INITIAL STUDY

FOR THE

GREATER LOS ANGELES AREA COUNCIL OF BOY SCOUTS OF AMERICA TRASK SCOUT RESERVATION WATER SYSTEM REHABILITATION AND ENHANCEMENT PROJECT

(VOLUME 2 – TECHNICAL STUDIES)

Prepared for:

City of Monrovia
415 South Ivy Avenue
Monrovia, California 91016

Prepared by:

Tom Dodson & Associates
2150 N. Arrowhead Avenue
San Bernardino, California 92405
(909) 882-3612

July 2021

TABLE OF CONTENTS

APPENDICES

APPENDIX 1

BOY SCOUTS OF AMERICA

GREATER LOS ANGELES AREA COUNCIL

TRASK SCOUT RESERVATION WATER SYSTEM REHABILITATION & ENHANCEMENT PROJECT CONCEPT REPORT

MAY 2019

SA ASSOCIATES

DELIVERING VALUE … COMMITTED TO EXCELLENCE

TABLE OF CONTENTS

APPENDICES

EXECUTIVE SUMMARY

The drinking water system rehabilitation and enhancement project at the Trask Scout Reservation (Trask) has the objective to determine the effects of changing regulatory environment under current and future water quality conditions that utilize surface water to evaluate compliance of existing facilities, and implement/ensure an overall water system that satisfies /exceeds such regulations.

Main challenges identified for the Trask are water treatment and disinfection-time of concentration. Water treatment addressing newer/stringent water quality regulations to protect human health and not enough time of concentration to provide adequate disinfection prior distribution. Moreover, the report will focus on improvements to raw water collector, storage and fire protection.

Contamination of drinking-water by microbial pathogens can cause disease outbreak and contribute to background rates of disease. There are many treatment options for eliminating pathogens from drinking-water. Finding the right solution for the Trask's water supply involves choosing from a range of options available in the market proven successful by the regulatory agencies.

This concept report documents in detail existing water system conditions, regulatory criteria, identify deficiencies and recommend water facility improvement that correct such deficiencies and optimizes the system, evaluation and selection of treatment facilities, others to bring them up to or exceed compliance. The primary goal of the Trask is to ensure continues, reliable, high quality safe drinking water for its employees and visitors.

Relevant topics to water quality, service area, demands, treatment, supply, distribution and storage are discussed to evaluate performance, sustainability and cost. Regarding the regulatory constraints, the design of proposed and/or improve facilities will include a standardize monitoring where needed to safeguard system compliance. Estimated project costs and schedule are presented in this report to provide guidance for implementation.

SECTION 1: INTRODUCTION

1.1. Background

Since its start in 1910, the Boy Scouts of America (BSA) has become one of the largest scouting organizations within the United States. Operating nationwide, BSA currently have 2.4 million youth participants with about one million adult volunteers.

The Trask Scout Reservation (Trask) located at 1100 North Canyon Boulevard, north of the City of Monrovia. It is tucked within the Sawpit Canyons in the foothills south of the San Gabriel Mountains. Trask is operated by the Greater Los Angeles Area Council of BSA (GLAAC-BSA). GLAAC-BSA operates and manages all the camps throughout the Los Angeles region. **Figure 1-1** below shows the location of the Trask Scout Reservation.

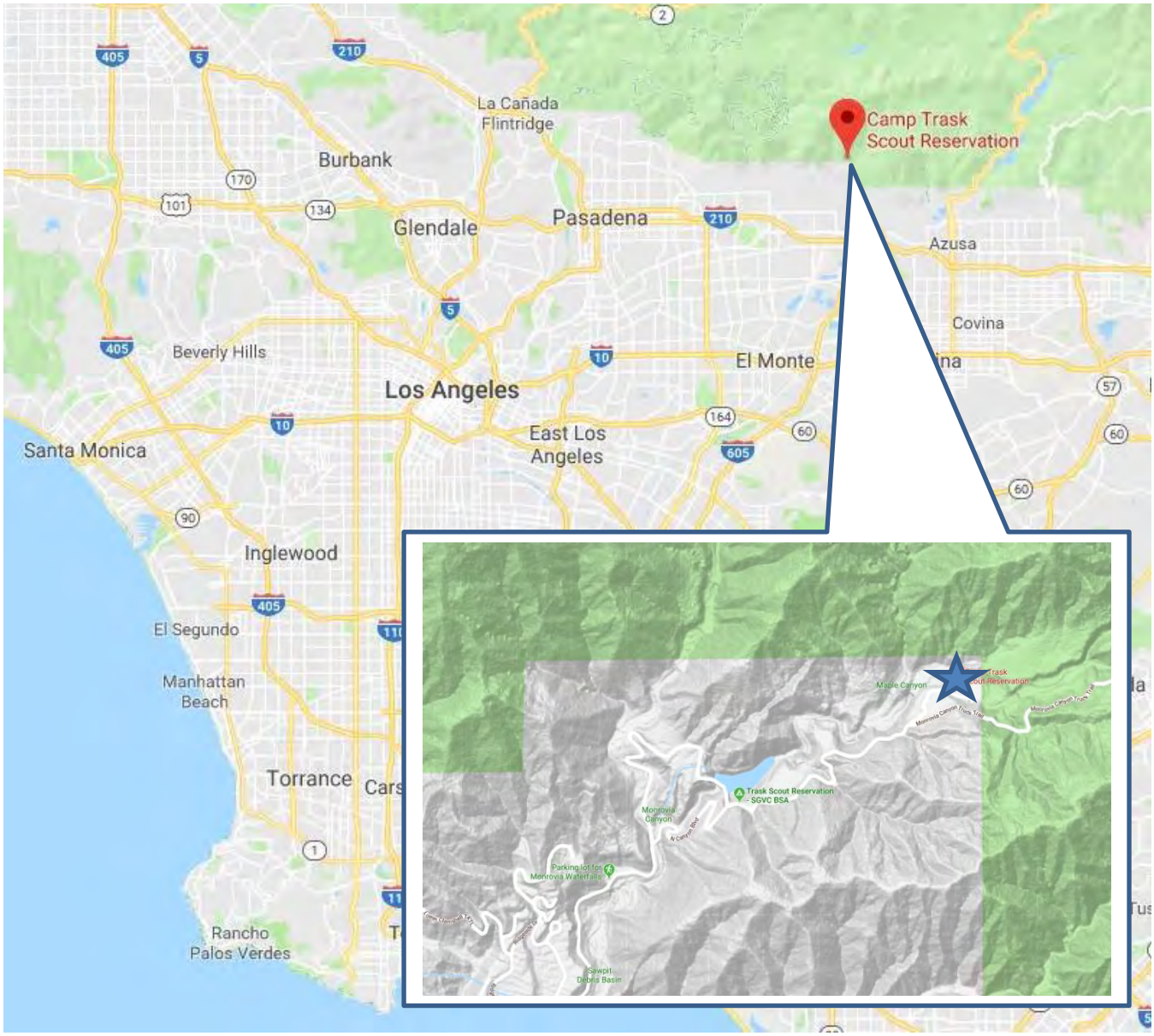


Figure 1-1. Location Map

Trask is a campground comprised of approximately 10 acres of national forest land within the foothills. The area is generally used as a recreational site for the general public. BSA also utilizes this site for one of its countless campgrounds for their participants. The BSA have facilities on-site consisting of an Administration Building, Warehouse, Fort Rotary, Kitchen, Bathrooms, and recreational amenities for its campers and visitors.

1.2. Project Objectives

Trask has provided clean potable drinking water for over 40 years in accordance with State and local rules, meeting standards for maximum contaminant levels (MCLs) and water quality. Effective on July 1, 2014, the regulatory oversight of surface water treatment at Trask was changed from the Los Angeles County Department of Public Health (County) to the State Water Resources Control Board, Division of Drinking Water (DDW) bringing additional regulations and standards. Since then its transfer, Trask could not satisfy DDWs regulations with its existing surface water treatment system. As a result, on April 25, 2017, Trask was notified by DDW to stop production of potable water until improvements has been made to their treatment regulations and standards (see **Appendix A**).

The purpose of this project is to rehabilitate the surface water treatment system to satisfy the current treatment regulations and standards, and to enhance the existing water distribution system at Trask. SA Associates was authorized by GLAAC-BSA to provide an assessment of the existing system and a treatment solution for Trask.

Implementation of a new Water Treatment Plant (WTP) along with other significant improvements is a big undertaking, requiring several months to years to complete. This concept report will identify the various design criterion, limitations, and WTP recommendation. Furthermore, the concept report will also provide the following:

- Identify recommended replacement for the existing plant and recommended construction schedule for a new facility
- Evaluate and document recommended treatment processes, including pretreatment, filtration system, taste and odor treatment considerations, disinfection and chemical feed systems
- Evaluate facilities residual handling and management
- Identify sites and develop preliminary layout configurations of a new treatment facility
- Develop opinions of probable cost

1.3. Surface Water Treatment Regulations & Standards

Selection of the proper WTP for Trask must adhere to the various water treatment regulations set forth by State and Federal agencies. These regulations include:

- Safe Drinking Water Act
- Surface Water Treatment Rule & Enhanced Surface Water Treatment Rule
- Disinfection Byproduct Rule

SAFE DRINKING WATER ACT

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and again in 1996. The SDWA authorizes the United States Environmental Protection Agency (EPA) to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water and its sources including rivers, lakes, reservoirs,

springs, and groundwater wells. In addition, drinking water that travels through an improperly maintained distribution system may also pose a health risk and standards have also been set to monitor the distribution system water quality.

These standards are referred to as the National Primary Drinking Water Regulations (NPDWR). The Primary Drinking Water Regulations set enforceable maximum contaminant levels for particular contaminants in drinking water along with required water along with required methods of treatment or removal. Each standard also includes requirements for water systems to test for contaminants in the water to ensure the standard was achieved. Water systems are required to treat the water, test their water frequently for the specified contaminants and report the results of the testing to DDW, previously called the California Department of Public Health and Environment (CDPHE). The NPDWRs are divided into four categories:

- Inorganic Chemicals (includes metals, nitrite and nitrate, and asbestos)
- Organic Chemicals (includes over 50 synthetic organic chemicals, and limited disinfection by-products)
- Radionuclides (radiological contaminants)
- Microorganisms (includes turbidity, total coliforms, Legionella, viruses, Cryptosporidium and Giardia Lambia)

In addition to the NPDWRs, the SDWA includes standards established through the National Secondary Drinking Water Regulations (NSDWRs). The NSDWRs are non-enforceable standards that regulate contaminants that may result in cosmetic deficiencies (such as skin or tooth discoloration) or aesthetic deficiencies (such as taste, odor, or color), but are not a threat to public health. The NSDWRs include standards for a series of inorganic chemicals, and other water quality parameters such as pH, color, odor, corrosivity, sulfates and total dissolved solids (TDS). Although non-enforceable, it is recommended that the requirements of the Secondary Standards be met in most circumstances.

SURFACE WATER TREATMENT RULE & ENHANCED SURFACE WATER TREATMENT RULE

The 1989 Surface Water Treatment Rule (SWTR) applies to all public water systems (PWSs) using surface water sources or groundwater sources under the direct influence of surface water (GWUDI). The SWTRs requires water systems to filter and disinfect surface water sources or GWUDI with the purposed to reduce illnesses caused by pathogens in drinking water. The disease-causing pathogens include Legionella, Giardia Lambia, and Cryptosporidium.

The 2002 Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) applies to all public water systems using surface water, or GWUDI, serving fewer than 10,000 persons. Sets a maximum contaminant level goal (MCLG) of zero for Cryptosporidium, 2-log Cryptosporidium removal requirements for systems that filter, and requires systems to calculate levels of microbial inactivation between others regulations. This is in addition to the existing requirements of the SWTR for minimum removal requirements for Giardia and viruses.

The 2006 Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) applies to all PWSs that use surface water or GWUDI, it targets additional Cryptosporidium treatment requirements to higher risk system, requires provisions to reduce risks from uncovered finished water storage facilities, and states provisions to ensure that systems maintain microbial protection as they take steps to reduce the formation of disinfection by products.

Systems are classified in one of four risk bins based on source water Cryptosporidium monitoring results. Systems classified in the lowest risk bin (Bin 1) do not have any additional treatment/monitoring

requirements, while systems classified in the higher risk bins (Bins 2 through 4) are required to provide 90 to 99.7 percent (1.0 to 2.5 log) additional reduction of Cryptosporidium.

Applicable requirements for Trask include the following:

- Under Section 646529a of the Title 22, CCR, Trask must provide 99.9 percent (3-log) reduction of Giardia lamblia cysts, 99.99 percent (4-log) reduction of viruses, and 99 percent (2-log) reduction of Cryptosporidium.
- Ensure the clearwell provides disinfection contact time necessary to comply with the Surface Water Treatment Rule (SWTR). Routine sampling locations as well as repeat sampling locations must be located downstream of the clearwell.
- Monthly coliform samples be collected from drinking water sources. All sources should be monitored in accordance with the Vulnerability Assessment and Monitoring Frequency Guidelines. To comply with the LT2ESWTR, Trask Scout Reservation must submit a monitoring plan describing the sample location to DDW. After completing the corrective measures and receiving an approval from DDW to reactivate the water, Trask must submit the monitoring schedule portion of the monitoring plan to the Division for approval before placing the system back into service.
- Provide maximum day demand (MDD) to the County. This will verify that the stream pick-up is sufficient to meet the current MDD.
- Required to submit Electronic Annual Reports to DDW.

DISINFECTION BYPRODUCT RULE

The 1998 Stage 1 Disinfectants and Disinfection Byproduct Rule (DBPR) apply to all community water systems and non – community water systems that add a chemical disinfectant to their water, such as the Trask. The DBPR establishes maximum residual disinfectant levels for chlorine, chloramines, and chlorine dioxide, and maximum contaminant levels for total trihalomethanes (TTHM), haloacetic acids, bromate, and chlorite.

The EPA published the Stage 2 DBPR in the Federal Register on January 4, 2006, which is intended to reduce potential cancer, reproductive and development health risks from disinfection byproducts (DBPs) in drinking water, which form when disinfectants are used to control microbial pathogens.

SECTION 2: OVERVIEW OF EXISTING SYSTEM

2.1. Water Supply Source

Trask is located on the Sawpit Creek (Creek), central east of the Los Angeles River Watershed. The watershed encompasses a land area of 834 square miles, ranging from eastern portions from the Santa Monica Mountains to the Simi Hills and in the west from the Santa Susana Mountains to the San Gabriel Mountains. Flow ultimately flows south towards the Los Angeles River and into the San Pedro Bay.

Trask draws raw water from the Creek (see **Figure 2-1**). The Creek ascends from San Gabriel Mountain and flows west into the Sawpit Wash. Flow observed at Trask is characterized as flash flows and at times large quantities of flow can occur at short periods of time following the initial rainfall. In order to control the occasional flash flows, the Los Angeles County Flood Control District (LACFCD) has constructed a debris basin and dam located off the intersection of N. Canyon Boulevard and Oakglade Drive. Trask is located a mile northeast from the LACFCD dam. Water levels within the Creek varies depending on weather conditions and seasons.

Figure 2-1. Sawpit Creek and Existing Temporary Collection Point

2.2. Water Supply Demands

Trask utilizes the water supply from the Creek to provide potable water to its campers, BSA employees, and visitors. Water usage at Trask is depended on the number of visitors and campers at a given moment. **Table 2-1** below shows the number of individuals based on BSA estimates.

Table 2-1: Trask Scout Reservation Visitor Estimates

Role/Individual	Quantity	Note
Employee – Park Ranger	1	Park ranger on site at all times
Campers (including Chaperones/Scout Leaders)	300	Weekend attendees (Maximum)
Total Occupants	**301**	

Estimated water demand volume is based on the collected data from the Forest Service Handbook that tabulates water usage per person based on a variety of situations and other design parameters. **Table 2-2** below summarizes the chosen values for the design volume.

The average daily water demand per person is based on "Camping Facility – with flush toilets and showers". Trask does not anticipate a high demand as majority of its demand occurs only during the weekend.

The peak factor varies based on the "Built Environment Image Guide for the National Forests and Grasslands" (BEIG). The BEIG is divided into eight provinces that provides a means of sorting recreation areas into groups with similar ecological and cultural characteristics. Trask is located within the southwest province with a peak factor value of 1.3. To be conservative with the design, a peak factor of 1.5 is used. For this study, the water treatment plant will be designed to produce a minimum of eight (8) gallons per minute (GPM) of potable water for distribution and consumption.

Table 2-2: Trask Scout Reservation Visitor Demand Estimates

Criteria	Quantity
(A) Total Occupants	301 Individuals
(B) Average Daily Water Demand per Person	25 GPCD (1)(2)
(C) Average Daily Demand (ADD) – ("A" x "B")	7,525 GPD (3)
(D) Peak Factor	1.5 (2)
(E) Maximum Daily Demand (MDD) – ("C" x "D")	11,288 GPD or 8 GPM

(1) GPCD = Gallons per Capita per Day
(2) Value obtained from the Forest Service Handbook
(3) GPD = Gallons per Day

2.3. Existing Water Quality

Eurofins Eaton Analytical provided a laboratory report of the raw water quality from samples collected at the Creek on April 2019. The samples were tested using standard method 9223 for coliform bacteria and EPA method 300.0 for nitrates. Results for the report can be found in **Appendix B**.

2.4. Existing Water Treatment Plant

The existing WTP draws water directly from the Creek. The inlet is buried within a concrete box structure along the stream bed and is gravity fed into the sand filter. The concrete box structure consists of gravel for initial removal of floatable and other solid materials. The gravity fed water main flows at a rate ranging from 3 to 10 GPM. Since then, the inlet at the concrete box structure has been damaged and clogged, and a temporary system has been installed, as shown in **Figure 2-1**. The temporary system pumps water from a 4-inch steel pipe into a pretreatment system consisting of a strainer, rapid sand filter, a 2-cell 1-micron cartridge filter, and diatomaceous earth filter. Following would be the existing 95 square foot slow sand filtration with maximum treatment capacity of 10 GPM. Excess water is removed through an overflow and is returned into the Creek. Treated water from the sand filter is discharged from a 6-inch pipeline into the existing 3,500-gallon clearwell with a peak flowrate of three (3) GPM. Disinfection using 12 percent sodium hypochlorite solution is introduced at the clearwell. The clearwell discharges at a flowrate of 75 GPM upon activation of the float switch. **Figure 2-2** on the following page shows a schematic of the existing WTP.

The existing slow sand filter provided removal for *Giardia Lamblia*, Viruses, and *Cryptosporidium* at 99% (2-Log), 90% (1-Log), and 99% (2-Log), respectively. In addition, the filter was designed to reduce turbidity to one (1) nephelometric turbidity units (NTU).

A test performed by DDW staff was done to observe the effectiveness of the disinfection within the clearwell. The test was conducted with the scenario of the inlet flow of 3 GPM to the clearwell and the outlet discharge of 75 GPM occurring simultaneously for 20 minutes. The suction of the discharge pump is located at a location near the inlet side of the clearwell and the disinfected was introduced at the opposite side. To conclude, with the float switch triggered, the clearwell did not provide sufficient contact time for the disinfectant to interact with the water. No pathogen removal credits were given to the disinfectant in the clearwell.

Note that no pathogen removal credits were also not granted towards the pretreatment system as the filter effluent did not meet DDW standards.

The existing WTP is not in compliance with Title 22, CCR, under Section 64652(a) for removal of various bacterial and viral contaminants. As a result, DDW issued on April 25, 2017 a Compliance Order for Violation of the Surface Water Treatment Rule (see **Appendix A**) to Trask due to the treatment deficiencies. **Table 2-3** compares the treatment capabilities of the existing WTP with requirements from DDW.

Table 2-3: Existing Trask WTP vs. DDW Standards

Treatment Criteria	Existing WTP	DDW Standard	Compliance Met?
Giardia Lamblia	99% (2-Log Removal)	99.9% (3-Log Removal)	No
Viruses	90% (1-Log Removal)	99.99% (4-Log Removal)	No
Cryptosporidium	99% (2-Log Removal)	99% (2-Log Removal)	Yes
Turbidity	1.0 NTU	0.3 NTU (95%)	No

Trask is not required to conduct monitoring of the distribution system for DBPs. However, DDW recommends that Trask conduct annual DBP monitoring of the distribution and provide a map of the distribution system, including sampling location, to DDW.

It is important to note that existing treatment system using the temporary raw water collection is still in use to produce water for not drinking purposes only (i.e. water for flushing toilettes).

SOURCE:
SAWPIT CREEK

PRE-TREATMENT
SYSTEM

SLOW SAND
FILTRATION

CLEAR WELL
UNDERNEATH
PUMP HOUSE

BOOSTER
PUMP

TO RESERVIOR / FH

TO DISTRIBUTION

Temporary Intake Point

Original Intake Point

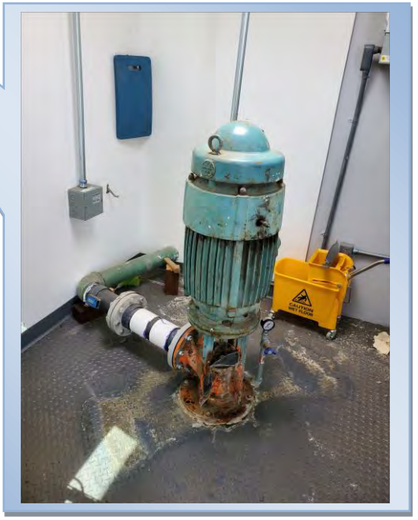


Figure 2-2: Trask Water Treatment Plant Schematic

2.5. Existing Water Distribution System

Upon treatment, water is either distributed to the various facilities on Trask or is sent upstream on a 4-inch pipeline towards the existing 25,000-gallon storage reservoir approximately 250-feet in elevation from the clearwell. Based on the elevation, the storage reservoir could provide a pressure of 80 to 100 PSI for the distribution system.

Trask operates under a closed system and does not connect to the City of Monrovia's water distribution system. The existing system is primarily distributed with 4" galvanized steel water mains to eight (8) unmetered services and 10 fire hydrants. 15,000-gallon retention is maintained in the storage reservoir at all times for fire protection. **Figure 2-3** on the following page shows the general layout of the distribution system and the reservation site. The operations and maintenance manual can be found in **Appendix J**.

2.6. Condition Based Assessment

A Condition Based Assessment (CBA) was performed to assess the existing WTP and water distribution at Trask. The CBA is based on visual and performance assessment of the various equipment, piping and treatment processes. A summary of the CBA is shown below on **Table 2-4**. See **Appendix C** for the full CBA of the Trask facilities.

Table 2-4: Summary of the Condition Based Assessment

Facility	Notes / Analysis
Stream Pickup Collection	Original intake point was dug out and damaged. Currently, the system is utilizing a temporary system that pumps directly from the stream. The pump is a 3/4 horsepower Flotec Pump.
Transmission Line	Transmission line appears to be in fair condition – no signs of leaks, corrosion, or other observable defects.
Pre-Treatment	Pre-Treatment system have been out of service since 2017. The system consisted of a strainer, cartridge filter, rapid sand filter, and a diatomaceous filter.
Slow Sand Filtration	Slow Sand Filtration have been out of service since 2017. The filtration does not exceed DDW treatment requirements. The proposed WTP will replace this filtration.
Pump House, Pump Station & Clearwell	Existing pump house is good condition. Floor plan is approximately 10.5-FT length x 10.5 -FT width and 7-FT height. Additional booster pump is needed for redundancy.
Distribution System	Distribution system appears to be in fair condition. Portions of pipe is shown on the surface traveling towards the storage reservoir. May consider adding additional coverage to protect the pipe. GLAAC-BSA requests additional fire hydrants within the project site.
Storage Tank	Existing 25,000-gallon steel tank is bolted on a concrete foundation. Portions of the tank shows damage with rust and corrosion. GLAAC-BSA request additional storage with an additional tank for fire protection and maintenance.

Figure 2-3: Site and Water Distribution System Layout

SECTION 3: WATER TREATMENT SELECTION

3.1. Water Treatment Criteria

Ensuring the proper selection of the WTP for Trask requires a complete understanding of the design criteria and the treatment objectives. The overall goals for the treatment processes are to produce treated water with the proper treatment barriers that meets DDW regulations and provide an appropriate level of treatment considering the raw water quality. **Table 3-1** below summarizes the treatment design criteria for Trasks WTP.

Table 3-1: Summary of Treatment Design Criteria

Design Criteria	Value / Notes
Treatment Capacity	Minimum 11,288 GPD (8 GPM)
Microbial Removal Requirements ➢ Giardia Lamblia ➢ Viruses ➢ Cryptosporidium	 99.9% (3-Log Removal) 99.99% (4-Log Removal) 99% (2-Log Removal)
Disinfection	Proposed WTP shall provide sufficient contact time for disinfection
Turbidity	Reduction to 0.3 NTU

The proposed WTP will also have the capabilities to operate under a variety of common situations dealt with treating surface water such as, but not limited to:

- Removal of floating / Suspended material (leaves, branches, algae, etc.)
- Operate with a wide range of surface water qualities caused by seasonal changes or storm events (increased turbidity, temperature changes, pH, alkalinity, dissolved oxygen, hardness etc.)
- Removal of anthropogenic contaminants
- Total Organic Carbon (TOC)
- Etc.

3.2. Other Considerations Factors

The proposed WTP will also consider other factors other than treatment capabilities. Table 3-2 discusses the various technical and financial considerations for the proposed WTP.

Table 3-2: Other Considerations for the WTP

Criteria	Value / Notes
Technical Considerations	
Site Layout	The proposed WTP and other relevant components shall fit in the available site at Trask
Minimal Operation	The proposed WTP is anticipated to operate at an as-needed basis. With only high demands expected on the weekends, WTP is primarily operated during those times.
Waste Generation	Backwash water from cleaning up treatment's filters is anticipated to be produced and proper disposal of that waste is required.
Future Improvements	The proposed WTP shall have the capability and space for expansion to include additional treatment trains as necessary in the future.

Criteria	Value / Notes
Financial Considerations	
Capital Cost	Proposed WTP shall be cost effective in design and performance
Operation and Maintenance	Proposed WTP shall be provide simplistic operation and maintenance as there is minimal availability in staff to operate the WTP.

3.3. Availability of Alterative Treatment Technologies

The selection of the preferred WTP is often location specific and depends on raw water quality characteristics, the overall water treatment goals, and residual management considerations.

Trask has expressed a preference for a package treatment plant that would meet EPA's SWTR requirement and operates at a remote campground. The package treatment plant must treat 11,288 gallons per day at minimum, work on solar and/or grid electrical power, easy to transport and operate, operate for few weeks unattended, meet the filtration and disinfection requirements of the SWTR, monitor and record treatment/disinfection parameters, and shut the water off if was not treated to standards.

There is a number of treatment technologies that have demonstrated filtration effectiveness to satisfy the requirement of the California Surface Water Treatment Rule (CCR, Title 22, Chapter 17, Section 64653 (f)) (CSWTR), as alternative filtration technologies. The CSWTR - Alternative Filtration Technology Summary California Department of Public Health-Division of Drinking Water and Environmental Management Technical Programs Branch lists technologies successfully demonstrated, accepted, and approved by DDW (see **Appendix D**).

3.4. Selection of Proposed Water Treatment Plant

Based on the provided raw water lab reports, site constraints, and budget, the WaterBoy® Pack Treatment (Model WB-14) was selected as the ideal WTP solution for Trask. **Figure 3-1** to the right shows a Standard WaterBoy® Unit. See **Appendix E** for the specifications for the WaterBoy® unit.

Figure 3-1. Standard WaterBoy® unit

The Water Boy Package Treatment Unit is a system incorporating flocculation, clarification, and mix media filtration within an all-in-one compact, single tank unit. The unit is factory assemble and features relay logic controls, electric operated valves, tank mounted backwash and effluent pumps, and has a design flow capacity of 10 GPM.

The proposed treatment unit shall be able to accomplish majority of the contaminant removal along with further treatment from disinfection with sufficient contact time in the clearwell. The clearwell will be modified with the appropriate monitoring systems to ensure proper contact time with the chlorine to the satisfaction of DDW requirements prior to storage.

SECTION 4: PROPOSED WATER TREATMENT PLANT & WATER DISTRIBUTION IMPROVEMENTS

4.1. Proposed Water Treatment Plant Configuration

Figure 4-1. Concrete Box Structure

Figure 4-2. Clearwell / Pump House

The small compact footprint of the proposed WaterBoy® unit (7-FT length x 4-FT width) should fit in the same area as the existing slow sand filtration (10-FT length x 10-FT width). The existing sand filter will be removed and a shed will be installed in place to house the proposed water treatment and protect it from potential external hazards. Majority of the existing 4-inch steel intake pipe from the Creek to the existing sand filter and outlet to the clear well will be protected and remain in place with some minor modifications to ensure connections in and out of the proposed WTP.

At the concrete box structure where the original inlet is located (shown in **Figure 4-1**), the box will be cleaned out from silt accumulated over time and placed with new filter screens and gravel. The continued operation of this concrete box structure is crucial to provide sufficient pressure within the pipe leading into the proposed WTP. Based on the general elevation differences between the concrete box structure and the proposed WTP site, the difference should provide a minimum pressure of 10 PSI as required by the WaterBoy® unit. The existing pretreatment system will be removed as it no longer functions. By maintaining the operation of the concrete box structure, it eliminates the need for an inlet pump.

The existing clearwell and pump house (shown in **Figure 4-2**) will remain in place. The existing clearwell will be modified to include mixers and monitoring equipment to ensure sufficient contact time with the treated water and disinfectant.

4.2. Proposed Water Distribution & Site Improvements

In addition to the proposed WTP, improvements will be made to the existing water distribution system to ensure its effectiveness and ease of operation of the system. Currently within the clearwell / pump house, there is only one (1) 15-HP booster pump. It is proposed to install an additional booster bump for redundancy. This would allow continuous operation of the pumps in the event that one pump fails to operate or is under maintenance.

At the storage reservoir site, GLAAC-BSA expresses to expand the existing 25,000-gallon storage capacity. As a result, due to the limited area, the existing storage will be removed and will be placed with two (2) 50,000-gallon storage reservoirs. Having an additional storage reservoir will maintain the capacity for fire flow demands and provides the convenience of continued operation in the event one storage reservoir is under maintenance. **Appendix I** contained herein highlights several potential selections for the proposed storage reservoirs.

Other improvements will consist of, but not limited to:

- Removal/Abandonment of existing valving, pipe work, and other appurtenances that may be in conflict with proposed facilities
- Re-grading the area after removal of existing slow sand filter and storage reservoir
- Installation of new package treatment system and auxiliary equipment
- Installation of new meter, shut off valve, pressure gauge, sampling tap, others at influent pipe
- Installation of electrical components
- Relying programmable logic controllers (PLCs) and telemetry systems to existing Trask Scout's centralized system
- Installation of a new backup generator for continued operations during a power outage
- Installation of at least six (6) new fire hydrants
- Installation of additional water fountains at the ranger's station
- Landscaping restoration

With limited staff to operate and maintain the WTP and water distribution system, these proposed improvements will provide an ease of operation with modern equipment and simplified monitoring systems that ensures effective treatment to DDW standards.

4.3. Summary of Opinions of Probable Cost

The base Opinion of Probable Project Cost for the project is $732,600.00. The American Association of Cost Engineers (AACE) has defined different classes of Opinions of Probable Project Cost in an effort to establish expected accuracy range for various types of cost estimates. The appropriate class is based on the project's status and the level of developments. A table showing the classes of Opinion of Probable Cost is included in **Appendix F**. The Opinion of Probable Project cost presented in this report is considered a Class 3 estimate, with and expected accuracy of +30% to -10%. Therefore, the Opinion of Probable Project Cost ranges from $659,340.00 to $952,380.00.

