovis complex was considered to be the basement cultural expression in the Americas. However, reports from sites like Monte Verde (Chile), Paisley Cave (Oregon), the Schaefer and Hebior sites (Wisconsin), Meadowcroft Shelter (Pennsylvania), Page-Ladson (Florida), and the Debra L. Friedkin Site (Texas), have now provided substantial and persuasive evidence for pre-Clovis occupation dating to a period from about ca. 16,000 and 14,000 cal BP. The latter archaeological complex occurred some two to three thousand years before Clovis (Gilbert et al. 2008; Goebel et al. 2008; Waters et al. 2011b).

Unfortunately, as of yet, there is no tangible and compelling evidence within California or the Great Basin for such early pre-Clovis discoveries. Yet, there have been a number of claims (Davis 1978; Leakey et al. 1968) based on heavily weathered and crude cobble and core tools as part of a pre-projectile point tradition (cf. Moratto 1984:29-73). However, such claims have not withstood the test of time.

Nevertheless, although the Mojave Desert has posted early claims of great human antiquity, even Clovis-like fluted points discoveries themselves are fairly rare (cf. Rondeau et al. 2007). When such finds are identified they are most frequently isolates and typically found in association with now dry Pleistocene lakebeds. Besides the limited discoveries of fluted points, we have little in the way of related diagnostic elements of Clovis technology that would provide a more complete picture of the entire archaeological assemblage. Complementary artifacts, such as prismatic blades and cores and bone tools are commonly described from the Clovis heartland in the American Southwest and Plains (however cf. Fenenga 2015).

Further, there is long-standing ambiguity in the age and sequence of terminal Pleistocene cultural complexes in eastern California and the Great Basin generally. Some researchers have expressed doubts as to whether the Clovis Complex per se has a temporally or geographically extensive presence in California and the Great Basin. Further, some researchers question the true antiquity of these putative earliest California and Great Basin projectile point forms. Finally, other confounding issues remain with respect to the chronological relationship of one point type to another (e.g. Western Fluted vs. Concave Base vs. Western Stemmed forms).

China Lake Basin and the adjacent Rose Valley are home to some of the largest concentrations of fluted and concave base points in California. The sites in Rose Valley are located on relict terraces of the Lower Pleistocene Owens River. The Rose Valley sites were initially recognized and studied by Ferris Borden and the Archaeological Survey Association (Borden 1971; Moratto et al. 2018). The China Lake sites were researched by Emma Lou Davis (Davis 1978). A number of the fluted and unfluted concave base points discovered in the Coso Basin have yielded putatively ancient obsidian hydration dates that would provide a tentative late Pleistocene age determination (cf. Garfinkel et al. 2008; Moratto et al. 2018). Yet, no direct and associated radiocarbon determinations exist that demonstrate the age of these early points and there are only

a handful (n = 4) of radiocarbon determinations dating to the Clovis age for any archaeological expressions in all of prehistoric California.

Nevertheless, recent obsidian hydration data provides a growing number of very large hydration rim measurements (greater than 16.0 microns) from several sites in the China Lake Basin and vicinity. These hydration measurements do support an age for both Western Fluted and Basally Thinned Concave Base points dating to a time from about 12,000 to 13,500 cal BP. (Giambastiani and Bullard 2010; Rogers 2011; Garfinkel and Hopkins 2008; Garfinkel et al. 2016; Moratto et al. 2018). If those ages were further substantiated, that would imply a prehistoric California Paleoindian complex of equivalent age to the Clovis Tradition of the American Southwest and Plains. Significantly, the technological and typological elements for these early California projectile points appear slightly different and may represent a somewhat distinctive tradition - a bit different from their kindred artifacts in other areas of the United States.

In contradistinction to the above discussion, Beck and Jones (2010; see also Bryan 1988) argue, that Western Stemmed Points are in fact characteristic of the terminal Pleistocene and would be contemporaneous with the Clovis Complex. While it is widely assumed that fluted and unfluted concave-base points date to the terminal Pleistocene in the Mojave Desert, this has never been demonstrated radiometrically or chrono-stratigraphically. Nevertheless, recent finds at China Lake have noted that Fluted and Concave Base points have a different overall spatial distribution than Western Stemmed points. Finally, all three projectile point styles (Western Stemmed, Fluted and Concave Base) often occur in the same microenvironments, in closely similar depositional contexts, and at the very same sites (Basgall 1988, 2007; Basgall and Hall 1991; Giambastiani 2008, 2010; Giambastiani and Bullard 2010).

Early Holocene: Mojave or Lake Mojave Period

Significant environmental changes, correlating with broad shifts in regional temperature, occurred in the post-Pleistocene with only minor changes in rainfall. Increased runoff from glacial melting resulted in the infilling of valleys and basins by streams, marshes, and lakes. Initially these large bodies of water supported great amounts of biota – including big game animals (e.g., deer, antelope, and bighorn). During this time there exists an ancient, well-established and wide-ranging prehistoric tradition in the Mojave Desert dating from ca. 12,000 to 8,000 cal BP. This archaeological complex is a well-known expression and received its geographic referent from the landmark studies of Campbell et al. (1937).

The Campbells and their research associates focused their work along the relict shorelines of Pleistocene Soda Lake and Silver Lake in the eastern Mojave Desert near Baker, California. These early Holocene assemblages are recognized for their distinctive formalized flaked stone tool kits. The Lake Mojave flaked stone tools include large stemmed points (identified as either

the larger and more robust Lake Mojave type or the smaller Silver Lake form) that are considered chronological diagnostics. Associated with these temporally sensitive point/tool forms are other stone tools including bifacial crescents, heavily worked domed (steep-sided) unifaces (end scrapers and side scrapers), knives, bifaces, gravers, plano-convex limaces and large core-cobble tools (cf. Beck and Jones 1997).

Throughout southern California, and especially in eastern California, Lake Mojave era sites have been recognized with a variety of other identifiers. In the Colorado Desert, Malcolm Rogers calls similar traditions as his Playa Complex (Rogers 1939, 1966). In the San Diego area, the related assemblages have been designated as San Dieguito (Warren 1967; Warren and True 1961). William Wallace (1962) employs the Lake Mojave moniker for all such expressions throughout southern California.

Significantly, the majority of the Lake Mojave sites are exclusively surface expressions making them difficult to date and only infrequently are they dated directly by employing radiocarbon assays. Nonetheless, Beck and Jones (1997, 2010; Willig et al. 1988) have assembled a series of radiocarbon dates for these stemmed point. Their research indicates that the Lake Mojave related materials are older than 9500 cal BP and are possibly as ancient as 13,200 cal BP. If such dates were to apply in California they would be contemporaneous with the ages applied to the Clovis Tradition in the American Southwest and on the Plains. Yet, perhaps contrary to expectations, dates for the Lake Mojave materials at Fort Irwin cluster from 9,500 to 11,000 cal BP (Basgall 1993; Sutton et al. 2007).

Claude Warren and his colleagues (Warren 1967, 1984, 1986, 2008; Warren and Crabtree 1986; Warren and Schneider 2003; Warren et al. 1986) and other researchers (cf. Bedwell 1970) recognize that Western Stemmed point sites of the Lake Mojave Tradition were most often associated with extinct lakes. Since these materials were clustered around ancient shorelines the logical conclusion was that this early lifeway was lacustrine based and that the artifacts would best be interpreted as representing a hunting emphasis on lakeshore resources. Further, since few artifacts were discovered that could be interpreting as representing milling equipment, only a very minor expression of plant food exploitation was indicated.

However, more recent research in the central and western Mojave Desert attests to a different perspective with a wider range of habitats for sites outside of lakeshore settings (Basgall 1993; Basgall and Hall 1994; Basgall et al. 1988; Sutton et al. 2007). Further, the faunal remains recovered from such sites attest to a dominant expression of small mammal (especially lagomorphs) and reptile exploitation rather than large game such as deer, pronghorn and bighorn sheep. Additionally, milling equipment, although evidently only a minor element in the Lake Mojave archaeological assemblages, are indeed a regular part of the documented cultural materials at such sites. The latter perhaps indicates that plant food was of some importance in the diet of these early Holocene peoples. Nevertheless, use-wear studies suggest that corms and

bulbs, especially marshland taxa rather than small seeds, were the plant foods processed (Basgall 1993, 2000).

Most researchers agree that high diversity of toolstone material and extensive curation and maintenance of Lake Mojave age tools supports the conclusion that very large foraging areas and frequent residential moves were typical (Basgall 1989; Basgall and Hall 1994; Basgall and McGuire 1988; Delacorte 1999; Delacorte and McGuire 1993). It is posited that at these early time foraging groups were limited to a small number of family units and the groups themselves were quite small in size. The food resources that were extracted would have been exhausted quickly causing people to move about the landscape often. Considering these frequent moves, the stone tool assemblages remained small and relatively homogenous (Kelly 1983, 1985, 1988; Shott 1986, 1989; Thomas 1983a, 1983b).

Middle Holocene: Little Lake or Pinto Period

In the Middle Holocene during the time from ca. 8,000 to 4,000 cal BP temperature and aridity peaked. Lowland bodies of water shrank in size and associated plant communities dwindled - reaching a state that was incapable of supporting the former abundance of large game (Sutton et al. 2007). With the exception of certain rare refuge areas, human land use shifted to upland areas where a few relict streams and lakes remained. Correlating with these changes was the inception of a cultural expression known as the Pinto Complex.

Researchers have recognized that it has been challenging to clearly articulate the Middle Holocene cultural-historical traditions and settlement systems since few prehistoric sites date within this specific time frame. The latter circumstance may owe to a lack of geological visibility (Basgall 2009; Meyer and Rosenthal 2010) or alternatively this may be a reflection of the heightened aridity or a corollary demographic collapse (Elston 1982; Grayson 2011; Sutton et al. 2007; Warren 1986). From either perspective, there are a paucity of radiocarbon assays that fall within the Middle Holocene time and these expressions are especially absent during the waning years of this period - from ca. 5000 and 4000 cal BP (Sutton et al. 2007).

The Pinto Complex, rather than representing a different cultural group, was posited as an outgrowth of the former hunting tradition of the Lake Mojave Complex of the Early Holocene. Such a model was based on a variety of similarities in the two traditions. Spatial and temporal overlap in projectile point forms, the continued use of difficult to reduce toolstone (basalt and igneous fine-grained materials) for bifacial tools - distinctly different from the use of cryptocrystalline and obsidian materials so common to later periods, continuity in the character of flaked stone production emphasizing percussion flaking in contrast with a later emphasis on pressure flaking, and the continued popularity of specialized tool forms (biface knives, ovate domed and keeled scrapers, and engravers) - all suggest a pattern of continuity.

Pinto Complex sites decline in number during the driest portion of the Middle Holocene era from 6500 to 4000 cal BP and are largely restricted to spring side localities. Besides the differing land use patterns, the stone tool assemblage changes at this time from the formalized stone tool forms of the Early Holocene being replaced by flake scrapers, handstones, and milling slabs. Ground stone implements signal an important distinction and a growing emphasis on small seed use. Since hunting equipment persists, Claude Warren and others (Warren 1967, 1984, 1986) have suggested that large game procurement continued despite deteriorating climatic conditions and declining big game populations.

Archaeofaunal assemblages from Pinto sites attest to the fact that artiodactyls by this time are almost completely absent with small game, including tortoise, becoming the norm. Pinto populations, originally geared towards hunting, would have been hard-pressed to accommodate the changing environmental conditions and their adaptation may have ultimately failed. Populations may have either suffered extinction or perhaps migrated to more well-watered areas, abandoning their desert homes.

A few Middle Holocene sites in the southern Owens Valley and Rose Valley have produced assemblages similar to those in the Mojave Desert and appear to be consistent with generalized adaptations of highly mobile foragers with wide-ranging settlement patterns. However, substantial house floors discovered at Lubkin Creek (CA-INY-30) and the diverse array of occupational debris recovered at the Stahl Site (CA-INY-182) at Little Lake (on the western edge of the Coso Range) has led some to posit much greater residential stability and a degree of permanence in settlement pattern in some exceptional instances.

The hallmark and defining diagnostics for this period are large, heavy, bifurcate-stemmed dart points known as the Little Lake Series (Basgall and Hall 1992, 1994, 2000; Bettinger and Taylor 1974; Fitzgerald et al. 2005; Harrington 1957; Lanning 1963; Vaughan and Warren 1987). Researchers have recognized that these Pinto-like points were most frequent at the Stahl site near Little Lake (Harrington 1957).

The Pinto-like points that were discovered at Little Lake were originally thought to be morphologically distinct from Pinto points identified at the type site in the Pinto Basin in Riverside County in the southern Mojave Desert (Amsden 1937; Campbell and Amsden 1934; Campbell and Campbell 1935; Schroth 1994). In-depth research (Basgall and Hall 2000) relating to the questions of chronology and point classification suggests that the Little Lake points are largely indistinguishable from Mojave Desert examples typically identified as Pinto points.

The Basgall-Hall research redefined the Pinto Series indicating that there existed a larger, heavier, and more robust variant of this point style that has an age from 7500-4000 rcybp. A smaller, lighter, and more gracile form, more characteristic of the northern Great Basin, is

equivalent with the Gatecliff Split-stem type previously identified by David Hurst Thomas (1981). Those latter artifacts are argued to date to a more recent vintage, consistent with a temporal range from ca. 5000-3200 rcybp. A further result of the Basgall-Hall Study was the discovery that there is considerable spatial overlap between both the robust and gracile variants with both forms having substantial representation.

Other researchers disagree with the Basgall and Hall Pinto point chronology. Haynes (2004) argues that Pinto points range in age from 9,500 to 5,500 radiocarbon years before present (rcybp). Perhaps an age range of 11,000 to 3,500 cal BP is a more accurate representation for the full span of use of this rather enigmatic point form. Recent studies have in fact led many researchers to conclude that Pinto points have a much longer duration than has been typically applied. Pinto points, based on their most recent re-evaluations, are sometimes contemporaneous with the Western Stemmed Series points (as above). However, Pinto points were infrequent during the earliest years of their introduction but flourished and endured for a much longer period time after Western Stemmed points ceased.

Heavily worn stone tools crafted from exotic toolstone suggests that prehistoric Middle Holocene Natives were still highly mobile. These patterns led Basgall and Hall (1992, 1994) to conclude that both early and middle Holocene adaptations in the Mojave Desert represent a more generalized subsistence orientation than conventionally portrayed by Warren (1967, 1984, 1986) and others.

Late Holocene: Newberry Period or Gypsum Complex

In the Late Holocene, beginning ca. 4000 / 3500 cal BP and continuing to about 2000 cal BP, significant interregional variability in aboriginal land use can be recognized. With respect to the local environmental conditions, Mehringer and Sheppard (1978) based on lake-core sampling at Little Lake, identify that available water increased about 3000 cal BP, with a subsequent dry period at about 2000 cal BP. Hence, cool winters and relatively wet intervals were characteristic of what is known as the Neo-Pluvial Period that occurred between 4000 and 2000 rcybp (Wigand and Rhode 2002).

In the Mojave Desert, Basgall and Hall (1992, 1994) identified cultural deposits from Fort Irwin that include a full complement of milling equipment, flaked stone tools, and the replacement of basalt and rhyolite by cryptocrystalline silicate toolstone. The occurrence of bifaces increases dramatically during this time. Nonetheless, prehistoric sites are often small and it has been argued that these settlements represent wide-ranging mobility oriented to short-term occupations rather than targeted procurement of specialized resources.

Many radiocarbon assays from houses and features are documented from the southern Owens Valley (Basgall and Delacorte 2012; Basgall and McGuire 1988; Byrd and Hale 2003). These

well-built houses and associated remains provide robust data for chronological controls. Their remains indicate an emphasis on cached and curated articles (including bifaces, bone tools, and milling equipment) and lend credence to the premise that these particular sites were seasonally re-occupied. Obsidian tool/debitage sources appear to indicate a wide-ranging and extremely expansive yet regularized annual settlement round. From food remains (faunal material and plant macrofossils) one may infer that logistical forays were made to long-distance upland settings to procure specialized resources (pinyon nuts, bighorn sheep, and marmots) that were brought back to the base camp.

Warren et al. (1984) provide a contrasting view for this period and argue for the prominence of large game hunting due in part to their natural abundance based on ameliorating climatic conditions. Additional intensification in the use of plant foods is represented by increased numbers of milling equipment. Warren and others identify a change in social organization from the smaller family-band units in earlier eras to multi-family groups. William Hildebrandt and Kelly McGuire (2002) similarly argue that settlements during the Late Holocene (Middle Archaic also known as the Newberry Period) may have been less mobile than originally implied and may be best interpreted as year-round occupations. They also argue that the characteristic settlement pattern appears to have incorporated sedentary occupations of ecological sweet spots where women remained at hamlets while men ranged to distant outlying areas for artiodactyl hunting.

One implication of this emphasis on artiodactyl exploitation was the necessity of serviceable hunting equipment. Stone tool reduction and particularly obsidian biface manufacture became critically important from about 2500 to 1500 cal BP. Amy Gilreath and William Hildebrandt (1997, 2011) argue that in the Coso Basin, obsidian stone tool reduction reached a peak level of task specialization where early stoneworkers produced bifaces in enormous numbers both for domestic use but mostly as surplus exports intended for trans-Sierran trade. During this same time span an enormous number of rock drawings (petroglyphs) are recognized and appear to be associated with increase rites, revealing a level of socio-ceremonial complexity exceeding that of earlier and later periods (Garfinkel 2006; Garfinkel et al. 2009; Yohe and Garfinkel 2012).

Prehistoric settlements dating to the Late Holocene are marked by the occurrence of medium-sized to large stemmed and notched points. The most frequent forms are variants of the Elko, Humboldt (Concave Base and Basal-notched), and Gypsum Series. Heizer and Baumhoff (1961) were the first to define Elko points. This series is composed of large, heavy, notched points with variable stem characteristics (Heizer et al. 1968; O'Connell 1967). These include eared, corner- and side-notched specimens. Elko Contracting stem forms are often assigned to the Gypsum type having the same general chronological frame. In the western Great Basin, Elko points have often been found in contexts dating from 3750-1290 cal years B.P. (Basgall and McGuire 1988; Bettinger and Taylor 1974; Gilreath and Hildebrandt 1997; Heizer and Hester 1978; Justice

2002; Thomas 1981). Such a chronological position is supported by a plethora of radiocarbon, stratigraphic and obsidian hydration data. However, it is becoming increasingly apparent that large corner-notched and side-notched variants of this Elko form sometimes occur in earlier contexts.

Gilreath and Hildebrandt (1997) observed that more robust Elko points, especially those thicker than 6.5 mm, regularly produce obsidian hydration measurements that are more ancient than the Newberry Period. One explanation for this problem is the difficulty in identifying between earlier Pinto and the more recent look-alike Elko forms (Basgall and Hall 2000; Vaughan and Warren 1987). Finally, the Rose Spring site (CA-INY-372) on the western edge of the Coso Range is a culturally and naturally stratified deposit. Five separate successive units provided cultural material amenable to dating. The lower three strata range in age from ca. 4000 to 1700 cal BP and as such fall within this period (Clewlow et al. 1970; Yohe 1992).

Late Holocene: Haiwee, Rose Spring, Saratoga Springs Period

The Mojave Desert witnessed a significant series of adaptation shifts beginning in this time period (ca. 2000 to 700 cal BP). During the onset of the period a dramatic set of subsistence-settlement changes were documented. These changes include: the introduction of the bow and arrow replacing the dart and atlatl, a dramatic decrease in large game hunting, increased reliance on dryland hard seeds, the beginning of intensive green-cone piñon pine nut exploitation, and the development of sites emphasizing the acquisition of easily procured and abundant small game animals (especially with respect to large numbers of lagomorphs and grebes). These cultural changes may reflect a Numic (Great Basin Paiute-Shoshone) in-migration. Also certain technological innovations and labor-intensive adaptive strategies are also broadly consistent with those of the intrusive Numic groups (Bettinger and Baumhoff 1982; Delacorte 1994, 1995).

In the western Mojave Desert specialized sites first occur that are single component loci targeting small, easily-harvested, game animals harvested through communal hunts and mass capture that focus on jack rabbits and grebes (Gold 2005; Garfinkel 2006; McGuire et al. 1982). These sites and similar localities often contain abundant portable milling equipment, rock ring structures, bedrock milling, and plant food threshing features. These data reflect a shift to more intensive use of small game and local plants (dryland hard seeds) perhaps as a means of mitigating increasing human population pressure – consistent with the model presented by Bettinger and Baumhoff for Numic adaptations (1982).

Such an adaptation would have perhaps provided Numic peoples with a competitive advantage over existing pre-Numic populations since it would have enabled them to exploit a wider range of resources that were more costly to collect and process. Hence, resources with high extractive and processing costs would have been exploited only after the arrival of Numic groups in the area (cf. Bettinger and Baumhoff 1982; Delacorte and McGuire 1993).

From a careful study of the archaeological record, a pattern of lowland, intensive small-game hunting camps appears to have occurred with the development of large-scale, intensive, upland green-cone piñon pine nut exploitation. This pattern also is contemporaneous with an initial focus on the acquisition, mass processing, and storage of dryland seeds (Basgall and Delacorte 2003; Basgall and Giambastiani 1995). These seed camps routinely include rock rings, thought to be the foundations of brush structures. Many of these rock structures contain doorways facing toward the rising sun and are associated with numerous handstones, milling slabs, and bedrock grinding features.

Single-component Haiwee-age hunting camps are frequently located in "geographically isolated areas" (Delacorte 1994). Such localities provided access to a limited range of biotic communities and appear to have a rather specialized focus on a narrow array of subsistence resources. Hence, these settlements are a distinctly different group of sites from earlier or later occupations that tend to overlap at the same settlements and hence evince a lack of continuity from earlier settlements.

Gilreath and Hildebrandt (1997) note that Coso obsidian lithic production shifts to major obsidian outcrops in Late Newberry (500 B.C. to A.D. 600) and this pattern continues into the Haiwee interval (A.D. 600 to 1300). Obsidian quarrying during this time is confined to a few massive exposures rather than the less plentiful but more widespread secondary deposits. In the Haiwee period, nearly exclusive use of the massive Sugarloaf Mountain, Coso obsidian exposure occurs with other deposits largely ignored.

On the margins of Koehn Lake in Fremont Valley, south of the Indian Wells Valley and the Coso Range, Sutton (1987, 1991) reports on a village site (CA-KER-875) dating to this period. House structures with juniper center posts (*Juniperus* sp.) were documented. The site is well dated with radiocarbon assays and Coso obsidian hydration dates and appears to have been associated with a standing lake. The site was abandoned during the drying up of the area correlating with the initiation of a series of epic droughts known as the Medieval Climatic Anomaly (ca. AD 970 to 1350).

Rose Spring points are one of the key hallmarks of this time period. These points were originally recognized and described from the type-site of that same name, located in southern Owens Valley (also known as Rose Valley) on the western edge of the Coso Range (Lanning 1963: Yohe 1992, 1999, 2000). The Rose Spring arrow point is a small, narrow, triangular arrow point with a variety of stem forms. Rose Spring points are time markers and date primarily to the interval from ca. 2000-650 cal B.P. in the western Great Basin (Basgall and McGuire 1988; Bettinger and Taylor 1974; Garfinkel 2007; Gilreath and Hildebrandt 1997; Thomas 1981; Yohe 1992, 1999, 2000).

Recent Holocene: Marana, Late Prehistoric

This final cultural period (700 cal BP to the historic) represents the ethnographic occupation by the Mojave Desert by the Kawaiisu, Panamint Shoshone, Serrano, Chemehuevi, and Mohave. Desert Side-notched and Cottonwood arrow points are characteristic and brownware ceramics, imported soapstone beads, and pictographs also date to this time frame, as do many sites associated with systematic and intensive upland piñon exploitation (Bettinger 1978; Garfinkel and McGuire 1980; McGuire and Garfinkel 1976, 1980).

Resource intensification that began in the prior period continues and strengthens with settlements tied to seasonal differences in resource availability. The most spatially confined seasonal movement and the smallest foraging ranges occur during this time period. Region-wide expansion of diet breadth and intensification of small seed resources involved a change in the technology used in the collection and processing of these resources. It is argued that cutting and mass collecting of green, dryland, hard seeds provided a considerably higher return than was possible using the former method of seed beating. This pattern begins about 1300 cal BP but increases substantially throughout the Late Prehistoric (650 cal BP – Contact) and into the Protohistoric era. Direct flotation evidence indicates mass harvesting and threshing of Indian rice grass (*Achnatherum hymenoides*), cattail (*Typha* spp.), goosefoot (*Chenopodium* spp.), and blazing star (*Mentzelia* spp.) seeds.

This time period also sees the final collapse of trans-Sierran trade in Coso obsidian. The early emphasis (ca. 8000-1000 cal B.P.) on biface preform or flake blank technology gives way to flake-based reduction. Large bifaces decrease in abundance, yet also diminish in size and formality ultimately being replaced by more numerous flake-based tools. Artiodactyl exploitation is dramatically reduced and replaced by procurement of small game including a tremendous increase in desert tortoise and reptile use. Evidence of increased contact with outside populations (e.g., the American Southwest) and the expansion of Numic-affiliated populations out of eastern California into most areas of the Great Basin, and much of the Mojave Desert are recognized during the last 1000 years (Bettinger and Baumhoff 1982; Fowler 1972; Lamb 1958).