The Opinion of Probable Project Cost is based on cost data developed from previous projects, vendor quotes and recently bid construction projects (see **Appendix G)**. Bid climates can vary over time based on overall economic conditions and the availability of Contractors. The costs presented are in terms of year 2019 dollars and no attempt has been made to escalate these costs to a future date.

Opinion of Probable Operation and Maintenance (O&M) generally include labor associated with O&M of the plant, electricity, heating and cooling cost, chemical treatment, filter media cleaning/maintenance/replacement costs, equipment maintenance, others. The expected current cost of producing water at the proposed package treatment plant is $1.75 /1,000 gallons. The O&M cost does not include the system wide cost for distribution and storage.

SECTION 5: PROJECT IMPLEMENTATION & PERMITS

5.1. Future Project Steps

Implementation of a proposed WTP proceeds through a series of steps generally outlined in **Figure 5-1** below.

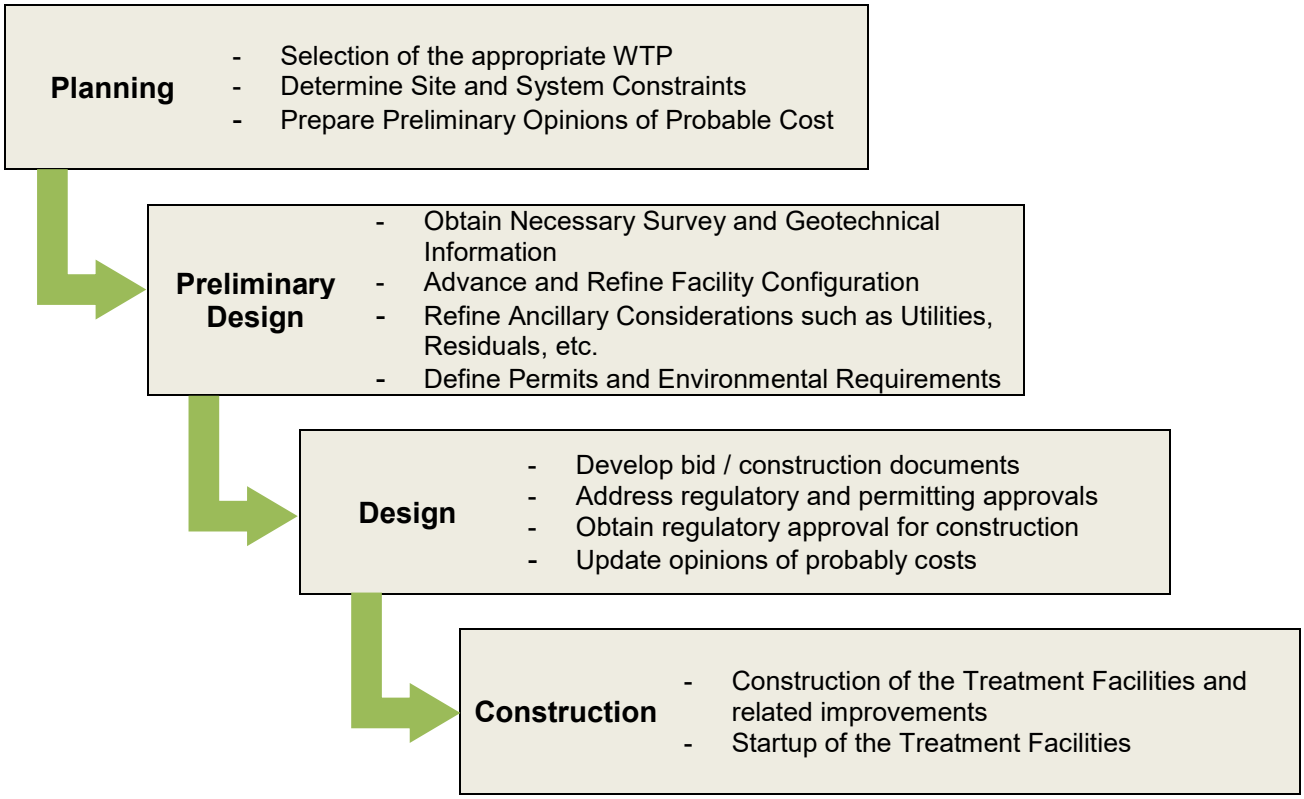


Figure 5-1. Project Implementation Flow Diagram

DDW requested the Preliminary Concept Report and thirty percent (30%) design plans **(pending)** per grant purposes and to comply with Proposition 68 requirements.

5.2. Anticipated Project Schedule

The Design – Build (D – B) will be the project delivery method for implementation and construction of the proposed improvements at Trask. Design – Build is a project delivery system in which the design and construction services are contracted by a single entity known as the design – builder or design – build contractor. It relies on a single point of responsibility contract and is used to minimize risks for the project owner and to reduce the delivery schedule by overlapping the design phase and construction phase of the project.

The anticipated project implementation schedule for the construction of the proposed improvements at Trask is shown in **Table 5-1** on the following page. This schedule assumes a Design – Build approach with consistent construction progress without any delays. A full detailed project schedule can be found on **Appendix H**.

Table 5-1: Summary of Project Schedule

Task	Estimate Date of Completion
Finalized Concept Report & Preliminary Estimate	05/22/2019
30% Design Plans & Technical Specifications	06/25/2019
Environmental & DDW Approval	08/06/2019
Project Bidding & Award to Contractor	09/12/2019
Completion of Construction	02/13/2020

5.3. Project Funding: Proposition 68

The anticipated funding for the proposed improvements at Trask will primarily be grants received from the Parks and Water Bond Act of 2018 (Proposition 68). Proposition 68 authorized $4 billion in general obligation bonds for improvements in state and local parks, environmental protection and restoration projects, water infrastructure projects, and flood protection projects.

To receive funding from Proposition 68, coordination with representatives from the California Conservation Corps (CCC) and the certified community conservation corps represented by the California Association of Local Conservation Corps (CALCC). This is required to ensure the proper review of the project scope and feasibility.

5.4. Required Permits

The objective of this section is to identify and address all state and governmental regulations that apply to the implementation of the Trask Scout Reservation Water System Rehabilitation and Enhancement project, the agencies that enforce them and situations that need reviews and approval.

Expected permits for the Trask Scout Reservation are:

CONSTRUCTION STORMWATER GENERAL PERMIT:

Stormwater regulations are managed by the State Water Resources Control Board. Regulations are adopted by each county in California through a municipal stormwater permit. The Trask Scout Reservation is expected to have a soil disturbance of less than one (1) acre which triggers the need of a stormwater pollution prevention plan (SWPPP) instead, the Contractor must prepare a Water Pollution Control Plan that implements best management practices (BMPs) during construction to prevent/minimize stormwater pollution.

GRADING PERMIT:

A grading permit provides formal permission to perform grading in accordance with the accepted documents (plans, specifications, calculations, etc.) The City of Monrovia provides grading plan check services as part of the grading permit process. Grading plans shall be prepared and designed in accordance with City's Public Works Department Standard Plans, the California Building Code, and the Standard Specification for Public Work Construction (Green Book), all latest editions.

ELECTRICAL SERVICE PERMIT:

The permit is required for the installation, alteration, addition or replacement of electrical wiring, devices, appliances or equipment, and to comply with the minimum standards of the California Energy Code, title 24, Part 6. The electrical permit shall be issued for the work proposed to be installed as described in the permit application and no deviation from the work proposed to b installed shall be made without the written approval of City of Monrovia's Building & Safety Division.

STATE WATER RESOURCES CONTROL BOARD:

As previously mentioned in this report, the State Water Resources Control Board, acting by and through its Division of Drinking Water issued a Compliance Order for Violation of the Surface Water Treatment Rule, No. 04-22-17R-001 stating that the existing water treatment at the Trask Scout Reservation was not properly designed to provide adequate, clean, safe water, and needed to provide the SWRCB suggested corrective actions necessary to bring the water system into compliance.

BUILDING PERMIT:

A building permit may be necessary for the housing (shed) of the proposed water treatment plant at Trask Scout Reservation. The expected shed size is over 200 square feet which triggers the need of a permit. Building plans shall be filed and approved by City of Monrovia's Building & Safety Division.

MECHANICAL PERMIT:

Above-ground water storage tanks are regulated by the California Building Code, the California Fire Code, the Zoning Code, and other regulations therefore needing a permit. Each request for approval of an above-ground water storage tank will be reviewed by City's of Monrovia's Planning Division. The Contractor shall secure permit for construction and inspection, without inspection and final approval of installation, a permit to operate and maintain this storage tanks by the Trask Scout Reservation will be denied.

Table 5.3 in next page identifies the permits above mentioned including guidance to regulatory procedures, contacts and/or internet resources, and process time.

TABLE 5.3: TRASK SCOUT RESERVATION – PERMIT REQUIREMENTS

Civil Permit Requirements			
Applicability	**Civil Permit Requirements**		
	Requirement (Authority)	**Guidance/ Standards**	**More Information**
Stormwater /Drainage			
• Land disturbing activities, including construction, clearing, excavation, etc.	***Stormwater/ Drainage Permit*** (State Water Resources Control Board) **Not Triggered**	City of Monrovia https://www.cityofmonrovia.org/your-government/public-works/stormwater	A State Water Resources Control Board (SWRCB) Construction General Permit/Stormwater Pollution Prevention Plan(SWPPP) is triggered when more than 1 acre of soil disturbance is associated with the construction project. Expected Soil Disturbance for the Trask Scout Reservation: *Treatment Area = 2,000 sqft *Tanks Area = 2,500 sqft. Total expected soil disturbance = 4,500 sqft = 0.1 acre; therefore **SWPPP are NOT triggered**
• New/replace impervious surface or land disturbance > 7,000 sq. ft. • Clearing, grading, and excavating activities that disturb ≥1 acre and discharge stormwater to surface waters.	***Construction Stormwater General Permit*** (State Water Resources Control Board)	City of Monrovia https://www.cityofmonrovia.org/your-government/public-works/stormwater	Expected Soil Disturbance for the Trask Scout Reservation over 7,000 sqft.; clearing, grading, and excavating activities. Contractor to provide a Water Pollution Control Plan including Best Management Practices (BMPs)
Grading			
• Land disturbing activities, including construction, clearing, excavation, etc. of 100+ yards	***Grading Permit*** (City of Monrovia)	Requires Temporary Erosion/Sediment Control Plan Approval	
Electrical Service			
• New or upgraded electrical service	***New Service Questionnaire*** **(Engineering Review)** *(City of Monrovia)*		
• New or altered electrical service for construction	***Temporary Power*** (City of Monrovia)	Contact Engineering Dept. early in the process	

Environmental Permit Requirements			
Applicability	**Environmental Permit Requirements**		
	Requirement (Authority)	**Guidance/ Standards**	**More Information**
State Water Resouces Control Board – Division of Drinking Water			
• Surface Water Treatment Rule • Environmental – Silt removal from creek accumulated over time at raw water collector	***Compliance Order No. 04-22-17R-001*** (California- State Water Resources Control Board, Division of Drinking Water) ***California Environmental Quality Act (CEQA)***	See Compliance Order in **Appendix- A**	Submittals required by this Compliance Order shall be addressed to: Shu-Fang Orr, P.E. District Engineer, Los Angeles District Division of Drinking Water State Water Resources Control Board 500 North Central Ave, Suite 500, Glendale, CA 91203 CEQA document to be determined by City of Monrovia.

Construction Permit Requirements			
Applicability	**Construction Permit Requirements**		
	Requirement (Authority)	**Guidance/ Standards**	**More Information**
Building Permits			
• New Construction	**Building Permit** (City of Monrovia)		Package Water Treatment Housing – Shed 14Lx10Wx8H **does not trigger a new construction permit.** It is considered not a permanent structure.
Trade Permits			
• Mechanical Equipment (installation, alteration, replacement of tanks)	**Mechanical Permit** (City of Monrovia)		

Appendix A

SWRCB – Trask Scout Reservation, Boy Scouts of America Transfer of Primacy Agency and Compliance Order for Violation of the Surface Water Treatment Rule Issued on April 25, 2017

Greater Los Angeles Area Council

Boy Scouts of America

Trask Scout Reservation

Sawpit Canyon, Monrovia, California

Water System Rehabilitation & Enhancement Project

November 2018

Trask Scout Reservation
Transfer of Primacy Agency

State Water Resources Control Board
Division of Drinking Water

August 26, 2014

Marcus Mack, CEO
Boy Scouts of America, San Gabriel Valley Council
3450 E. Sierra Madre Blvd.
Pasadena, CA 91107-1934

Dear Mr. Mack:

SYSTEM NO. 1900569: TRASK SCOUT RESERVATION, BOY SCOUTS OF AMERICA TRANSFER OF PRIMACY AGENCY

Effective July 1, 2014, the regulatory oversight of Trask Scout Reservation, Boy Scouts of America (Trask) has been changed from the County of Los Angeles, Department of Public Health (County), to the State Water Resources Control Board, Division of Drinking Water (Division). There are new forms and procedures in accordance with this regulatory oversight change as explained below.

1. Please find the "Monthly Summary of Monitoring for Surface Water Treatment Regulations" form enclosed. Please complete and submit this form on a monthly basis. It must be received by our office by the 10th day of the following month.

2. Please find the "Monthly Summary of Distribution System Coliform Monitoring" form enclosed. Please complete and submit this form on a monthly basis. It must be received by our office by the 10th day of the following month. Also, in accordance with Section 64423.1(c)(2), please have the laboratory that is performing these analyses submit the results directly to our office.

3. It is the Division's policy that monthly coliform samples be collected from drinking water sources. It is recommended that heterotrophic plate counts be included in this monitoring, although it is not mandatory. Enclosed is the "Raw Water Coliform Monitoring" form. Please begin to monitor your sources on a monthly basis and use the form to report the results by the 10th day of the following month.

4. Enclosed please find the Water Quality Emergency Notification Plan. Please complete this form and submit to our office.

5. All sources should be monitored in accordance with the Vulnerability Assessment and Monitoring Frequency Guidelines. These Guidelines were previously forwarded to you by the County (a copy is enclosed). The Guidelines show the constituents that are required to be monitored and the frequency of the monitoring. Please note that they are for the

monitoring period of January 1, 2014 to December 31, 2016 and should be used until such time that an updated one is submitted to you.

In addition, attached is a copy of the domestic water supply permit for Trask issued by the County on April 10, 2014. You will find a copy of the accompanying sanitary survey report and appendices, which documents the finds made during the sanitary survey on October 29, 2013. Eight elements were evaluated during the sanitary survey as follows:

1) Source,
2) Treatment,
3) Distribution system,
4) Finished water storage,
5) Pumps, pump facilities, and controls,
6) Monitoring, reporting, and data verification,
7) System management and operation, and
8) Operator compliance with state requirements

The purpose of this letter is to advise Trask of the inspection findings for the elements listed above.

The following paragraphs summarize issues/deficiencies noted during the survey that would require your attention:

Sources

- Trask has not been providing its maximum day demand (MDD) to the County. Trask needs to analyze its system demand in recent years to determine the current MDD and verify that the stream pick-up is sufficient to meet the current MDD. Trask should also provide the MDD in the electronic annual report (EAR).

- Trask needs to install a flow meter at the stream pick-up source intake and booster pump. Trask needs to maintain records of the amount of water pumped from the stream pick-up and from the booster pump.

Treatment

- Trask needs to protect the electrical wiring of the pre-treatment system to protect it from outdoor elemental hazards and vandalism.

- Trask needs to install an additional pump to deliver finished water from the clearwell for backwashing of the slow sand filter and diatomaceous earth filter. Finished water must be treated by the slow sand filter or diatomaceous earth filter and undergo a disinfection contact time of 2.5 hours in the clearwell before it may be used for backwashing.

Water Quality

- The next samples for nitrate, nitrite, and nitrate + nitrite are past due. The last samples for nitrate, nitrite, and nitrate + nitrite were collected on July 17, 2007. Trask is required to conduct annual source monitoring for nitrate and source monitoring once per compliance period for nitrite and nitrate + nitrite. Trask needs to collect samples for nitrate, nitrite, and nitrate + nitrite immediately.

- Om the Bacteriological Sampling Plan, the fort's upstream repeat sampling location is Pump Room #1. This location should be replaced with a location that is downstream of the clearwell. All routine sampling locations as well as repeat sampling locations must be located downstream of the clearwell because the clearwell provides disinfection contact time necessary to comply with the Surface Water Treatment Rule (SWTR).

- Although Trask is not required to conduct monitoring of the distribution system for disinfection byproducts (DBPs), it is recommended that Trask conduct annual DBP monitoring of the distribution system and provide a map of the distribution system, including sampling locations, to the Division.

Distribution System Operations and Maintenance

- Trask needs to submit EARs to the Division. The EAR needs to include the number of main break occurrences.

- Trask needs to install a water level sensor inside the storage tank to control the inlet flow and to prevent overflow. This device could control the raw water intake pump or booster pump.

- Trask needs to notify the Division when the water system facilities are closed and not in operation.

- Trask needs to install a proper overflow pipe and screened roof vent for the storage tank.

- It is unknown whether the distribution system mains have adequate horizontal and vertical clearance from sewer lines and storm drains. During pipeline replacement or installation of new pipeline, Trask should record the amounts and sizes of each distribution system material installed and whether the new mains meet sewer pipe separation standards per the California Waterworks Standards. Trask should maintain as built plans and should be able to provide the Division a copy upon request.

- All water system operators need to have distribution system and treatment operator certification in order to operate and maintain the Trask water system facilities.

- Trask needs to provide a current cross-connection control program evaluation form to the Division using the template provided in Appendix 10.

Summary

Trask is in fair condition and is capable of continuously supplying safe and potable water to all of its customers. Trask is under competent management.

We understand that this is a substantial amount of information but please complete the above items by October 31, 2014. Please contact Mr. Terry Kim at (818) 551-2025 if you have any questions. We are available to meet with you to review and discuss these items if you so desire.

Sincerely,

Sutida Bergquist, P.E.
District Engineer
Central District

Enclosures: Monthly Summary of Monitoring for Surface Water Treatment Regulations
Monthly Summary of Distribution System Coliform Monitoring form
Raw Water Coliform Monitoring form
Water Quality Emergency Notification Plan
Domestic Water Supply Permit dated April 10, 2014
Sanitary Survey Report dated April 10, 2014 and Appendices

cc: Richard Lavin, Chief
Los Angeles County Department of Public Health
Drinking Water Program
5050 Commerce Drive
Baldwin Park, CA 91706

LT2ESWTR

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board
Division of Drinking Water

May 19, 2017

Mr. Anthony Villalobos
Site Manager
Trask Scout Reservation – San Gabriel
1100 North Canyon Blvd.
Monrovia, CA 91016

Dear Mr. Villalobos,

WATER SYSTEM NO. 1900569 – LONG TERM 2 ENHANCED SURFACE WATER TREATMENT RULE (LT2ESWTR) SECOND ROUND OF SOURCE WATER MONITORING

On January 5, 2016, the U.S. Environmental Protection Agency promulgated the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) to reduce the risk of disease caused by *Cryptosporidium* and other microorganisms by identifying the systems at the greater risk for source water contamination. The Division of Drinking Water (Division) of the California Water Resources Control Board, previously the Drinking Water and Environmental Management Division with the California Department of Public Health, adopted the federal LT2ESWTR by reference, effective July 1, 2013.

Our records show that the Trask Scout Reservation – San Gabriel, Boy Scouts of America (Trask) conducted the initial round of the source water monitoring beginning February 8, 2012 through April 26, 2013. The mean annual *E. coli* concentration was 2.53 *E. coli*/100 mL, which is less than 50 *E. coli*/100 mL, the level that will trigger *Cryptosporidium* monitoring requirements. Based on the test results, the water system was classified as a Bin 1 system.

We are now approaching the deadlines for Trask to conduct the second round of the source water monitoring. According to the LT2ESWTR, Trask must submit to the Division a monitoring plan with the description of the sample location and a monitoring schedule by July 1, 2017 and begin the second round of the source water monitoring by October 1, 2017. However, Trask's water system is not in operation currently. The Division issued a compliance order to Trask on April 25, 2017, directing Trask to comply with the disinfection requirements of the Surface Water Treatment Rule and to continue posting the "Do No Use" public notice until Trask has made corrective actions to bring the system into compliance. To comply with the LT2ESWTR, Trask must submit a monitoring plan describing the sample location to the Division by **July 1, 2017**. **After completing the corrective measures and receiving an approval from the Division to reactivate the water system, Trask must submit the monitoring schedule portion of the monitoring plan to the Division for approval before placing the system back into service.** Unless the criteria listed in Section 141.701 (a)(3) (ii) or Section141.701 (d) of 40 CFR are met, Trask must **sample the source water for *E. coli* upon placing the treatment plant back into service at least once every two weeks for 12 months**.

For your convenience, we have enclosed a copy of Sections 141.701 through 141.706, 40 CFR (Enclosure 1) and a monitoring plan template (Enclosure 2) for your use. If you have any questions, please call Ms. Lillian Luong at (818) 551-2038 or me at (818) 551-2045.

Sincerely,

Shu-Fang Orr

Shu-Fang Orr, P.E.
District Engineer
Angeles District

Enclosures:
1. Sections 141.701 through 141.706, 40 CFR
2. LT2EWTR Monitoring Plan Template

cc: Mr. Dan Arrighi, Chief Operator
Trask Scout Reservation, Boy Scouts of America

Mr. Matt Bear, Director of Support Service Trask Scout Reservation, Boy Scouts of America

Enclosure 1

(7) Systems must address significant deficiencies identified in sanitary surveys performed by EPA as described in § 141.723.

§ 141.701. Source water monitoring.

(a) *Initial round of source water monitoring.* Systems must conduct the following monitoring on the schedule in paragraph (c) of this section unless they meet the monitoring exemption criteria in paragraph (d) of this section.

(1) Filtered systems serving at least 10,000 people must sample their source water for *Cryptosporidium*, *E. coli*, and turbidity at least monthly for 24 months.

(2) Unfiltered systems serving at least 10,000 people must sample their source water for *Cryptosporidium* at least monthly for 24 months.

(3)

(i) Filtered systems serving fewer than 10,000 people must sample their source water for *E. coli* at least once every two weeks for 12 months.

(ii) A filtered system serving fewer than 10,000 people may avoid *E. coli* monitoring if the system notifies the State that it will monitor for *Cryptosporidium* as described in paragraph (a)(4) of this section. The system must notify the State no later than 3 months prior to the date the system is otherwise required to start *E. coli* monitoring under § 141.701(c).

(4) Filtered systems serving fewer than 10,000 people must sample their source water for *Cryptosporidium* at least twice per month for 12 months or at least monthly for 24 months if they meet one of the following, based on monitoring conducted under paragraph (a)(3) of this section:

(i) For systems using lake/reservoir sources, the annual mean *E. coli* concentration is greater than 10 *E. coli* /100 mL.

(ii) For systems using flowing stream sources, the annual mean *E. coli* concentration is greater than 50 *E. coli* /100 mL.

(iii) The system does not conduct *E. coli* monitoring as described in paragraph (a)(3) of this section.

(iv) Systems using ground water under the direct influence of surface water (GWUDI) must comply with the requirements of paragraph (a)(4) of this section based on the *E. coli* level that applies to the nearest surface water body. If no surface water body is nearby, the system must comply based on the requirements that apply to systems using lake/reservoir sources.

(5) For filtered systems serving fewer than 10,000 people, the State may approve monitoring for an indicator other than *E. coli* under paragraph (a)(3) of this section. The State also may approve an alternative to the *E. coli* concentration in paragraph (a)(4)(i), (ii) or (iv) of this section to trigger *Cryptosporidium* monitoring. This approval by the State must be provided to the system in writing and must include the basis for the State's determination that the alternative indicator and/or trigger level will provide a more accurate identification of whether a system will exceed the Bin 1 *Cryptosporidium* level in § 141.710.

(6) Unfiltered systems serving fewer than 10,000 people must sample their source water for *Cryptosporidium* at least twice per month for 12 months or at least monthly for 24 months.

(7) Systems may sample more frequently than required under this section if the sampling frequency is evenly spaced throughout the monitoring period.

(b) *Second round of source water monitoring.* Systems must conduct a second round of source water monitoring that meets the requirements for monitoring parameters, frequency, and duration described in paragraph (a) of this section, unless they meet the monitoring exemption

criteria in paragraph (d) of this section. Systems must conduct this monitoring on the schedule in paragraph (c) of this section.

(c) *Monitoring schedule.* Systems must begin the monitoring required in paragraphs (a) and (b) of this section no later than the month beginning with the date listed in this table:

SOURCE WATER MONITORING STARTING DATES TABLE

Systems that serve . . .	Must begin the first round of source water monitoring no later than the month beginning . . .	And must begin the second round of source water monitoring no later than the month beginning . . .
(1) At least 100,000 people	(i) October 1, 2006	(ii) April 1, 2015.
(2) From 50,000 to 99,999 people	(i) April 1, 2007	(ii) October 1, 2015.
(3) From 10,000 to 49,999 people	(i) April 1, 2008	(ii) October 1, 2016.
(4) Fewer than 10,000 and monitor for *E. coli* [a]	(i) October 1, 2008	(ii) October 1, 2017.
(5) Fewer than 10,000 and monitor for *Cryptosporidium* [b]	(i) April 1, 2010	(ii) April 1, 2019.

[a] Applies only to filtered systems.
[b] Applies to filtered systems that meet the conditions of paragraph (a)(4) of this section and unfiltered systems.

(d) *Monitoring avoidance.*

(1) Filtered systems are not required to conduct source water monitoring under this subpart if the system will provide a total of at least 5.5-log of treatment for *Cryptosporidium*, equivalent to meeting the treatment requirements of Bin 4 in § 141.711.

(2) Unfiltered systems are not required to conduct source water monitoring under this subpart if the system will provide a total of at least 3-log *Cryptosporidium* inactivation, equivalent to meeting the treatment requirements for unfiltered systems with a mean *Cryptosporidium* concentration of greater than 0.01 oocysts/L in § 141.712.

(3) If a system chooses to provide the level of treatment in paragraph (d)(1) or (2) of this section, as applicable, rather than start source water monitoring, the system must notify the State in writing no later than the date the system is otherwise required to submit a sampling schedule for monitoring under § 141.702. Alternatively, a system may choose to stop sampling at any point after it has initiated monitoring if it notifies the State in writing that it will provide this level of treatment. Systems must install and operate technologies to provide this level of treatment by the applicable treatment compliance date in § 141.713.

(e) *Plants operating only part of the year.* Systems with Title 22, Division 4, Chapter 17, California Code of Regulations plants that operate for only part of the year must conduct source water monitoring in accordance with this subpart, but with the following modifications:

(1) Systems must sample their source water only during the months that the plant operates unless the State specifies another monitoring period based on plant operating practices.

(2) Systems with plants that operate less than six months per year and that monitor for *Cryptosporidium* must collect at least six *Cryptosporidium* samples per year during each of two years of monitoring. Samples must be evenly spaced throughout the period the plant operates.

(f)

(1) *New sources.* A system that begins using a new source of surface water or GWUDI after the system is required to begin monitoring under paragraph (c) of this section must monitor the new source on a schedule the State approves. Source water monitoring must meet the requirements of this subpart. The system must also meet the bin classification and *Cryptosporidium* treatment requirements of §§ 141.710 and 141.711 or § 141.712, as applicable, for the new source on a schedule the State approves.

(2) The requirements of § 141.701(f) apply to Title 22, Division 4, Chapter 17, California Code of Regulations systems that begin operation after the monitoring start date applicable to the system's size under paragraph (c) of this section.

(3) The system must begin a second round of source water monitoring no later than 6 years following initial bin classification under § 141.710 or determination of the mean *Cryptosporidium* level under § 141.712, as applicable.

(g) Failure to collect any source water sample required under this section in accordance with the sampling schedule, sampling location, analytical method, approved laboratory, and reporting requirements of §§ 141.702 through 141.706 is a monitoring violation.

(h) *Grandfathering monitoring data.* Systems may use (grandfather) monitoring data collected prior to the applicable monitoring start date in paragraph (c) of this section to meet the initial source water monitoring requirements in paragraph (a) of this section. Grandfathered data may substitute for an equivalent number of months at the end of the monitoring period. All data submitted under this paragraph must meet the requirements in § 141.707.

§ 141.702. Sampling schedules.

(a) Systems required to conduct source water monitoring under § 141.701 must submit a sampling schedule that specifies the calendar dates when the system will collect each required sample.

(1) Systems must submit sampling schedules no later than 3 months prior to the applicable date listed in § 141.701(c) for each round of required monitoring.

(2)

(i) Systems serving at least 10,000 people must submit their sampling schedule for the initial round of source water monitoring under § 141.701(a) to EPA electronically at https://intranet.epa.gov/lt2/ .

(ii) If a system is unable to submit the sampling schedule electronically, the system may use an alternative approach for submitting the sampling schedule that EPA approves.

(3) Systems serving fewer than 10,000 people must submit their sampling schedules for the initial round of source water monitoring § 141.701(a) to the State.

(4) Systems must submit sampling schedules for the second round of source water monitoring § 141.701(b) to the State.

(5) If EPA or the State does not respond to a system regarding its sampling schedule, the system must sample at the reported schedule.

(b) Systems must collect samples within two days before or two days after the dates indicated in their sampling schedule (i.e. , within a five-day period around the schedule date) unless one of the conditions of paragraph (b)(1) or (2) of this section applies.

(1) If an extreme condition or situation exists that may pose danger to the sample collector, or that cannot be avoided and causes the system to be unable to sample in the scheduled five-day period, the system must sample as close to the scheduled date as is feasible unless the State approves an alternative sampling date. The system must submit an explanation for the delayed sampling date to the State concurrent with the shipment of the sample to the laboratory.

(2)

(i) If a system is unable to report a valid analytical result for a scheduled sampling date due to equipment failure, loss of or damage to the sample, failure to comply with the analytical method requirements, including the quality control requirements in § 141.704, or the failure of an approved laboratory to analyze the sample, then the system must collect a replacement sample.

(ii) The system must collect the replacement sample not later than 21 days after receiving information that an analytical result cannot be reported for the scheduled date unless the system demonstrates that collecting a replacement sample within this time frame is not feasible or the State approves an alternative resampling date. The system must submit an explanation for the delayed sampling date to the State concurrent with the shipment of the sample to the laboratory.

(c) Systems that fail to meet the criteria of paragraph (b) of this section for any source water sample required under § 141.701 must revise their sampling schedules to add dates for collecting all missed samples. Systems must submit the revised schedule to the State for approval prior to when the system begins collecting the missed samples.

§ 141.703. Sampling locations.

(a) Systems required to conduct source water monitoring under § 141.701 must collect samples for each plant that treats a surface water or GWUDI source. Where multiple plants draw water from the same influent, such as the same pipe or intake, the State may approve one set of monitoring results to be used to satisfy the requirements of § 141.701 for all plants.

(b)

(1) Systems must collect source water samples prior to chemical treatment, such as coagulants, oxidants and disinfectants, unless the system meets the condition of paragraph (b)(2) of this section.

(2) The State may approve a system to collect a source water sample after chemical treatment. To grant this approval, the State must determine that collecting a sample prior to chemical treatment is not feasible for the system and that the chemical treatment is unlikely to have a significant adverse effect on the analysis of the sample.

(c) Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition.

(d) *Bank filtration.*

(1) Systems that receive *Cryptosporidium* treatment credit for bank filtration under sections 64653(e) and (f), as applicable, must collect source water samples in the surface water prior to bank filtration.

(2) Systems that use bank filtration as pretreatment to a filtration plant must collect source water samples from the well (i.e. , after bank filtration). Use of bank filtration during monitoring must be consistent with routine operational practice. Systems collecting samples after a bank filtration process may not receive treatment credit for the bank filtration under § 141.717(c).

(e) *Multiple sources.* Systems with plants that use multiple water sources, including multiple surface water sources and blended surface water and ground water sources, must collect samples as specified in paragraph (e)(1) or (2) of this section. The use of multiple sources during monitoring must be consistent with routine operational practice.

(1) If a sampling tap is available where the sources are combined prior to treatment, systems must collect samples from the tap.

(2) If a sampling tap where the sources are combined prior to treatment is not available, systems must collect samples at each source near the intake on the same day and must follow either paragraph (e)(2)(i) or (ii) of this section for sample analysis.

(i) Systems may composite samples from each source into one sample prior to analysis. The volume of sample from each source must be weighted according to the proportion of the source in the total plant flow at the time the sample is collected.

(ii) Systems may analyze samples from each source separately and calculate a weighted average of the analysis results for each sampling date. The weighted average must be calculated by multiplying the analysis result for each source by the fraction the source contributed to total plant flow at the time the sample was collected and then summing these values.

(f) *Additional Requirements.* Systems must submit a description of their sampling location(s) to the State at the same time as the sampling schedule required under § 141.702. This description must address the position of the sampling location in relation to the system's water source(s) and treatment processes, including pretreatment, points of chemical treatment, and filter backwash recycle. If the State does not respond to a system regarding sampling location(s), the system must sample at the reported location(s).

§ 141.704. Analytical methods.

(a) *Cryptosporidium.* Systems must analyze for *Cryptosporidium using Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA,* 2005, United States Environmental Protection Agency, EPA-815-R-05-002 or *Method 1622: Cryptosporidium in Water by Filtration/IMS/FA,* 2005, United States Environmental Protection Agency, EPA-815-R-05-001, which are incorporated by reference, or alternative methods listed in appendix A to subpart C of this part. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may obtain a copy of these methods online from http://www.epa.gov/safewater/disinfection/lt2 or from the United States Environmental Protection Agency, Office of Ground Water and Drinking Water, 1201 Constitution Ave., NW., Washington, DC 20460 (Telephone: 800-426-4791). You may inspect a copy at the Water Docket in the EPA Docket Center, 1301 Constitution Ave., NW., Washington, DC (Telephone: 202-566-2426) or at the National Archives and Records Administration

(NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html .

(1) Systems must analyze at least a 10 L sample or a packed pellet volume of at least 2 mL as generated by the methods listed in paragraph (a) of this section. Systems unable to process a 10 L sample must analyze as much sample volume as can be filtered by two filters approved by EPA for the methods listed in paragraph (a) of this section, up to a packed pellet volume of at least 2 mL.

(2)

(i) Matrix spike (MS) samples, as required by the methods in paragraph (a) of this section, must be spiked and filtered by a laboratory approved for *Cryptosporidium* analysis under § 141.705.

(ii) If the volume of the MS sample is greater than 10 L, the system may filter all but 10 L of the MS sample in the field, and ship the filtered sample and the remaining 10 L of source water to the laboratory. In this case, the laboratory must spike the remaining 10 L of water and filter it through the filter used to collect the balance of the sample in the field.

(3) Flow cytometer-counted spiking suspensions must be used for MS samples and ongoing precision and recovery (OPR) samples.

(b) *E. coli.* System must use methods for enumeration of *E. coli* in source water approved in § 136.3(a) of this chapter or alternative methods listed in appendix A to subpart C of this part.

(1) The time from sample collection to initiation of analysis may not exceed 30 hours unless the system meets the condition of paragraph (b)(2) of this section.

(2) The State may approve on a case-by-case basis the holding of an *E. coli* sample for up to 48 hours between sample collection and initiation of analysis if the State determines that analyzing an *E. coli* sample within 30 hours is not feasible. *E. coli* samples held between 30 to 48 hours must be analyzed by the Colilert reagent version of Standard Method 9223B as listed in § 136.3(a) of this title.

(3) Systems must maintain samples between 0 °C and 10 °C during storage and transit to the laboratory.

(c) Turbidity. Systems must use methods for turbidity measurement approved in § 141.74(a)(1).

§ 141.705. Approved laboratories.

(a) *Cryptosporidium.* Systems must have *Cryptosporidium* samples analyzed by a laboratory that is approved under EPA's Laboratory Quality Assurance Evaluation Program for Analysis of *Cryptosporidium* in Water or a laboratory that has been certified for *Cryptosporidium* analysis by an equivalent State laboratory certification program.

(b) *E. coli.* Any laboratory certified by the EPA, the National Environmental Laboratory Accreditation Conference or the State for total coliform or fecal coliform analysis under § 141.74 is approved for *E. coli* analysis under this subpart when the laboratory uses the same technique for *E. coli* that the laboratory uses for § 141.74.

(c) *Turbidity.* Measurements of turbidity must be made by a party approved by the State.

NOTE: This publication is meant to be an aid to the staff of the State Board's Division of Drinking Water and cannot be relied upon by the regulated community as the State of California's representation of the law. The published codes are the only official representation of the law. Refer to the published codes—in this case, 17 CCR and 22 CCR—whenever specific citations are required. Statutes related to the State Board's drinking water-related activities are in the Health & Safety Code, the Water Code, and other codes.

§ 141.706. Reporting source water monitoring results.

(a) Systems must report results from the source water monitoring required under § 141.701 no later than 10 days after the end of the first month following the month when the sample is collected.

(b)

(1) All systems serving at least 10,000 people must report the results from the initial source water monitoring required under § 141.701(a) to EPA electronically at https://intranet.epa.gov/lt2/ .

(2) If a system is unable to report monitoring results electronically, the system may use an alternative approach for reporting monitoring results that EPA approves.

(c) Systems serving fewer than 10,000 people must report results from the initial source water monitoring required under § 141.701(a) to the State.

(d) All systems must report results from the second round of source water monitoring required under § 141.701(b) to the State.

(e) Systems must report the applicable information in paragraphs (e)(1) and (2) of this section for the source water monitoring required under § 141.701.

(1) Systems must report the following data elements for each *Cryptosporidium* analysis:

Data element.
1. PWS ID.
2. Facility ID.
3. Sample collection date.
4. Sample type (field or matrix spike).
5. Sample volume filtered (L), to nearest 1/4 L.
6. Was 100% of filtered volume examined.
7. Number of oocysts counted.

(i) For matrix spike samples, systems must also report the sample volume spiked and estimated number of oocysts spiked. These data are not required for field samples.

(ii) For samples in which less than 10 L is filtered or less than 100% of the sample volume is examined, systems must also report the number of filters used and the packed pellet volume.

(iii) For samples in which less than 100% of sample volume is examined, systems must also report the volume of resuspended concentrate and volume of this resuspension processed through immunomagnetic separation.

(2) Systems must report the following data elements for each *E. coli* analysis:

Data element.

NOTE: This publication is meant to be an aid to the staff of the State Board's Division of Drinking Water and cannot be relied upon by the regulated community as the State of California's representation of the law. The published codes are the only official representation of the law. Refer to the published codes—in this case, 17 CCR and 22 CCR—whenever specific citations are required. Statutes related to the State Board's drinking water-related activities are in the Health & Safety Code, the Water Code, and other codes.

1. PWS ID.
2. Facility ID.
3. Sample collection date.
4. Analytical method number.
5. Method type.
6. Source type (flowing stream, lake/reservoir, GWUDI).
7.*E. coli*/100 mL.
8. Turbidity. [1]

[1] Systems serving fewer than 10,000 people that are not required to monitor for turbidity under § 141.701 are not required to report turbidity with their *E. coli* results.

§ 141.707. Grandfathering previously collected data.

(a)

(1) Systems may comply with the initial source water monitoring requirements of § 141.701(a) by grandfathering sample results collected before the system is required to begin monitoring (i.e. , previously collected data). To be grandfathered, the sample results and analysis must meet the criteria in this section and the State must approve.

(2) A filtered system may grandfather *Cryptosporidium* samples to meet the requirements of § 141.701(a) when the system does not have corresponding *E. coli* and turbidity samples. A system that grandfathers *Cryptosporidium* samples without *E. coli* and turbidity samples is not required to collect *E. coli* and turbidity samples when the system completes the requirements for *Cryptosporidium* monitoring under § 141.701(a).

(b) *E. coli* sample analysis. The analysis of *E. coli* samples must meet the analytical method and approved laboratory requirements of §§ 141.704 through 141.705.

(c) *Cryptosporidium* sample analysis. The analysis of *Cryptosporidium* samples must meet the criteria in this paragraph.

(1) Laboratories analyzed *Cryptosporidium* samples using one of the analytical methods in paragraphs (c)(1)(i) through (vi) of this section, which are incorporated by reference. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may obtain a copy of these methods on-line from the United States Environmental Protection Agency, Office of Ground Water and Drinking Water, 1201 Constitution Ave, NW, Washington, DC 20460 (Telephone: 800-426-4791). You may inspect a copy at the Water Docket in the EPA Docket Center, 1301 Constitution Ave., NW, Washington, DC, (Telephone: 202-566-2426) or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:
http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(i) Method 1623: *Cryptosporidium and Giardia in Water by Filtration/IMS/FA*, 2005, United States Environmental Protection Agency, EPA-815-R-05-002.

Enclosure 2

Long Term 2 Enhanced Surface Water Treatment Rule Monitoring Plan - Schedule 4 System

General Information

A. Public Water System (PWS) Information

B. Date Submitted:

Water System No.: _____

Water System Name: _____

Water System Address: _____

City: _____ State: _____ Zip: _____

C. Surface Water Treatment Plant Information

PLEASE COMPLETE SECTIONS I & II FOR EACH TREATMENT PLANT.

Number of Surface Water and GWUDI Treatment Plants _____

List the Names of the Treatment Plants: _____

_____

_____

_____

_____

D. Contact Person

Name: _____

Title: _____

Phone#: _____ Fax#: _____

E-mail: _____

Signature _____ **Date** _____

Section I: LT2ESWTR Sampling Location

A. Water System Information

Water System No.: _____

Water Treatment Plant Name: _____

Water Treatment Plant ID (PS Code*): _____

* The PS code for the water treament plant's Title 22 source water quality compliance sampling point

B. Source(s) for the Treatment Plant

1. Source Name		
2. Source Type: Enter either Flowing stream, Lake/Reservoir, or GWUDI		
3. Source Water Sampling Location - PS Code Provide State assigned number (If no ps-code is assigned, indicate sampling location in schematic on the next page)		
4. Usage All year, Part-year, or Emergency (Describe conditions, constraints, months in operation)		
5. Proportion of typical average daily flow *(Enter if applicable)*	_____%	_____%
6. Pretreatment Practices Presedimentation, Bank Filtration, or Off-stream storage *(Enter if applicable)*		
7. Recycling Practices (if applicable) Description and return flow location		
8. Chemical Pretreatment (Indicate location in schematic on the next page)		
9. Sample Compositing Procedure (if applicable) Blended sample tap, Composite sample, or Weighted		

Additional comments:

Schematic

Water System Information

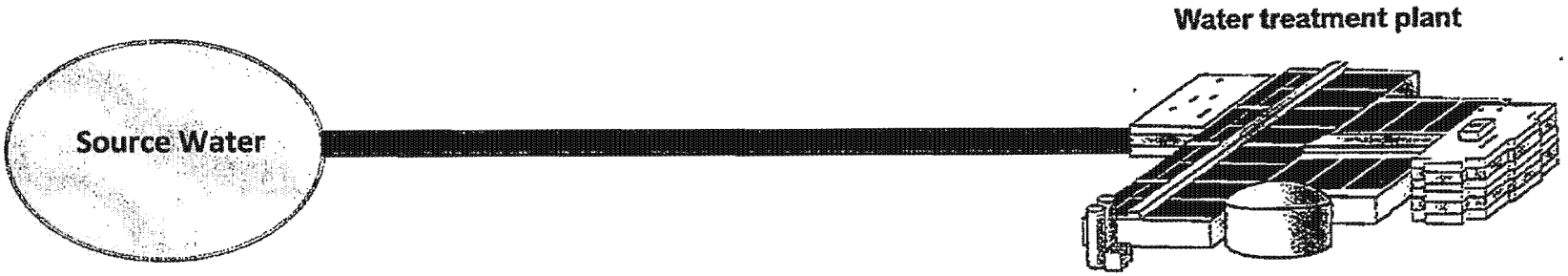
Water System No.: _____

Water Treatment Plant Name: _____

Water System Plant ID (PS Code): _____

Indicate the following on the diagram that best represents your facility type (If applicable):

1. LT2 sampling location
2. Points of chemical treatment prior to the treatment plant
3. Filter backwash water addition
4. Pretreatment processes (e.g. presedimentation basins, bank filtration)
5. Multiple source waters (show by adding additional sources)



Section II: LT2ESWTR Monitoring Schedule

Water System Information

Water System No.: _____

Water Treatment Plant Name: _____

Water System Plant ID (PS Code): _____

Name of the Certified Laboratory Selected to Perform the Analysis: _____

Year - Month	Sample Date	Year - Month	Sample Date	Year - Month	Sample Date

Monitor for E. Coli at least once every two week for 12 months

Signature _____ Date _____

Compliance Order

Compliance Order No. 04-22-17R-001

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

DIVISION OF DRINKING WATER

Name of Public Water System: Trask Scout Reservation, Boy Scouts of America

Water System No: 1900569

Attention: Mr. Matt Bear, Director of Support Service
Greater Los Angeles Council
Boy Scouts of America
2333 Scout Way
Los Angeles, CA 90016

COMPLIANCE ORDER

FOR

VIOLATION OF THE SURFACE WATER TREATMENT RULE

ISSUED ON April 25, 2017

The State Water Resources Control Board (hereinafter "Board"), acting by and through its Division of Drinking Water (hereinafter "Division") and the Deputy Director for the Division, hereby issues this Compliance Order (hereinafter "Order") pursuant to Section 116655 of the California Health and Safety Code (H&S Code) to the Trask Scout Reservation, Boy Scouts of America (hereinafter "Trask Scout Reservation") for violation of

Section116555(a)(3) of the H&S Code, Section 64652 (a) and Section 64654 (a) of the Title 22, California Code of Regulations (CCR).

FINDINGS OF FACT

The Boy Scouts of American operates the Trask Scout Reservation, a transient non-community water system located at 1100 North Canyon Boulevard, Monrovia in the Monrovia Canyon under the authority of a revised full domestic water supply permit (Permit No. 140410-19100569) issued by the Los Angeles County Department of Public Health (hereinafter, LACDPH) on April 10, 2014. As of July 1, 2014, the regulatory authority overseeing the Trask Scout Reservation was transferred back from LACDPH to the Division.

The Trask Scout Reservation has one surface water source, Sawpit Creek, located 150 feet east of the camp office. An intake pump takes suction from the creek and delivers the water to the pre-treatment system, which consists of a strainer, a 2-cell 1 micron cartridge filter, a sand filter, and a diatomaceous earth filter. From there, the water flows to the slow sand filter, which has a maximum capacity of 9 gallons per minute (gpm), and is then discharged through a 6 inch pipeline into the 3,500 gallon clearwell at a peak flow of 3 gpm. In the clearwell, the water is disinfected with 12 percent sodium hypochlorite solution and then pumped through a 4-inch pipeline serving the distribution system. The first customer is the Administration Building located 100 feet away from the clearwell. At the end of 4 inch pipeline is a 25,000-gallon steel storage tank, which stores the excess water. The Trask Scout Reservation has a total of 8 unmetered service connections, serving approximately 80 employees and visitors.

Under Section 64652(a) of the Title 22, CCR, the Trask Scout Reservation must provide 99.9 percent (3-log) reduction of *Giardia lamblia* cysts and 99.99 percent (4-log) reduction of viruses through filtration and inactivation, and 99 percent (2-log) reduction of *Cryptosporidium* through filtration. The slow sand filtration is deemed to be capable of achieving at least 99 percent (2-log) removal of *Giardia lamblia* cysts, 90 percent (1-log) removal of viruses, and 99 percent (2-log) removal of *Cryptosporidium,* when in compliance with the operation criteria specified in Section 64660 and performance standards specified in Section 64653. No pathogen removal credits can be granted to the diatomaceous earth filter, as the filter effluent does not meet the performance standards. Therefore, the disinfection process must provide at least 1-log inactivation of *Giardia lamblia* cysts and 3-log inactivation of viruses.

On February 16, 2017, two engineers from the Division met with Anthony Villalobos, the Camp Trask Ranger, for a sanitary survey site visit. The engineers observed that a metering-pump started to drop the 12 percent sodium hypochlorite solution into the clearwell, while the clearwell discharge pump started to pump the water out of the clearwell at the same time, when the float switch inside the clearwell detected the water level had reached the full capacity. The flowrate from the sand filter to the clearwell was 3 gpm, while the discharge pump pumped the water out at 75 gpm. This continued for approximately 20 minutes. The suction of the discharge pump is located at a location near the inlet side of the clearwell and the sodium hypochlorite solution is fed into the clearwell at the other side. Mr. Villalobos confirmed this was the typical operation procedures.

With this setting, the water entering the clearwell when the float switch is triggered will not have sufficient contact time to achieve 1-log inactivation of *Giardia lamblia* cysts and 3-log inactivation of viruses. Other than the turbulence created by the discharge pump suction pipe, there is no other mixing mechanism to ensure consistent chlorine residuals throughout the tank. Typically, a chlorine contactor is designed to have the flow condition as close to plug flow as possible. The turbulence induced by taking suction directly within the clearwell while helping with the chemical mixing, creates short circuits and minimizes the contact time.

Based on the field observation, the Division determined that the surface water treatment plant at the Trask Scout Reservation was not properly designed to provide adequate inactivation of *Giardia lamblia* cysts and virus. The Division therefore, requested the Trask Scout Reservation to post a "Do Not Use" public notice advising visitors not to use the tap water for drinking, cooking, hand washing or bathing. The Trask Scout Reservation provided the Division with a copy of the notice dated February 20, 2017

CONCLUSIONS OF LAW

Based on the above described Findings of Fact, the Division finds that the Trask Scout Reservation has violated the following laws and regulations:

1. H&S Code, Section 116555(a)(3): Specifically, Trask Scout Reservation failed to ensure the system is provided with a reliable and adequate supply of pure, wholesome, healthful, and potable water.

2. Section 64652(a) of Title 22, CCR Specifically, Trask Scout Reservation has violated the Surface Water Treatment Rule by not providing a multibarrier treatment that reliably ensures a total of 99.9 percent reduction of *Giardia lamblia* cysts and a total of 99.99 percent reduction of viruses through filtration and disinfection.

3. Section 64654(a) of Title 22, CCR Specifically, Trask Scout Reservation did not provide continuous disinfection treatment sufficient to insure that the total treatment process provides inactivation of *Giardia lamblia* cysts and viruses, in conjunction with the removals provided through filtration, to meet the reduction requirements specified in Section 64652(a).

ORDER

Pursuant to Section 116655 of the H&S Code, the Division hereby orders the Trask Scout Reservation to take the following actions:

1. Within 120 days of receipt of this compliance order, submit to the Division for review and approval of an engineering report with suggested corrective actions necessary to bring the water system into compliance, either through upgrading the surface water treatment plant to ensure compliance with the disinfection requirements of the Surface Water Treatment Rule, or other alternatives. The report shall include the engineering calculations, drawings and a time schedule and shall be prepared by a registered civil engineer. The time

schedule, when approved, shall become requirements for this compliance order.

2. Beginning July 1, 2017 and quarterly thereafter, submit a report on progress in achieving compliance.

3. Continue to post the "Do Not Use" public notice until it has made corrective actions to bring the system into compliance and received an approval from the Division to activate the system. The public notification shall be posted on the Trask Scout Reservation's website and at all facilities (restrooms, kitchens, showers, drinking water fountain, etc.) from where water is assessable.

4. By the 10th day of the month following the end of each quarter the water system continues to be in violation of the Surface Water Treatment Rule, submit the proof of public notification to the Division utilizing the form provided in Attachment 2.

The Division reserves the right to make such modifications to this Order as it may deem necessary to protect public health and safety. Such modifications may be issued as amendments to this Order and shall be effective upon issuance.

All submittals required by this Order shall be addressed to:

Shu-Fang Orr, P.E.
District Engineer, Angeles District
Division of Drinking Water
State Water Resources Control Board
500 North Central Avenue, Suite 500,
Glendale, CA 91203

If the Trask Scout Reservation is unable to perform the tasks specified in this Order for any reason, whether within or beyond the Trask Scout Reservation's control, and if the Trask Scout Reservation notifies the Division in writing no less than seven days in advance of the due date, the Division may extend the time for performance if the Trask Scout Reservation demonstrates that it has made its best efforts to comply with the schedules and other requirements of this Order. If the Trask Scout Reservation fails to perform any of the tasks specified in this Order by the time described herein or by the time as subsequently extended pursuant to this paragraph, the Trask Scout Reservation shall be deemed to have failed to comply with the obligations of this Order and may be subject to additional judicial action, including civil penalties specified in H&S Code, Section 116725.

The Division of Drinking Water shall not be liable for any injuries or damages to persons or property resulting from acts or omissions by the Trask Scout Reservation, its employees, agents, or contractors in carrying out activities pursuant to this Order, nor shall the Division of Drinking Water be held as a party to any contract entered into by the Trask Scout Reservation or its agents in carrying out activities pursuant to this Order. By issuance of this

Order, the Division of Drinking Water does not waive any further enforcement actions.

PARTIES BOUND

This Order shall apply to and be binding upon the Trask Scout Reservation, its officers, directors, agents, employees, contractors, successors, and assignees.

SEVERABILITY

The requirements of this Order are severable, and the Trask Scout Reservation shall comply with each and every provision thereof notwithstanding the effectiveness of any provisions.

April 25, 2017
Date

Jeff O'Keefe, P.E., Section Chief
Southern California Section
Southern California Field Operations Branch
Division of Drinking Water

Attachments (2):

1. Applicable Statues and Regulations
2. Proof of Public Notification

Cc: Jacqueline Taylor, Bureau Director
Bureau of Environmental Protection

Dan Arrighi, Chief Operator
Trask Scout Reservation, Boy Scouts of America

Anthony Villalobos, Site Manager
Trask Scout Reservation, Boy Scouts of America

ATTACHMENT 1

APPLICABLE STATUES AND REGULATIONS

APPENDIX 1. APPLICABLE STATUTES AND REGULATIONS FOR

COMPLIANCE NO. 04-22-17R-001

NOTE: The following language is provided for the convenience of the recipient, and cannot be relied upon as the State of California's representation of the law. The published codes are the only official representation of the law. Regulations related to drinking water are in Titles 22 and 17 of the California Code of Regulations. Statutes related to drinking water are in the Health & Safety Code, the Water Code, and other codes.

California Health and Safety Code (CHSC):

Section 116271 states in relevant part:

(a) The State Water Resources Control Board succeeds to and is vested with all of the authority, duties, powers, purposes, functions, responsibilities, and jurisdiction of the State Department of Public Health, its predecessors, and its director for purposes of all of the following:

(1) The Environmental Laboratory Accreditation Act (Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101).
(2) Article 3 (commencing with Section 106875) of Chapter 4 of Part 1.
(3) Article 1 (commencing with Section 115825) of Chapter 5 of Part 10.
(4) This chapter and the Safe Drinking Water State Revolving Fund Law of 1997 (Chapter 4.5 (commencing with Section 116760)).
(5) Article 2 (commencing with Section 116800), Article 3 (commencing with Section 116825), and Article 4 (commencing with Section 116875) of Chapter 5.
(6) Chapter 7 (commencing with Section 116975).
(7) The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Division 43 (commencing with Section 75001) of the Public Resources Code).
(8) The Water Recycling Law (Chapter 7 (commencing with Section 13500) of Division 7 of the Water Code).
(9) Chapter 7.3 (commencing with Section 13560) of Division 7 of the Water Code.
(10) The California Safe Drinking Water Bond Law of 1976 (Chapter 10.5 (commencing with Section 13850) of Division 7 of the Water Code).
(11) Wholesale Regional Water System Security and Reliability Act (Division 20.5 (commencing with Section 73500) of the Water Code).
(12) Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Division 26.5 (commencing with Section 79500) of the Water Code).

(b) The State Water Resources Control Board shall maintain a drinking water program and carry out the duties, responsibilities, and functions described in this section. Statutory reference to "department," "state department," or "director" regarding a function transferred to the State Water Resources Control Board shall refer to the State Water Resources Control Board. This section does not impair the authority of a local health officer to enforce this chapter or a county's election not to enforce this chapter, as provided in Section 116500...

(k) (1) The State Water Resources Control Board shall appoint a deputy director who reports to the executive director to oversee the issuance and enforcement of public water system permits and other duties as appropriate. The deputy director shall have public health expertise.

(2) The deputy director is delegated the State Water Resources Control Board's authority to provide notice, approve notice content, approve emergency notification plans, and take other action pursuant to Article 5 (commencing with Section 116450), to issue, renew, reissue, revise, amend, or deny any public water system permits pursuant to Article 7 (commencing with Section 116525), to suspend or revoke any public

water system permit pursuant to Article 8 (commencing with Section 116625), and to issue citations, assess penalties, or issue orders pursuant to Article 9 (commencing with Section 116650). Decisions and actions of the deputy director taken pursuant to Article 5 (commencing with Section 116450) or Article 7 (commencing with Section 116525) are deemed decisions and actions taken, but are not subject to reconsideration, by the State Water Resources Control Board. Decisions and actions of the deputy director taken pursuant to Article 8 (commencing with Section 116625) and Article 9 (commencing with Section 116650) are deemed decisions and actions taken by the State Water Resources Control Board, but any aggrieved person may petition the State Water Resources Control Board for reconsideration of the decision or action. This subdivision is not a limitation on the State Water Resources Control Board's authority to delegate any other powers and duties.

Section 116555 states in relevant part:

(a) Any person who owns a public water system shall ensure that the system does all of the following:

(1) Complies with primary and secondary drinking water standards.

(2) Will not be subject to backflow under normal operating conditions.

(3) Provides a reliable and adequate supply of pure, wholesome, healthful, and potable water.

Section 116655 states in relevant part:

(a) Whenever the state board determines that any person has violated or is violating this chapter, or any order, permit, regulation, or standard issued or adopted pursuant to this chapter, the state board may issue an order doing any of the following:

(1) Directing compliance forthwith.

(2) Directing compliance in accordance with a time schedule set by the state board.

(3) Directing that appropriate preventive action be taken in the case of a threatened violation.

(b) An order issued pursuant to this section may include, but shall not be limited to, any or all of the following requirements:

(1) That the existing plant, works, or system be repaired, altered, or added to.

(2) That purification or treatment works be installed.

(3) That the source of the water supply be changed.

(4) That no additional service connection be made to the system.

(5) That the water supply, the plant, or the system be monitored.

(6) That a report on the condition and operation of the plant, works, system, or water supply be submitted to the state board.

Section 116725 states in relevant part:

a) Any person who knowingly makes any false statement or representation in any application, record, report, or other document submitted, maintained, or used for purposes of compliance with this chapter, may be liable, as determined by the court, for a civil penalty not to exceed five thousand dollars ($5,000) for each separate violation or, for continuing violations, for each day that violation continues.

(b) Any person who violates a citation schedule of compliance for a primary drinking water standard or any order regarding a primary drinking water standard or the requirement that a reliable and adequate supply of pure, wholesome, healthful, and potable water be provided may be liable, as determined by the court, for a civil penalty not to exceed twenty-five thousand dollars ($25,000) for each separate violation or, for continuing violations, for each day that violation continues.
(c) Any person who violates any order, other than one specified in subdivision (b), issued pursuant to this chapter may be liable, as determined by the court, for a civil penalty not to exceed five thousand dollars ($5,000) for each separate violation or, for continuing violations, for each day that violation continues.
d) Any person who operates a public water system without a permit issued by the department pursuant to this chapter may be liable, as determined by the court, for a civil penalty not to exceed twenty-five thousand dollars ($25,000) for each separate violation or, for continuing violations, for each day that violation continues.
(e) Each civil penalty imposed for any separate violation pursuant to this section shall be separate and in addition to any other civil penalty imposed pursuant to this section or any other provision of law.

California Code of Regulations, Title 22 (CCR):

Section 64652 states in relevant part:
(a) A supplier using an approved surface water shall provide multibarrier treatment that meets the requirements of this chapter and reliably ensures at least, between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer:

(1) A total of 99.9 percent reduction of *Giardia lamblia* cysts through filtration and disinfection;

(2) A total of 99.99 percent reduction of viruses through filtration and disinfection; and

(3) A total of 99 percent removal of *Cryptosporidium* through filtration.

(b) A supplier meeting the requirements of section 64654 in combination with either section 64652.5 or 64653 shall be deemed to be in compliance with the minimum reduction requirements specified in subsections (a)(1) and (a)(2).
(c) A supplier meeting the requirements of section 64652.5 or 64653 shall be deemed to be in compliance with the minimum removal requirement specified in subsection (a)(3).

Section 64653 states in relevant part:
(a) All approved surface water utilized by a supplier shall be treated using one of the following filtration technologies unless an alternative process has been approved by the State Board pursuant to subsections (e), (f), (g) and (h):

(1) Conventional filtration treatment;

(2) Direct filtration treatment;

(3) Diatomaceous earth filtration; or

(4) Slow sand filtration.

(b) Conventional filtration treatment shall be deemed to be capable of achieving at least 99.7 percent removal of *Giardia lamblia* cysts, 99 percent removal of viruses, and 99 percent removal of *Cryptosporidium* when in compliance with operating criteria specified in section 64660 and performance standards specified in table 64653. Direct filtration treatment, diatomaceous earth filtration, and slow sand filtration shall be deemed to be capable of achieving at least 99 percent removal of *Giardia lamblia* cysts, 90 percent removal of viruses, and 99 percent removal of

Cryptosporidium when in compliance with operating criteria specified in section 64660 and performance standards specified in table 64653.

(c) A supplier shall comply with the combined filter effluent turbidity performance standards in table 64653 for each treatment plant while the plant is in operation:

Table 64653
Combined Filter Effluent Turbidity Performance Standards[(a)]

If a supplier uses...	*The turbidity level of the combined filter effluent...*
(1) Conventional or direct filtration treatment and serves 10,000 or more persons	(A) Shall be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month; (B) Shall not exceed 1 NTU for more than one continuous hour; (C) Shall not exceed 1 NTU at four-hour intervals; and (D) Shall not exceed 1.0 NTU for more than eight consecutive hours.
(2) Conventional or direct filtration treatment and serves fewer than 10,000 persons	(A) Shall be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month; (B) For a supplier using a grab sample monitoring program: 1. Shall not exceed 1 NTU; and 2. Shall not exceed 1.0 NTU in more than two consecutive samples; and (C) For a supplier using a continuous monitoring program: 1. If recording results at least once every 15 minutes, shall comply with paragraph (1)(B); and 2. Shall comply with paragraphs (1)(C) and (1)(D).
(3) Diatomaceous earth filtration	(A) Shall be less than or equal to 0.5 NTU in at least 95 percent of the measurements taken each month; (B) Shall not exceed 5.0 NTU; (C) For a supplier using a grab sample monitoring program, shall comply with paragraph (2)(B)2; and (D) For a supplier using a continuous monitoring program, shall comply with paragraph (1)(D).
(4) Slow sand filtration	(A) Shall be less than or equal to 1.0 NTU in at least 95 percent of the measurements taken each month. Filtered water from the treatment plant may exceed 1.0 NTU, provided the filter effluent prior to disinfection meets the maximum contaminant level for total coliforms as specified in 22 CCR section 64426.1; and (B) Shall not exceed 5.0 NTU.

(a) If there is only one filter at the treatment plant, the combined filter effluent turbidity performance standards shall apply to the effluent produced by the filter.