Table 1. Prehistoric Cultural Sequence for the Mojave Desert Region

Cultural Complex	Calibrated Radiocarbon Years Before Present (cal B.P.) and Calendar Date Approximated as AD/BC	Temporally Sensitive Artifacts
Late Pleistocene (Paleoindian) Period	13,500 – 12,000 cal B.P. 10,000 BC – 11,500 BC	Fluted (Western Clovis) and Concave Base points
Lake Mojave Period	12,000 – 8,000 cal B.P. 10,000 BC – 6,000 BC	Western Stemmed points (Lake Mojave, Silver Lake)

Little Lake (Pinto) Period	8,000 – 4,000 cal B.P. 6,000 – 2,000 BC	Pinto and Leaf-shaped points
Newberry (Gypsum) Period	4,000 – 2,000 cal B.P. 2,000 BC – AD 1	Gypsum, Elko, and Humboldt points
Haiwee (Saratoga Spring) Period	2,000 – 700 cal B.P. A.D. 1 – 1300	Rose Spring, Eastgate, Saratoga Springs points
Marana (Late Prehistoric or Shoshonean) Period	700 cal B.P. – Historic A.D. 1300 – Historic	Desert Series (Desert Side-notched and Cottonwood) points and Ceramics

(Bettinger and Taylor 1974; Warren 1980, 1984)

Ethnography

The project area is located within the aboriginal territories of two different ethnolinguistic groups: the Serrano and Chemehuevi. Anthropological research on these two groups is rather extensive and data on these Native Californian cultures has been on-going since the early decades of the 1900s (Earle 1990, 1997, 2004a, 2004b, 2005a, 2005b, Johnson and Lorenz 2006; Kelly and Fowler 1968; King 2003, Kroeber 1925; Laird 1976; Strong 1929).

Serrano

Recent research by Earle (1990, 1997, 2004a, 2004b, 2005a, 2005b), King (2003), and Johnson and Lorenz (2006) have helped to clarify the ethnic identification of the Mojave Desert Native American groups. Work with the John Peabody Harrington notes combined with analysis of the Franciscan sacramental registries testify that the Mojave Desert dwellers were of

Serrano ancestry. Surviving vocabularies and word lists support the identification of desert groups known as Vanyume (Garces' term was Beneme) as related to the Serrano. It has been further verified that Native groups occupying villages on the Mojave River near Victorville and in the region east of Barstow maintained marriage ties to downriver communities and were Vanyume in ethnic and linguistic affiliation.

Earle (1990, 1997) supports King's revisions of earlier territorial boundaries asserting that Serrano territory included the northern slopes of the San Gabriel Mountains, the Mojave River, and Antelope Valley. It also appears from their research that both the south and north slopes of the San Gabriel Mountains were "owned" and occupied by Serrano speakers.

Early 20th century ethnographic fieldwork among the Serrano was conducted by Kroeber (1925), Gifford (1918), Strong (1929), Benedict (1924), and Harrington (1986). More recent research by Bean (1972), Bean and Smith (1978), and Bean, Vane, Lerch, and Young (1981) has helped to focus attention on key research questions in an attempt to clarify the relationship of Serrano land use patterns, territorial attributions, subsistence-settlement patterns, and social, ceremonial, and political organization.

The economic resource base of the Desert Serrano was determined in part by the seasonal availability of key animals and plants exploited for basic subsistence (Earle 1992). Hunting

activities supplemented a diet mainly emphasizing plants. Hunting excursions were both an individual affair but also incorporated communal drives, and trap lines to snare small animals (e.g., squirrels, rodents, tortoise, and chuckwalla). Some desert hunting areas to the east in the Mojave Desert and in the vicinity of the Mojave River may have been shared with adjacent groups (e.g., Chemehuevi and/or Mojave).

Mule deer were available in the San Gabriel and San Bernardino Mountains. Deer would migrate to lower elevations during the winter and would be available in the lower foothill region at that time. Pronghorn frequented the valley floor year-round but were not consistently abundant and were hunted only occasionally using communal surrounds and group drives. The latter communal drive technique was also used to ensnare large numbers of jackrabbits during the fall when the rabbits were especially abundant. Mountain sheep were available in the higher mountains but would have been rarely procured. Waterfowl could be captured using bows and arrows and special nets. Ducks, quail, geese, and grebes would have been available in considerable numbers during their breeding seasons and in association with riparian settings.

Abundant stands of acorns, juniper, mesquite, and pinyon were available to extended gathering expeditions. These might involve several lineages collaborating under one leader's authority and would have entailed accessing the resource base of surrounding groups (Bean and Smith 1978; Benedict 1924:391-392; Drucker 1937). Cattail / bulrush seeds (*Typha* spp. and *Scirpus* spp.), various roots, shoots, bulbs, and other hard seeds were all principal plant foods. The most likely plant resources that were of significant economic importance that have been identified paelobotantically or noted in the immediate vicinity of the Project were Indian rice grass (*Achnatherum hymenoides*), chia (*Salvia columbariae*), blazing star (*Mentzelia* spp.), and goosefoot (*Chenopodium* spp.)

Edward W. Gifford conducted a detailed study of the marriage practices and sociopolitical organization of native southern California Native Americans during the time from 1916 through 1917 (Gifford 1918). Based on these studies, he developed a model of Serrano social organization (Earle 2004a, 2004b). William Duncan Strong (1929: 5-35) conducted even more extensive studies among the Serrano, Cahuilla, Luiseño, and Cupeño in 1925. His record is most significant as a very early observer of the Serrano kinship system. He indicated that the Serrano were an unusual California group possessing true patrilineal clans. A clan is a kin group based on descent from a common ancestor, as traced through the male or the female line. Clans are normally exogamous, marriage within the clan being regarded as incest.

Patrilineal clans are patterned such that all males, their descendants, and their wives were part of a single group. Clans may be segmented into subclans or lineages. A woman retained her own lineage name but upon marriage was incorporated into the clan of her husband. The transfer of women from one ceremonial affiliation with one clan to another, upon marriage, was characteristic of all southern California Takic (the linguistic subfamily of the Serrano) groups.

King's research provides compelling evidence that the Serrano exhibited a totemic moiety structure (contra Blackburn and Bean 1978a, 1978b). A moiety is either of two kinship groups based on unilateral descent that together make up a tribe or society. Totemic moieties are two-fold divisions of society with subgroups that identify themselves as descended from a prominent religious figure (mostly animal-humans) that are part of their oral traditions. In the Serrano case, their society was divided into two parts identified with either Coyote or Wildcat. The Coyote moiety had the most important political leaders. Moiety out-marriage excluded partners from half the neighboring Serrano settlements. Hence, only settlements of opposing moieties were interrelated through marriage.

Serrano villages were generally more dispersed in the Mojave Desert. This dispersed pattern resulted in marriages linking together very large areas. Many of the settlements had marriage ties with villages over 50 miles away and counter intuitive was the fact that the closest relationships were not with the nearest villages – but rather with settlements affiliated with opposing moieties further distant.

King's study of the mission register indicates that there were many important hereditary positions among the Serrano. Each village contained a chief, ceremonial manager, two messengers, as well as various shamans, diviners, and other ritual specialists. Each of these leaders oversaw different elements of Serrano life involving festivals, dances, and warfare.

Ethnographic data attests that a major native trade and travel corridor facilitated a long-distance exchange system. Recent research has supported the importance of long distance trade linking coastal southern Californian Chumash tribes with inland groups including the Yokuts, Kawaiisu, Serrano, Chemehuevi, and the Mojave in California and the Walapai, Havasupai, and Hopi in Arizona (Earle 2005a). Shell bead trade was one of the mediums of exchange and was used as a kind of currency or money. This system was significant since it involved trade, travel, and exchange covering hundreds of miles and was a system of exchange of native goods that linked various ethnic groups politically and economically.

This trade and travel route ran from the American Southwest (principally the Hopi territory in Arizona), along the Colorado River to the Mojave River thence through the central Mojave Desert into the Antelope Valley and east to the Pacific Coast (Davis 1961; Farmer 1935; Sample 1950). These circuits of exchange cut across political and cultural boundaries. A number of researchers have argued that such an exchange system may have been an influential factor in facilitating semi-sedentary settlement and complex sociopolitical organization for the Serrano (Earle 2005a; Robinson 1977; Sutton 1980).

Davis (1961) after reviewing the available data on native California trade and exchange determined that in southern California the only Native group to travel great distances in trading expeditions were the Mojave. It appears that the Serrano developed long-standing political and social relationships with the Mojave. In fact, the Serrano were their exchange or trading partners

and acted as hosts facilitating their travel through sometimes unfamiliar and potentially hostile territories.

Chemehuevi

The Chemehuevi are recognized as an ethnic and cultural group that inhabited large areas of the western Mojave Desert. They also abided at times along the Mojave River, and importantly they have been identified as inhabiting the Daggett-Barstow area in particular, especially during the late protohistoric era (post AD 1830) (Earle 2005c).

David Earle has documented the movement of the Chemehuevi during the years before intensive Euroamerican contacts and believes a migration was precipitated into the Project area as a search for more productive hunting territories and the need for greater access to plant food resources ensued. The targeted resources included mesquite beans, *carrizo* grass, aphid sugar, yucca, pinyon pine nuts, and the juniper berries.

The Chemehuevi appear to have traditionally focused their settlements along the Colorado River, from Blythe to north past Needles. However, they ranged widely in the desert and mountains west of the river and regularly traveled as far as the Tehachapi Mountains, San Bernardino Mountains, and even into Death Valley. They considered the northern border of the Panamint Range to be sacred land (Laird 1976:134).

The Chemehuevi, were hunters and foragers who seasonally moved across very large tracts of desert. Even with their development of oasis agriculture, the supplemental subsistence pattern did not significantly change this pattern. The Chemehuevi local groups were frequently quite small, often numbering only around 25-30 people. Furthermore, these local groups were widely dispersed in response to the relatively availability of game, plant foods, and water.

The Chemehuevi were atypical of their linguistic kin, other Southern Paiutes throughout the Great Basin (Kelly and Fowler 1986), in having chiefs. Such headmen were wealthy, directed large villages and the chief's son succeeded him after his passing.

Religious ceremonies including a Mourning Ritual or Cry. Wealthy relatives to the deceased were the sponsors of the event with substantial foods and offerings made available to all. A ceremonial burning took place and buckskins, eagle feathers, rabbit skin blankets, and baskets of the deceased were destroyed. As throughout California, the Chemehuevi world view and sacred oral traditions incorporated a time when the earth was new and animals were people – including their principal culture heroes - Coyote and Wolf. Women knew such stories but men served as orators.

History

The Historic era of California is divided into the Mission or Spanish Period (1769 to 1831), the Mexican or Rancho Period (1821 to 1848), and the American Period (1848 to present).

Spanish Period (1769-1831)

The first known European explorers to pass through the Mojave Desert and travel into the San Bernardino Mountains were Lieutenant Pedro Fages and a party of soldiers in 1769. This group of explorers were led by a Spanish priest, Francisco Garces, who guided Juan Bautista de Anza through the high desert region. In 1771, De Anza led a group from Arizona to create a headquarters at the Mission San Gabriel near the City of Pasadena. Mission San Gabriel Archangel was formally established in 1771 and proved to be the most economically successful of all the California missions. Its outlying ranch lands, grain fields, orchards, and vineyards constituted a vast pastoral empire, eventually extending many miles inland into the San Bernardino Valley. From the time of the Anza expedition until the Mexican Rancho Period (see below), the land surrounding Ontario in San Bernardino County was employed as grazing land by the Mission. Cattle ranching during this time became a thriving industry. Cattle bred rapidly in the favorable Mediterranean climate. Herds composed of hundreds of thousands of animals were ranging across the verdant pasture lands.

Mexican or Rancho Period (1831-1848)

The notable Old Spanish Trail was established between southern California and Santa Fe, New Mexico in the 1830s (Beck and Haase 1974). Traders from New Mexico traveled for two months to cross the rugged terrain bringing woolen goods on mules and pack horses. These merchants traded their wares for horses, mules, silks and Chinese goods from California. The San Bernardino Valley provided an excellent pasturage for the animals involved in these trading affairs.

Spanish rule was overthrown by Mexico in 1791, and eventually the missions lost their land holdings as the Mexican government passed the Secularization Act in 1833 (Beattie and Beattie 1974). Following mission secularization, large land grants were provided to the most prestigious and well-connected citizens. This change in land tenure ultimately led to European settlement of the ranchos for raising cattle in the San Bernardino Valley.

The Rancho Period lasted from 1834 until the Mexican War of 1846. Colonists were encouraged to settle in the San Bernardino Valley to help protect the region from local Indian raids. Recipients of the land grants included Spanish gentlemen (dons) from many of what came to be known as the first families of California, such as the Lugos, Sepulvedas, Yorbas, Bandinis, Tapias, Palomares, and Picos.

American Period (1848- Present)

After the Mexican-American War in 1848 and the discovery of gold in California, the Old Spanish Road was an even more widely-used trade route for the shipment of goods, Mexican mules, and horses. The Road allowed travelers from Salt Lake City to Las Vegas to travel

through the Cajon Pass to reach the cities of San Bernardino and Los Angeles. In 1853 the County of San Bernardino was created and divided into three townships: San Bernardino, San Salvador, and Chino. The city of San Bernardino was designated as the county seat, with the Mormon Council House serving as the first courthouse.

Beginning in 1873, San Bernardino County saw many new railroad lines and train depots being constructed. By 1886, the San Bernardino Valley had two transcontinental railroad systems. In the 1870s and 1880s, cowboys continued to lead herds of cattle over trails through the valley to the railroads. In the 1870s and afterward, small towns in the high desert region and near the Calico Mountains were established as railway stops on the Santa Fe Railroad (Kyle 1990). A silver strike in the Calico Mountains brought about a modest mining boom in 1881 (Schuiling 1984:95).

Another impetus to growth was the growing importance of citrus agriculture. The area exhibited especially favorable circumstances for citrus growing. These factors included the decomposed granite soil, good drainage, ready water, abundant sunshine, and cool winter nights. The completion of the railroads and the growing citrus industry facilitated a land boom. During the interval of the last two decades of the nineteenth century (1880 to 1900), 30 new communities were initiated in the greater San Bernardino County Region.

Apple Valley Local History

The Mojave River Trail, in what is now the Town of Apple Valley, hosted pack mules, gold prospectors, and Mormon wagon trains into the late 1800s. In 1860, the first cabin was built by Silas Cox in Apple Valley, and the first road was cut the following year.

In 1915, the publisher of the Los Angeles Examiner newspaper, Max Ihmsen, developed 320 acres of prize-winning apples and pears that made Apple Valley famous for its fruit orchards. The modern founders of Apple Valley were Newton T. Bass and B.J. "Bud" Westlund, who were partners in the oil and gas industry in Long Beach, California. In 1946, Westlund and Bass acquired 6,300 acres from Southern Pacific Railroad. They formed the real estate company, Apple Valley Ranchos Land Co. and marketed the area as a destination resort and high-quality residential community, calling it the "Golden Land of Apple Valley". They built the Apple Valley Inn and Hilltop House and invited celebrities from Hollywood to visit. Within the next decade, development brought banks, churches, a school, golf course, a hospital, and 180 businesses. Celebrities Roy Rogers and Dale Evans moved into the area in 1965. They leased the Apple Valley Inn for a short time, and opened a museum across the street where a bowling alley stands today.

A graduate course taught by Dick Pearson prompted a draft study to be presented in 1983 for the incorporation of Apple Valley. A formal study was completed in 1986 which resulted in a vote to approve or deny incorporation two years later. 83% of citizens voted 'Yes' to approve

incorporation of the Town of Apple Valley. The official incorporation date was November 28, 1988 (applevalley.org).

PERSONNEL

Dr. Alan Garfinkel Gold, RPA requested the staff at South Central Coastal Information Center (SCCIC), California State University, Fullerton to conduct a cultural resources records search. Following receipt of the data from SCCIC, a systematic pedestrian field survey was conducted by RCA Associates archaeologist Alan Garfinkel Gold. Following completion of the field surveys, this report was prepared based on the results of the data search, field investigations and Native American replies.

METHODS

Research

A cultural resources records search was conducted by the SCCIC on May 16, 2018. The results of the records search are summarized in this report. A Sacred Lands File Search was also conducted through the Native American Heritage Commission (NAHC). All Native American Tribes associated with the area were contacted for consultation. Copies of the letters and related documentation of the outreach activities are provided in Appendix B (also see Table 2).

Field Survey

A comprehensive archaeological field survey was conducted on January 5th and 6th, 2019. The survey was conducted by following the path of the individual pipeline corridors and examination of the ground surface and subsurface exposures along both sides of roads. The survey used standardized transects 10 meters apart (where space allowed) including at the proposed staging areas, tank sites, and well site.

RESULTS

Native American Consultation

The NAHC conducted a Sacred Lands File search on May 9, 2018 and returned positive results for Sacred Lands near the proposed project area. Discussions with the NAHC clarified this information and NAHC indicated that the sensitivity is not in the specific Project site but due to the sensitivity of resources in the neighboring areas. All potentially interested tribes identified by the NAHC were contacted by mail, email, and telephone and the list of these contacts is available in Appendix B. These groups include: San Manuel Band of Mission Indians (SMBMI), Morongo Band of Mission Indians (Cultural Resources Manager and Chairperson, respectively),

San Fernando Band of Mission Indians, Serrano Nation of Mission Indians, Twenty-Nine Palms Band of Mission Indians, (Chairperson and Tribal Historic Preservation Officer, respectively).

The Morongo Band of Mission Indians' Tribal Historic Preservation Office replied via email message to advise that the Tribe has cultural ties with the area and would like to request a copy of the report in order to better assess the risk to Native American cultural resources. San Manuel Band of Mission Indians replied via email to express that the area is within Serrano ancestral territory and is moderately sensitive to Native American cultural resources due to the sensitivity of the surrounding area. The San Manuel Band of Mission Indians indicated that they will be communicating their concerns and recommendations with the Lead Agency as part of an AB 52 consultation regarding this Project.

Table 2. Native American Consultation and Coordination

Contact/Date of Contact	Type of Contact	Results
Raymond Haute, THPO, Morongo Band of Mission Indians		
May 10, 2018	Letter sent to Mr. Haute	
May 30, 2018	Letter received from Mr. Haute.	Letter confirmed interest. Request archive search. Request to monitor.
January 30, 2019	Email and phone call update.	Sent email and called left voice mail message.
Denisa Torres, CR Manager, Morongo Band of Mission Indians		
May 10, 2018	Letter sent to Ms. Torres	
January 30, 2019	Email and phone call update.	Sent email and called left voice mail message.
Robert Martin, Chairperson, Morongo Band of Mission Indians		
May 10, 2018	Letter sent to Mr. Martin	
January 30, 2019	Email and phone call update.	Sent email and called left voice mail message
Donna Yocum, Chairperson, San Fernando Band of Mission Indians		
May 10, 2018	Letter sent to Ms. Yocum	
January 30, 2019	Email and phone call update.	Sent email and called spoke with Ms. Yokum. No current concerns.
Lee Clause, Director CR, San Manuel Band of Mission Indians		
May 10, 2018	Letter sent to Ms. Clause	

January 30, 2019	Email and phone call update.	Sent email and called left voice mail message

Darrell Mike, Chairperson, Twenty-Nine Palms Band of Mission Indians

May 10, 2018	Letter Sent to Mr. Mike	
January 30, 2019	Email and phone call update.	Sent email and called left voice mail message

Anthony Madrigal, THPO, Twenty-Nine Palms Band of Mission Indians,

May 10, 2018	Letter Sent to Mr. Madrigal	
January 30, 2019	Email and phone call update.	Sent email and called left voice mail message

Table 2. Native American Consultation and Coordination (continued)

Contact/Date of Contact	**Type of Contact**	**Results**
Travis Armstrong, THPO, Morongo Band of Mission Indians		
May 10, 2018	Letter Sent to Mr. Armstrong	
January 11, 2019	Spoke with by phone.	Understood the project. Monitoring is needed. In the future need a 1 mile buffer.
January 14, 2019	Received text message.	Reaffirmed statements as made previously.
January 30, 2019	Email and phone call update.	Sent email and called left voice mail message.

AB 52

With the implementation of Assembly Bill 52 (AB 52) a new law recognizes California tribes' expertise regarding cultural resources and provides a method for lead agencies to incorporate tribal knowledge into their CEQA environmental reviews and decision-making processes. Under AB 52, California tribes have the ability to establish, through a formal notice letter, a standing request to consult with a lead agency regarding any proposed project subject to CEQA in the geographic area with which the tribe is traditionally and culturally affiliated.

California law defines consultation as the "meaningful and timely process of seeking, discussing, and considering carefully the views of others, in a manner that is cognizant of all parties' cultural

values and, where feasible, seeking agreement." Gov. Code § 65352.4. AB 52 allows for the possibility of project applicant participation in the consultation process, but agencies should not view this as an opportunity to delegate their consultation duties to the applicant.

The San Manuel Band of the Mission Indians specifically requested a formal government to government consultation for the Project.

Cultural Resources Records Search

On May 16, 2018, the South Central Coastal Information Center (SCCIC) at California State University, Fullerton conducted a record search of previously documented cultural resources and cultural resource surveys and studies conducted within the proposed Project area and within a half mile buffer surrounding the Project area footprint. The search included a review of all recorded historic and prehistoric archaeological resources and any built-environment historical resources as well. Additionally, this review includes an archival search of the existing cultural resource reports on file with the Information Center. The California Points of Historical Interest (CPHI), California Historical Landmarks (CHL), California Register of Historical Resources (CALREG), National Register of Historic Places (NRHP), and California State Historic Properties Directory (CHPD) listings were all reviewed for the project site.

Seven cultural resources reports were noted as having been completed within the Project area. One historic resource, the Point of Historical Interest, Coxey Road/Van Dusen Road, was previously documented and lies within the project area. Two historic resources were previously documented within the half-mile buffer of the Project. The two historic resources which are not within the project area will not be affected by Project construction. No resources within the Project area were found to be listed in the OHP Historic Properties Directory. Additionally, eleven reports have been completed within the half-mile buffer of the project. Table 2 (below) lists the cultural resources previously documented within the project.

Table 3. Cultural Resources Within Project Area

Primary Number	Trinomial	Age	Type	Evaluation
P-36-004276	CA-SBR-4276 H	Historic	Structure	1972 (PHI); 1980 (R.Reynolds, SBCM); 1993 (Kenneth Baker & Jodie Phillips, RMW Paleo); 1999 (Daniel McCarthy, USFS); 2009 (S. Campbell, L Honey, J. Moss, K. Frank, Garcia and Associates); 2010 2011 (Joshua Trampier, Statistical Research); 2017 (S. Andrews, ASM)

Site P-36-004276

Site P-36-004276 consists of what is now known as Coxey Road and was designated a Point of Historical Interest (CPHI-SBR-17) but is not a state registered historic landmark. The portion of Coxey Road (labeled "Van Dusen Road" with signage at location) intersects with the project area and was found during the pedestrian survey via a Points of Historical Interests sign that reads, "Holcomb Valley Road / Van Dusen Road est. 1861" located a few meters south of the current Power Line Road on Mesa Vista Street, north of Roundup Way.

According to site records, Coxey Road is a portion of Van Dusen Road, which was first established in the 1860s. Jed Van Dusen, a local blacksmith, created the road for the miners in Holcomb Valley. The road was used for hauling supplies to and from the mines and for driving cattle to and from the summer pastures in the mountains. The period of significance is 1860-1967. In the 1880s, supplies for the building of Bear Valley Dam were brought up through Holcomb Valley by freighter A.E. Taylor until he completed the road up Cushenbury Grade direct to Bear Valley. A portion of the Van Dusen Road was named Coxey Road to avoid confusion with the portion of the road that extends through Van Dusen Canyon.

The Coxey/Van Dusen Road was considered a relevant contribution to the transportation for early miners. As a result, Coxey/Van Dusen Road is considered eligible for the NRHP under Criterion A at the local level for its association with local transportation and industry. Integrity of location, setting, feeling and association are significant to assess properties eligible under Criterion A. Integrity of location is moderate as the road has had several changes in alignment over long period of usage, which occurred during the period of significance. The portion of the road that intersects with the Project area at Mesa Vista Street remains unpaved and unrecognizable, except for the signage. Integrity of feeling, association, and setting is considered low. Although the road remains unpaved, its location is not easily identifiable without the signage due to the powerline road that is adjacent to the Coxey Road/Van Dusen Road location.

The road is recommended not eligible for the NRHP under Criterion B as the road is not associated with the lives of significant person in the past. It is recommended not eligible to the NRHP under C as it does not embody the distinctive characteristics of a type, period, or method of construction from the 1860s through the mid-twentieth century. The road also does not represent the work of a master, nor possess high artistic values, nor represent a significant and distinguishable entity whose components may lack individual distinction. It is also recommended not eligible to the NRHP under Criterion D as the road is a common property type that does not have the potential to provide information about history or prehistory that is not available through historic research.