Section 64654 states in relevant part:

(a) All approved surface water utilized by a supplier shall be provided with continuous disinfection treatment sufficient to insure that the total treatment process provides inactivation of *Giardia lamblia* cysts and viruses, in conjunction with the removals obtained through filtration, to meet the reduction requirements specified in section 64652(a).

Section 64660 states in relevant part:

(a) All treatment plants utilizing an approved surface water shall be operated by operators certified by the State Board in accordance with Health and Safety Code section 106885.

(b) Filtration facilities shall be operated in accordance with the following requirements:

(1) Conventional and direct filtration treatment plants shall be operated at filtration rates not to exceed 3.0 gallons per minute per square foot (gpm/sq. ft.) for single media filters and 6.0 gpm/sq. ft. for deep bed, dual

or mixed media filters under gravity flow conditions. For pressure filters, filtration rates shall not exceed 2.0 gpm/sq. ft. for single media filters and 3.0 gpm/sq. ft. for dual, mixed media, or deep bed filters;

(2) Slow sand filters shall be operated at filtration rates not to exceed 0.10 gallon per minute per square foot. The filter bed shall not be dewatered except for cleaning and maintenance purposes;

(3) Diatomaceous earth filters shall be operated at filtration rates not to exceed 1.0 gallon per minute per square foot;

(c) Disinfection facilities shall be operated in accordance with the following requirements:

(1) A supply of chemicals necessary to provide continuous operation of disinfection facilities shall be maintained as a reserve or demonstrated to be available; and

(2) An emergency plan shall be developed prior to initiating operation of the disinfection facilities. The plan shall be implemented in the event of disinfection failure to prevent delivery to the distribution system of any undisinfected or inadequately disinfected water. The plan shall be posted in the treatment plant or other place readily accessible to the plant operator.

ATTACHMENT 2

PROOF OF NOTIFICATION

PROOF OF NOTIFICATION

Name of Water System: **Trask Scout Reservation**

System Number: 1900569

Certification of Notification for
Surface Water Treatment Rule Violation

As required by *California Code of Regulations,* Title 22, I notified the users of the water supplied by the Trask Scout Reservation of the violation of Sections 64652(a) and 64654 (a) of Title 22, *California Code of Regulations.* I complied with the requirement to conduct public notification as indicated below:

Required Action (indicate all that were used)	Date Completed
Public Notification – Hand Delivery	
Public Notification - Mail Delivery	
Public Notification – Continuous Posting	
Public Notification - Consumer Confidence Report	
Public Notification - Other method Specify other method used: _____	

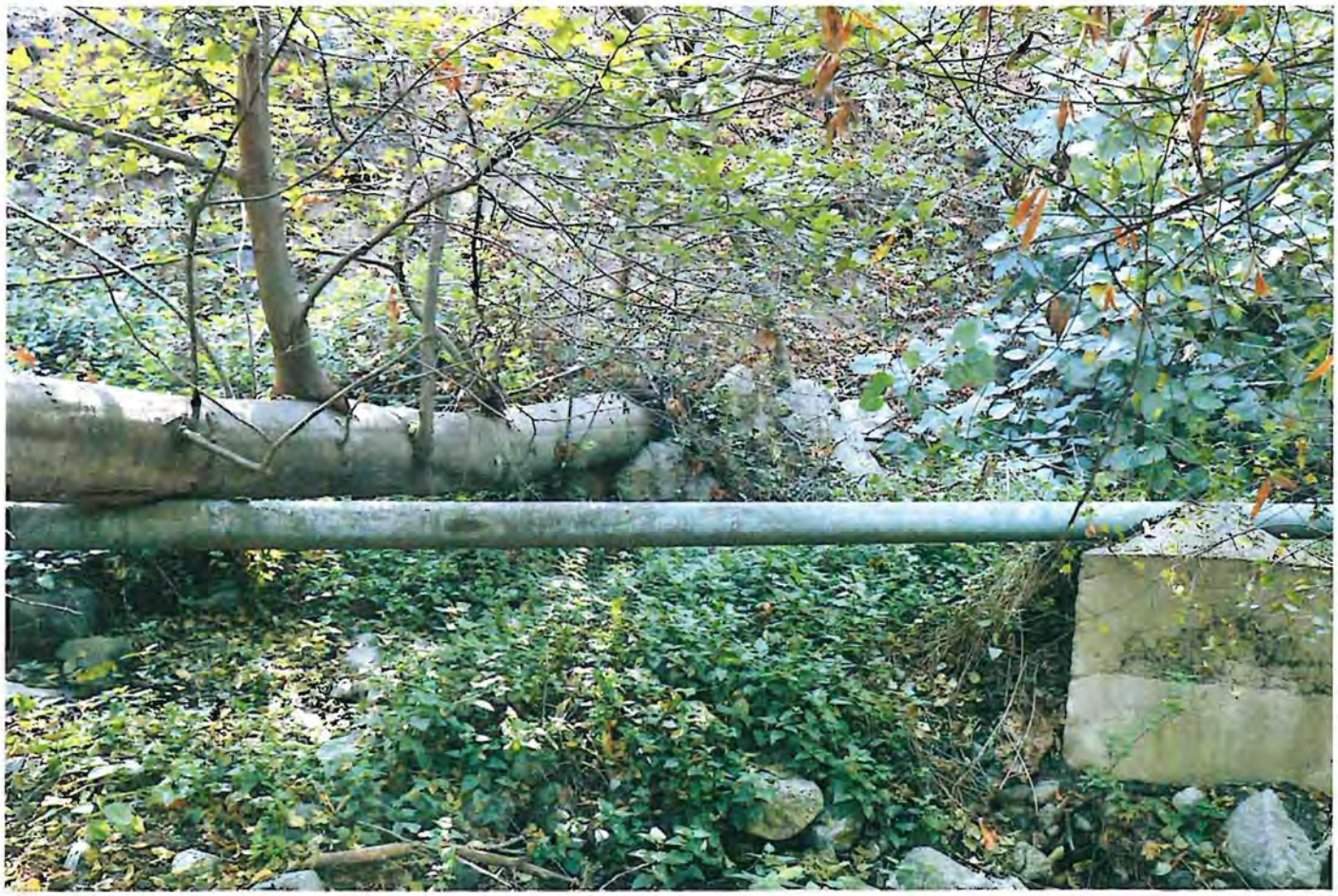
_____ _____

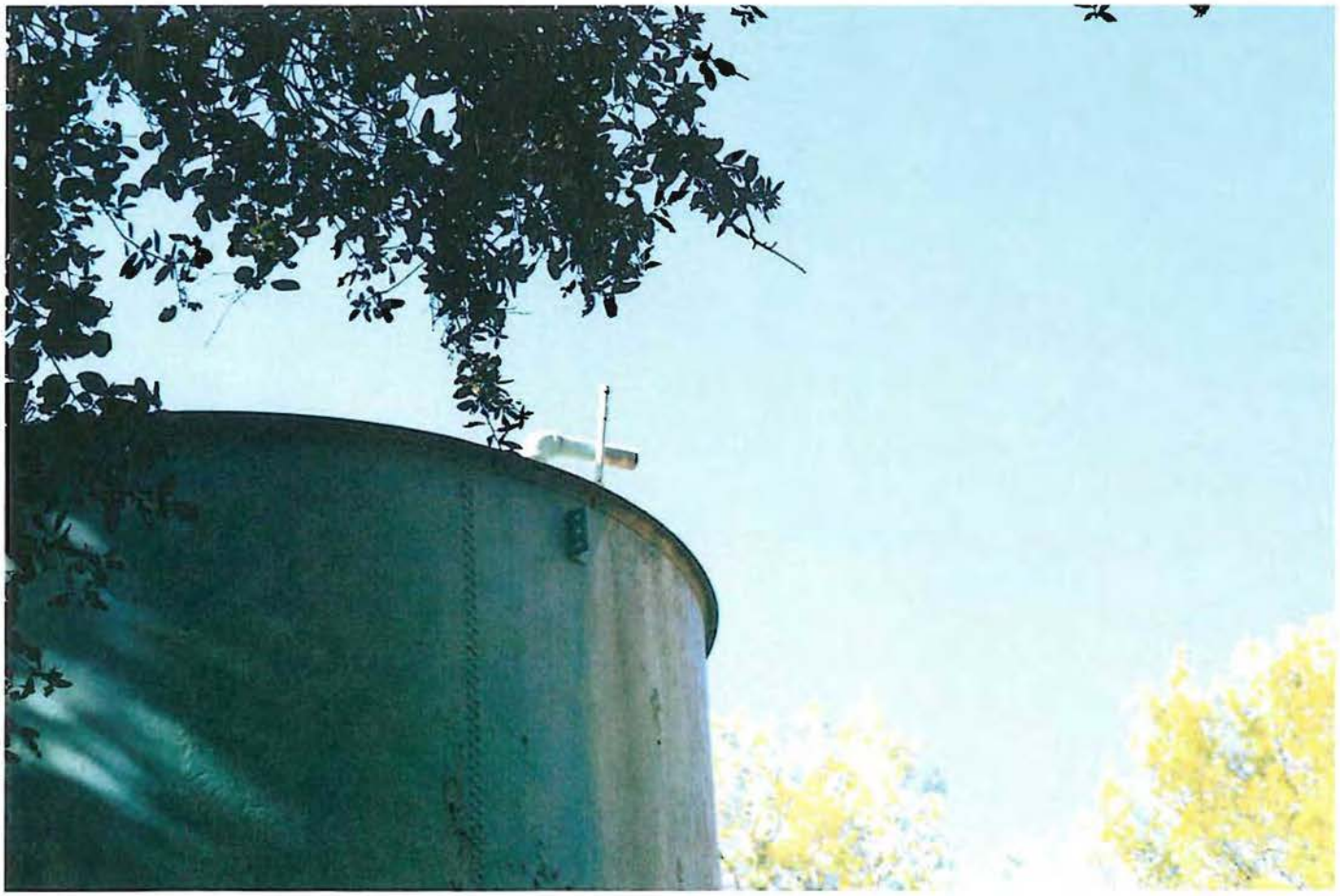
Signature of Water System Representative Date

ATTACH A COPY OF THE NOTICE USED.

THIS FORM MUST BE COMPLETED AND RETURNED TO THE DIVISION

Photos





Appendix B

Lab Reports – Raw Water Quality

(April 2019)

eurofins | Eaton Analytical

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

ilac-MRA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
AT-1807

Laboratory Report

for

Boy Scouts of America
3450 E. Sierra Madre Blvd.
Pasadena, CA 91107-1934
Attention: Anthony Villalobos
Fax: 626-351-5049

Date of Issue
04/15/2019

Linda Geddes
EUROFINS EATON
ANALYTICAL, LLC

LXG: Linda Geddes
Project Manager

NELAP RECOGNIZED TNI ACCREDITATION BODY

Utah ELCP CA00006

Report: 799734
Project: SPECIAL
Group: NO3, Coliforms

* Accredited in accordance with TNI 2009 and ISO/IEC 17025:2005.
* Laboratory certifies that the test results meet all **TNI 2009 and ISO/IEC 17025:2005** requirements unless noted under the individual analysis.
* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.
* Test results relate only to the sample(s) tested.

eurofins | Eaton Analytical

STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	Mississippi	Certified
Arizona	AZ0778	Montana	Cert 0035
Arkansas	Certified	Nebraska	Certified
California-Monrovia-ELAP	2813	Nevada	CA000062018
California-Colton- ELAP	2812	New Hampshire *	2959
Colorado	Certified	New Jersey *	CA 008
Connecticut	PH-0107	New Mexico	Certified
Delaware	CA 006	New York *	11320
Florida *	E871024	North Carolina	06701
Georgia	947	North Dakota	R-009
Guam	18-005R	Oregon *	CA200003-005
Hawaii	Certified	Pennsylvania *	68-565
Idaho	Certified	Puerto Rico	Certified
Illinois *	200033	Rhode Island	LAO00326
Indiana	C-CA-01	South Carolina	87016
Iowa - Asbestos	413	South Dakota	Certified
Kansas *	E-10268	Tennessee	TN02839
Kentucky	90107	Texas *	T104704230-17-13
Louisiana *	LA180000	Utah (Primary AB) *	CA00006
Maine	CA0006	Vermont	VT0114
Maryland	224	Virginia *	460260
Commonwealth of Northern Marianas Is.	MP0004	Washington	C838
Massachusetts	M-CA006	EPA Region 5	Certified
Michigan	9906	Los Angeles County Sanitation Districts	10264

* NELAP/TNI Recognized Accreditation Bodies

Eurofins Eaton Analytical, LLC
750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3629
T | 626-386-1100
F | 866-988-3757
www.EurofinsUS.com/Eaton

ISO 17025 Accredited Method List

The tests listed below are accredited and meet the requirements of ISO 17025 as verified by the ANSI-ASQ National Accreditation Board/ANAB. Refer to Certificate and scope of accreditation (AT 1807) found at: http://www.eatonanalytical.com

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,2,3-TCP (5 PPT & 0.5 PPT)	CA SRL 524M-TCP	x		x
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Algal Toxins/Microcystin	In House Method (3570)			
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D Palin Test	x		x
Chlorine -Total/Free/ Combined Residua	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Glyphosate	EPA 547	x		x
Glyphosate + AMPA	In House Method (3618)	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	Legiolert	x		x
Mercury	EPA 245.1	x	x	x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
Microcystin, Total	EPA 546	x		x
NDMA	EPA 521 In house method (2425)	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphorous	SM 4500P E	x		x
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
Perfluorinated Polutant	In house Method (2434)	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-$S^{=}$ D		x	
Sulfite	SM 4500-SO^{3}B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure SM 9223	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Triazine Pesticides & Degradates	In House (3617)	x		x
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x

eurofins | Eaton Analytical

Acknowledgement of Samples Received

Addr: **Boy Scouts of America**
3450 E. Sierra Madre Blvd.
Pasadena, CA 91107-1934

Client ID: BOYSCOUTS-SG
Folder #: 799734
Project: SPECIAL
Sample Group: NO3, Coliforms

Attn: Anthony Villalobos
Phone: 626-359-4949

Project Manager: Linda Geddes
Phone: (626) 386-1163

The following samples were received from you on **April 09, 2019** at **0834**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical, LLC.

Sample #	Sample ID	Sample Date
201904090045	Upstream	04/09/2019 0645
	@ANIONS48 @COLI-18	
201904090046	Downstream	04/09/2019 0705
	@COLI-18	

Test Description

@ANIONS48 -- Nitrate, Nitrite by EPA 300.0

@COLI-18 -- Coliform,Pres/Absence,18 Hours

eurofins | Eaton Analytical

CHAIN OF CUSTODY RECORD

799734
798425 JJ 4/15/19

750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3629

Phone: 626 386 1100
Fax: 626 386 1101

800 566 LABS (800 566 5227)

Website: www.EatonAnalytical.com

EUROFINS EATON ANALYTICAL USE ONLY:

LOGIN COMMENTS: _____ SAMPLES CHECKED AGAINST COC BY: LK

SAMPLES LOGGED IN BY: JS

SAMPLE TEMP RECEIVED AT: SAMPLES REC'D DAY OF COLLECTION? ✓ (check for yes)

☐ _____ (Other) IR Gun ID = _____ (Observation= _____ °C) (Corr.Factor _____ °C) (Final = _____ °C)

☒ Monrovia IR Gun ID = 649A (Observation= 5.3 °C) (Corr.Factor -0.3 °C) (Final = 5.0 °C)

Compliance Acceptance Criteria: (Chemistry: 4 ± 2 °C) (Microbiology: < 10°C)

TYPE OF ICE: Real ✓ Synthetic _____ No Ice _____ CONDITION OF ICE: Frozen ✓ Partially Frozen _____ Thawed _____ N/A _____

METHOD OF SHIPMENT: Pick-Up / Walk-In / FedEx / UPS / DHL / Area Fast / Top Line / Other: _____

TO BE COMPLETED BY SAMPLER:

COMPANY/AGENCY NAME:	PROJECT CODE:	COMPLIANCE SAMPLES (check for yes) ☐	NON-COMPLIANCE SAMPLES (check for yes) ☐
Camp Trask GLAAC	1900569	- Requires state forms ☐	REGULATION INVOLVED:
EEA CLIENT CODE: / COC ID:	SAMPLE GROUP:	Type of samples (circle one): ROUTINE SPECIAL CONFIRMATION	(eg. SDWA, NPDES, etc.)
		SEE ATTACHED KIT ORDER FOR ANALYSES ☐ (check for yes), OR	
		List ALL ANALYSES REQUIRED (enter number of bottles sent for each test for each sample)	

TAT requested: rush by adv notice only STD ___ 1 wk ___ 3 day ___ 2 day ___ 1 day ___

SAMPLE DATE	SAMPLE TIME	SAMPLE ID	CLIENT LAB ID	MATRIX *	FIELD DATA	FIELD DATA	A/P	Nitrate												SAMPLER COMMENTS
4/9/19	6:45	upstream A/P 1					X													
4/9/19	6:45	upstream NO 1						X												
4/9/19	7:05	Down stream AP 2					X													

* MATRIX TYPES: RSW = Raw Surface Water; RGW = Raw Ground Water; CFW = Chlor(am)inated Finished Water; FW = Other Finished Water; SEAW = Sea Water; WW = Waste Water; BW = Bottled Water; SW = Storm Water; SO = Soil; SL = Sludge; O = Other - Please Identify

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
SAMPLED BY:		✓ Anthony Villalobos	Site Manager	4/9/19	6:45
RELINQUISHED BY:		✓ Anthony Villalobos	Site Manager	4/9/19	0834
RECEIVED BY:		Lonnie Kukita	EEA	4/9/19	0834
RELINQUISHED BY:					
RECEIVED BY:					

eurofins | Eaton Analytical

Kit Order for Greater Los Angeles Council - BSA

Linda Geddes is your Eurofins Eaton Analytical, LLC Service Manager

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
(626) 386-1100 FAX (866) 988-3757

Note: Sampler Please return this paper with your samples

Kit #: 231218

Created By: Linda Geddes - [LXG]
Deliver By: 04/01/2019
STG: Bottle Orders
Ice Type: W

Client ID: BOYSCOUTS-SG
Project Code: LT2-Monitoring Bottle Orders
Group Name: E-COLI Bacteria
PO#/JOB#:
Description: No Schedule

Shipping Method: Pickup by client

Ship Sample Kits to	Send Report to	Billing Address
Boy Scouts of America 3450 E. Sierra Madre Blvd. Pasadena, CA 91107-1934 Attn: Anthony Villalobos Phone: 626-359-4949 Fax: 626-351-5049	Boy Scouts of America 3450 E. Sierra Madre Blvd. Pasadena, CA 91107-1934 Attn: Anthony Villalobos Phone: 626-359-4949 Fax: 626-351-5049	Greater Los Angeles Area Council - BSA 2333 Scout Way Los Angeles, CA 90026 Attn: Accounts Payable Phone: (626) 351-8815 Fax: (626) 351-5049

# of Samples	Tests	Bottle Qty - Type [preservative information]	UN DOT #
1	@QUANT2000-18hr_Ecoli	2 - 100ml poly sterilized [0.25 ml Thio (8%)]	
1	@ANIONS48	1 - 125ml poly [no preservative]	

Comments

CLIENT PICKUP

Code	Status	Date Shipped	Via	Tracking #	# of Coolers	Prepared By

eurofins | Eaton Analytical

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory Comments

Report: 799734
Project: SPECIAL
Group: NO3, Coliforms

Boy Scouts of America
Anthony Villalobos
3450 E. Sierra Madre Blvd.
Pasadena, CA 91107-1934

Folder Comments

Coliform notification to Anthony Villalobos 4/10/19 at 12:08.

The Comments Report may be blank if there are no comments for this report.

eurofins | Eaton Analytical

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory Hits

Report: 799734
Project: SPECIAL
Group: NO3, Coliforms

Boy Scouts of America
Anthony Villalobos
3450 E. Sierra Madre Blvd.
Pasadena, CA 91107-1934

Samples Received on:
04/09/2019 0834

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
	201904090045	**Upstream**				
04/10/2019 11:11	E. coli Bacteria		P	P	PA	
04/09/2019 18:06	Nitrate as Nitrogen by IC		0.69	10	mg/L	0.10
04/09/2019 18:06	Nitrate as NO3 (calc)		3.1	45	mg/L	0.44
04/10/2019 11:11	Total Coliform Bacteria		P		PA	
	201904090046	**Downstream**				
04/10/2019 11:11	E. coli Bacteria		P	P	PA	
04/10/2019 11:11	Total Coliform Bacteria		P		PA	

SUMMARY OF POSITIVE DATA ONLY

eurofins | Eaton Analytical

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory Data

Report: 799734
Project: SPECIAL
Group: NO3, Coliforms

Boy Scouts of America
Anthony Villalobos
3450 E. Sierra Madre Blvd.
Pasadena, CA 91107-1934

Samples Received on:
04/09/2019 0834

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
Upstream (201904090045)						**Sampled on 04/09/2019 0645**			
		SM9223 - Coliform,Pres/Absence,18 Hours							
04/09/19	04/10/19 11:11	1163681	1163864	(SM9223)	E. coli Bacteria	P	PA		1
04/09/19	04/10/19 11:11	1163681	1163864	(SM9223)	Total Coliform Bacteria	P	PA		1
		EPA 300.0 - Nitrate, Nitrite by EPA 300.0							
	04/09/19 18:06		1163588	(EPA 300.0)	Nitrate as Nitrogen by IC	0.69	mg/L	0.1	1
	04/09/19 18:06		1163588	(EPA 300.0)	Nitrate as NO3 (calc)	3.1	mg/L	0.44	1
Downstream (201904090046)						**Sampled on 04/09/2019 0705**			
		SM9223 - Coliform,Pres/Absence,18 Hours							
04/09/19	04/10/19 11:11	1163681	1163864	(SM9223)	E. coli Bacteria	P	PA		1
04/09/19	04/10/19 11:11	1163681	1163864	(SM9223)	Total Coliform Bacteria	P	PA		1

Rounding on totals after summation.
(c) - Indicates calculated results

eurofins | Eaton Analytical

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory QC Summary

Report: 799734
Project: SPECIAL
Group: NO3, Coliforms

Boy Scouts of America

Nitrate, Nitrite by EPA 300.0

Analytical Batch: 1163588 — **Analysis Date: 04/09/2019**

201904090045	Upstream	Analyzed by: TR7W

Coliform,Pres/Absence,18 Hours

Prep Batch: 1163681 **Analytical Batch: 1163864** — **Analysis Date: 04/10/2019**

201904090045	Upstream	Analyzed by: XBL3
201904090046	Downstream	Analyzed by: XBL3

eurofins | Eaton Analytical

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory QC

Report: 799734
Project: SPECIAL
Group: NO3, Coliforms

Boy Scouts of America

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
Nitrate, Nitrite by EPA 300.0 by EPA 300.0									
Analytical Batch: 1163588							**Analysis Date: 04/09/2019**		
LCS1	Nitrate as Nitrogen by IC		2.5	2.53	mg/L	101	(90-110)		
LCS2	Nitrate as Nitrogen by IC		2.5	2.53	mg/L	101	(90-110)	20	0.0
MBLK	Nitrate as Nitrogen by IC			<0.05	mg/L				
MRL_CHK	Nitrate as Nitrogen by IC		0.05	0.0477	mg/L	95	(50-150)		
MRLLW	Nitrate as Nitrogen by IC		0.013	0.0129	mg/L	103	(50-150)		
MS_201904010339	Nitrate as Nitrogen by IC	2.4	2.6	5.00	mg/L	104	(80-120)		
MS_201904080696	Nitrate as Nitrogen by IC	ND	6.5	6.63	mg/L	106	(80-120)		
MSD_201904010339	Nitrate as Nitrogen by IC	2.4	2.6	5.05	mg/L	106	(80-120)	20	0.98
MSD_201904080696	Nitrate as Nitrogen by IC	ND	6.5	6.58	mg/L	105	(80-120)	20	0.76

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

eurofins | Eaton Analytical

Laboratory Report: 799734

Report of Analysis by 18-Hour Colilert Test for Presence or Absence of Total Coliform and E.Coli

Boy Scouts of America
3450 E. Sierra Madre Blvd.
Pasadena, CA 91107-1934
Attn: Anthony Villalobos

Project: SPECIAL
Phone #: 626-359-4949
Date Received: 04/09/2019
Sampled By:
Sample Project Group: NO3, Coliforms

Date/Time Sampled	Date/Time Prepped	Date/Time Analyzed	Lab#	Sample Description	Presence/Absence (P/A)* Total Coliform	E. Coli
04/09/2019 06:45	04/09/2019 14:40	04/10/2019 11:11	201904090045	Upstream	P	P
04/09/2019 07:05	04/09/2019 14:40	04/10/2019 11:11	201904090046	Downstream	P	P

Lab Notification:
Coliform notification to Anthony Villalobos 4/10/19 at 12:08.

*** Presence or absence of coliforms or growth is indicated as follows:**
P = Presence; A = Absence

Notification Required YES

Approved by _____

Date of Issue: 04/15/2019

Colilert Report - Page 1 of 1

Appendix C

Condition Based Assessment

LOCATION / ITEM: Stream Pickup Collection

Description: The existing WTP originally draws water from the concrete box structure (Figure 1) through a 4-inch steel pipe. The concrete structure appears to be intact and in good condition.

Staff mentioned that the intake filter in the concrete box was dug out and damaged. Staff now relies on a temporary pump system (Figure 2 and 4). The pump is a ¾ horsepower Flotec pump (Figure 3).

Rehabilitation to the concrete box structure should be made to unclog the settled gravel and silts, and to reinstall the intake filter.

Figure 1. Concrete box structure

Figure 2. Temporary pumping system

Figure 3. ¾ HP Flotec pump

Figure 4. Temporary pumping system

LOCATION / ITEM: Transmission Line

Description: Existing 4-inch steel transmission line appears to be intact and in good condition. One of the trees within the area fell onto the steel pipe (Figure 2). However, the pipe still remains intact and shows no signs of weakness.

Figure 1. 4-inch pipe near concrete box structure

Figure 2. Fallen tree on 4-inch pipe near concrete box structure

Figure 3. Steel pipe, east of pretreatment

Figure 4. Steel pipe leading to sand filter

LOCATION / ITEM: Pretreatment System

Description: Pretreatment system has been out of service since 2017. The system consisted of a rapid sand filter, cartridge filter, and a diatomaceous filter. The system provided no log removal of contaminants as mentioned in DDW assessment. System to be removed as part of the improvements.

Figure 1. Pretreatment system

Figure 2. Rapid sand filter from pretreatment system

Figure 3. Cartridge filter from pretreatment system

Figure 4. Diatomaeceous filter from pretreatment system

LOCATION / ITEM: Slow Sand Filtration

Description: Slow sand filtration has been out of service since 2017. The sand filter is approximately 10’ L x 10’ W and is formed within a concrete box with conduits to distribute the flow throughout the filter. Concrete box is in good condition. Conduits within filter is rusted and showing deterioration. Inlet and outlet pipes appear to be in good condition.

Figure 1. Slow sand filtration

Figure 2. Pipes and conduits in filtration are rusted

Figure 3. Inlet pipe going into the slow sand filter

Figure 4. Outlet pipe to clearwell (center) and discharge to creek (right)

LOCATION / ITEM: Clearwell / Pump House

Description: The house is approximately 25’ west of the slow sand filter. The house sits above clear well. The clear well is approximately 12’ L x 12’ W x 4.75’ H (inner dimensions) providing a volume of 3,500 – gallon volume. The house extends an additional 7’ above the clear well. Steel stairs lead to the main entrance to the house. The entire house is structurally sound. The exterior of the clearwell shows residual stains (Figure 1). The house includes the 15 HP booster pump (Figure 3), water monitoring and test station (Figure 4), floatation sensor (Figure 5) and access to the clearwell (Figure 6). Existing booster pump shows rust on the exterior base, however it still performs wells with no distress.

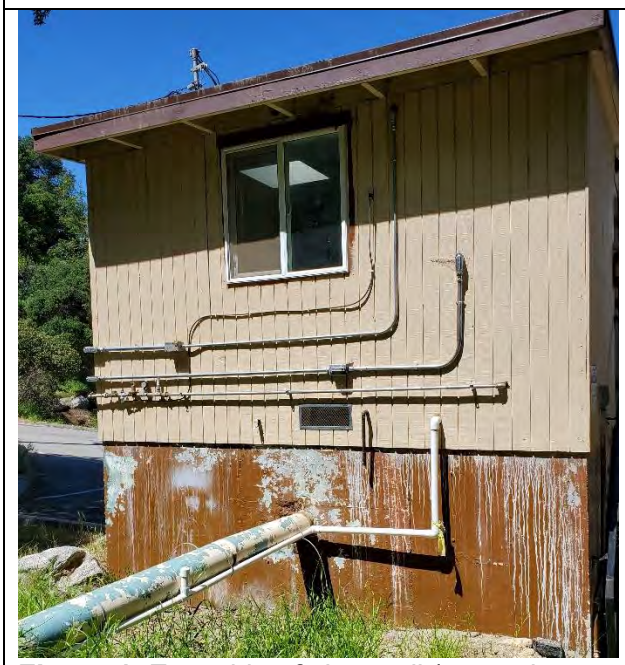


Figure 1. East side of clearwell / pump house with inlet pipe into clearwell

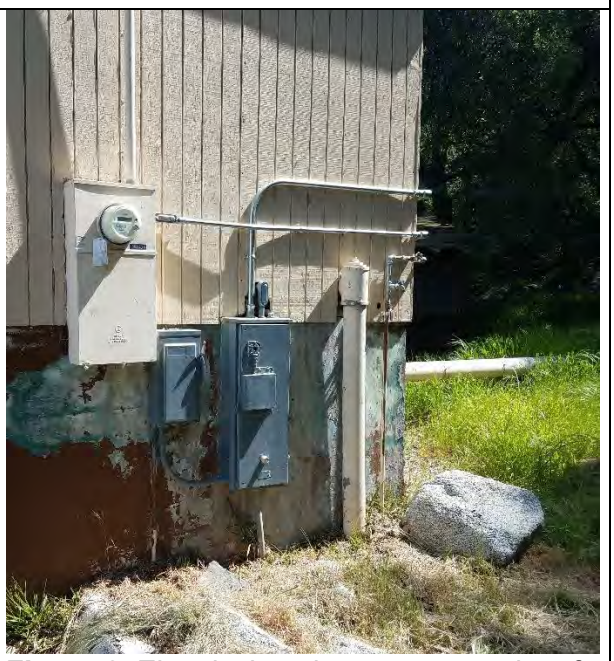


Figure 2. Electrical equipment on exterior of clearwell / pump house

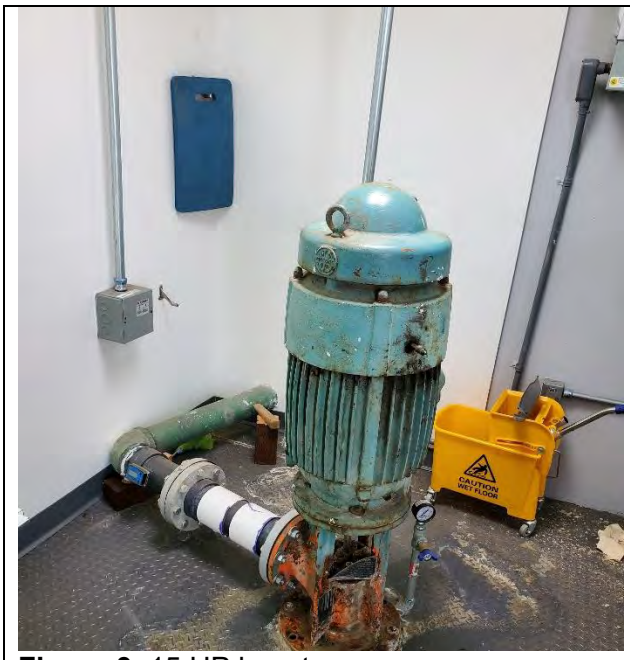


Figure 3. 15 HP booster pump

Figure 4. Instrument and water monitoring equipment

Figure 5. Floation sensor

Figure 6. 3,500-gallon clearwell

LOCATION / ITEM: Water Distribution System

Description: The existing distribution system is standalone and does not connect to the City of Monrovia's system. Staff mentioned no issues with the system (no leaks, breaks, pressure issues, etc.) The system has 8 unmetered services and 10 fire hydrants. Some fire hydrants up the hill appears to be bent. Small portion of the 4-inch main leading to the reservoir is exposed and is visible along the vehicle path.