Table 4. Cultural Resources Within ½-mile Buffer

Primary Number	Resource Name	Age	Type	Evaluation

P-36-026926	A-001H	Historic	Refuse Scatter	(2012, Honey, Linda, Phoenix Biological Consulting, LLC)
P-36-026927	A-002H	Historic	Can Scatter	(2012), Honey, Linda, Phoenix Biological Consulting, LLC)

Table 5. Cultural Resources Survey Reports within Project and ½ mile Buffer

Report No.	Authors	Title	Year
SB-00046	Grosscup, Gordon L. and Jack E. Smith	Mohave Desert Pipeline Survey	1960
SB-00108	King, Thomas F.	M-Yuc: An Archaeological Survey of the Proposed Right-of-Way of the Morongo-Yucca-Upper Coachella Valley Pipeline	1971
SB-00240	Connelly, M. Carole	Archaeological Impact Evaluation: Southern California Edison Proposed Generating Station in Upper Johnson Valley and Associated Transmission, Gas and Fuel Routes	1974
SB-00426	Hearn, Joseph E.	Archaeological- Historical Resources Assessment of Two Existing Apple Valley Parcels and Recreational Sites Proposed for Construction of Restroom Facilities, Tennis Courts, and Parking Lot	1976
SB-00827	Simpson, Ruth D.	Cultural Resources Assessment, Tentative Tract 10913, Apple Valley Area	1979
SB-00900	Weil, Edward B.	Prehistoric Cultural Resource Investigations: Southern California Edison Lucerne Valley Project, Summary Report	1979
SB-00901	Weil, Edward B.	Prehistoric Cultural Resource Investigations for the Lucerne Valley Project, San Bernardino County, California	1980
SB-02515	Lerch, Michael K.	Class III Cultural Resources Inventory of the Morongo Basin Pipeline Project, Hesperia to Landers, San Bernardino County, California	1992
SB-02708	Anonymous	Juniper Flats Cultural Area, An Area of Critical Environmental Concern in the Western Mojave Desert	1992
SB-02709	Anonymous	Juniper Flats Cultural Area, An Area of Critical Environmental Concern in the Western Mojave Desert, Preliminary Draft	1991
		Negative Archaeological Survey Report: AT&T	

SB-03720	Schmidt, James	Cell Site Utility Connection Project. 5PP	2002
SB-04803	McKenna et al.	Results of a Phase 1 Cultural Resources Investigation For the Central & Highway 18, LLC Project Area, Approximately 120 Acres in Apple Valley, San Bernardino Co., California	2006
SB-05555	Bonner, Wayne	Cultural Resources Records Search Results and Site Visit for T-Mobile Candidate IE24884A (Apple Valley Fire Dept), 21860 Tussing Ranch Road, Apple Valley, San Bernardino County, California	2007
SB-05556	Gardner, Jill K. and Julie A. Minor	Deteriorated Pole Replacement Program: Archaeological Survey of Six Pole Locations on the Sky Hi and Tussing 12kV Circuits, San Bernardino County, California	2006
SB-06702	Sander, Jay K.	Archaeological Survey Report for Southern California Edison's Pole Replacement Project: Apple Valley, San Bernardino County, California	2010
SB-06720	Loftus, Shannon	Cultural Resource Records Search and Site Survey Clearwire Site CA-RVS5285A, 15713 Valley Blvd, Fontana, San Bernardino County, California 92355	2010
SB-07139	Chandler, Evelyn N., Sara K. Hale, and Roger D. Mason	Cultural Resources Inventory of 12 Proposed Pole Replacements in and near Apple Valley, Helendale and Lucerne Valley, San Bernardino County, California	2009
SB-07519	Young, Ryan and Linda Honey	Phase I Cultural Resources Assessment for proposed 3 MW AC Photovoltaic Solar Array "Apple Valley East"	2013

Field Survey

During the field surveys conducted on September 20, 21 and October 23, 2018, the Project areas were carefully examined for the presence of any cultural resources, including prehistoric or historic cultural resources or historic buildings.

Field survey investigations were conducted by archaeologist Elliot D'Antin and archaeological staff member, Alina Landa. The survey was conducted by walking parallel along the proposed pipeline corridors and as close as possible to the fenced off tank locations. Parallel 10-meter and meandering transects were conducted within the 2.5 acre well site. The well site has been previously graded and shows sign of modern dumping in the Northwest portion of the Project area. A possible historic can was observed on the site

One historic refuse dump area, along with the base of a possible historic- era structure was discovered during the field survey along the project area (Temporary Site name RCA 2018-26-1).

During the survey along Mesa Vista Street (north/south), a modern sign for the Holcomb Valley Road/Van Dusen Road Point of Historical Interest was observed, however, the road itself was not distinctly visible on the west or east sides of Mesa Vista Street. Mesa Vista Street is a highly used, unpaved road which is mainly used by residents of the neighborhood. A power line road is located approximately 35 meters north from the sign for Holcomb Valley Road/Van Dusen Road. The project area would not significantly affect the current state of the historic road, as this portion of Mesa Vista Road is already highly used by residents.

Discussion of site RCA 2018-26-1

A historic can scatter was observed east of Central Road and approximately six feet south from the unpaved road, Houston Street. Artifact density is sparse and is no more than 3 items per square meter in a 40-meter diameter. Artifacts consist of three hole-in-top cans, one square can, one church key, one sanitary can, and thirteen unidentified crushed cans. One base fragment of a Hazel-Atlas Glass Company bottle (39/16 x 29/16) and a toddler's shoe sole with protruding nails were also discovered at the site. The cement base of a structure that was previously here can also be observed in the northwestern portion of the site. Historical maps indicate that there was a structure here as far back as the year 1957. The base of the structure may therefore be historic in age, but retains no integrity as the remainder of the structure is no longer there. The site is in poor condition with modern trash littered throughout. Off-road vehicle and bike tracks can be observed across the site as well. The site does not show signs of having a connection to a significant or particular event or place in history. The site cannot offer any new relevant historic information. The proposed project ground surface disturbance would, therefore, not negatively impact this site.

CULTURAL RESOURCES MANAGEMENT RECOMMENDATIONS

The following cultural resources mitigation measures are intended to be incorporated into the plans for project construction and shall be documented within the CEQA compliance reports necessary for Project approval.

Cultural Resources

1. In the event that pre-contact cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted, as detailed within Tribal Cultural Resources Mitigation Measure (TCR) 1 (as below). If any such find occurs SMBMI shall be provided information after the

archaeologist makes his/her initial assessment of the nature of the find, so as to allow Tribal input with regard to significance and treatment.

2. If significant Native American resources are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan. The drafts of the Monitoring and Treatment Plan shall be provided to SMBMI for review and comment, as detailed within TCR-1. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

3. If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the project.

Tribal Cultural Resources

1. The San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted, as detailed in CR (Cultural Resources Mitigation Measure) 1 (above). When any pre-contact cultural resource is discovered during project implementation, SMBMI shall be contacted and provided with information regarding the nature of the find. This information is to be provided so that Tribal input can be developed with regard to resource significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a cultural resources Monitoring and Treatment Plan shall be created by the archaeologist, in coordination with SMBMI, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents SMBMI for the remainder of the project, should SMBMI elect to place a monitor on-site.

2. Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the Lead Agency for dissemination to SMBMI. The Lead Agency and/or applicant shall, in good faith, consult with SMBMI throughout the life of the project.

Cultural Resources Monitoring

Several culturally sensitive areas require Native American and Archaeological Monitoring. These areas have not seen extensive impact and appear to be relatively pristine in their naturally settings. The areas to be monitored include the area identified for the installation of the new tanks (Mesa VistaTank Site area) and the intersections (crossings of paved roads [Roundup Way, Tussing Ranch Road, and Central Road]) where the water line may need to go deeper than the project's other installations and under prior utility lines. Also the grubbing and grading of Staging Area 1 (APN 0438-112-05) will require monitoring. The Mesa Vista Tank Site area is projected to require about 10 days of monitoring. The other areas where the intersections are and Staging Area 1 would need aup to two days of active monitoring at each site. This monitoring shall be conducted with a Native American monitor retained from the San Manuel Band of Mission Indians and an archaeological monitor supplied by contractor to Lead Agency (e.g. RCA Associates).

SUMMARY

This cultural resources study was completed pursuant to standard CEQA compliance protocols. Field survey investigations were initially conducted by Elliot D'Antin and Alina Landa on September 20th and 21st, 2018 and again on October 23rd, 2018 by RCA Associates, Inc. An updated survey of the non-federal portions of the Project was completed by Alan Garfinkel Gold on

A cultural resources records search was completed on May 16, 2018 and resulted in findings of the Point of Historic Interest identified as Coxey Road (a connection to Van Dusen Road) which intersects the Project in an east/west fashion across Mesa Vista Street. This portion of Coxey Road/Van Dusen Road is not visually identifiable at the intersection of Mesa Vista Street, however, a Points of Historic Interest sign labels the location of Holcomb Valley Valley Road and Van Dusen Road.

Although these intersecting roads remain unpaved, the Project surface ground disturbance at this portion of Mesa Vista Street will not significantly affect the historic road. This area has been greatly modified by development of power lines and heavy residential usage of Mesa Vista Street and the Power Line Road. Two historic resources are within the Project's half-mile buffer. These resources have been previously recorded (Sites P-36-026926 and P-36-026927). Site P-36-026926 is a historic refuse scatter and Site P-36-026927 is a can scatter. These sites will not be affected by the Project

During the field survey the Project areas were carefully examined for the presence of any cultural resources, including prehistoric or historic cultural resources or historic buildings. The survey was conducted by walking parallel along the proposed pipeline corridors. One historic refuse dump area, along with the base of a possible historic-era structure was discovered during the field survey along the project area (Site RCA 2018-26-1). This historic site does not meet the threshold of significance and hence does not require mitigation or further evaluation.

The Native American Heritage Commission (NAHC) completed a Sacred Lands File Search, which resulted in positive findings for Sacred sites that have been previously noted near the project area. The NAHC created a list of Native American Tribal entities and individuals who are regionally and culturally affiliated with the general area. This list can be referred to in Appendix B. Morongo Band of Mission Indians replied via email message to express interest in the project and requested a copy of this cultural assessment report to further assess the risk to Native American cultural resources. San Manuel Band of Mission Indians (SMBMI) replied via email message to advise that the Project area lies within Serrano ancestral territory and is therefore relevant to the Tribe. They have also requested a copy of this report and requested an AB 52 consultation with the Lead Agency to assess future risks to cultural resources.

If previously undocumented cultural resources are identified during earthmoving construction activities, a qualified archaeologist must be contacted to assess the nature and significance of the find. Construction activities shall be diverted if necessary. If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no further

disturbance shall occur until the County Coroner has made a determination of the origin and disposition of the remains pursuant to Public Resources Code Section 5097.98. The County Coroner must also be notified of the find immediately. If the remains are determined to be prehistoric or protohistoric Native American in origin, the Coroner will notify the NAHC. The NAHC shall determine and notify a Most Likely Descendant (MLD) that will consult with a qualified archaeologist and recommend the manner of treatment for any human remains and associated offerings. With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

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APPENDIX A
FIGURES

Figure 1

Regional Vicinity Map

Figure 2

Local Topographic Map

Credit: Google Imagery 2017, ESRI

2.5 0 2.5 5 7.5 10 km

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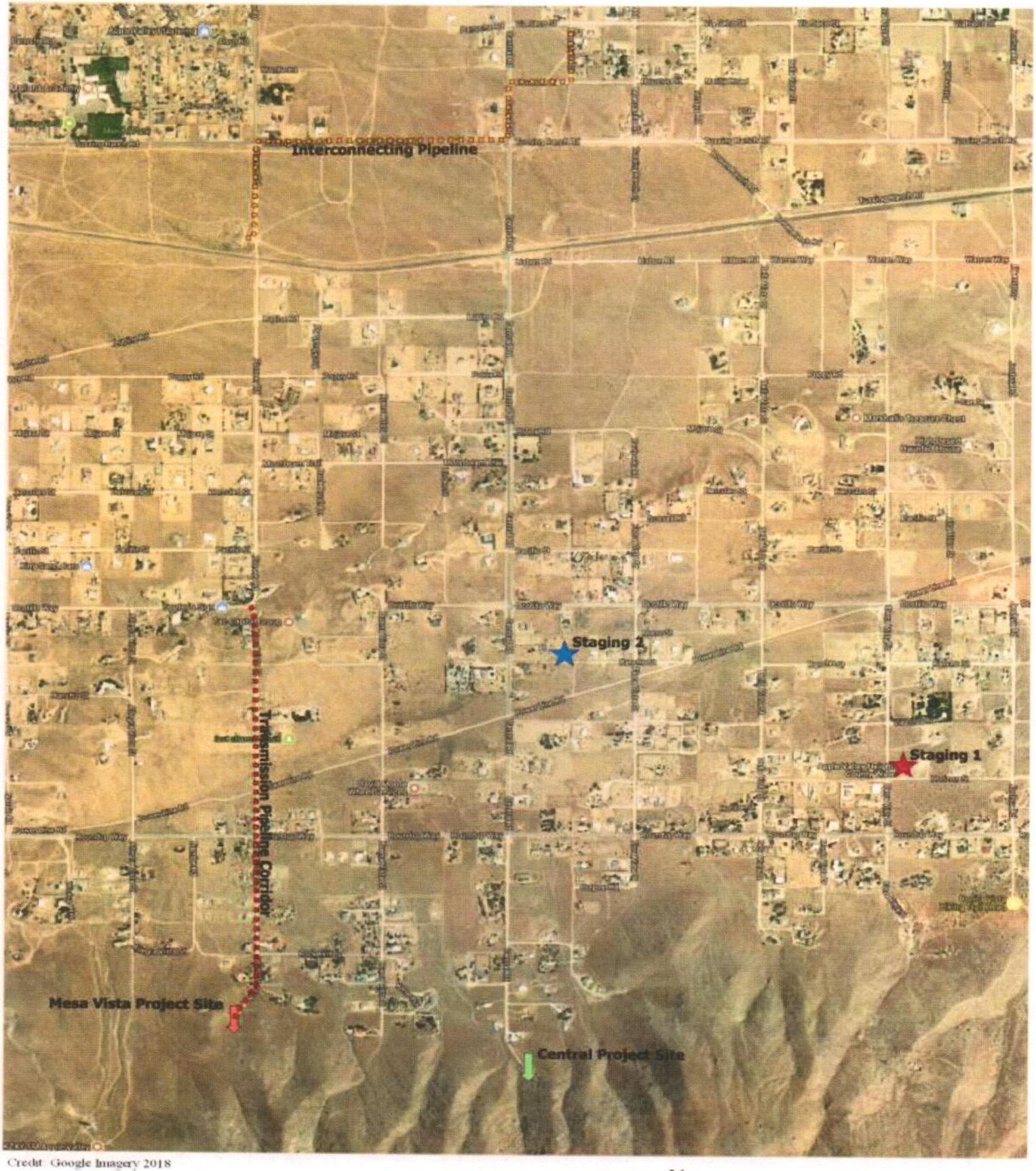
RCA ASSOCIATES INC

Figure 3

Project Site Locations



Credit: Google Imagery 2018

250 0 250 500 750 1000 m

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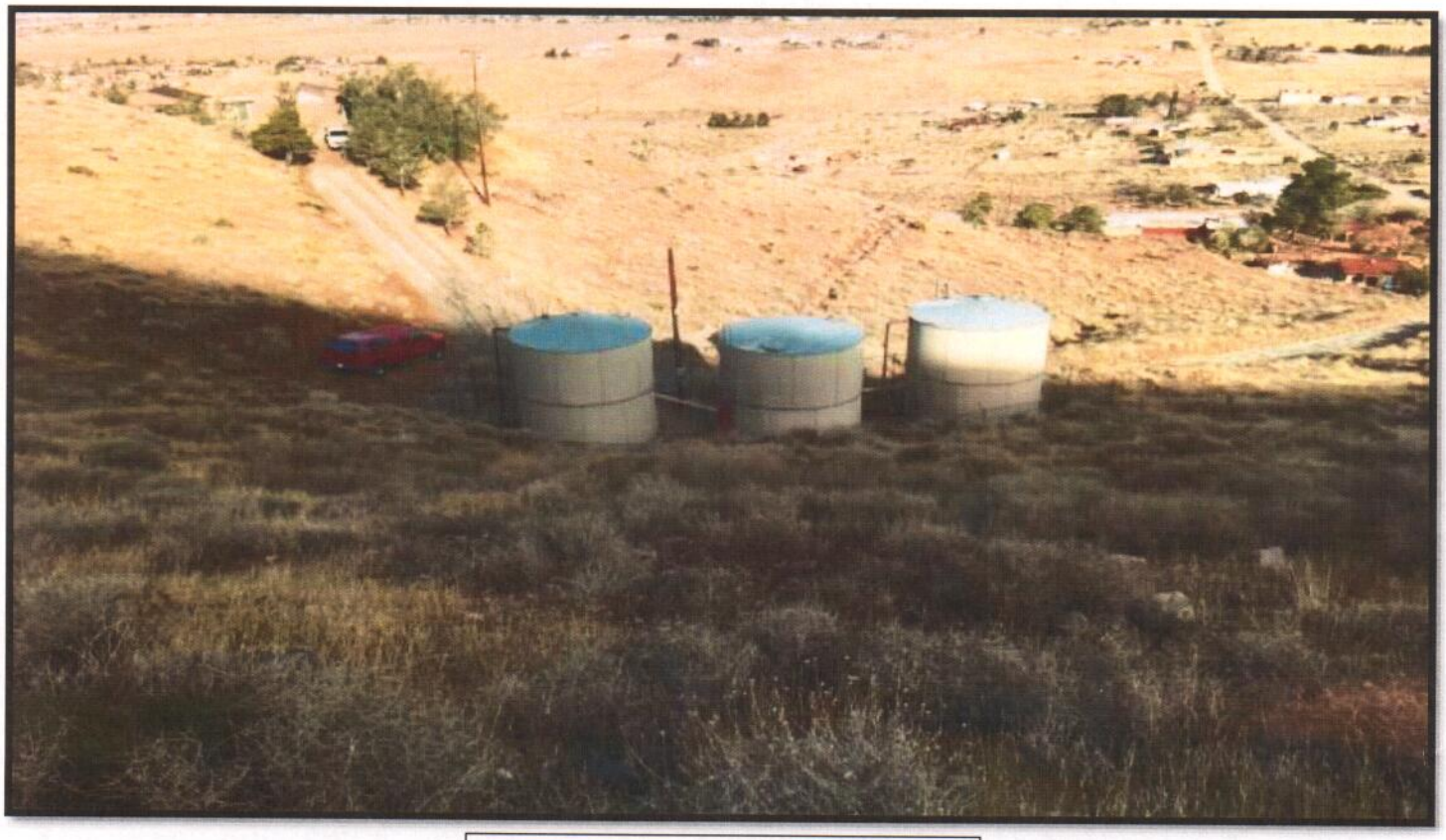
RCA ASSOCIATES INC

Figure 4

Site Photographs

CENTRAL WATER TANK SITE



MESA VISTA WATER TANK SITE

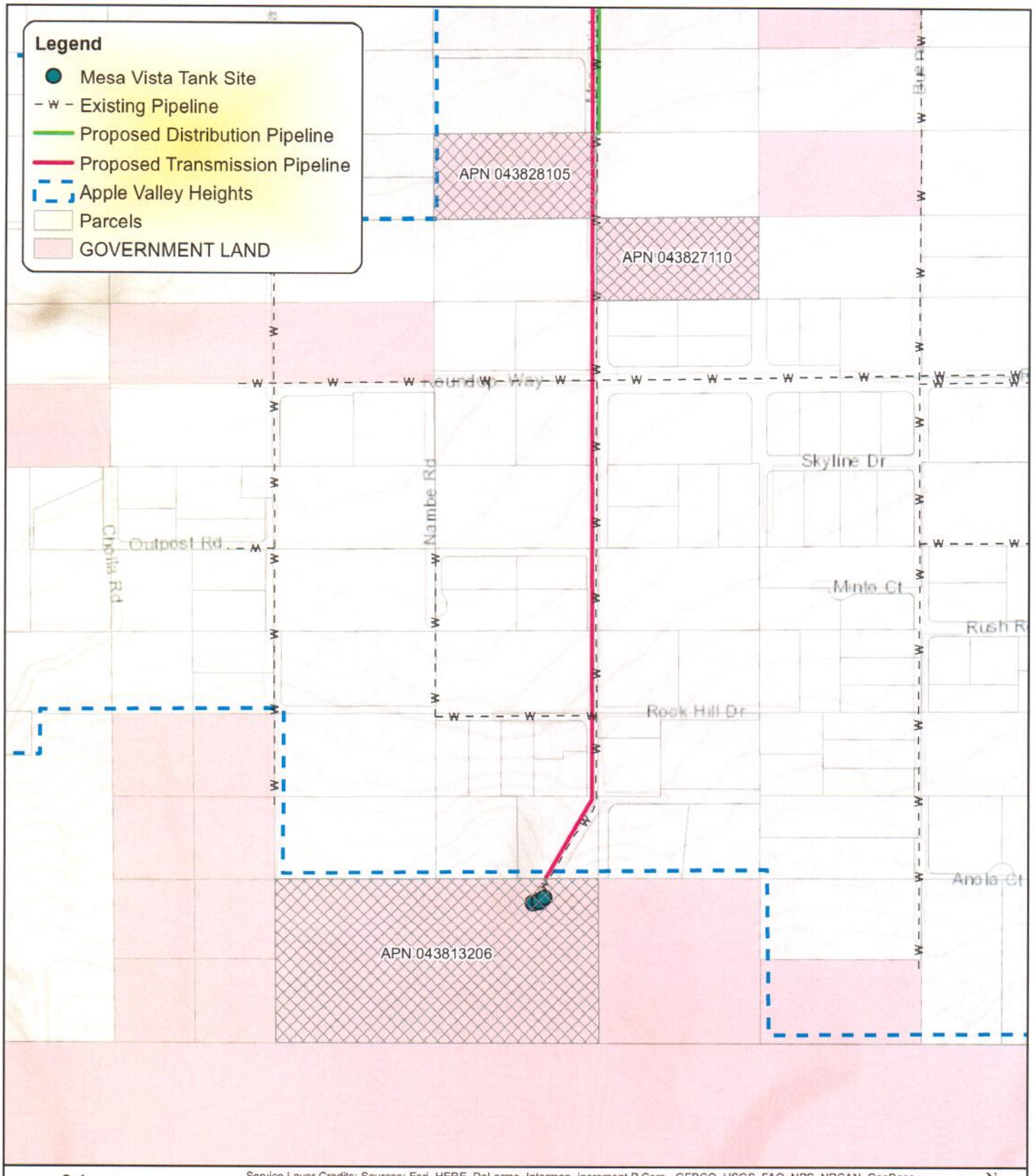
Figure 4 Cont.

Site Photographs

STAGING AREA

Figure 5
Staging Area 1

Figure 6
Staging Area 2



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Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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NV5
1 W DEER VALLEY ROAD
BUILDING 2, SUITE 305
PHOENIX, ARIZONA 85027
Tel: 623.374.6637 Fax: 623.738.3690

BLM LAND

INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

FIGURE 7

FOR:
Apple Valley Heights
County Water District

DES: RDD	DR: RDD	CHK:

PROJECT NO. 226817-0000211.00 | DATE: 11/2/2018 | SHT 8 OF 8

Document Path: E:\Projects\AppleValleyHeights\GIS\Figure 8.mxd

APPENDIX B

NATIVE AMERICAN CONSULTATION AND COORDINATION

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project #2018-26 Apple Valley Heights County Water District

County: San Bernardino

USGS Quadrangle Name: Apple Valley South, California

Township: 4 North **Range:** 3 West **Section(s):** multiple sections (see attached document)

Company/Firm/Agency: RCA Associates, lead agency California State Water Resources Control Board

Street Address: multiple locations (see attached document for APNs)

City: Apple Valley **Zip:**

Phone: 760-596-0017

Fax: 760-956-9212

Email: alinalanda@ymail.com

Project Description: Apple Valley Heights Water District project includes Central Tank site, Misa Vista Tank site, Transmission pipeline corridor, and interconnection pipeline corridor in Apple Valley, CA (See attached document titled Project Description for each APN

Native American Heritage Commission
Native American Contact List
San Bernardino County
5/9/2018

Morongo Band of Mission Indians
Denisa Torres, Cultural Resources Manager
12700 Pumarra Rroad — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838 — Kitanemuk
Newhall, CA, 91322 — Serrano
Phone: (503) 539 - 0933 — Tataviam
Fax: (503) 574-3308
ddyocum@comcast.net

San Manuel Band of Mission Indians
Lee Clauss, Director of Cultural Resources
26569 Community Center Drive — Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
Fax: (909) 864-3370
lclauss@sanmanuel-nsn.gov

Serrano Nation of Mission Indians
Goldie Walker, Chairperson
P.O. Box 343 — Serrano
Patton, CA, 92369
Phone: (909) 528 - 9027

Twenty-Nine Palms Band of Mission Indians
Darrell Mike, Chairperson
46-200 Harrison Place — Chemehuevi
Coachella, CA, 92236
Phone: (760) 863 - 2444
Fax: (760) 863-2449
29chairman@29palmsbomi-nsn.gov

Twenty-Nine Palms Band of Mission Indians
Anthony Madrigal, Tribal Historic Preservation Officer
46-200 Harrison Place — Chemehuevi
Coachella, CA, 92236
Phone: (760) 775 - 3259
amadrigal@29palmsbomi-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Apple Valley Heights County Water District Project #2018-26, San Bernardino County.

RCA
ASSOCIATES, INC

15555 Main Street, #D4-235
Hesperia, California 92345
(760) 956-9212 fax (760) 244-0791
rca123@aol.com
www.rcaassociatesllc.com

May 10, 2018

Anthony Madrigal, Tribal Historic Preservation Officer
Twenty-Nine Palms Band of Mission Indians
46-200 Harrison Place
Coachella, CA, 92236

Dear Mr. Madrigal,

I am writing you to bring to your attention a proposed project in compliance with CEQA and the City of Apple Valley. The proposed project is the Apple Valley Heights County Water District tank site and transmission line corridor. The project area encompasses several APN (described below) within (Township 4 north, Range 3 west) Apple Valley South, California USGS Quad.

PROJECT AND PROPERTY DESCRIPTION

The project proponent, Apple Valley Heights County Water District, is proposing to improve two existing water storage tank sites, install a direct transmission pipeline to the Mesa Vista Water Tank Site, install a distribution pipeline parallel to the transmission pipeline, and install interconnections with two adjacent water systems. These improvements are described further below.

Central Water Tank Site: This site is located at the southern end of Central Road (APN 043-303-102). The site is located in the northwestern corner of the property. There are two existing water tanks. The two tanks are enclosed within a chain link fence. The terrain is rocky with steep slopes. One existing tank is currently in use and will remain in service. The second existing tank is inactive and is being considered for removal. A new tank is being considered and would be located adjacent to the tank that is currently in use.

Mesa Vista Water Tank Site: This site is located at the southern end of Mesa Vista Street (APN 043-813-206). The site is located in the northeast corner of the property. There are three water tanks that will be replaced on site in the existing location. The tanks are enclosed within a chain link fence. The terrain consists of rocky steep slopes. The three existing tanks will be replaced with two, larger tanks. The new tanks will occupy the site of the existing tanks. The existing tanks will be removed from the site. Minor grading toward the south is anticipated to accommodate the new tanks' larger diameters.