Figure 1. Fire Hydrant

Figure 2. 4-inch line leading to reservoir

Figure 3. Water control valves

Figure 4. Fire Hydrant

LOCATION / ITEM: Storage Reservoir

Description: The existing tank has a capacity of 25,000 gallons. It is placed approximately 250-feet above the Trask facilities. The tank is secured to a concrete foundation. Foundation shows no cracking or distress. Portions of the exterior shows rust and deterioration. However, no leaks were observed. Piping leading to the tank appears in good condition.

Figure 1. Storage tank

Figure 2. Inlet/outlet pipe for storage tank

Figure 3. Rusting on exterior of tank

Figure 4. Discharge outlet

Appendix D

CSWTR – Alternative Filtration Technology Summary California Department of Public Health Division of Drinking Water and Environmental Management Technical Programs Branch

California Surface Water Treatment Rule
Alternative Filtration Technology - Membrane Filtration
SWRCB-DDW Water Treatment Committee - June 2018

Manufacturer	Model	Type	Pathogen Removal Standards (log credit)			Turbidity Standards		Conditions During Demonstration	
			Virus	Giardia	Crypto	95% of time	Max	Max Flux Lph/m2 (gfd)	Max TMP (psi)
Aquasource	Advent	UF	4, *	4	4	0.1 NTU	0.5 NTU	136 (80)	29
BASF Inge	D5000	UF	3.5, *	4	4	0.1 NTU	0.5 NTU	156 (92)	29
Dow	UF SFX2860	UF	2.5, *	4	4	0.1 NTU	0.5 NTU	102 (60)	30
Evoqua (formerly Siemens, who acquired US Filter)	Memcor PVdF (S10V, L10V, L20V)	UF	1.5, *	4	4	0.1 NTU	0.5 NTU	88 (52)	22
	PVdF	MF	0.5, *	3.5	4	0.1 NTU	0.5 NTU	85 (50)	29
	L10N, L20N, S10N	UF	1, *	4	4	0.1 NTU	0.5 NTU	263 (155)	22 (L10N, L20N) 12.3 (S10N)
	Polypropylene (M10B, M10C, S10T)	MF	0.5, *	4	4	0.1 NTU	0.5 NTU	110 (66.9)	15
		MF	0, *	4	4	0.1 NTU	0.5 NTU	160 (93.6)	17
GE Zenon	Homespring UF211	UF	3.5, *	4	4	0.1 NTU	0.5 NTU	93.4 (55)	20
	ZeeWeed 500 series	UF	2, *	4	4	0.1 NTU	0.5 NTU	85 (49.8)	11.8
	ZeeWeed 1000 V2 & V3	UF	3.5, *	4	4	0.1 NTU	0.5 NTU	93.4 (55)	12 (vac)
	ZeeWeed 1000 V4	UF	1, *	4	4	0.1 NTU	0.5 NTU	102 (60)	13
	ZeeWeed 1500 ZeeWeed 1500-600 CPX	UF	1, *	4	4	0.1 NTU	0.5 NTU	170 (100)	45
Hydranautics	HYDRAcap	UF	4, *	4	4	0.1 NTU	0.5 NTU	119 (69.3)	18
Koch	PMPW	UF	4, *	4	4	0.1 NTU	0.5 NTU	173 (102)	35
METAWATER (NGK)	431011	UF	*	4	4	0.1 NTU	0.5 NTU	(175)	55
Norit X-Flow	S 225	UF	*	4	4	0.1 NTU	0.5 NTU	127.3 (75)	31
	SXL-225	UF	*	4	4	0.1 NTU	0.5 NTU	127.3 (75)	31
Pall	Microza USV 6203 Microza USV 5203 Microza UNA 620A	MF	0.5 *	4	4	0.1 NTU	0.5 NTU	203.7 (120)	43.5
	UNA 620A1	UF	4, *	4	4	0.1 NTU	0.5 NTU	102 (60)	51
Seccua	SeccuMem Pro 1000	UF	1, *	4	4	0.1 NTU	0.5 NTU	90 (53)	36
Toray (Torayfil)	HFS-2020	UF	1.5, *	4	4	0.1 NTU	0.5 NTU	202 (120)	29
	LSU-1515	UF	1.5, *	4	4	0.1 NTU	0.5 NTU	83 (49)	10
Toyobo	Durasep (UPF0860, UPF0870)	UF	1.5, *	4	4	0.1 NTU	0.5 NTU	119 (70)	35
WesTech Polymem	120S2	UF	*	4	4	0.1 NTU	0.5 NTU	45 (27)	21

Note *: Although virus removal may have been successfully demonstrated and accepted by DDW in the past, each plant is required to provide a minimum of 0.5-log Giardia and 4-log virus inactivation through disinfection. Credit for virus removal cannot be demonstrated on a daily basis currently via pressure decay testing per the USEPA Membrane Filtration Guidance manual.

California Surface Water Treatment Rule
Alternative Filtration Technology Summary - Membrane Filtration
SWRCB-DDW Water Treatment Committee - June 2018

Manufacturer	Model	Type	Pathogen Removal Standards (log credit)			Turbidity Standards		Conditions During Demonstration			Note
			Virus	Giardia	Crypto	95% of time	Max	Max Flux (gfd)	Max TMP (psi)	Source	
Dow	Filmtec SW30HR LE-440i	RO	2	2	2	**	**	**	**	Agua Hedionda Lagoon (WSS available at Poseidon - Carlsbad)	Pathogen removal credit was given based on successful demonstration of 2-log removal of TDS. Data obtained from system permit amendment.
GE	SeaTECH-84	RO	2	2	2	**	**	**	**	Catalina Island Seawater Wells	Pathogen removal credit was given based on successful demonstration of 2-log removal of TDS. Data obtained from system permit amendment.
	Desal DK 5	RO	2	3	5	< 0.1 NTU				Putah South Canal	Data obtained from 2001 AFT Demo Report.

** Note: The RO membranes were permitted on a case by case basis using a successful demonstration study. No conditional acceptance letter was issued.

Guidance:
Membrane technologies are considered as "alternative processes", and require demonstrations to DDW that these technologies meet pathogen removal and turbidity standards.
The demonstrations include a pilot plant test, or prior demnstration test by manufacturer or other utility.
The Alternative Filtration Technology (AFT) Tables are thus created to help staff evaluate treatment proposals using membrane technologies.
Membranes that have been pilot tested and conditionally or fully approved are tabulated in the AFT Tables.
Low pressure filtration processes using microfiltration or ultrafiltration membranes are grouped in one table.
High pressure filtration processes using reverse osmosis membranes are grouped in the other table.

Title 22, CCR, Section 64653(f), the demonstration shall be based on a testing of a full scale installation that is treating a water with similar characteristics and is exposed to similar hazards as the water proposed for treatment.

The revised AFT Tables will include for on site demonstrations (RO sytstems) the locations where the membranes were demonstrated, or indicate the sources used during demonstrations.
Staff engineers should examine the source water characteristics and potential health hazards using the locational information before applying the AFT Tables to the proposed treatment.

Appendix G

Opinion of Probable Capital Cost

Trask Scout Reservation					
Water System Rehabilitation & Enhancement Project					
Construction Cost Estimate			Engineers estimate		
Item	Description	Qty	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$30,000	$30,000
2	Site Preparation - Clear and Grubbing	1	LS	$6,000	$6,000
3	Silt removal behind inlet structure including cleanup of raw water collector and disposal of silt on site	1	LS	$35,000	$35,000
4	Removal of Ex. Slow Sand Filter System including pipes/ valves, etc.	1	LS	$10,300	$10,300
5	Removal of Ex. Pre-treatment Facility	1	LS	$2,500	$2,500
6	Removal of Ex. 25,000 gal Steel Tank, associated piping, tie-ins, etc.	1	LS	$11,200	$11,200
7	Potholing Ex. Utilities (assume 8)	1	LS	$10,800	$10,800
8	Package pre-treatment and treatment system (skid mounted) metering pumps, air compressor, equipment delivery, unloading, underground piping, and complete installation	1	LS	$220,000	$220,000
9	Piping works from Pump to new package treatment system, including valves and fittings	1	LS	$12,600	$12,600
10	Housing for package treatment system - Outdoor Storage Shed (11 ft x 13. 5 ft) including delivery and installation	1	LS	$6,000	$6,000
11	Install new Analytical Total Chlorine Analizer and Sampling line	1	LS	$13,500	$13,500
12	Reinforced Concrete slab - assumes 12 x15 slab, 8-inch thick	1	LS	$1,500	$1,500
13	Earthworks (Grading) around package treatment system	1	LS	$1,200	$1,200
14	Emergency Generator system with aluminum enclosure including concrete slab. Assume next to the treatment building.	1	LS	$12,000	$12,000
15	Additional booster pump (2 HP) in the wet well - assumes existing booster pump and wet well in good conditions	1	LS	$4,000	$4,000
16	Clearwell - Submersible Electric Mixer with submersible electrical cable and appurtenants	1	EA	$10,000	$10,000
17	Piping works from package treatment system to wet well & new booter pump, and connection to existing water system	1	LS	$15,000	$15,000
18	Install 6 new Fire Hydrants with shut off valves assembly and tie-in to existing 4-inch steel main - Includes excavation, cut in tee, valves, lateral, fire hydrant, backfill, surface restoration. Assumes Ex. Fire Hydrants are in good condition and are to be protectec in place.	6	EA	$10,600	$63,600
19	Install two (2) 50,000 gallon steel bolted tank - assume 17 ft diameter x 32 ft Height	2	EA	$65,000	$130,000
20	Earthworks (Grading) around steel bolted tank	1	LS	$8,400	$8,400
21	Reinforced concrete slab for new steel bolted tank, including excavation.	1	LS	$18,900	$18,900
22	Valves, overflow, fittings, other piping works for steel bolted tank, tie-in to existing 4-inch pipe (ex. System)	1	LS	$16,000	$16,000
23	Install two (2) additional water fountains at ranger's station	2	EA	$2,500	$5,000
24	Laboratory Works	1	LS	$20,000	$20,000
25	Erosion and Sediment Control Measures (BMPs)	1	LS	$3,500	$3,500
26	Demolition - Electrical (pump house / wet well,	1	LS	$5,000	$5,000
27	PLC	1	LS	$9,000	$9,000
28	Temporary Power and Controls	1	LS	$2,000	$2,000
29	Power Distribution & Lighting	1	LS	$4,000	$4,000
30	Conduits and Wires (Communications between tank, pumps, wet well, treatment system)	1	LS	$15,000	$15,000
31	Other Electrical labor and Miscellaneous Materials	1	LS	$5,000	$5,000
32	Start-Up & Testing, Manuals, and Traning	1	LS	$8,000	$8,000
OPTIONAL					
1	Removal of fallen tree over existing water	1	LS	$3,500	$3,500
2	Landscaping	1	LS	$8,500	$8,500
3	Install 6 ft chain link fence around stee bolted tank	140	LF	$40	$5,600
			Subtotal		$732,600
			30% Contingency		$219,780.00
			Total Construction Cost		**$952,380**

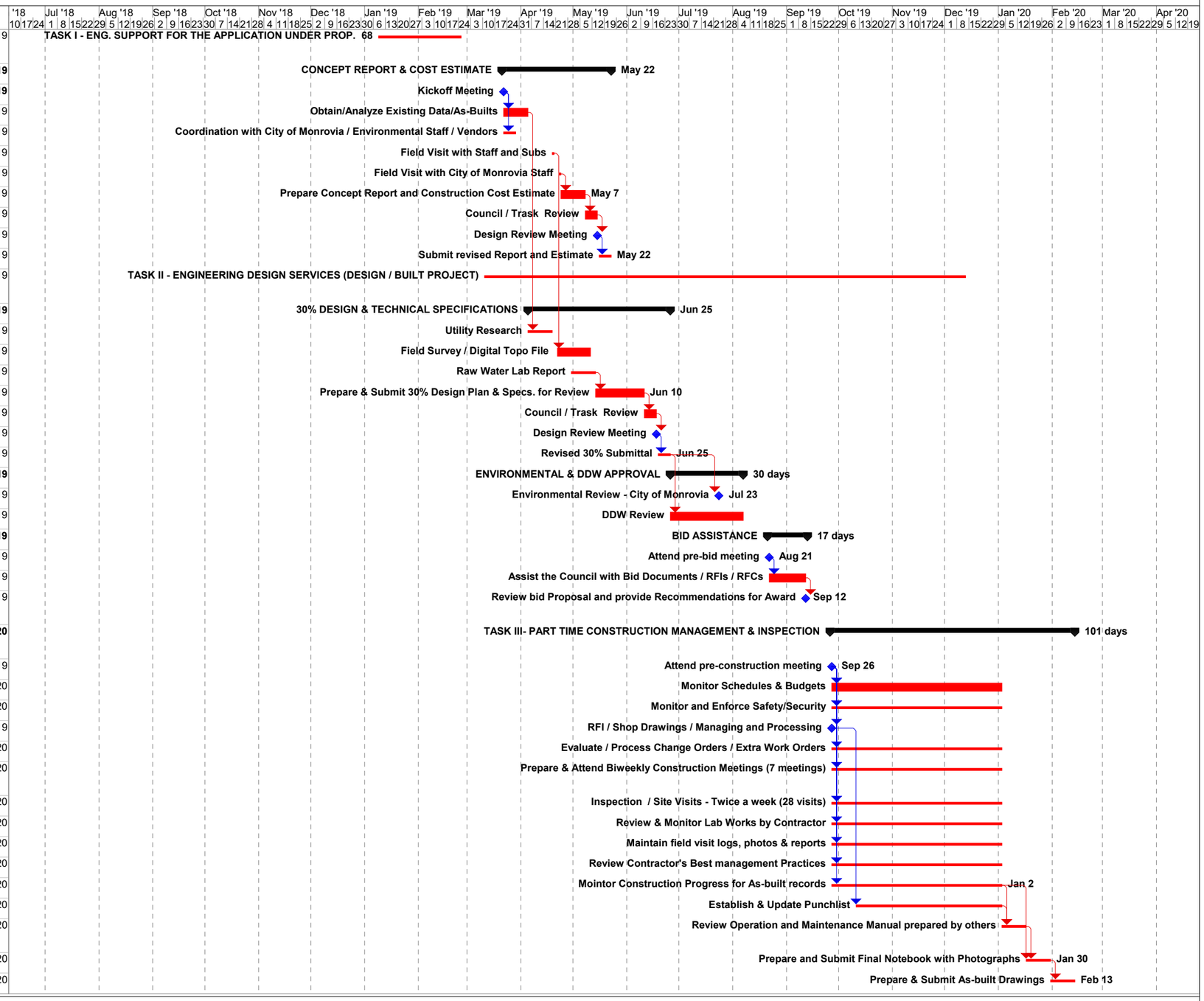
Appendix H

Project Schedule

SA ASSOCIATES

BOY SCOUTS OF AMERICA - GREATER LOS ANGELES AREA COUNCIL
TRASK SCOUT RESERVATION WATER SYSTEM REHABILITATION AND ENHANCEMENT PROJECT
Design & Construction Schedule

ID	Task Name	Duration	Start	Finish
1	***TASK I - ENG. SUPPORT FOR THE APPLICATION UNDER PROP. 68***	33.5 days	Wed 1/9/19	Mon 2/25/19
2	**CONCEPT REPORT & COST ESTIMATE**	**45 days**	**Thu 3/21/19**	**Wed 5/22/19**
3	Kickoff Meeting	**1 day**	**Thu 3/21/19**	**Thu 3/21/19**
4	Obtain/Analyze Existing Data/As-Builts	2 wks	Fri 3/22/19	Thu 4/4/19
5	Coordination with City of Monrovia / Environmental Staff / Vendors	1 wk	Fri 3/22/19	Thu 3/28/19
6	Field Visit with Staff and Subs	1 day	Fri 4/19/19	Fri 4/19/19
7	Field Visit with City of Monrovia Staff	1 day	Tue 4/23/19	Tue 4/23/19
8	Prepare Concept Report and Construction Cost Estimate	2 wks	Wed 4/24/19	Tue 5/7/19
9	Council / Trask Review	1 wk	Wed 5/8/19	Tue 5/14/19
10	Design Review Meeting	1 day	Wed 5/15/19	Wed 5/15/19
11	Submit revised Report and Estimate	1 wk	Thu 5/16/19	Wed 5/22/19
12	***TASK II - ENGINEERING DESIGN SERVICES (DESIGN / BUILT PROJECT)***	199 days	Mon 3/11/19	Thu 12/12/19
13	**30% DESIGN & TECHNICAL SPECIFICATIONS**	**58 days**	**Fri 4/5/19**	**Tue 6/25/19**
14	Utility Research	2 wks	Fri 4/5/19	Thu 4/18/19
15	Field Survey / Digital Topo File	3 wks	Mon 4/22/19	Fri 5/10/19
16	Raw Water Lab Report	2 wks	Tue 4/30/19	Mon 5/13/19
17	Prepare & Submit 30% Design Plan & Specs. for Review	4 wks	Tue 5/14/19	Mon 6/10/19
18	Council / Trask Review	1 wk	Tue 6/11/19	Mon 6/17/19
19	Design Review Meeting	1 day	Tue 6/18/19	Tue 6/18/19
20	Revised 30% Submittal	1 wk	Wed 6/19/19	Tue 6/25/19
21	**ENVIRONMENTAL & DDW APPROVAL**	**30 days**	**Wed 6/26/19**	**Tue 8/6/19**
22	Environmental Review - City of Monrovia	4 wks	Wed 6/26/19	Tue 7/23/19
23	DDW Review	6 wks	Wed 6/26/19	Tue 8/6/19
24	**BID ASSISTANCE**	**17 days**	**Wed 8/21/19**	**Thu 9/12/19**
25	Attend pre-bid meeting	1 day	Wed 8/21/19	Wed 8/21/19
26	Assist the Council with Bid Documents / RFIs / RFCs	3 wks	Thu 8/22/19	Wed 9/11/19
27	Review bid Proposal and provide Recommendations for Award	1 day	Thu 9/12/19	Thu 9/12/19
28	***TASK III- PART TIME CONSTRUCTION MANAGEMENT & INSPECTION***	**101 days**	**Thu 9/26/19**	**Thu 2/13/20**
29	Attend pre-construction meeting	1 day	Thu 9/26/19	Thu 9/26/19
30	Monitor Schedules & Budgets	70 days	Fri 9/27/19	Thu 1/2/20
31	Monitor and Enforce Safety/Security	70 days	Fri 9/27/19	Thu 1/2/20
32	RFI / Shop Drawings / Managing and Processing	10 days	Fri 9/27/19	Thu 10/10/19
33	Evaluate / Process Change Orders / Extra Work Orders	70 days	Fri 9/27/19	Thu 1/2/20
34	Prepare & Attend Biweekly Construction Meetings (7 meetings)	70 days	Fri 9/27/19	Thu 1/2/20
35	Inspection / Site Visits - Twice a week (28 visits)	70 days	Fri 9/27/19	Thu 1/2/20
36	Review & Monitor Lab Works by Contractor	70 days	Fri 9/27/19	Thu 1/2/20
37	Maintain field visit logs, photos & reports	70 days	Fri 9/27/19	Thu 1/2/20
38	Review Contractor's Best management Practices	70 days	Fri 9/27/19	Thu 1/2/20
39	Mointor Construction Progress for As-built records	70 days	Fri 9/27/19	Thu 1/2/20
40	Establish & Update Punchlist	60 days	Fri 10/11/19	Thu 1/2/20
41	Review Operation and Maintenance Manual prepared by others	2 wks	Fri 1/3/20	Thu 1/16/20
42	Prepare and Submit Final Notebook with Photographs	2 wks	Fri 1/17/20	Thu 1/30/20
43	Prepare & Submit As-built Drawings	2 wks	Fri 1/31/20	Thu 2/13/20



Appendix I

Bolted Steel Storage Tank

Tank Selection

TANK CAPACITIES

Superior Tank Co., Inc. knows that your storage needs differ from project to project. Therefore, we offer a wide range of capacities and sizes to fit your needs.

STANDARD BOLTED TANK CAPACITIES*

TANK		HEIGHTS															
		feet	meters	feet	meters	feet	meters	feet	meters	feet	meters	feet	meters	feet	meters	feet	meters
DIAMETERS (FEET)	DIAMETERS (METERS)	8'-1/2"	2.451	16'-1"	4.901	24'-1 1/2"	7.353	32'-2"	9.805	40'-2 1/2"	12.255	48'-3"	14.707	56'-3 1/2"	17.158	64'-4"	19.609
9'-2 3/4	2.813	4,023	15	8,047	30	12,073	46	16,097	61	20,121	76	24,145	91	28,169	107	32,193	122
12'-3 11/16"	3.751	7,155	27	14,309	54	21,468	81	28,624	108	35,780	135	42,936	163	50,092	190	57,248	217
15'-4 5/8	4.690	11,181	42	22,362	85	33,549	127	44,733	169	55,915	212	67,099	254	78,282	296	89,464	339
17'-2 1/4"	5.239	13,955	53	27,910	106	41,874	159	55,832	211	69,789	264	83,747	317	97,705	370	111,662	423
18'-5 9/16"	5.628	16,104	61	32,208	122	48,322	183	64,429	244	80,535	305	96,643	366	112,751	427	128,857	488
21'-6 1/2"	6.567	21,920	83	43,841	166	65,775	249	87,701	332	109,624	415	131,550	498	153,476	581	175,399	664
23'-9 3/16"	7.244	26,679	101	53,359	202	80,055	303	106,741	404	133,424	505	160,110	606	186,796	707	213,478	808
25'-9 3/8"	7.859	31,396	119	62,792	238	94,208	357	125,612	476	157,012	595	188,416	713	219,820	832	251,220	951
26'-8 15/16"	8.153	33,788	128	67,576	256	101,385	384	135,182	512	168,974	640	202,770	768	236,567	896	270,359	1024
29'-8 5/8"	9.059	41,720	158	83,440	316	125,186	474	166,917	632	208,642	790	250,373	948	292,103	1106	333,829	1264
32'-8 3/16"	9.962	50,454	191	100,908	382	151,393	573	201,860	764	252,320	955	302,786	1146	353,253	1337	403,713	1528
34'-2"	10.415	55,143	209	110,286	418	165,464	626	220,620	835	275,770	1044	330,927	1253	386,084	1462	441,234	1671
38'-7 5/8"	11.777	70,508	267	141,016	534	211,568	801	282,094	1068	352,611	1335	423,137	1602	493,662	1869	564,179	2136
40'-1 5/16"	12.226	75,991	288	151,982	575	228,020	863	304,030	1151	380,030	1439	456,040	1727	532,049	2014	608,050	2302
41'-7 1/8"	12.679	81,722	309	163,444	619	245,217	928	326,959	1238	408,691	1547	490,434	1857	572,176	2166	653,908	2476
44' - 6 3/4"	13.586	93,820	355	187,640	710	281,459	1065	375,280	1421	469,100	1776	562,920	2131	656,740	2486	750,560	2841
47'-6 3/8"	14.488	106,716	404	213,433	808	320,216	1212	426,959	1616	533,689	2020	640,432	2424	747,175	2829	853,904	3233
50'-6 1/16"	15.395	120,489	456	240,977	912	361,541	1369	482,060	1825	602,563	2281	723,082	2738	843,601	3194		
54'-11 3/4"	16.759	142,781	541	285,563	1081	428,433	1622	571,249	2163	714,048	2703	856,865	3244				
59'-5"	18.111	166,763	631	333,525	1263	500,392	1894	667,196	2526	833,980	3157	1,000,784	3789				
65'-4 5/16"	19.922	202,403	764	404,805	1528	607,334	2292	809,787	3056	1,012,215	3820						
72'-9 7/16"	22.186	250,250	947	500,499	1895	750,904	2843	1,001,216	3790	1,251,497	4738						
74'-3 1/4"	22.639	260,565	986	521,130	1973	781,857	2960	1,042,487	3947	1,303,084	4933						
80'-2 9/16"	24.450	303,933	1151	607,866	2301	911,988	3452	1,215,997	4603								
86'-1 7/8"	26.261	350,630	1327	701,259	2655	1,052,107	3983	1,402,824	5311								
92'-1 3/16"	28.073	400,671	1517	801,341	3034	1,202,261	4551										
95' - 0 3/16"	28.956	426,994	1616	853,988	3233	1,280,981	4849										
103'-11 3/4"	31.676	510,776	1933	1,021,551	3867	1,532,327	5800										
124'-9 5/16"	38.033	735,427	2784	1,470,854	5568	2,206,739	8354										
		US Gallons	Cubic Meters	US Gallons	Cubic Meters	US Gallons	Cubic Meters	US Gallons	Cubic Meters	US Gallons	Cubic Meters	US Gallons	Cubic Meters	US Gallons	Cubic Meters	US Gallons	Cubic Meters

*** Other Tank Configurations Available Upon Request.**

*** Maximum capacities shown. For usable capacities, please contact our Sales Team.**

Please note: this chart is for reference only. Soil investigation, foundation design, freeboard requirements, wind loads, deck loads, seismic loads and liquid weight are factors that can impact your overall tank design. NSF 61/372 Certified Bolted Tanks must be over 14,309 gallons.

Appendix J

O&M Manual for Existing Facilities

APPENDIX 2

Photo 1: Existing reservoir

Photo 2: Panorama of existing reservoir

Photo 3: Panorama of existing reservoir

Photo 4: Panorama of parking area showing the slow sand filtration, pump house, pump station and clearwell housing

Photo 5: Photo showing the slow sand filtration and transmission to the pump house, pump station and clearwell housing

Photo 6: Existing reservoir and surrounding vegetation

Photo 7: Sawpit wash showing pipeline in the distance

Photo 8: Existing reservoir and surrounding vegetation

Photo 9: Sawpit wash pump station

Photo 10: Existing slow sand filtration system

Photo 11: Existing slow sand filtration system and pump house, pump station and clearwell

Photo 12: Trask parking lot pathway over sawpit wash near intake pipeline

Photo 13: pump house, pump station and clearwell

Photo 14: Pump house, pump station and clearwell viewed from lower Trask parking lot

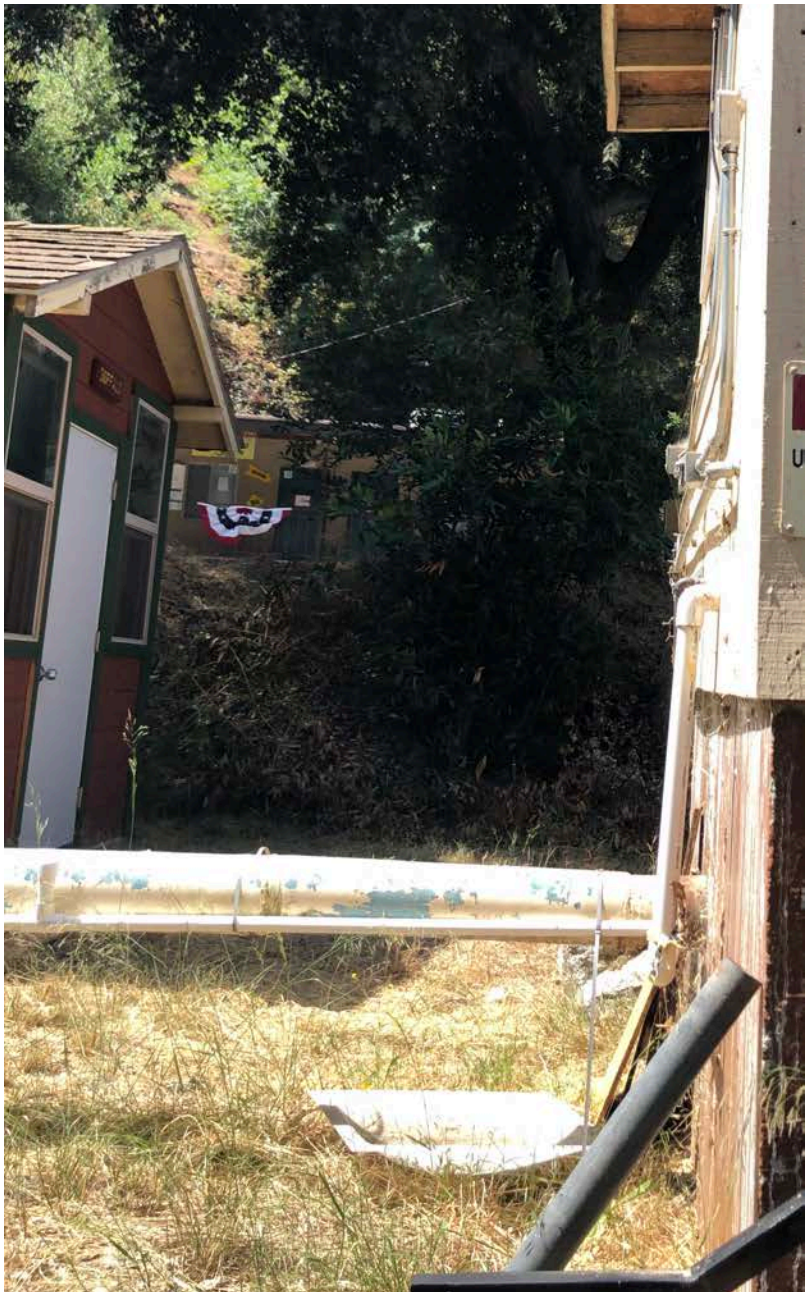


Photo 15: Pipeline connecting to pump house, pump station and clearwell

APPENDIX 3

AIR QUALITY and GHG IMPACT ANALYSES

JRC-078
TRASK SCOUT RESERVATION
WATER SYSTEM REHABILITATION AND ENHANCEMENT PROJECT

MONROVIA, CALIFORNIA

Prepared by:

Giroux & Associates
5319 University Drive, #26
Irvine, CA. 92612

Prepared for:

Tom Dodson & Associates
Attn: Kaitlyn Dodson
2150 N. Arrowhead Avenue
San Bernardino, California 92405

Date:

August 16, 2020

Project: P20-016 AQ

ATMOSPHERIC SETTING

The climate of Monrovia, as with all of Southern California, is governed largely by the strength and location of the semi-permanent high-pressure center over the Pacific Ocean and the moderating effects of the nearby vast oceanic heat reservoir. Local climatic conditions are characterized by very warm summers, mild winters, infrequent rainfall, moderate daytime on-shore breezes, and comfortable humidities. Unfortunately, the same climatic conditions that create such a desirable living climate combine to severely restrict the ability of the local atmosphere to disperse the large volumes of air pollution generated by the population and industry attracted in part by the climate.

Monrovia is situated in an area where the pollutants generated in coastal portions of the Los Angeles basin undergo photochemical reactions and then move inland across the project site during the daily sea breeze cycle. The resulting smog at times gives the western San Gabriel Valley some of the worst air quality in all of California. The worst air quality, however, has gradually been moving eastward. The area of heaviest ozone air pollution has gradually moved eastward from Pasadena in the 1960's to Glendora and even Upland/Ontario in the 1990's. Elevated smog levels nevertheless persist during the warmer months of the year. Despite dramatic improvement in air quality in the local area throughout the last several decades, the project site is expected to continue to experience some unhealthful air quality until beyond 2020.