Transmission Pipeline Corridor: A new water transmission pipeline will be installed along Mesa Vista Street between Ocotillo Way and the Mesa Vista Tank Site. This pipeline will be installed using trenching methods. The length of the pipeline will be approximately two miles with an 8 in diameter pipe. Along with this pipeline, appurtenant facilities will be installed, including valves. Mesa Vista Road is an unpaved road that is maintained by the county that travels north-south through rural residential communities.

Distribution Pipeline Corridor: Parallel and adjacent to portions of the proposed transmission pipeline, a new water distribution pipeline will be installed using trenching methods. Along with this pipeline, appurtenant facilities will be installed, including valves, hydrants, and reconnections of services to existing customers. The existing pipeline will be either abandoned in place or removed.

Interconnecting Pipeline Corridor: The installation of a transmission pipeline will run from existing well site (Well Nos. 3 and 4) north to Tussing Ranch Road for a future tie-in with Golden State Water Company. The pipeline will continue east along Tussing Ranch Road to Central Road, then north along Central Road to Houston Street, then north to Blackfoot Road. At Blackfoot Road, the pipeline will interconnect with the existing distribution system of Apple Valley Foothill County Water District. The length of the pipeline will be approximately 6,700 feet. At Apple Valley Heights County Water District's existing well site, a booster pump station will be installed. At the connection with Golden State Water Company, a metering, pressure reducing, and backflow prevention assembly will be installed. At the connection with Apple Valley Foothill County Water District, a metering, pressure reducing, and backflow prevention assembly will be installed.

Staging: The project proponent is going to have two staging sites where they will be storing equipment and material for the project. One staging area will be located the Apple Valley Heights County Water District office off Cerra Vista Road with an APN 043-810-448.

The second staging site is located off of Rancho Road (APN 043-811-205). This site is fully enclosed with a chain link fence and has been cleared of vegetation several years; although some re-vegetation has occurred.

As part of the cultural resources study for the project, I am requesting your insight on potential Native American cultural properties and resources in or near the area of potential effect. Please respond at your earliest convenience if you have any information to consider for this study. Thank you.

Respectfully,

Alina Landa
Cultural Resource Specialist
RCA Associates, LLC
alinalanda@ymail.com

MORONGO BAND OF MISSION INDIANS
TRIBAL HISTORIC PRESERVATION OFFICE
12700 PUMARRA RD BANNING, CA 92220
OFFICE 951-755-5025 FAX 951-572-6004

Date: 5/30/2018

Re:
Apple Valley Heights County Water District tank site and transmission line corridor

Dear,
Alina Landa
Cultural Resource Specialist
RCA Associates LLC

Thank you for contacting the Morongo Band of Mission Indians (MBMI) Cultural Heritage Department regarding the above referenced project(s). After conducting a preliminary review of the project, the tribe would like to respectfully issue the following comments and/or requests:

☐ The project is located outside of the Tribe's aboriginal territory and is not within an area considered to be a traditional use area or one in which the Tribe has cultural ties. We recommend contacting the appropriate tribe(s) who may have cultural affiliations to the project area. We have no further comments at this time.

☒ The project is located within the Tribe's aboriginal territory or in an area considered to be a traditional use area or one in which the Tribe has cultural ties. In order to further evaluate the project for potential impacts to tribal cultural resources, we would like to formally request the following:

- ☒ A thorough records search be conducted by contacting one of the California Historical Resources Information System (CHRIS) Archaeological Information Centers and a copy of the search results be provided to the tribe.
- ☒ Tribal monitor participation during the initial pedestrian field survey of the Phase I Study of the project and a copy of the results of that study. In the event the pedestrian survey has already been conducted, MBMI requests a copy of the Phase I study be provided to the tribe as soon as it can be made available.
- ☐ MBMI Tribal Cultural Resource Monitor(s) be present during all required ground disturbing activities pertaining to the project.

☐ The project is located with the current boundaries of the Morongo Indian Reservation. Please contact the Morongo Cultural Heritage Department for further details.

Please be aware that this letter is merely intended to notify your office that the tribe has received your letter requesting tribal consultation for the above mentioned project and is requesting to engage in consultation. Specific details regarding the tribe's involvement in the project must be discussed on a project by project basis during the tribal consultation process with the lead agency. This letter does not constitute "meaningful" tribal consultation nor does it conclude the consultation process. Under federal and state law, "meaningful" consultation is understood to be an ongoing government-to-government process and may involve requests for additional information, phone conferences and/or face-to-face meetings. If you have any further questions or concerns regarding this letter, please contact the Morongo Cultural Heritage office at (951) 755-5139.

Please include this response in your report to your client.

Sincerely,

Raymond Huaute
Tribal Historic Preservation Officer
Morongo Band of Mission Indians
Email: rhuaute@morongo-nsn.gov
Phone: (951) 755-5025

From: Tribal Historic Preservation Office <thpo@morongo-nsn.gov>
Sent: Wednesday, January 2, 2019 9:35 AM
To: 'avhcwd@yahoo.com' <avhcwd@yahoo.com>
Subject: RE: Consultation Meeting for Apple Valley Heights County Water District's Proposed Storage Tank and Transmission Pipeline Improvement Project

Hello,

Do you have the cultural assessment report for the proposed project?

Thank you,
Travis

****

From: avhcwd@yahoo.com <avhcwd@yahoo.com<=a>>
Sent: Thursday, January 3, 2019 10:37 AM
To: 'Tribal Historic Preservation Office' <thpo@morongo-nsn.gov>
Cc: 'James Owens' <James.Owens@nv5.com>; 'Daniel Smith' <danavhcwd@yahoo.com>
Subject: RE: Consultation Meeting for Apple Valley Heights County Water District's Proposed Storage Tank and Transmission Pipeline Improvement Project

Mr. Armstrong:

Copy of the project's Phase 1 Cultural Resources Assessment, prepared by RCA Associates, Inc., dated October 23, 2018, was mailed to your office in November, via certified mail; it was delivered to your organization and signed for by the front desk/receptionist/mail room on November 29, 2018.

Matt Patterson
Office Manager
Apple Valley Heights CWD
PO Box 938

From: avhcwd@yahoo.com [mailto:avhcwd@yahoo.com]

Sent: Wednesday, January 09, 2019 8:56 AM
To: Tribal Historic Preservation Office
Cc: 'James Owens'; 'Daniel Smith'
Subject: RE: Consultation Meeting for Apple Valley Heights County Water District's Proposed Storage Tank and Transmission Pipeline Improvement Project

Mr. Armstrong:

Attached is an electronic copy of the Phase I Cultural Resources Assessment; we were not sure if you were able to find the hardcopy that was mailed to you, so we wanted to make sure you had a copy to review. Please confirm receipt of the electronic copy and advise if you will attend the meeting at our office on 1/14/19. Thank you.

Matt Patterson
Office Manager
Apple Valley Heights CWD
PO Box 938
Apple Valley, CA 92307
(760) 247-7330

****

Monday, January 14, 2019

Hello,

I have been logged into the conference call, but no one is on it. I have another meeting at 10:30 today.

I talked to Dr. Garfinkel last week regarding our concerns about the report.

Our office is requesting tribal monitoring as he outlined in our conversation.

Thank you.

Travis

Travis Armstrong
Tribal Historic Preservation Officer
Morongo Band of Mission Indians
951-755-5259
Email: thpo@morongo-nsn.gov

****

January 17, 2019

Mr. Armstrong,

Thank you again for your assistance with this project. AVHCWD and its cultural resources consultant (Dr. Alan Garfinkel Gold of RCA Associates) have reviewed mitigation measures proposed by the San Manuel Band of Mission Indians. The suggested mitigation measures were modified as attached based in part on discussions Dr. Gold had with you (Morongo Band of Mission Indians' Tribal Historic Preservation Office). AVHCWD proposes incorporating in the CEQA document revised/expanded versions of these mitigation measures as noted on the attached files. Please review and let me know if the Morongo Band of Mission Indians concurs with these mitigation measures, if the Morongo Band of Mission Indians would like revisions made, and if the Morongo Band of Mission Indians believes the AB52 consultation process for this project is now complete.

Regards,

Daniel Smith
General Manager
Apple Valley Heights County Water District

- Archive
- Move
- Delete
- Spam
-

Fw: Consultation Meeting for Apple Valley Heights County Water District's Proposed Storage Tank and Transmission Pipeline Improvement Project

Yahoo/Inbox

- **Alina Landa** <alinalanda@ymail.com>

To:Alan Gold

Jan 4 at 11:32 AM

Hi Alan, got this email from Jessica Mauck asking us to edit the report to not include information about the Cahuilla and Luiseno Tribes because the project area was more Serrano/Chemehuevi land. She would also like to see a Mitigation section outlined within the report.

Randy asked me to forward you this information since you are currently editing the report for NEPA.

thanks,

Alina

----- Forwarded Message -----

From: Alina Landa <alinalanda@ymail.com>

To: Randy Arnold <rarnold@rcaassociatesllc.com>

Sent: Friday, January 4, 2019 10:59:52 AM PST

Subject: Fw: Consultation Meeting for Apple Valley Heights County Water District's Proposed Storage Tank and Transmission Pipeline Improvement Project

----- Forwarded Message -----

From: Jessica Mauck <JMauck@sanmanuel-nsn.gov>

To: avhcwd@yahoo.com <avhcwd@yahoo.com>

Cc: 'Alina Landa' <alinalanda@ymail.com>; danavhcwd@yahoo.com <danavhcwd@yahoo.com>; 'James Owens' <James.Owens@nv5.com>

Sent: Thursday, January 3, 2019 05:45:56 PM PST

Subject: RE: Consultation Meeting for Apple Valley Heights County Water District's Proposed Storage Tank and Transmission Pipeline Improvement Project

Hi Daniel,

Thank you for the below invitation, though I do not believe it will be necessary as, upon the close of SMBMI's document review, the Tribe no longer has concerns with the proposed project. As indicated within the geotechnical study, the project lies within in an area of younger quaternary soils, meaning that the cultural signature of this area is highly surficial. As such, the CRM firm's pedestrian survey is a methodology that SMBMI finds agreeable. As there were no resources located during the survey, and some of the project is within areas of existing surficial disturbance, SMBMI is not concerned that there will be inadvertent discoveries of cultural resources during implementation of the project.

However, one request the Tribe has is that the Ethnography section be updated, as it erroneously speaks to an area much further south once occupied by the Chemehuevi, Cahuilla, and Luiseño – Apple Valley was occupied by the Serrano and, later, the Chemehuevi. This was very much simply an oversight, as the sections for each Tribe explain their ancestral territory as being much further south than Apple Valley.

Additionally, SMBMI asks that the following be made a part of the mitigation/COAs for the project for the Cultural Resources and Tribal Cultural Resources sections within the environmental documents, as it outlines the process for re-involving SMBMI in the case of an inadvertent discovery:

CUL MMs

1. In the event that pre-contact cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted, as detailed within TCR-1, if any such find occurs and be provided information after the archaeologist makes his/her initial

assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

2. If significant Native American resources are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to SMBMI for review and comment, as detailed within TCR-1. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

3. If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the project.

TCR MMs

1. The San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted, as detailed in CR-1, of any pre-contact cultural resources discovered during project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a cultural resources Monitoring and Treatment Plan shall be created by the archaeologist, in coordination with SMBMI, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents SMBMI for the remainder of the project, should SMBMI elect to place a monitor on-site.

2. Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant and Lead Agency for dissemination to SMBMI. The Lead Agency and/or applicant shall, in good faith, consult with SMBMI throughout the life of the project.

This language can be modified to include other Tribes. Additionally, should another Tribe wish for something far different than the language above (i.e. Tribal monitoring), please do send me their language so that I may modify it to include SMBMI's wishes. At this point, SMBMI will simply await the draft language for review before the document begins public circulation. If you should have any questions with regards to this matter, please do let me know.

Sincerely,

Jessica Mauck
CULTURAL RESOURCES ANALYST
O: (909) 864-8933 x3249
M: (909) 725-9054
26569 Community Center Drive Highland California 92346

From: avhcwd@yahoo.com [mailto:avhcwd@yahoo.com]
Sent: Thursday, December 27, 2018 12:11 PM
To: Jessica Mauck
Cc: 'Alina Landa'; danavhcwd@yahoo.com; 'James Owens'
Subject: Consultation Meeting for Apple Valley Heights County Water District's Proposed Storage Tank and Transmission Pipeline Improvement Project

Dear Ms. Mauck,

Thank you for accepting Apple Valley Heights County Water District's (AVHCWD) offer to consult on the Storage Tank and Transmission Pipeline Improvement Project (project). AVHCWD appreciates SMBMI's participation in the project.

AVHCWD would like to meet with SMBMI's representatives at AVHCWD's office on Monday, January 14 at 10am to discuss the proposed project, review SMBMI's concerns and any additional information and background that could be provided, and visit the sites of the improvements if desired, all part of AVHCWD's efforts for compliance with AB52. The office's address is:

9429 Cerra Vista Street

Apple Valley CA 92308

Please let me know if this date and time work for SMBMI's representatives.

The Morongo Band of Mission Indians has also requested to consult with AVHCWD on the project. Representatives of the Morongo Band have been invited to this meeting. Also attending will be AVHCWD's cultural resources consultant (Alina Landa of RCA), engineer (James Owens of NV5), and AVHCWD staff (Matt Patterson, Daniel Smith).

Regards,

Native American Consultation and Coordination: Mitigation Recommendations

Daniel Smith

General Manager

Meeting Summary

Date: January 14, 2019

Time: 10:00 AM – 11:30 AM

Subject: Apple Valley Heights Community Water District (AVHCWD)

Attendees: Dr. Alan Garfinkel Gold RPA (RCA), James F. Owens P.E. (NV5), Matt Patterson (AVHCWD)

Larry Hunter (Board President), Travis Armstrong (Morongo Band of Mission Indians -via telephone)

Owens arrive 20 minutes late, Hunter arrived 15 to 20 minutes after Owens...

Introductions were made. The Project initiative was reviewed by Owens in terms of the nature of the construction, locations of staging areas, character of ground disturbing activities. Dr. Gold shared his perspective on the character of the entire project based on his pedestrian survey. Armstrong re-affirmed his concerns as previously stated and summarized his prior conversation with Dr. Gold.

Discussion turned to what is needed and when. Owen would like to move forward with two separate cultural resources documents – one written with the CEQA compliance necessary and that document should include AB 52 considerations and a comprehensive consideration of the Native American Consultation and Coordination effort. He would like to have that document first and have that to review by early February. That would include all mitigation measures and all cultural resource recommendations. It should also have the new mapping and include better resolution for the footprints for the Staging Areas and the areas that will need Native American and Archaeological monitoring.

In the near future, Gold should continue to revise the CEQA report and make it a NEPA compliant document. That will include the needed permits and agreements relating to curation and BLM permit to conduct survey work on the BLM owned and managed lands within the Project area.

The areas that will need monitoring include the installation of the new tanks and one or two of the intersections (crossings of paved roads) where the line may need to go deeper and under the prior utility lines. Also the grubbing and grading of Staging Area 1. The Central Tank area is projected to require about 10 days of monitoring. The other areas where the intersections are and on Staging Area 1 would only need a day or two at most of active monitoring.

By Dr. Alan Garfinkel Gold, RPA

APPENDIX C
RESUMES

RESUMES

Dr. Alan Philip Garfinkel Gold, R.P.A.
avram1952@yahoo.com
805.312.2261

Positions:

Archaeologist
RCA Associates, Inc.
Victorville, California

Founder and Director
California Rock Art Foundation
http://www.carockart.org

Senior Cultural Resource Specialist
AECOM (http://www.aecom.com)
Camarillo, California (Total time 3 years)

Freelance Cultural Resource Management Consultant
(Total time 20 years)

Environmental Planner, Cultural Resources
California Department of Transportation
(Total time 18 years)

Education:

Bachelor of Arts, Department of Anthropology, California State University, Northridge, (*magna cum laude*), 1974
Master of Arts, Department of Anthropology, University of California, Davis, 1977
Doctor of Philosophy, Prehistoric Forager Ecology, University of California, Davis, 2005

Representative Cultural Resource Management Projects

Cultural Resource Management Director for North Sky Wind Energy Project. Identified 76 cultural resource sites. Collected, excavated and documented sites including intensive data recovery effort resulting in a collection of 5,000 artifacts. Managed up to 25 Native American Monitors concurrently for the 102 wind turbine 15,000 acre study area. Resulted in project approval through NEPA and CEQA compliance and approved federal tax credit. Senior author for the resulting 2,769 page report.

Identification and evaluation of potential effects for the Red Rock Canyon Bridge Replacement Project. Identified and evaluated historic properties within the project area, developed historic background for the Red Rock Railroad historic resource. Completed Historic Property Survey Report including the documentation of identification (Prehistoric Archaeological and Historic Archaeological Survey) and evaluation efforts (Geoarchaeological Study). Consultation completed with local museums, Red Rock Canyon State Park, Native American Heritage Commission (NAHC) and Native American groups identified. Area had been listed as a Sacred Site by NAHC. Result: no historic properties within area of potential effects (APE).

Black Creek Site (CA-CAL-789) eligibility evaluation, testing, data recovery, and public interpretation. Contracted with Far Western and Sonoma State for data recovery and construction phase of systematic late discovery identification. Coordinated and consulted with Advisory Council, State Historic Preservation Office, the Army Corps of Engineers, and the Calaveras Band of Mi-Wuk. Significant and eligible site fully mitigated from adverse effects

of road realignment through data recovery and public interpretation projects that included website, interpretive booklet, public presentations at conferences and public schools.
Project received California Governor's Award for Historic Preservation in 2008.

The Applegate Site (CA-AMA-56) eligibility, data recovery, negotiation of reburial arrangement with the Ione Band of the Miwok, presentation of history and character of cultural resource studies in public program sponsored by Far Western Anthropological Research Group, State Historic Preservation Office, California Department of Transportation, and the Ione Band of the Miwok. Worked out program for dealing with eligible site that had received impacts from Caltrans over the course of 50 years of impacts. Dealt with major issues with human remains and associated mortuary offerings.

East Sonora Bypass archaeological studies. Developed program to mitigate adverse effects of numerous eligible historic and prehistoric archaeological sites. Consultation with Mi-Wuk on one of the most controversial Caltrans projects in the history of their cultural resource program due to the pattern of late discoveries and lack of thorough consultation with Native Americans. Coordination with State Historic Preservation Office concerning Memorandum of Agreement, Data Recovery Program, Programmatic Agreement, and Treatment Plan, Supplemental Historic Property Survey Report.

Development of a management plan and National Register nomination for the Fossil Falls/Little Lake Archaeological District for the Bureau of Land Management. Resulted in protective actions, road closures, interpretation, and identification of resources for inclusion in the National Register nomination and the resulting report was published by the Bakersfield District Office of the Bureau of Land Management.

Project Archaeologist with the Desert Planning Staff, Bureau of Land Management, Riverside, California.

Alina Landa

alinalanda@ymail.com
(909) 543-9442

Experience

RCA Associates, Inc., Victorville, California **January 2017-Present**

Cultural Resources Specialist

Survey properties in the California High Desert region for the presence of prehistoric and historic archaeological cultural resources with a qualified archaeologist. Contact Native American Heritage Commission (NAHC) and California Historical Resources Information Systems (CHRIS) to request sensitive archaeological information. Coordinate initial contact with Native American Tribes. Prepare CEQA Phase I Cultural Resources Assessment reports under a qualified archaeologist.

Education

California State Polytechnic University, Pomona, California **June 2016**

B.S. General Anthropology

Chaffey College, Rancho Cucamonga, California **June 2013**

Associate of Arts in Behavioral and Social Sciences

Relevant Coursework

Archaeological Field Methods, Lake Arrowhead, California **Spring 2015**

Conducted excavations in a small group setting. Documented unit elevations and learned basic excavations skills such as troweling and dry screening.

Cultural Resources Management **Winter 2015**

Studied basic laws regarding the protection of historic resources (CEQA, Section 106). Involved in group effort to nominate the Santa Anita Racetrack to be on the National Register of Historic Properties.

California Archaeology **Winter 2015**

Leadership

San Bernardino County Library Page, Fontana, California **June 2017- Sept. 2018**

Lewis Library and Technology Center

San Bernardino County Museum Volunteer **Jan. 2016- June 2016**

Elliot D'Antin
(626) 484-1059
elliotdantin@ymail.com

Education

Charter Oak High School class of 2011

California State Polytechnic University, Pomona.
Bachelor of Science in Anthropology, Winter 2016 GPA: 3.28

Employment

Logan Simpson 2016 - Greater Sage Grouse 2016 Class III CRI, Leak Peak Class III CRI, Picket West Class III CRI

Employed as an Archaeological Field Technician from the months of August to December of 2016. Workload included shovel test pit excavations, Class III Survey of 16,500 acres in Crook County, Oregon, and smaller Class III surveys in Klamath County, and Jackson County, Oregon for the BLM and Forest Service until snowfall mid-December. Responsibilities included photography, site mapping with a Trimble, debitage analysis, tool description, and navigation.

Duke CRM - Data recovery at Vila Borba

Employed as an Archaeological Field Technician from February 1, 2017 - April 7, 2017. Phase III investigation recovering prehistoric hearths in Chino Hills, CA. Responsibilities included excavation, profile mapping, mapping, floating, wet screening, and photography.

Logan Simpson 2017 - Oregon: Bendire Juniper Treatments Class III CRI, Cheery Road Fire Class III CRI, Greater Sage Grouse 2017 Class III CRI, Ten Cent Prescribed Burn Class III CRI

Idaho: Jarbidge Section 110 Class III CRI
Nevada: Virginia Mountain Vegetation Treatments Project Class III CRI

Reemployed by Logan Simpson as an Archaeological Field Technician from May 16, 2017 - October 21, 2017. Workload consisted of Class III Cultural Surveys characterized primarily by prehistoric sites for the BLM and Forest Service in Crook County, Malheur County, Umatilla County, Owyhee County, and Washoe County. The Ten Cent Prescribed Burn Project was an historic project focusing on a local dredge mining site. Responsibilities included site mapping with a Trimble, debitage analysis, tool description, and photography.

Logan Simpson 2018 – Nevada: Bravo 17 and Draw Fires Class III CRI, Long Valley Year 2 Class III CRI, Home Camp Class III CRI, Virginia Mountain Vegetation Treatment Project #2 Class III CRI

Reemployed by Logan Simpson briefly in February from the 13th to the 20th, and in April from the 3rd to the 10th, then regularly from June 12 to the present. Workload consisted of Class III Cultural Surveys under BLM contracts for post-fire, and vegetation treatment in Churchill and Washoe County, as well as Surveys to improve ranchlands in Washoe County. Sites were characterized primarily by prehistoric artifacts. Responsibilities included site mapping with a Trimble, debitage analysis, tool descriptions, and photography.

Aspen Environmental Group 2018 – California: Athos Solar Project Class III CRI, Puerco Canyon Class II CRI

Employed as a Cultural Resource Technician (Staff II) from April 16 – May 9 for a Class III Survey prior to the construction of a Solar Farm in Riverside County. Responsibilities included site mapping with a Trimble, tool analysis, and photography. Ranch steads were recorded for the National Park Service in Puerco Canyon, and house features were mapped along canyon roads with a Trimble.

Internships

During the summer of 2014 from June 7 to August 8 I interned for Nourish International with California State Polytechnic University, Pomona's chapter. As an intern I traveled to Cameroon where Cal Poly Pomona's Nourish Chapter had partnered with a local grassroots organization based in Fundong, Cameroon. Together we **initiated a safe sex seminar with a focus on STI/HIV for the youth and young adults of Fundong, as well as the initiation of a water project in Muteff**, a small rural village 6 kilometers from Fundong. The seminar was funded in cooperation with The Peace Corps, and part of an ongoing project led by local Peace Corps Volunteers to provide information and booklets to the population in an effort to improve health conditions. The water project required us to dig trenches and carry 25-40 lb stones up to a distance of 10 kilometers. Local village volunteers, and a couple hired professional engineers helped in the construction of a water tank, a filtration system, and PVC pipelines reaching 5 standpipes for access to be used by an estimated 1,200 people with the intent of preventing water borne illnesses by providing clean water for bathing, washing clothes, preparing food, and clean drinking water.

Volunteer Programs

August 7, & 8, 2013: Volunteer for Joshua Tree National Park Service under the supervision of archaeologist Dave Henley. With a team we applied Elephant Snot, a powerful chemical cleaner, to wash away black spray paint graffiti within an archeological site. Careful measures were taken to ensure soil quality was not affected by chemical runoff.

June 2016: Volunteer for Dr. Matthew Des Lauriers of California State University, Northridge. With Dr. Des Lauriers, David Madsen, Dr. Loren Davis, Dr. Sam Willis, and Dr. Des Lauriers' Master student, we surveyed for lithics, shell deposits, and house features on Isla Cedros, a Pacific coastal island in Mexico with a heritage spanning back 12,000 years ago. Village sites were recorded, scrutinizing over access to raw materials by analyzing obsidian debitage in situ. Expansive shell midden deposits were mapped using a Trimble Juno.

Related Coursework

- Introduction to Archaeology
- Archaeological Field Methods in the Mojave Desert, and Lake Arrowhead
- Lab Methods in Archaeology
- Archaeological Theory and Methods - Archaeology of Ancient Maya
- History of Anthropological Theory - Urban Geography

School Achievements

Received Golden Seal Merit for excelling in multiple state tests.
President of Nourish International at California Polytechnic University Pomona's Chapter, 2014 - 2015 school year

Personal Profile

As a young archaeologist I feel confident and successful due to the teachings of respected professors from Cal Poly Pomona's Geography and Anthropology Department, as well as professionals in the archaeological field I am glad to call my friends. With their teachings, and insights I have learned valuable knowledge in the study, and application of anthropology with a focus in archaeology. **I am capable of properly identifying, labeling, and recording artifacts to the standard held by American archaeologists.** I am **motivated, respectful, and enthusiastic**, qualities I have relied on to fulfill many personal, and professional goals throughout my endeavors. With the knowledge I have gained, I believe myself to be physically and mentally ready to work in various fields.

References
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