Temperatures in the project vicinity average 62 degrees Fahrenheit annually with summer afternoons in the low 90s and winter mornings in the low 40s. Temperatures much above 100 or below 30 degrees occur infrequently only under unusual weather conditions and even then these limits are not far exceeded.

In contrast to the slow annual variation of temperature, precipitation is highly variable seasonally. Rainfall in the San Gabriel Valley averages 14 inches annually and falls almost exclusively from late October to early April. Summers are very dry with frequent periods of 4-5 months of no rain at all. Because much of the rainfall comes from the fringes of mid-latitude storms, a shift in the storm track of a few hundred miles can mean the difference between a very wet year and a year with drought conditions.

Winds across the project area are an important meteorological parameter because they control both the initial rate of dilution of locally generated air pollutant emissions as well as their regional trajectory. Local wind patterns show a fairly unidirectional daytime onshore flow from the SW-W with a very weak offshore return flow from the NE that is strongest on winter nights when the land is colder than the ocean. The onshore winds during the day average 6-8 mph, while the offshore flow is often calm or drifts slowly westward at 1-3 mph. During the daytime, any locally generated air emissions are thus transported eastward toward San Bernardino and Cajon Pass without generating any localized air quality impacts.

The drainage winds which move slowly across the area at night have some potential for localized stagnation. Fortunately, these winds have their origin in the San Gabriel Mountains where background pollution levels are low such that any localized contributions do not create any unhealthful impacts. The wind distribution is such that nominal project-related air quality impacts

occur more on a regional scale rather than in the immediate Monrovia area. One other important wind condition occurs when a high pressure center forms over the western United States with sinking air forced seaward through local canyons and mountain passes. The air warms by compression and relative humidities drop dramatically. The dry, gusty winds from the N-NE create dust nuisance potential around areas of soil disturbance such as construction sites.

In conjunction with the two dominant wind regimes that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. The summer on-shore flow is capped by a massive dome of warm, sinking air which caps a shallow layer of cooler ocean air. These marine/subsidence inversions act like a giant lid over the basin. They allow for local mixing of emissions, but they confine the entire polluted air mass within the basin until it escapes into the desert or along the thermal chimneys formed along heated mountain slopes.

In winter, when the air near the ground cools while the air aloft remains warm, radiation inversions are formed that trap low-level emissions such as automobile exhaust near their source. As background levels of primary vehicular exhaust rise during the seaward return flow, the combination of rising non-local baseline levels plus emissions trapped locally by these radiation inversions creates micro-scale air pollution "hot spots" near freeways, shopping centers and other traffic concentrations. Because the incoming air draining off the mountains into the San Gabriel Valley during nocturnal radiation inversion conditions is relatively clean, the summer subsidence inversions are a far more critical factor in determining Monrovia area air quality than the winter time local trapping inversions.

AIR QUALITY SETTING

AMBIENT AIR QUALITY STANDARDS (AAQS)

In order to gauge the significance of the air quality impacts of the proposed project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended several times in air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule, which extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 1. Sources and health effects of various pollutants are shown in Table 2.

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "PM-2.5"). New national AAQS were adopted in 1997 for these pollutants.

Planning and enforcement of the federal standards for PM-2.5 and for ozone (8-hour) were challenged by trucking and manufacturing organizations. In a unanimous decision, the U.S. Supreme Court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. The Court did find, however, that there was some inconsistency between existing and "new" standards in their required attainment schedules. Such attainment-planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA subsequently agreed to downgrade the attainment designation for a large number of communities to “non-attainment” for the 8-hour ozone standard.

Table 1

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (5/4/16)

Table 1 (continued)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (5/4/16)**

Table 2
Health Effects of Major Criteria Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.
Respirable Particulate Matter (PM-10)	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Fine Particulate Matter (PM-2.5)	• Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.	• Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board, 2002.

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (ARB) to recommend adoption of the statewide PM-2.5 standard that is more stringent than the federal standard. This standard was adopted in 2002. The State PM-2.5 standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard, but only requires continued progress towards attainment.

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in 2005, which aligned with the exposure period for the federal 8-hour standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.075 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress towards attaining state standards, but there are no hard deadlines or any consequences of non-attainment. During the same re-evaluation process, the ARB adopted an annual state standard for nitrogen dioxide ($NO_{2)}$ that is more stringent than the corresponding federal standard, and strengthened the state one-hour NO_2 standard.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for PM-2.5 were strengthened, a new class of PM in the 2.5 to 10 micron size was created, some PM-10 standards were revoked, and a distinction between rural and urban air quality was adopted. In December, 2012, the federal annual standard for PM-2.5 was reduced from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ which matches the California AAQS. The severity of the basin's non-attainment status for PM-2.5 may be increased by this action and thus require accelerated planning for future PM-2.5 attainment.

In response to continuing evidence that ozone exposure at levels just meeting federal clean air standards is demonstrably unhealthful, EPA had proposed a further strengthening of the 8-hour standard. A new 8-hour ozone standard was adopted in 2015 after extensive analysis and public input. The adopted national 8-hour ozone standard is 0.07 ppm which matches the current California standard. It will require three years of ambient data collection, then 2 years of non-attainment findings and planning protocol adoption, then several years of plan development and approval. Final air quality plans for the new standard are likely to be adopted around 2022. Ultimate attainment of the new standard in ozone problem areas such as Southern California might be after 2025.

In 2010 a new federal one-hour primary standard for nitrogen dioxide (NO_2) was adopted. This standard is more stringent than the existing state standard. Based upon air quality monitoring data in the South Coast Air Basin, the California Air Resources Board has requested the EPA to designate the basin as being in attainment for this standard. The federal standard for sulfur dioxide (SO_2) was also recently revised. However, with minimal combustion of coal and mandatory use of low sulfur fuels in California, SO_2 is typically not a problem pollutant.

BASELINE AIR QUALITY

Existing levels of ambient air quality and historical trends in the project area are best documented by measurements made by the SCAQMD at its Azusa Monitoring Station. This station measures both regional pollution levels such as dust (particulates) and smog, as well as levels of primary vehicular pollutants such as carbon monoxide. Table 3 is a 5-year summary of monitoring data for the major air pollutants compiled from this air monitoring station.

a. Photochemical smog (ozone) levels occasionally exceed standards. The 8-hour state ozone standard was exceeded on 12 percent of all measured days and the 1-hour state standard has been exceeded on approximately eight percent of all days in the past five years. The 8-hour federal standard has been exceeded on seven percent of days for the same period. While ozone levels are still high, they are much lower than 10 to 20 years ago. Attainment of all clean air standards in the project vicinity is not likely to occur soon, but the severity and frequency of violations is expected to continue to slowly decline during the current decade.

b. Measurements of carbon monoxide have shown very low baseline levels in comparison to the most stringent eight-hour standards.

c. Respirable dust (PM-10) levels exceed the state standard on approximately 15 percent of measurement days, but the less stringent federal PM-10 standard has not been violated for the same period. Year to year fluctuations of overall maximum 24-hour PM-10 levels follow no discernable trend, though 2016 had the lowest maximum 24-hour concentration in recent history.

d. A substantial fraction of PM-10 is comprised of ultra-small diameter particulates capable of being inhaled into deep lung tissue (PM-2.5). There have been no violations of the current national 24-hour standard of 35 $\mu g/m^3$ in all measurement days for the last five years.

Although complete attainment of every clean air standard is not yet imminent, extrapolation of the steady improvement trend suggests that such attainment could occur within the reasonably near future.

Table 3

Air Quality Monitoring Summary (2015-2019)
(Number of Days Standards Were Exceeded, and
Maximum Levels During Such Violations)
(Entries shown as ratios = samples exceeding standard/samples taken)

Pollutant/Standard	2015	2016	2017	2018	2019
Ozone					
1-Hour > 0.09 ppm (S)	21	30	38	24	34
8-Hour > 0.07 ppm (S)	28	40	62	42	39
8- Hour > 0.075 ppm (F)	17	25	43	23	21
Max. 1-Hour Conc. (ppm)	0.122	0.146	0.152	0.139	0.123
Max. 8-Hour Conc. (ppm)	0.096	0.106	0.114	0.099	0.094
Carbon Monoxide					
1-Hour > 20. ppm (S)	0	0	0	0	0
8-Hour > 9. ppm (S, F)	0	0	0	0	0
Max 8-Hour Conc. (ppm)	1.3	1.2	0.9	1.0	1.1
Nitrogen Dioxide					
1-Hour > 0.18 ppm (S)	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.071	0.074	0.066	0.071	0.060
Inhalable Particulates (PM-10)					
24-Hour > 50 $\mu g/m^3$ (S)	12/59	12/60	6/55	10/60	4/61
24-Hour > 150 $\mu g/m^3$ (F)	0/59	0/60	0/55	0/60	0/61
Max. 24-Hr. Conc. ($\mu g/m^3$)	101.	74.	83.	78.	82.
Ultra-Fine Particulates (PM-2.5)					
24-Hour > 35 $\mu g/m^3$ (F)	1/119	0/122	0/115	0/119	0/120
Max. 24-Hr. Conc. ($\mu g/m^3$)	44.3	32.2	24.9	30.2	28.3

S=State Standard
F=Federal Standard

Source: South Coast AQMD – Azusa Monitoring Station
data: www.arb.ca.gov/adam/

AIR QUALITY PLANNING

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The SCAB could not meet the deadlines for ozone, nitrogen dioxide, carbon monoxide, or PM-10. In the SCAB, the agencies designated by the governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times as earlier attainment forecasts were shown to be overly optimistic.

The 1990 Federal Clean Air Act Amendment (CAAA) required that all states with air-sheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised and approved over the past decade. The most current regional attainment emissions forecast for ozone precursors (ROG and NOx) and for carbon monoxide (CO) and for particulate matter are shown in Table 4. Substantial reductions in emissions of ROG, NOx and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM-10 and PM-2.5 are forecast to slightly increase.

The Air Quality Management District (AQMD) adopted an updated clean air "blueprint" in August 2003. The 2003 Air Quality Management Plan (AQMP) was approved by the EPA in 2004. The AQMP outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM-10) by 2006. The 2003 AQMP was based upon the federal one-hour ozone standard which was revoked late in 2005 and replaced by an 8-hour federal standard. Because of the revocation of the hourly standard, a new air quality planning cycle was initiated.

With re-designation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan was developed. This plan shifted most of the one-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date was to "slip" from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM-2.5 standard.

Because projected attainment by 2021 required control technologies that did not exist yet, the SCAQMD requested a voluntary "bump-up" from a "severe non-attainment" area to an "extreme non-attainment" designation for ozone. The extreme designation was to allow a longer time period for these technologies to develop. If attainment cannot be demonstrated within the specified deadline without relying on "black-box" measures, EPA would have been required to impose sanctions on the region had the bump-up request not been approved. In April 2010, the EPA approved the change in the non-attainment designation from "severe-17" to "extreme." This reclassification set a later attainment deadline (2024), but also required the air basin to adopt even more stringent emissions controls.

Table 4
South Coast Air Basin Emissions Forecasts (Emissions in tons/day)

Pollutant	2020	2025	2030
NOx	289	266	257
VOC	393	393	391
PM-10	165	170	172
PM-2.5	68	70	71

With current emissions reduction programs and adopted growth forecasts.
Source: California Air Resources Board, 2013 Almanac of Air Quality

In other air quality attainment plan reviews, EPA had disapproved part of the SCAB PM-2.5 attainment plan included in the AQMP. EPA stated that the current attainment plan relied on PM-2.5 control regulations that had not yet been approved or implemented. It was expected that a number of rules that were pending approval would remove the identified deficiencies. If these issues were not resolved within the next several years, federal funding sanctions for transportation projects could result. The 2012 AQMP included in the current California State Implementation Plan (SIP) was expected to remedy identified PM-2.5 planning deficiencies.

The federal Clean Air Act requires that non-attainment air basins have EPA approved attainment plans in place. This requirement includes the federal one-hour ozone standard even though that standard was revoked almost ten years ago. There was no approved attainment plan for the one-hour federal standard at the time of revocation. Through a legal quirk, the SCAQMD is now required to develop an AQMP for the long since revoked one-hour federal ozone standard. Because the current SIP for the basin contains a number of control measures for the 8-hour ozone standard that are equally effective for one-hour levels, the 2012 AQMP was believed to satisfy hourly attainment planning requirements.

AQMPs are required to be updated every three years. The 2012 AQMP was adopted in early 2013. An updated AQMP was required for completion in 2016. The most recent 2016 AQMP was adopted by the SCAQMD Board in March, 2017, and has been submitted the California Air Resources Board for forwarding to the EPA. The 2016 AQMP acknowledges that motor vehicle emissions have been effectively controlled and that reductions in NOx, the continuing ozone problem pollutant, may need to come from major stationary sources (power plants, refineries, landfill flares, etc.). The current attainment deadlines for all federal non-attainment pollutants are now as follows:

8-hour ozone (70 ppb)	2032
Annual PM-2.5 (12 $\mu g/m^3$)	2025
8-hour ozone (75 ppb)	2024 (old standard)
1-hour ozone (120 ppb)	2023 (rescinded standard)

The key challenge is that NOx emission levels, as a critical ozone precursor pollutant, are forecast to continue to exceed the levels that would allow the above deadlines to be met. Unless additional stringent NOx control measures are adopted and implemented, ozone attainment goals may not be met.

The proposed project does not directly relate to the AQMP in that there are no specific air quality programs or regulations governing development projects. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of planned growth is determined. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed development is consistent with regional growth projections. Air quality impact significance for the proposed project has therefore been analyzed on a project-specific basis.

AIR QUALITY IMPACT

STANDARDS OF SIGNIFICANCE

Air quality impacts are considered "significant" if they cause clean air standards to be violated where they are currently met, or if they "substantially" contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following four tests of air quality impact significance. A project would have a potentially significant impact if it:

a. Conflicts with or obstructs implementation of the applicable air quality plan.

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

c. Exposes sensitive receptors to substantial pollutant concentrations.

d. Creates objectionable odors affecting a substantial number of people.

Primary Pollutants

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM-10, an aggressive dust control program is required to control fugitive dust during project construction.

Secondary Pollutants

Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is based upon a specified amount of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional air quality impact significance independent of chemical transformation processes. Projects with daily emissions that exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant under CEQA guidelines.

Table 5
Daily Emissions Thresholds

Pollutant	Construction	Operations
ROG	75	55
NOx	100	55
CO	550	550
PM-10	150	150
PM-2.5	55	55
SOx	150	150
Lead	3	3

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

Additional Indicators

In its CEQA Handbook, the SCAQMD also states that additional indicators should be used as screening criteria to determine the need for further analysis with respect to air quality. The additional indicators are as follows:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation

- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.

- Project could generate vehicle trips that cause a CO hot spot.

CONSTRUCTION ACTIVITY IMPACTS

CalEEMod was developed by the SCAQMD to provide a computer model by which to calculate both construction emissions and operational emissions from a variety of land use projects. It calculates both the daily maximum and annual average emissions for criteria pollutants as well as total or annual greenhouse gas (GHG) emissions.

Estimated construction emissions were modeled using CalEEMod2016.3.2 to identify maximum daily emissions for each pollutant during project construction using for the indicated project activities and durations. Much of the project work will be accomplished using hand tools. Only diesel equipment is modeled in CalEEMod. Therefore, hand tools are not included in this analysis as they would not emit exhaust emissions.

The following construction fleet and schedule was modeled in CalEEMod as shown in Table 6.

Table 6
CalEEMod Construction Activity Equipment Fleet and Workdays

Clear and Grub 2 months	2 Tractor/Loader/Backhoes
	1 Excavator
Install Foundations 2 months	1 Excavator
	1 Jackhammer
	2 Dumpers
	1 Mixer
	1 Compactor
Grading 2 months	1 Excavator
	1 Tractor/Loader/Backhoe
	2 Compactors
Improve Hiking Trails 2 months	1 Tractor/Loader/Backhoe
	2 Compactors

Utilizing this indicated equipment fleet and durations shown in Table 6 the following worst case daily construction emissions are calculated by CalEEMod and are listed in Table 7.

Table 7
Construction Activity Emissions
Maximum Daily Emissions (pounds/day)

Maximal Construction Emissions	ROG	NOx	CO	SO_2	PM-10	PM-2.5
Year 2021						
Clear and Grub	0.5	4.5	6.4	0.0	0.4	0.3
Foundation Install	0.5	3.6	4.3	0.0	0.3	0.2
Grading	0.3	2.8	3.9	0.0	1.0	0.6
Trail Improvements	0.2	2.0	2.9	0.0	0.3	0.2
Total Project	**1.5**	**12.9**	**17.5**	**0.0**	**2.0**	**1.3**
SCAQMD Thresholds	75	100	550	150	150	55

Peak daily construction activity emissions are estimated to be well below SCAQMD CEQA thresholds without the need for added mitigation even if worst case days from all phases were to occur simultaneously.

Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. The SCAQMD does not generally require the analysis of construction-related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur. Health risk analyses are typically assessed over a 9-, 30-, or 70-year timeframe and not over a relatively brief construction period due to the lack of health risk associated with such a brief exposure.

OPERATIONAL IMPACTS

The project will provide potable water to campers and will have minimal operational impacts. The project will not generate any additional trips over existing conditions. There is currently only one 15-HP booster pump. The project proposes an additional similar booster bump for redundancy, which would allow continuous operation of the pumps in the event that one pump fails to operate or is undergoing maintenance. Therefore, because the new pump would only operate in the event the old pump is not working there would be no pumping operational emissions. Minimal electricity will be required to operate the small new Seccua Virex Pro unit.

NEPA CONFORMITY

Annualized construction activity emissions were calculated by assuming all construction activities would occur during the same calendar year to represent a worst-case condition. The calculated emissions were then compared to the EPA *de minimis* emission thresholds that would allow for a federal conformity finding with Section 176c of the Clean Air Act.

If the project-related emissions from construction and operations are less than the specified "*de minimis*" levels, no further SIP consistency demonstration is required. As stated, there are no operational emissions associated with this project. The SCAB is designated as a "extreme" non-

attainment area for the federal 8-hour ozone standard. The basin is a non-attainment area for PM-2.5, and a maintenance area for PM-10. Based upon these designations, the following emissions levels are presumed evidence of SIP conformity:

VOC/ROG	-	10 tons/year
NOx	-	10 tons/year
PM-2.5	-	100 tons/year
PM-10	-	100 tons/year

Annual construction emissions were calculated with the CalEEMod computer model. Maximum annual project-related air pollution emissions relative to federal standard attainment designations and appropriate *de minimis* thresholds are shown in Table 8.

Table 8
Total Annual Construction Emissions
(tons/year)

Activity	ROG	NOx	CO	SO_2	PM-10	PM-2.5	CO_2
Year 2021							
Clear and Grub	<0.1	0.1	0.1	<0.1	<0.1	<0.1	18.4
Foundation Install	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	15.7
Grading	<0.1	0.1	0.1	<0.1	<0.1	<0.1	12.1
Trail Improvements	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	9.5
Total Project	<0.1	<0.1	**0.3**	<0.1	<0.1	<0.1	**55.7**
NEPA Threshold	10	10	100	100	70	100	-

Maximum annual emissions are much less than their associated *de minimis* thresholds. A formal SIP consistency analysis is not required.

ODOR IMPACTS

Project operations (conveyance and treatment) are essentially a closed system with negligible odor potential.

LOCALIZED SIGNIFICANCE THRESHOLDS

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For the proposed project, the primary source of possible LST impact would be during construction. LSTs are applicable for a sensitive receptor where it is possible that an individual could remain for 24 hours such as a residence, hospital or convalescent facility.

LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

LST screening tables are available for 25, 50, 100, 200 and 500 meter source-receptor distances. For this project, the worst case conditions for 25 meters was used.

The SCAQMD has issued guidance on applying CalEEMod to LSTs. LST pollutant screening level concentration data is currently published for 1, 2 and 5 acre sites for varying distances. For this project, the most stringent thresholds for a 1 acre site were applied.

The following thresholds and emissions in Table 9 are therefore determined (pounds per day):

Table 9
LST and Project Emissions (pounds/day)

LST 1 acre/25 meters East San Gabriel Valley	**CO**	**NOx**	**PM-10**	**PM-2.5**
LST Thresholds	623	89	5	3
Max On-Site Emissions				
Clear and Grub	6.4	4.5	0.4	0.3
Foundation Install	4.3	3.6	0.3	0.2
Grading	3.9	2.8	1.0	0.6
Trail Improvements	2.9	2.0	0.3	0.2
Total	**17.5**	**12.9**	**2.0**	**1.3**
Significant?	No	No	No	No

CalEEMod Output in Appendix

LSTs were compared to the maximum daily construction activities. As seen in Table 9, even if all activities were performed simultaneously, emissions meet the LST for construction thresholds. LST impacts are less-than-significant without the need for additional mitigation.

CONSTRUCTION EMISSIONS MINIMIZATION

Construction activities are not anticipated to cause dust emissions to exceed SCAQMD CEQA thresholds. Nevertheless, emissions minimization through enhanced dust control measures is recommended for use because of the non-attainment status of the air. Recommended measures include:

Fugitive Dust Control

- Apply soil stabilizers or moisten inactive areas.
- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically 2-3 times/day).
- Cover all stock piles with tarps at the end of each day or as needed.
- Provide water spray during loading and unloading of earthen materials.
- Minimize in-out traffic from construction zone
- Cover all trucks hauling dirt, sand, or loose material and require all trucks to maintain at least two feet of freeboard
- Sweep streets daily if visible soil material is carried out from the construction site

Similarly, ozone precursor emissions (ROG and NOx) are calculated to be below SCAQMD CEQA thresholds. However, because of the regional non-attainment for photochemical smog, the use of reasonably available control measures for diesel exhaust is recommended. Combustion emissions control options include:

Exhaust Emissions Control

- Utilize well-tuned off-road construction equipment.
- Establish a preference for contractors using Tier 3 or better rated heavy equipment.
- Enforce 5-minute idling limits for both on-road trucks and off-road equipment.

GREENHOUSE GAS EMISSIONS

"Greenhouse gases" (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation in some parts of the infrared spectrum. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statues and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California's reputation as a "national and international leader on energy conservation and environmental stewardship." It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate "early action" control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California's GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, to be achieved by 2020.
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Maximum GHG reductions are expected to derive from increased vehicle fuel efficiency, from greater use of renewable energy and from increased structural energy efficiency. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve), general and industry-specific protocols for assessing and reporting GHG emissions have been

developed. GHG sources are categorized into direct sources (i.e. company owned) and indirect sources (i.e. not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

THRESHOLDS OF SIGNIFICANCE

In response to the requirements of SB97, the State Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the California Code of Regulations in March of 2010. The CEQA Appendix G guidelines were modified to include GHG as a required analysis element. A project would have a potentially significant impact if it:

- Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,

- Conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

Section 15064.4 of the Code specifies how significance of GHG emissions is to be evaluated. The process is broken down into quantification of project-related GHG emissions, making a determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. At each of these steps, the new GHG guidelines afford the lead agency with substantial flexibility.

Emissions identification may be quantitative, qualitative or based on performance standards. CEQA guidelines allow the lead agency to "select the model or methodology it considers most appropriate." The most common practice for transportation/combustion GHG emissions quantification is to use a computer model such as CalEEMod, as was used in the ensuing analysis.

The significance of those emissions then must be evaluated; the selection of a threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. If the lead agency does not have sufficient expertise in evaluating GHG impacts, it may rely on thresholds adopted by an agency with greater expertise.

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons (MT) CO_2 equivalent/year. In September 2010, the SCAQMD CEQA Significance Thresholds GHG Working Group released revisions which recommended a threshold of 3,000 MT CO_2e for all land use projects. This 3,000 MT/year recommendation has been used as a guideline for this analysis. In the absence of an adopted numerical threshold of significance, project related GHG emissions in excess of the guideline level are presumed to trigger a requirement for enhanced GHG reduction at the project level.

PROJECT RELATED GHG EMISSIONS GENERATION

Construction Activity GHG Emissions

The worst-case scenario for maximum GHG emissions would be if all construction activities occur in the same calendar year. The CalEEMod2016.3.2 computer model predicts that the construction activities will generate the annual CO_2e emissions identified in Table 9.

Table 9
Construction Emissions (Metric Tons CO_2e)

Year 2021	CO_2e
Clear and Grub	18.4
Foundation Install	15.7
Grading	12.1
Trail Improvements	9.5
Total	**55.7**

CalEEMod Output provided in appendix

GHG impacts from construction are considered less-than-significant as they are below the adopted 3,000 MT threshold.

CONSISTENCY WITH GHG PLANS, PROGRAMS AND POLICIES

The City of Monrovia created and implemented an Energy Action Plan (EAP) in 2008. The EAP lists goals for the city's future and sets forth commitments to achieve these goals through specific actions. The report focused on three resource areas which are: Energy, Water, and Transportation. The plan examined demand reduction strategies that can offset the energy, water, and transportation needs for the city of Monrovia, including the use of renewable energy sources.

Monrovia has identified future goals to reduce the city's peak electric load by 10 percent within seven years (by Fiscal year 2014/2015) through energy efficiency, shifting the timing of energy demands, and conservation measures.

The only electrical measure related to the proposed project is in regard to water pumping for municipal water. Specifically, the EAP recommends replacing water pump motors with newer energy-efficient models to not only save energy but to contribute to the efficiency of the water pumping system. The project proposes one 15-HP booster pump which will alternate in use with the current similar booster pump to ensure continuous pumping. However, only one pump will operate at any specific time.

Transportation issues were also discussed in the EAP. Given that 43 percent of greenhouse gases derive from transportation, a major portion of California legislation related to the environment and carbon emission focus on this sector. However, the proposed project will not generate any additional trips over existing conditions.

Except for short term construction emissions, the project is GHG neutral and the small amount of construction equipment employed for use for completion of this project is not significant.

CALEEMOD2016.3.2 COMPUTER MODEL OUTPUT

- **DAILY EMISISONS**
- **ANNUAL EMISSIONS**

Trask Water Rehab

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	0.20	User Defined Unit	0.20	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2021
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - less than 0.2 acres

Construction Phase - approx 2 months per phase

Off-road Equipment - Clear and Grub: 2 tractor/loader/backhoes, 1 excavator

Off-road Equipment - Foundations: 1excavator, 2 dumpers, 1 compactor, 1 mixer, 1 air compressor for jack hammer

Off-road Equipment - Grading: 1 tractor/loader/backhoe, 1 excavator, 2 compactors

Off-road Equipment - Trail Improvements: 1 roller, 1 loader/backhoe, 1 compactor

Trips and VMT - 10-18 worker trips per day

Construction Off-road Equipment Mitigation -

Trask Water Rehab - South Coast Air Basin, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	44.00
tblConstructionPhase	NumDays	2.00	43.00
tblConstructionPhase	NumDays	5.00	43.00
tblConstructionPhase	NumDays	1.00	41.00
tblConstructionPhase	PhaseEndDate	6/8/2021	4/29/2021
tblConstructionPhase	PhaseEndDate	1/19/2021	6/30/2021
tblConstructionPhase	PhaseEndDate	6/15/2021	8/30/2021
tblConstructionPhase	PhaseEndDate	1/15/2021	2/28/2021
tblConstructionPhase	PhaseStartDate	1/20/2021	3/1/2021
tblConstructionPhase	PhaseStartDate	1/16/2021	5/1/2021
tblConstructionPhase	PhaseStartDate	6/9/2021	7/1/2021
tblConstructionPhase	PhaseStartDate	1/15/2021	1/1/2021
tblGrading	AcresOfGrading	20.50	0.50
tblLandUse	LotAcreage	0.00	0.20
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	PhaseName		Clear and Grub
tblOffRoadEquipment	PhaseName		Foundation Install
tblOffRoadEquipment	PhaseName		Foundation Install
tblOffRoadEquipment	PhaseName		Improve Hiking Trails
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Foundation Install
tblOffRoadEquipment	PhaseName		Foundation Install
tblOffRoadEquipment	PhaseName		Foundation Install
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblTripsAndVMT	WorkerTripNumber	5.00	15.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.5449	4.5078	6.4197	0.0102	0.8645	0.2476	1.0114	0.4434	0.2278	0.5794	0.0000	994.4046	994.4046	0.2724	0.0000	1,001.2142
Maximum	**0.5449**	**4.5078**	**6.4197**	**0.0102**	**0.8645**	**0.2476**	**1.0114**	**0.4434**	**0.2278**	**0.5794**	**0.0000**	**994.4046**	**994.4046**	**0.2724**	**0.0000**	**1,001.2142**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.5449	2.8847	6.4197	0.0102	0.4505	0.2476	0.5974	0.2158	0.2278	0.3518	0.0000	994.4046	994.4046	0.2724	0.0000	1,001.2142
Maximum	**0.5449**	**2.8847**	**6.4197**	**0.0102**	**0.4505**	**0.2476**	**0.5974**	**0.2158**	**0.2278**	**0.3518**	**0.0000**	**994.4046**	**994.4046**	**0.2724**	**0.0000**	**1,001.2142**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**36.01**	**0.00**	**0.00**	**47.89**	**0.00**	**40.93**	**51.32**	**0.00**	**39.28**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		4.0000e-005	4.0000e-005	0.0000		5.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		4.0000e-005	4.0000e-005	0.0000		5.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Clear and Grub	Site Preparation	1/1/2021	2/28/2021	5	41	
2	Foundation Install	Building Construction	3/1/2021	4/29/2021	5	44	
3	Grading	Grading	5/1/2021	6/30/2021	5	43	
4	Improve Hiking Trails	Paving	7/1/2021	8/30/2021	5	43	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Clear and Grub	Excavators	1	6.00	158	0.38
Foundation Install	Excavators	1	4.00	158	0.38
Foundation Install	Dumpers/Tenders	2	8.00	16	0.38
Improve Hiking Trails	Plate Compactors	1	4.00	8	0.43
Grading	Excavators	1	4.00	158	0.38
Grading	Plate Compactors	2	4.00	8	0.43
Foundation Install	Plate Compactors	1	6.00	8	0.43
Improve Hiking Trails	Rollers	1	4.00	80	0.38
Foundation Install	Cement and Mortar Mixers	1	6.00	9	0.56
Foundation Install	Air Compressors	1	4.00	78	0.48
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Improve Hiking Trails	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Clear and Grub	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Foundation Install	5	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Improve Hiking Trails	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Clear and Grub	2	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Clear and Grub - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0129	0.0000	0.0129	1.4000e-003	0.0000	1.4000e-003			0.0000			0.0000
Off-Road	0.4537	4.4668	5.8565	8.5600e-003		0.2464	0.2464		0.2267	0.2267		828.3698	828.3698	0.2679		835.0676
Total	**0.4537**	**4.4668**	**5.8565**	**8.5600e-003**	**0.0129**	**0.2464**	**0.2593**	**1.4000e-003**	**0.2267**	**0.2281**		**828.3698**	**828.3698**	**0.2679**		**835.0676**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0628	0.0410	0.5632	1.6700e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		166.0347	166.0347	4.4800e-003		166.1466
Total	**0.0628**	**0.0410**	**0.5632**	**1.6700e-003**	**0.1677**	**1.2400e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**166.0347**	**166.0347**	**4.4800e-003**		**166.1466**

3.2 Clear and Grub - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.8200e-003	0.0000	5.8200e-003	6.3000e-004	0.0000	6.3000e-004			0.0000			0.0000
Off-Road	0.4537	2.8437	5.8565	8.5600e-003		0.2464	0.2464		0.2267	0.2267	0.0000	828.3698	828.3698	0.2679		835.0676
Total	**0.4537**	**2.8437**	**5.8565**	**8.5600e-003**	**5.8200e-003**	**0.2464**	**0.2522**	**6.3000e-004**	**0.2267**	**0.2273**	**0.0000**	**828.3698**	**828.3698**	**0.2679**		**835.0676**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0628	0.0410	0.5632	1.6700e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		166.0347	166.0347	4.4800e-003		166.1466
Total	**0.0628**	**0.0410**	**0.5632**	**1.6700e-003**	**0.1677**	**1.2400e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**166.0347**	**166.0347**	**4.4800e-003**		**166.1466**

3.3 Foundation Install - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4822	3.4939	3.7465	6.9800e-003		0.1682	0.1682		0.1640	0.1640		624.6059	624.6059	0.1139		627.4526
Total	**0.4822**	**3.4939**	**3.7465**	**6.9800e-003**		**0.1682**	**0.1682**		**0.1640**	**0.1640**		**624.6059**	**624.6059**	**0.1139**		**627.4526**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0628	0.0410	0.5632	1.6700e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		166.0347	166.0347	4.4800e-003		166.1466
Total	**0.0628**	**0.0410**	**0.5632**	**1.6700e-003**	**0.1677**	**1.2400e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**166.0347**	**166.0347**	**4.4800e-003**		**166.1466**

3.3 Foundation Install - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4822	0.2761	3.7465	6.9800e-003		0.1682	0.1682		0.1640	0.1640	0.0000	624.6059	624.6059	0.1139		627.4526
Total	**0.4822**	**0.2761**	**3.7465**	**6.9800e-003**		**0.1682**	**0.1682**		**0.1640**	**0.1640**	**0.0000**	**624.6059**	**624.6059**	**0.1139**		**627.4526**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0628	0.0410	0.5632	1.6700e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		166.0347	166.0347	4.4800e-003		166.1466
Total	**0.0628**	**0.0410**	**0.5632**	**1.6700e-003**	**0.1677**	**1.2400e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**166.0347**	**166.0347**	**4.4800e-003**		**166.1466**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.2957	2.7552	3.5497	5.4100e-003		0.1461	0.1461		0.1352	0.1352		511.5009	511.5009	0.1579		515.4474
Total	**0.2957**	**2.7552**	**3.5497**	**5.4100e-003**	**0.7528**	**0.1461**	**0.8988**	**0.4138**	**0.1352**	**0.5490**		**511.5009**	**511.5009**	**0.1579**		**515.4474**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0419	0.0273	0.3755	1.1100e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.6898	110.6898	2.9800e-003		110.7644
Total	**0.0419**	**0.0273**	**0.3755**	**1.1100e-003**	**0.1118**	**8.3000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**110.6898**	**110.6898**	**2.9800e-003**		**110.7644**

3.4 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3387	0.0000	0.3387	0.1862	0.0000	0.1862			0.0000			0.0000
Off-Road	0.2957	1.4219	3.5497	5.4100e-003		0.1461	0.1461		0.1352	0.1352	0.0000	511.5009	511.5009	0.1579		515.4474
Total	**0.2957**	**1.4219**	**3.5497**	**5.4100e-003**	**0.3387**	**0.1461**	**0.4848**	**0.1862**	**0.1352**	**0.3214**	**0.0000**	**511.5009**	**511.5009**	**0.1579**		**515.4474**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0419	0.0273	0.3755	1.1100e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.6898	110.6898	2.9800e-003		110.7644
Total	**0.0419**	**0.0273**	**0.3755**	**1.1100e-003**	**0.1118**	**8.3000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**110.6898**	**110.6898**	**2.9800e-003**		**110.7644**

3.5 Improve Hiking Trails - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2084	2.0357	2.1756	3.1100e-003		0.1196	0.1196		0.1104	0.1104		294.7342	294.7342	0.0915		297.0226
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2084**	**2.0357**	**2.1756**	**3.1100e-003**		**0.1196**	**0.1196**		**0.1104**	**0.1104**		**294.7342**	**294.7342**	**0.0915**		**297.0226**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0753	0.0491	0.6758	2.0000e-003	0.2012	1.4900e-003	0.2027	0.0534	1.3700e-003	0.0547		199.2417	199.2417	5.3700e-003		199.3759
Total	**0.0753**	**0.0491**	**0.6758**	**2.0000e-003**	**0.2012**	**1.4900e-003**	**0.2027**	**0.0534**	**1.3700e-003**	**0.0547**		**199.2417**	**199.2417**	**5.3700e-003**		**199.3759**

3.5 Improve Hiking Trails - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2084	1.9100	2.1756	3.1100e-003		0.1196	0.1196		0.1104	0.1104	0.0000	294.7342	294.7342	0.0915		297.0226
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2084**	**1.9100**	**2.1756**	**3.1100e-003**		**0.1196**	**0.1196**		**0.1104**	**0.1104**	**0.0000**	**294.7342**	**294.7342**	**0.0915**		**297.0226**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0753	0.0491	0.6758	2.0000e-003	0.2012	1.4900e-003	0.2027	0.0534	1.3700e-003	0.0547		199.2417	199.2417	5.3700e-003		199.3759
Total	**0.0753**	**0.0491**	**0.6758**	**2.0000e-003**	**0.2012**	**1.4900e-003**	**0.2027**	**0.0534**	**1.3700e-003**	**0.0547**		**199.2417**	**199.2417**	**5.3700e-003**		**199.3759**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Recreational	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Recreational	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		4.0000e-005	4.0000e-005	0.0000		5.0000e-005
Unmitigated	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		4.0000e-005	4.0000e-005	0.0000		5.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		4.0000e-005	4.0000e-005	0.0000		5.0000e-005
Total	**0.0000**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.0000e-005**	**4.0000e-005**	**0.0000**		**5.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		4.0000e-005	4.0000e-005	0.0000		5.0000e-005
Total	**0.0000**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.0000e-005**	**4.0000e-005**	**0.0000**		**5.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Trask Water Rehab

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	0.20	User Defined Unit	0.20	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2021
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - less than 0.2 acres

Construction Phase - approx 2 months per phase

Off-road Equipment - Clear and Grub: 2 tractor/loader/backhoes, 1 excavator

Off-road Equipment - Foundations: 1excavator, 2 dumpers, 1 compactor, 1 mixer, 1 air compressor for jack hammer

Off-road Equipment - Grading: 1 tractor/loader/backhoe, 1 excavator, 2 compactors

Off-road Equipment - Trail Improvements: 1 roller, 1 loader/backhoe, 1 compactor

Trips and VMT - 10-18 worker trips per day

Construction Off-road Equipment Mitigation -

Trask Water Rehab - South Coast Air Basin, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	44.00
tblConstructionPhase	NumDays	2.00	43.00
tblConstructionPhase	NumDays	5.00	43.00
tblConstructionPhase	NumDays	1.00	41.00
tblConstructionPhase	PhaseEndDate	6/8/2021	4/29/2021
tblConstructionPhase	PhaseEndDate	1/19/2021	6/30/2021
tblConstructionPhase	PhaseEndDate	6/15/2021	8/30/2021
tblConstructionPhase	PhaseEndDate	1/15/2021	2/28/2021
tblConstructionPhase	PhaseStartDate	1/20/2021	3/1/2021
tblConstructionPhase	PhaseStartDate	1/16/2021	5/1/2021
tblConstructionPhase	PhaseStartDate	6/9/2021	7/1/2021
tblConstructionPhase	PhaseStartDate	1/15/2021	1/1/2021
tblGrading	AcresOfGrading	20.50	0.50
tblLandUse	LotAcreage	0.00	0.20
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	PhaseName		Clear and Grub
tblOffRoadEquipment	PhaseName		Foundation Install
tblOffRoadEquipment	PhaseName		Foundation Install
tblOffRoadEquipment	PhaseName		Improve Hiking Trails
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Foundation Install
tblOffRoadEquipment	PhaseName		Foundation Install
tblOffRoadEquipment	PhaseName		Foundation Install
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblTripsAndVMT	WorkerTripNumber	5.00	15.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0359	0.2753	0.3688	6.4000e-004	0.0301	0.0146	0.0446	0.0125	0.0136	0.0262	0.0000	55.4543	55.4543	0.0124	0.0000	55.7652
Maximum	**0.0359**	**0.2753**	**0.3688**	**6.4000e-004**	**0.0301**	**0.0146**	**0.0446**	**0.0125**	**0.0136**	**0.0262**	**0.0000**	**55.4543**	**55.4543**	**0.0124**	**0.0000**	**55.7652**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0359	0.1398	0.3688	6.4000e-004	0.0210	0.0146	0.0356	7.6300e-003	0.0136	0.0213	0.0000	55.4542	55.4542	0.0124	0.0000	55.7652
Maximum	**0.0359**	**0.1398**	**0.3688**	**6.4000e-004**	**0.0210**	**0.0146**	**0.0356**	**7.6300e-003**	**0.0136**	**0.0213**	**0.0000**	**55.4542**	**55.4542**	**0.0124**	**0.0000**	**55.7652**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**49.20**	**0.00**	**0.00**	**30.12**	**0.00**	**20.26**	**39.15**	**0.00**	**18.76**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	0.1514	0.0815
2	4-1-2021	6-30-2021	0.1102	0.0479
3	7-1-2021	9-30-2021	0.0516	0.0489
		Highest	0.1514	0.0815

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Clear and Grub	Site Preparation	1/1/2021	2/28/2021	5	41	
2	Foundation Install	Building Construction	3/1/2021	4/29/2021	5	44	
3	Grading	Grading	5/1/2021	6/30/2021	5	43	
4	Improve Hiking Trails	Paving	7/1/2021	8/30/2021	5	43	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Clear and Grub	Excavators	1	6.00	158	0.38
Foundation Install	Excavators	1	4.00	158	0.38
Foundation Install	Dumpers/Tenders	2	8.00	16	0.38
Improve Hiking Trails	Plate Compactors	1	4.00	8	0.43
Grading	Excavators	1	4.00	158	0.38
Grading	Plate Compactors	2	4.00	8	0.43
Foundation Install	Plate Compactors	1	6.00	8	0.43
Improve Hiking Trails	Rollers	1	4.00	80	0.38
Foundation Install	Cement and Mortar Mixers	1	6.00	9	0.56
Foundation Install	Air Compressors	1	4.00	78	0.48
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Improve Hiking Trails	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Clear and Grub	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Foundation Install	5	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Improve Hiking Trails	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Clear and Grub	2	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Clear and Grub - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-003	0.0916	0.1201	1.8000e-004		5.0500e-003	5.0500e-003		4.6500e-003	4.6500e-003	0.0000	15.4054	15.4054	4.9800e-003	0.0000	15.5300
Total	**9.3000e-003**	**0.0916**	**0.1201**	**1.8000e-004**	**2.7000e-004**	**5.0500e-003**	**5.3200e-003**	**3.0000e-005**	**4.6500e-003**	**4.6800e-003**	**0.0000**	**15.4054**	**15.4054**	**4.9800e-003**	**0.0000**	**15.5300**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2800e-003	9.5000e-004	0.0107	3.0000e-005	3.3700e-003	3.0000e-005	3.4000e-003	9.0000e-004	2.0000e-005	9.2000e-004	0.0000	2.9417	2.9417	8.0000e-005	0.0000	2.9437
Total	**1.2800e-003**	**9.5000e-004**	**0.0107**	**3.0000e-005**	**3.3700e-003**	**3.0000e-005**	**3.4000e-003**	**9.0000e-004**	**2.0000e-005**	**9.2000e-004**	**0.0000**	**2.9417**	**2.9417**	**8.0000e-005**	**0.0000**	**2.9437**

3.2 Clear and Grub - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.2000e-004	0.0000	1.2000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-003	0.0583	0.1201	1.8000e-004		5.0500e-003	5.0500e-003		4.6500e-003	4.6500e-003	0.0000	15.4054	15.4054	4.9800e-003	0.0000	15.5300
Total	**9.3000e-003**	**0.0583**	**0.1201**	**1.8000e-004**	**1.2000e-004**	**5.0500e-003**	**5.1700e-003**	**1.0000e-005**	**4.6500e-003**	**4.6600e-003**	**0.0000**	**15.4054**	**15.4054**	**4.9800e-003**	**0.0000**	**15.5300**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2800e-003	9.5000e-004	0.0107	3.0000e-005	3.3700e-003	3.0000e-005	3.4000e-003	9.0000e-004	2.0000e-005	9.2000e-004	0.0000	2.9417	2.9417	8.0000e-005	0.0000	2.9437
Total	**1.2800e-003**	**9.5000e-004**	**0.0107**	**3.0000e-005**	**3.3700e-003**	**3.0000e-005**	**3.4000e-003**	**9.0000e-004**	**2.0000e-005**	**9.2000e-004**	**0.0000**	**2.9417**	**2.9417**	**8.0000e-005**	**0.0000**	**2.9437**

3.3 Foundation Install - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0106	0.0769	0.0824	1.5000e-004		3.7000e-003	3.7000e-003		3.6100e-003	3.6100e-003	0.0000	12.4659	12.4659	2.2700e-003	0.0000	12.5227
Total	**0.0106**	**0.0769**	**0.0824**	**1.5000e-004**		**3.7000e-003**	**3.7000e-003**		**3.6100e-003**	**3.6100e-003**	**0.0000**	**12.4659**	**12.4659**	**2.2700e-003**	**0.0000**	**12.5227**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3700e-003	1.0200e-003	0.0115	3.0000e-005	3.6200e-003	3.0000e-005	3.6500e-003	9.6000e-004	3.0000e-005	9.9000e-004	0.0000	3.1570	3.1570	8.0000e-005	0.0000	3.1591
Total	**1.3700e-003**	**1.0200e-003**	**0.0115**	**3.0000e-005**	**3.6200e-003**	**3.0000e-005**	**3.6500e-003**	**9.6000e-004**	**3.0000e-005**	**9.9000e-004**	**0.0000**	**3.1570**	**3.1570**	**8.0000e-005**	**0.0000**	**3.1591**

3.3 Foundation Install - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0106	6.0800e-003	0.0824	1.5000e-004		3.7000e-003	3.7000e-003		3.6100e-003	3.6100e-003	0.0000	12.4659	12.4659	2.2700e-003	0.0000	12.5227
Total	**0.0106**	**6.0800e-003**	**0.0824**	**1.5000e-004**		**3.7000e-003**	**3.7000e-003**		**3.6100e-003**	**3.6100e-003**	**0.0000**	**12.4659**	**12.4659**	**2.2700e-003**	**0.0000**	**12.5227**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3700e-003	1.0200e-003	0.0115	3.0000e-005	3.6200e-003	3.0000e-005	3.6500e-003	9.6000e-004	3.0000e-005	9.9000e-004	0.0000	3.1570	3.1570	8.0000e-005	0.0000	3.1591
Total	**1.3700e-003**	**1.0200e-003**	**0.0115**	**3.0000e-005**	**3.6200e-003**	**3.0000e-005**	**3.6500e-003**	**9.6000e-004**	**3.0000e-005**	**9.9000e-004**	**0.0000**	**3.1570**	**3.1570**	**8.0000e-005**	**0.0000**	**3.1591**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0162	0.0000	0.0162	8.9000e-003	0.0000	8.9000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.3600e-003	0.0592	0.0763	1.2000e-004		3.1400e-003	3.1400e-003		2.9100e-003	2.9100e-003	0.0000	9.9766	9.9766	3.0800e-003	0.0000	10.0535
Total	**6.3600e-003**	**0.0592**	**0.0763**	**1.2000e-004**	**0.0162**	**3.1400e-003**	**0.0193**	**8.9000e-003**	**2.9100e-003**	**0.0118**	**0.0000**	**9.9766**	**9.9766**	**3.0800e-003**	**0.0000**	**10.0535**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9000e-004	6.6000e-004	7.5000e-003	2.0000e-005	2.3600e-003	2.0000e-005	2.3800e-003	6.3000e-004	2.0000e-005	6.4000e-004	0.0000	2.0568	2.0568	6.0000e-005	0.0000	2.0582
Total	**8.9000e-004**	**6.6000e-004**	**7.5000e-003**	**2.0000e-005**	**2.3600e-003**	**2.0000e-005**	**2.3800e-003**	**6.3000e-004**	**2.0000e-005**	**6.4000e-004**	**0.0000**	**2.0568**	**2.0568**	**6.0000e-005**	**0.0000**	**2.0582**

3.4 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.2800e-003	0.0000	7.2800e-003	4.0000e-003	0.0000	4.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.3600e-003	0.0306	0.0763	1.2000e-004		3.1400e-003	3.1400e-003		2.9100e-003	2.9100e-003	0.0000	9.9765	9.9765	3.0800e-003	0.0000	10.0535
Total	**6.3600e-003**	**0.0306**	**0.0763**	**1.2000e-004**	**7.2800e-003**	**3.1400e-003**	**0.0104**	**4.0000e-003**	**2.9100e-003**	**6.9100e-003**	**0.0000**	**9.9765**	**9.9765**	**3.0800e-003**	**0.0000**	**10.0535**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9000e-004	6.6000e-004	7.5000e-003	2.0000e-005	2.3600e-003	2.0000e-005	2.3800e-003	6.3000e-004	2.0000e-005	6.4000e-004	0.0000	2.0568	2.0568	6.0000e-005	0.0000	2.0582
Total	**8.9000e-004**	**6.6000e-004**	**7.5000e-003**	**2.0000e-005**	**2.3600e-003**	**2.0000e-005**	**2.3800e-003**	**6.3000e-004**	**2.0000e-005**	**6.4000e-004**	**0.0000**	**2.0568**	**2.0568**	**6.0000e-005**	**0.0000**	**2.0582**

3.5 Improve Hiking Trails - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4800e-003	0.0438	0.0468	7.0000e-005		2.5700e-003	2.5700e-003		2.3700e-003	2.3700e-003	0.0000	5.7486	5.7486	1.7900e-003	0.0000	5.7933
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.4800e-003**	**0.0438**	**0.0468**	**7.0000e-005**		**2.5700e-003**	**2.5700e-003**		**2.3700e-003**	**2.3700e-003**	**0.0000**	**5.7486**	**5.7486**	**1.7900e-003**	**0.0000**	**5.7933**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6100e-003	1.1900e-003	0.0135	4.0000e-005	4.2500e-003	3.0000e-005	4.2800e-003	1.1300e-003	3.0000e-005	1.1600e-003	0.0000	3.7022	3.7022	1.0000e-004	0.0000	3.7047
Total	**1.6100e-003**	**1.1900e-003**	**0.0135**	**4.0000e-005**	**4.2500e-003**	**3.0000e-005**	**4.2800e-003**	**1.1300e-003**	**3.0000e-005**	**1.1600e-003**	**0.0000**	**3.7022**	**3.7022**	**1.0000e-004**	**0.0000**	**3.7047**

3.5 Improve Hiking Trails - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4800e-003	0.0411	0.0468	7.0000e-005		2.5700e-003	2.5700e-003		2.3700e-003	2.3700e-003	0.0000	5.7486	5.7486	1.7900e-003	0.0000	5.7933
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.4800e-003**	**0.0411**	**0.0468**	**7.0000e-005**		**2.5700e-003**	**2.5700e-003**		**2.3700e-003**	**2.3700e-003**	**0.0000**	**5.7486**	**5.7486**	**1.7900e-003**	**0.0000**	**5.7933**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6100e-003	1.1900e-003	0.0135	4.0000e-005	4.2500e-003	3.0000e-005	4.2800e-003	1.1300e-003	3.0000e-005	1.1600e-003	0.0000	3.7022	3.7022	1.0000e-004	0.0000	3.7047
Total	**1.6100e-003**	**1.1900e-003**	**0.0135**	**4.0000e-005**	**4.2500e-003**	**3.0000e-005**	**4.2800e-003**	**1.1300e-003**	**3.0000e-005**	**1.1600e-003**	**0.0000**	**3.7022**	**3.7022**	**1.0000e-004**	**0.0000**	**3.7047**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Recreational	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Recreational	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000e-005
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000e-005
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000e-005
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX 4

Biological Resources Assessment
And Jurisdictional Delineation
For the Trask Scout Reservation
Water Treatment System Improvement Project

North of the City of Monrovia, Los Angeles County, California
USGS – *Azusa* Quadrangle
Sections 7 & 18 of Township 1 N, Range 10 W; Section 13 of Township 1 N, Range 11 W

Date Prepared: January 2021

Prepared for:

Boy Scouts of America Trask Scout Reservation
1100 North Canyon Boulevard
Monrovia, CA 91016

On Behalf of:

Tom Dodson and Associates
2150 N Arrowhead Avenue
San Bernardino, CA 92405

Prepared by:

Jacobs Engineering Group, Inc.
55616 Pipes Canyon Road
Yucca Valley, California 92284

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

_____

Lisa Patterson, National Senior Environmental Project Manager

Table of Contents

1 Introduction

The Trask Scout Reservation (Trask) is proposing to rehabilitate its existing surface water treatment system to satisfy current local and federal water treatment regulations and standards. On behalf of Tom Dodson and Associates (TDA), Jacobs Engineering Group, Inc. (Jacobs) has prepared this Biological Resources Assessment (BRA) report for the Trask Water Treatment System Improvement Project (Project). The BRA fieldwork was conducted by Jacobs biological field technician Daniel Smith in April 2020. The purpose of the BRA was to address potential effects of the Project to designated Critical Habitats and/or any species currently listed or formally proposed for listing as endangered or threatened under the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA) or species designated as sensitive by the California Department of Fish and Wildlife (CDFW [formerly California Department of Fish and Game]) and/or the California Native Plant Society (CNPS).

The Project Area was assessed for sensitive species known to occur locally. Attention was focused on those State- and/or federally-listed as threatened or endangered species and California Fully Protected species that have been documented in the Project vicinity, whose habitat requirements are present within or adjacent to the Project site. Results of the habitat assessment are intended to provide sufficient baseline information to the Project proponent and, if required, to federal and State regulatory agencies, including the U.S. Fish and Wildlife Service (USFWS) and CDFW, respectively, to determine if impacts will occur to sensitive biological resources and to identify mitigation measures to offset those impacts.

In addition to the BRA and focused surveys, Jacobs biological field technician Daniel Smith conducted a Jurisdictional Delineation (JD) of the Project Area. The purpose of the JD is to determine the extent of State and federal jurisdictional waters within the Project Area potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and Porter Cologne Water Quality Control Act, and CDFW under Section 1602 of the California Fish and Game Code (FGC), respectively.

1.1 Project Description

The Project will consist of the following main components:

- Removal of accumulated silt behind the existing inlet structure and replace the damaged raw water collector on the upstream side of the existing concrete wall;
- Hand-removal of a fallen tree from over the existing intake pipe on the downstream side of the existing concrete wall;
- Modification of the existing sand filter into a clear well with a pump station;
- Installation of a chlorine injection system, pipe work, sampling stations;
- Installation of a booster pump for backup distribution;
- Installation of a new backup generator for continued operations during a power outage;
- Replacement of the existing 25,000-gallon steel water storage tank and associated pipe work with two (2) 50,000-gallon steel bolted tanks; and
- Installation of new fire hydrants along the existing 4-inch water main.

The removal of accumulated silt from behind the existing inlet structure would require equipment (likely a backhoe or mini excavator) to excavate material from within the creek channel (Sawpit Wash) that has accumulated behind the existing inlet structure. Once the accumulated material has been removed, the

existing raw water collector (damaged) will be replaced, which will connect to the existing intake pipe on the upstream side of the existing concrete wall. The sediment removal area will be accessed via an existing access road and disturbed clearing along the north side of the creek. Additionally, there is a fallen California bay tree (*Umbellularia californica*) that is currently lying across the existing intake pipe on the downstream side of the existing concrete wall, which will be removed. The modification of the existing sand filter into a clear well with a pump station will occur within an existing disturbed area consisting of existing structures, paved parking areas and disturbed oak woodland. The installation of the chlorine injection system, pipe work, sampling stations, booster pump and new backup generator will be inside the existing pump house, which is next to the existing sand filter. The installation of the new fire hydrants will occur within existing disturbed areas along the existing water 4-inch water main.

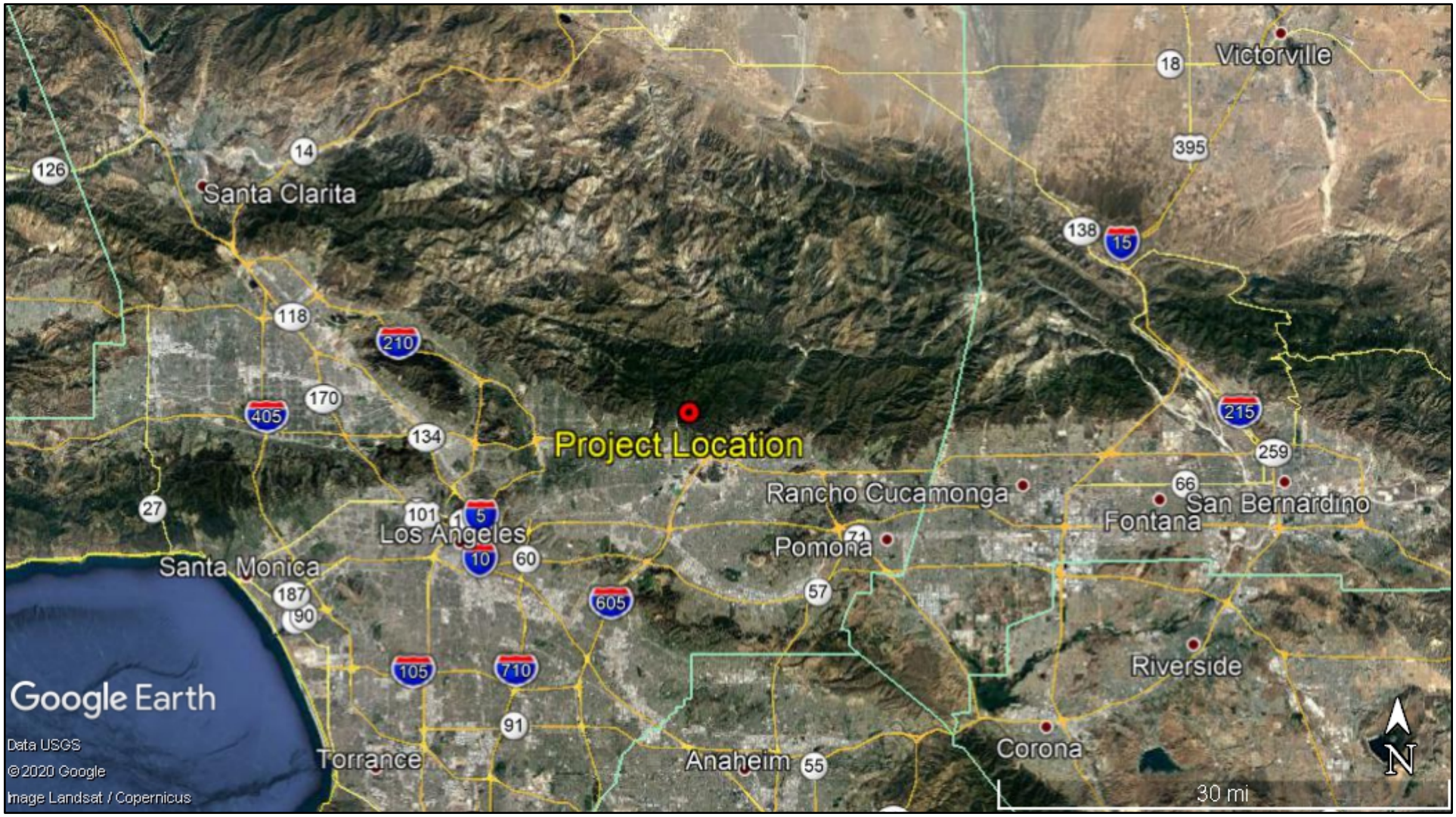
There are two possible alternatives for the replacement of the existing 25,000-gallon steel water storage tank and associated pipe work. The first alternative is the most likely alternative and would occur in the same location where the existing 25,000-gallon steel water storage tank is located. This alternative would result in minimal disturbance, Hand-removal of a fallen tree from over the existing intake pipe as the work area consists of an existing cleared and graded pad. The second alternative would occur adjacent the existing water storage tank and would require new grading and removal of several trees to accommodate the new storage tanks.

Please refer to the attached Site Photographs at the end of this document for representative photos of the existing conditions within the Project Area at the time of survey.

1.2 Location

The proposed Project is generally located in Sections 7 and 18 of Township 1 North, Range 10 West and Section 13 of Township 1 North, Range 11 West, San Bernardino Base Meridian (SBBM), immediately north of the City of Monrovia, Los Angeles County, California (Figures 1&2). The Project Area is depicted on the *Azusa* U. S. Geological Survey's (USGS) 7.5-Minute Series Quadrangle map. The Project Area is specifically located within the Trask Scout Reservation at 1100 North Canyon Boulevard, off Monrovia Canyon Truck Trail, within the Angeles National Forest (Figures 2&3). Please refer to Figure 3 on page 5 for an aerial depiction of the site and water distribution system layout.

The Project Area is defined as all areas that may be impacted directly or indirectly by the proposed Project. It encompasses the geographic extent of environmental changes (i.e. the physical, chemical and biotic effects) that will result directly and indirectly from the Project.

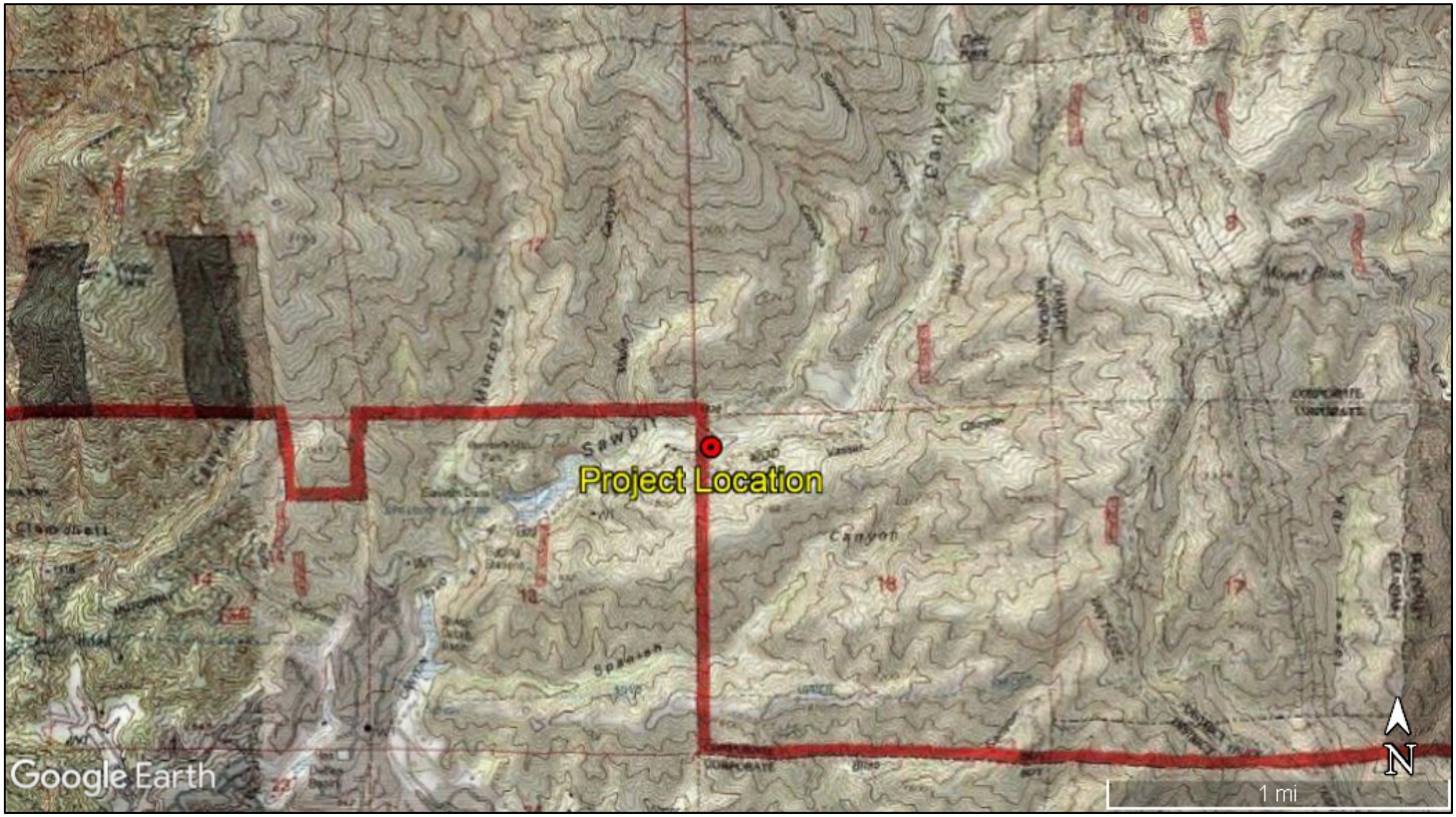


SOURCE: Google Earth

FIGURE 1

Regional Location

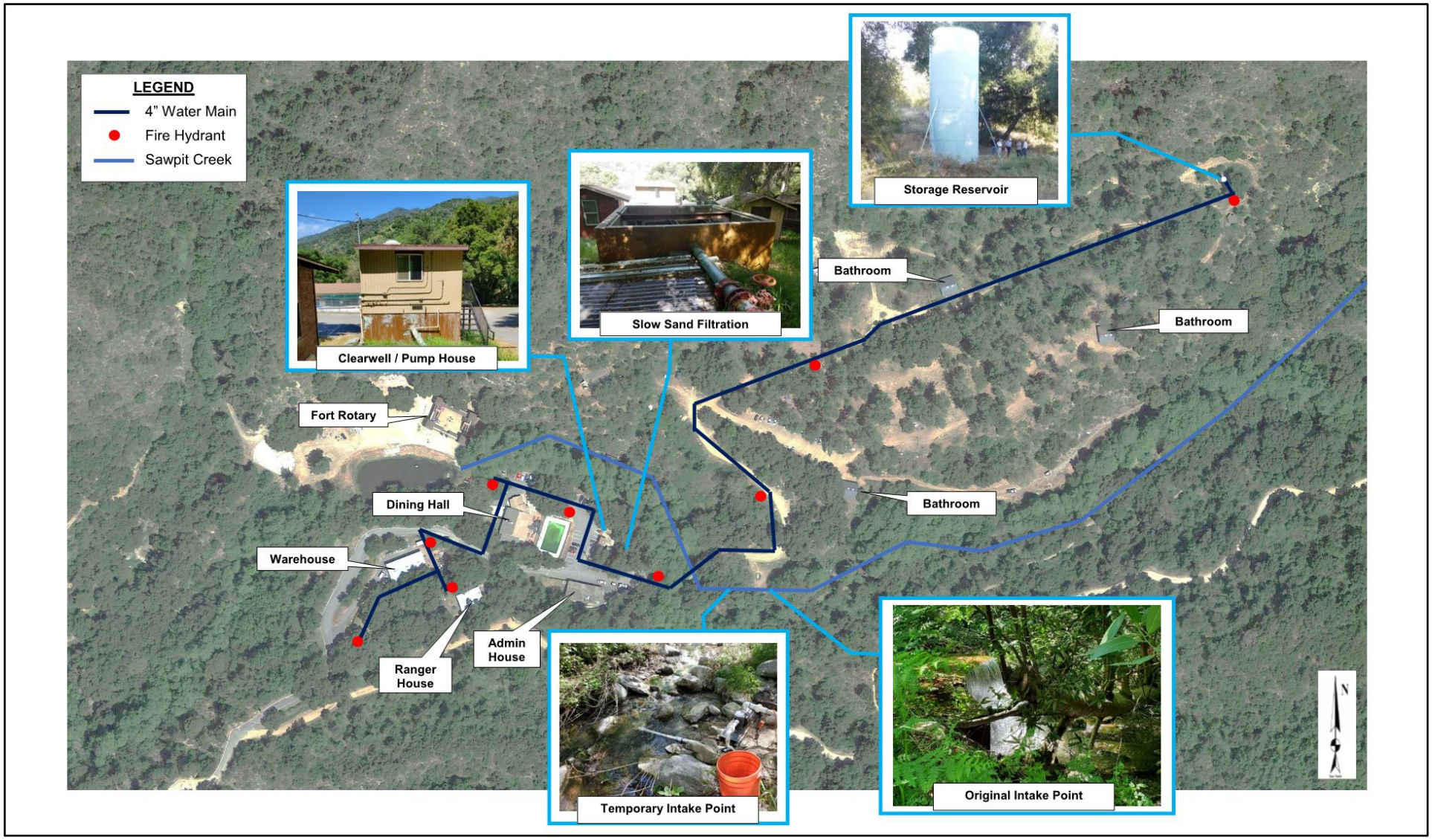
Trask Scout Reservation Water Treatment System Improvement Project



SOURCE: Google Earth

FIGURE 2

Topographic Map of Project Location
Trask Scout Reservation Water Treatment System Improvement Project



SOURCE: Tom Dodson & Associates

FIGURE 3

Site and Water Distribution System Layout

Trask Scout Reservation Water Treatment System Improvement Project

1.3 Environmental Setting

The Project Area is in the southern foothills of the San Gabriel Mountains, near the City of Monrovia. The Monrovia area is subject to both seasonal and annual variations in temperature and precipitation. Average annual maximum temperatures peak at 91.7 degrees Fahrenheit (° F) in August and fall to an average annual minimum temperature of 47.2° F in January. Average annual precipitation is greatest from November through April and reaches a peak in February (5.06 inches). Precipitation is lowest in the month of July (0.04 inches). Annual total precipitation averages 22.28 inches.

The topography of the Project Area ranges from steeply-sloped and hilly to concave (Sawpit Wash). Elevation within the proposed Project Area ranges from approximately 1,540 feet above mean sea level (amsl) to 1,790 feet amsl.

Hydrologically, the Project Area is situated within the Pasadena Hydrologic Sub-Area (HSA 412.31). The Pasadena HSA comprises a 73,439-acre drainage area, within the larger Los Angeles Watershed (HUC 18070105). The Los Angeles River is the major hydrogeomorphic feature within the Los Angeles Watershed. One of several major tributaries to the Los Angeles River is Rio Hondo. Sawpit Wash is tributary to Rio Hondo.

Soils within the Project Area are comprised primarily of Trigo family, granitic substratum, 60 to 90 percent slopes and Olete-Kilburn-Etsel families complex, 50 to 80 percent slopes. Trigo family soil consists of loam, to gravelly sandy loam to bedrock comprised of residuum weathered from granodiorite. Olete family soil consists of very gravelly loam, to extremely cobbly sandy loam to bedrock comprised of colluvium derived from granodiorite. Etsel family soil consists of gravelly loam, to extremely gravelly sandy loam to bedrock derived from residuum weathered from granodiorite. These soil types are all somewhat excessively drained with a very high runoff class and do not have a hydric soil rating.

Land use within the Project Area consists of developed outdoor recreation facility surrounded by open space. Trask is a developed campground/retreat that consists of camp sites, trails, paved and unpaved roads, parking areas, buildings and other facilities and installations (Figure 3). Habitat within the undeveloped portions of the Project Area consists of *Alnus rhombifolia* Forest and Woodland Alliance (white alder groves), or southern sycamore-alder riparian woodland (Holland 62400), along Sawpit Wash and *Quercus agrifolia* Forest and Woodland Alliance (coast live oak woodland and forest) in the adjacent upland areas.

2 Assessment Methodology

2.1 Biological Resources Assessment

Data regarding biological resources in the Project Area were obtained through literature review and field investigation. Prior to performing the surveys, available databases and documentation relevant to the Project Area were reviewed for documented occurrences of sensitive species in the Project vicinity (approximately 3 miles). The USFWS threatened and endangered species occurrence data overlay, USFWS Information for Planning and Consultation System (IPaC) and the most recent versions of the California Natural Diversity Database (CNDDB; *Rarefind 5*) and California Native Plant Society Electronic Inventory (CNPSEI) databases were searched for sensitive species data in the *Azusa* and *Mt. Wilson* USGS 7.5-Minute Series Quadrangle. These databases contain records of reported occurrences of State- and federally-listed species or otherwise sensitive species and habitats that may occur within the vicinity of the Project site (approximately 3 miles). Other available technical information on the biological resources of the area was also reviewed including previous surveys and recent findings.

Biological Resources Assessment

Jacobs biological field technician Daniel Smith conducted a biological resources assessment of the Project Area on April 27 and 30, of 2020. The survey area encompassed 100 percent of the entire proposed impact area. Wildlife species were detected during field surveys by sight, calls, tracks, scat, or other signs. In addition to species observed, expected wildlife usage of the site was determined per known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area. The focus of the faunal species survey was to identify potential habitat for special status wildlife within the Project Area.

Focused Sensitive Plant Species Survey

A focused botanical survey was also conducted by Jacobs biological field technician Daniel Smith on April 27 and 30, of 2020. In accordance with the CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (2009), the survey was conducted during the appropriate time of year, when the target species was both evident and identifiable. The target species included Braunton's milk-vetch (*Astragalus brauntonii*), which is the only State- and/or federally-listed plant species that has been documented in the Project vicinity (approximately 3 miles), whose habitat requirements are present within the vicinity of the Project Area. During the survey, 100 percent visual coverage of the undeveloped portions of the Project Area that contained the appropriate environmental conditions for the target species was achieved.

2.2 Jurisdictional Delineation

On April 27, 2020, Mr. Smith also evaluated the Project Area for the presence of riverine/riparian/wetland habitat and jurisdictional waters, i.e. Waters of the U.S. (WoUS), as regulated by the USACE and RWQCB, and/or jurisdictional streambed and associated riparian habitat as regulated by the CDFW.

Prior to the field visit, aerial photographs of the Project Area were viewed and compared with the surrounding USGS 7.5-Minute Topographic Quadrangle maps to identify drainage features within the survey area as indicated from topographic changes, blue-line features, or visible drainage patterns. The USFWS National Wetland Inventory and Environmental Protection Agency (EPA) Water Program "My Waters" Google Earth Pro data layer were also reviewed to determine whether any hydrologic features and wetland areas had been documented within the vicinity of the site. Similarly, the United States Department of Agriculture (USDA) – Natural Resources Conservation Service (NRCS) Web Soil Survey was reviewed for soil types found within the Project Area to identify the soil series in the area and to check these soils to determine whether they are regionally identified as hydric soils. Upstream and downstream connectivity of waterways (if present) were reviewed on Google Earth Pro aerial photographs and topographic maps to determine jurisdictional status. The lateral extent of potential USACE jurisdiction was measured at the Ordinary High Watermark (OHWM) in accordance with regulations set forth in 33CFR part 328 and the USACE guidance documents listed below:

- *USACE Wetlands Research Program Technical Report Y-87-1 (on-line edition), Wetlands Delineation Manual, Environmental Laboratory, 1987 (Wetland Delineation Manual).*
- *USACE Minimum Standards for Acceptance of Preliminary Wetlands Delineations, November 30, 2001 (Minimum Standards).*
- *USACE Jurisdictional Determination Form Instructional Guidebook, May 30, 2007 (JD Form Guidebook).*
- *USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), May 2010.*

- *USACE A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States, August 2014 (Delineation Manual).*
- *The Environmental Protection Agency (EPA) and the Department of the Army's "Navigable Waters Protection Rule: Definition of 'Waters of the United States,'" April 21, 2020 (effective June 22, 2020) (85 FR 22250).*

To be considered a *jurisdictional wetland* under the federal CWA, Section 404, an area must possess three (3) wetland characteristics: hydrophytic *vegetation*, hydric *soils*, and wetland *hydrology*.

► *Hydrophytic vegetation*: Hydrophytic vegetation is plant life that grows, and is typically adapted for life, in permanently or periodically saturated soils. The hydrophytic vegetation criterion is met if more than 50 percent of the dominant plant species from all strata (tree, shrub, and herb layers) is considered hydrophytic. Hydrophytic species are those included on the *2016 National Wetland Plant List (Western Mountains, Valleys & Coast Region)* (Lichvar, 2016). Each species on the list is rated per a wetland indicator category, as shown in Table 1. To be considered hydrophytic, the species must have *wetland indicator status*, i.e., be rated as OBL, FACW or FAC.

Table 1. Wetland Indicator Vegetation Categories

Category	Probability
Obligate Wetland (OBL)	Almost always occur in wetlands (estimated probability >99%)
Facultative Wetland (FACW)	Usually occur in wetlands (estimated probability 67 to 99%)
Facultative (FAC)	Equally likely to occur in wetlands and non-wetlands (estimated probability 34 to 66%)
Facultative Upland (FACU)	Usually occur in non-wetlands (estimated probability 67 to 99%)
Obligate Upland (UPL)	Almost always occur in non-wetlands (estimated probability >99%)

► *Hydric Soil*: Soil maps from the USDA-NRCS Web Soil Survey (USDA 2019) were reviewed for soil types found within the Project Area. Hydric soils are saturated or inundated long enough during the growing season to develop anaerobic conditions that favor growth and regeneration of hydrophytic vegetation. There are several indirect indicators that may signify the presence of hydric soils including hydrogen sulfide generation, the presence of iron and manganese concretions, certain soil colors, gleying, and the presence of mottling. Generally, hydric soils are dark in color or may be gleyed (bluish, greenish, or grayish), resulting from soil development under anoxic (without oxygen) conditions. Bright mottles within an otherwise dark soil matrix indicate periodic saturation with intervening periods of soil aeration. Hydric indicators are particularly difficult to observe in sandy soils, which are often recently deposited soils of flood plains (entisols) and usually lack sufficient fines (clay and silt) and organic material to allow use of soil color as a reliable indicator of hydric conditions. Hydric soil indicators in sandy soils include accumulations of organic matter in the surface horizon, vertical streaking of subsurface horizons by organic matter, and organic pans.

The hydric soil criterion is satisfied at a location if soils in the area can be inferred or observed to have a high groundwater table, if there is evidence of prolonged soil saturation, or if there are any indicators suggesting a long-term reducing environment in the upper part of the soil profile. Reducing conditions are most easily assessed using soil color. Soil colors are evaluated using the Munsell Soil Color Charts (Gretag/Macbeth, 2000).

- ► *Wetland Hydrology*: The wetland hydrology criterion is satisfied at a location based upon conclusions inferred from field observations that indicate an area has a high probability of being inundated or saturated (flooded, ponded, or tidally influenced) long enough during the growing season to develop anaerobic conditions in the surface soil environment, especially the root zone (USACE, 1987 and 2008b).

Evaluation of CDFW jurisdiction followed guidance in the FGC. Specifically, CDFW jurisdiction would occur where a stream has a definite course showing evidence of where waters rise to their highest level and to the extent of associated riparian vegetation. Here the bank-full width, as well as the outer dripline of associated riparian vegetation was used to mark the lateral extent of the jurisdictional areas.

3 Results

3.1 Existing Biological and Physical Conditions

The Project Area consists of developed campground/retreat surrounded by open space (Figure 3). Disturbances within and adjacent the proposed impact area include graded camp sites, trails, paved and unpaved roads, parking areas, buildings and other facilities and installations.

3.1.1 Habitat

Habitat within the proposed silt removal area and raw water collector replacement at the existing inlet structure in Sawpit Wash consists of *Alnus rhombifolia* Forest and Woodland Alliance (white alder groves), or southern sycamore-alder riparian woodland (Holland 62400), with a relatively open canopy. Habitat within the upland portions of the Project Area consist primarily of *Quercus agrifolia* Forest and Woodland Alliance (coast live oak woodland and forest). The habitats within the undeveloped portions of the Project Area are disturbed due to the previous grading and vegetation clearing associated with campground maintenance activities.

- *White Alder Groves* – Where this habitat exists within the Project Area, it is primarily dominated by white alder (*Alnus rhombifolia*). Other tree/shrub species conspicuous within this habitat include big leaf maple (*Acer macrophyllum*), California sycamore (*Platanus racemosa*) and California bay (*Umbellularia californica*). The herbaceous layer is dominated by non-native thoroughwort (*Ageratina adenophora*), bur chervil (*Anthriscus caucalis*), poison oak (*Toxicodendron diversilobum*), stinging nettle (*Urtica dioica*) and non-native grasses.

- *Coast Live Oak Woodland and Forest* – Where this habitat exists within the Project Area, it is primarily dominated by coast live oak (*Quercus agrifolia*) and transplanted pine trees (*Pinus* ssp.). Other tree/shrub species conspicuous within this habitat include California sagebrush (*Artemisia californica*), chaparral whitethorn (*Ceanothus leucodermis*), sticky monkeyflower (*Diplacus aurantiacus*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), San Gabriel Mountains leather oak (*Quercus durata* var. *gabrielensis*), black sage (*Salvia mellifera*) and California bay (*Umbellularia californica*). The herbaceous layer is dominated by non-native grasses and burclover (*Medicago* sp.). Native herbaceous species also present within this habitat in the Project Area include common yarrow (*Achillea millefolium*), deerweed (*Acmispon glaber*) and miner's lettuce (*Claytonia perfoliata*).

3.1.2 Wildlife

Amphibians and Reptiles

During the survey, special attention was focused on the proposed silt removal area and raw water collector replacement at the existing inlet structure impact area for sensitive amphibian and reptile species potentially occurring in Sawpit Wash including California newt (*Taricha torosa*) and two-striped gartersnake (*Thamnophis hammondii*). No amphibian species were observed or otherwise detected within the Project Area. The only reptiles observed within the Project Area was western fence lizard (*Sceloporus occidentalis*). Other common species expected to occur within the Project Area include southern Pacific rattlesnake (*Crotalus oreganus helleri*), San Diego alligator lizard (*Elgaria multicarinata webbii*), San Diego gophersnake (*Pituophis catenifer annectens*) and Skilton's skink (P*lestiodon skiltonianus skiltonianus*).

Birds

Birds were the most observed wildlife group during survey and species observed or otherwise detected in the Project Area during the reconnaissance-level survey included:

- California scrub jay (*Aphelocoma californica*)
- oak titmouse (*Baeolophus inornatus*)
- Anna's hummingbird (*Calypte anna*)
- common raven (*Corvus corax*)
- Pacific-slope flycatcher (*Empidonax difficilis*)
- purple finch (*Haemorhous purpureus*)
- dark-eyed junco (*Junco hyemalis*)
- acorn woodpecker (*Melanerpes formicivorus*)
- song sparrow (*Melospiza melodia*)
- California towhee (*Melozone crissalis*)
- black-headed grosbeak (*Pheucticus melanocephalus*)
- spotted towhee (*Pipilo maculatus*)
- western tanager (*Piranga ludoviciana*)
- bushtit (*Psaltriparus minimus*)
- black phoebe (*Sayornis nigricans*)
- black-throated gray warbler (*Setophaga nigrescens*)
- western bluebird (*Sialia mexicana*)
- lesser goldfinch (*Spinus psaltria*)
- violet-green swallow (*Tachycineta thalassina*)
- orange-crowned warbler (*Vermivora celata*)

Mammals

Identification of mammals within the Project Area was generally determined by physical evidence rather than direct visual identification. This is because 1) many of the mammal species that potentially occur onsite are nocturnal and would not have been active during the survey and 2) no mammal trapping was performed. Mammal species observed or otherwise detected during the reconnaissance-level survey included mule deer (*Odocoileus hemionus*) and western gray squirrel (Sciurus griseus). Other common species expected to occur within the Project Area include coyote (*Canis latrans*), striped skunk (*Mephitis*

mephitis), deer mouse (*Peromyscus maniculatus*), racoon (*Procyon lotor*) and gray fox (*Urocyon cinereoargenteus*).

3.2 Special Status Species and Habitats

Per the IPaC, CNDDB, CNPSEI, and other relevant literature and databases, 50 sensitive species (22 plant species, 28 animal species) and six sensitive habitats have been documented in the *Azusa* and *Mt. Wilson* USGS 7.5-Minute Series Quadrangles. This list of sensitive species and habitats includes any State- and/or federally-listed threatened or endangered species, California Fully Protected species, CDFW designated Species of Special Concern (SSC), and otherwise Special Animals. "Special Animals" is a general term that refers to all the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. This list is also referred to as the list of "species at risk" or "special status species." The CDFW considers the taxa on this list to be those of greatest conservation need.

Of the 11 State- and/or federally-listed or Candidate species documented within the *Azusa* and *Mt. Wilson* quads, the following four State- and/or federally-listed species have been documented in the Project vicinity (within approximately 3 miles):

- Braunton's milk-vetch (*Astragalus brauntonii*)
- Santa Ana sucker (*Catostomus santaanae*)
- slender-horned spineflower (*Dodecahema leptoceras*)
- southern mountain yellow-legged frog (*Rana muscosa*)
- least Bell's vireo (*Vireo bellii pusillus*)

However, the habitat requirements for slender-horned spineflower (i.e. intermediate to late successional stage alluvial scrub habitats on flood deposited terraces and washes) are absent from the Project Area and immediate vicinity. Therefore, no further discussion of this species is warranted.

Although not a State- or federally-listed species, the California spotted owl (*Strix occidentalis occidentalis* [SPOW]) is a CDFW SSC and is considered particularly sensitive species within the region. Furthermore, this species has been documented within 3 miles of the Project Area and there is potentially suitable habitat for SPOW within the Project vicinity. Therefore, this species will be included in the discussion below.

An analysis of the likelihood for occurrence of all CNDDB sensitive species documented in the *Azusa* and *Mt. Wilson* quad is provided in Table 2. This analysis considers species' range as well as documentation within the vicinity of the Project Area and includes the habitat requirements for each species and the potential for their occurrence on site, based on required habitat elements and range relative to the current site conditions.

3.2.1 Special Status Species

No State- and/or federally-listed threatened or endangered species, or other sensitive species were observed on site during the reconnaissance-level field survey. The Project components are within a disturbed, active recreational facility (Camp Trask). Habitat within and adjacent the Project site is marginally suitable for several of the special status species that have been documented in the Project vicinity.

Braunton's Milk-vetch – Endangered (Federal)

The federally-listed as endangered Braunton's milk-vetch is a short-lived perennial herb in the pea family (Fabaceae). This plant is covered with densely matted hairs throughout and can grow to 1.5 meters (5 feet) tall. The stems are white, and the leaves are pale greenish, while the clustered flowers are light purple in

color. The beaked fruits are slightly curved, consisting of oblong-ovoid, two-celled seed pods, containing three to six seeds (USFWS 1999). Braunton's milk-vetch is restricted to carbonate or calcareous soils within chaparral, coastal scrub, valley and foothill grassland habitats in the Los Angeles Basin of Ventura, Los Angeles, and Orange Counties and is readily distinguishable from other cooccurring *Astragalus* species (USFWS 1999). This species is naturally rare because the soils that it requires (carbonate outcrops) are extremely rare within its current range (USFWS 1999). Braunton's milk-vetch typically blooms from January through August (Calflora 2020).

> *Findings*: Per the literature review, Braunton's milk-vetch has been documented on steep south-facing slopes approximately 1.5 miles southwest of the Project Area, within suitable chaparral/coastal sage scrub habitat (CNDDB 2020). Although there is potentially suitable chaparral and grassland habitat within the general Project Area, the calcium carbonate soils required by this species are absent from the Project site. Therefore, Braunton's milk-vetch is not likely to occur within the Project site. Furthermore, this species was not detected during the floristic botanical field survey conducted by Jacobs in April 2020. Therefore, Braunton's milk-vetch is considered absent from the Project site at the time of survey and there will be no Project-related effect this species.

Santa Ana Sucker – Threatened (Federal)

The federally-listed as threatened Santa Ana sucker is a small (generally less than 6.3 inches [16 centimeters] in length), short-lived member of the sucker family of fishes (Catostomidae). This species inhabits streams that are generally small and shallow, with currents ranging from swift (in canyons) to sluggish (in the bottomlands). All the streams are subject to periodic severe flooding (USFWS 2000). Santa Ana sucker appear to be most abundant where the water is cool (less than 72° Fahrenheit (22° Celsius)), unpolluted, and clear, although they can tolerate and survive in seasonally turbid water (USFWS 2000). This species typically spawns between mid-March to early July, with peak activity usually in April, and spawning takes place over gravelly riffles (USFWS 2011).

The historical range of the Santa Ana sucker includes the rivers and larger streams emanating from the San Gabriel and San Bernardino Mountains, primary in the counties of Ventura, Los Angeles, Orange, Riverside, and San Bernardino, including the mainstems and tributaries from near the Pacific Ocean to the uplands of the Los Angeles and Santa Ana River systems (USFWS 2000). However, approximately 80 percent of the historical range of the Santa Ana sucker has been lost in the Los Angeles River watershed, 75 percent in the San Gabriel River watershed, and 70 percent in the Santa Ana River watershed (USFWS 2000). The primary threats to this species are habitat loss, habitat degradation, and habitat modification through hydrological modifications. Santa Ana sucker are currently known to occur in three watersheds: (1) The Santa Ana River (San Bernardino, Riverside, and Orange Counties), (2) the San Gabriel River (Los Angeles County), and (3) Big Tujunga Creek of the Los Angeles River (Los Angeles County) (USFWS 2009). The upper limit of Santa Ana sucker distribution in the Santa Ana, Los Angeles, and San Gabriel (West fork) Rivers is generally restricted by artificial barriers preventing their movement, such as artificial dams or grade control structures, and the current range of the species in these watersheds is restricted or curtailed compared to what it was historically (USFWS 2014).

> *Findings*: The Project Area is outside the current known distribution of this species and Santa Ana sucker have not been documented in Sawpit Wash. Per the literature review, the nearest known extant Santa Ana sucker population is approximately 4.50 miles north of the Project Area, within the West Fork San Gabriel River (CNDDB 2020). However, there is no connectivity between the West Fork San Gabriel River and Sawpit Wash. Furthermore, the Project site is less than 1 mile upstream of the Sawpit Dam. Therefore, Santa Ana sucker are not likely to occur within the Project

Area and the Project is not likely to adversely affect this species.

Southern Mountain Yellow-legged Frog – Endangered (Federal/State)

The State- and federally-listed as endangered southern mountain yellow-legged frog is one of 10 California native species that belongs to the family Ranidae and one of only two (2) species within the family (along with *R. sierra*) that are endemic to California. They inhabit high-elevation streams usually above 4,000 feet. They are typically found in swift moving streams in the chaparral belt (Zweifel 1955), and cool and cold, rocky, mountain watercourses shaded by trees, rocks, and other shelter, where the flow comes from springs and snowmelt (Jennings and Hayes 1994b) and where no predatory fishes have been introduced. The decline of mountain yellow-legged frog in southern California has been severe, with extinction at >99% of historical sites (Backlin et al., 2004). In 2002 the species was listed as endangered in southern California under the federal ESA and the USFWS designated critical habitat for the southern mountain yello-legged frog in 2006.

> *Findings*: Per the literature review, there is a historic mountain yellow-legged frog occurrence (1932) documented approximately 1 mile southwest (downstream) of the Project site, in Monrovia Canyon (CNDDB 2020). However, this population is considered to possibly have been extirpated (CNDDB 2020). The USGS has surveyed extensively for southern mountain yellow-legged frog throughout its historic range since 2001 and no extant populations have been documented in the *Azusa* or *Mt. Wilson* quads. This species is believed to be extirpated from most of its historic range. There are currently only 5 known extant mountain yellow-legged frog populations in the San Gabriel Mountains and the nearest extant population is approximately 10 miles north of the Project Area, within Devil's Canyon (USFWS 2019). Furthermore, this species typically occurs in high elevation streams above 4,00 feet amsl, whereas the Project Area is at an elevation of approximately 1,540 feet to 1,790 feet amsl. Therefore, southern mountain yellow-legged frog are not likely to occur within the Project Area and the Project is not likely to adversely affect this species.

Least Bell's Vireo – Endangered (Federal/State)

The least Bell's vireo (LBVI) is a State and federally listed endangered migratory bird species. This species is a small, olive-gray migratory songbird that nests and forages almost exclusively in riparian woodland habitats. LBVI nesting habitat typically consists of well-developed overstory, understory, and low densities of aquatic and herbaceous cover. The understory frequently contains dense sub-shrub or shrub thickets. These thickets are often dominated by plants such as narrow-leaf willow, mulefat, young individuals of other willow species such as arroyo willow or black willow, and one or more herbaceous species. LBVI generally begin to arrive from their wintering range in southern Baja California and establish breeding territories by mid-March to late-March.

Due primarily to habitat loss/modification resulting from flood control, water impoundment and diversion, urban development and agriculture, suitable riparian habitat for LBVI had declined by an estimated 95 percent at the time of listing (USFWS 2006). This species was first proposed for listing as endangered by the USFWS on May 3, 1985, (50 FR 18968 18975) and was subsequently listed as federally endangered on May 2, 1986 (51 FR 16474 16482). Critical habitat units were designated by the USFWS on February 2, 1994 (59 FR 4845) and included reaches of ten streams in six counties in southern California and the surrounding approximately 38,000 acres. The project area is not within USFWS designated critical habitat for this species.

> *Findings*: Per the literature review, the nearest documented extant LBVI occurrence (1978) is approximately 3 miles southeast of the Project Area (CNDDB 2020). The Project site consists

mostly of white alder riparian forest surrounded by coast live oak woodland. The dense understory of willow and/or mule fat that this species often nests in is absent from the Project Area and the riparian habitat on site is likely marginally suitable to support this species. However, LBVI have been documented to nest in other riparian habitats, including white alder.

No LBVI were detected within the Project Area during the reconnaissance-level field survey. However, given that the Project Area supports riparian habitat with a well-developed overstory and understory and this species has been documented within 3 miles of the Project site, protocol LBVI presence/absence surveys would be required to determine whether this species occurs in the Project Area and whether the Project is likely to adversely affect this species.

California Spotted Owl – SSC

The California spotted owl (SPOW) is considered an SSC by the CDFW and is listed as a Sensitive Species by the U.S. Forest Service. The SPOW breeds and roosts in forests and woodlands with large old trees and snags, high basal areas of trees and snags, dense canopies (≥70% canopy closure), multiple canopy layers, and downed woody debris (Verner et al. 1992a, as cited in Davis and Gould 2008). Large, old trees are the key component; they provide nest sites and cover from inclement weather and add structure to the forest canopy and woody debris to the forest floor. These characteristics typify old-growth or late-seral-stage habitats (Davis and Gould 2008). Because the SPOW selects stands that have higher structural diversity and significantly more large trees than those generally available, it is considered a habitat specialist (Moen and Gutiérrez 1997, as cited in Davis and Gould 2008). In southern California, SPOW principally occupy montane hardwood and montane hard-wood-conifer forests, especially those with canyon live oak (*Quercus chrysolepis*) and bigcone Douglas-fir (*Pseudotsuga macrocarpa*), at mid- to high elevations (Davis and Gould 2008).

SPOW prey on small mammals, particularly dusky-footed woodrats (*Neotoma fuscipes*) at lower elevations (oak woodlands and riparian forests) and throughout southern California (Verner et al. 1992a, as cited in Davis and Gould 2008). The SPOW breeding season occurs from early spring to late summer or fall. Breeding SPOW begin pre-laying behaviors, such as preening and roosting together, in February or March and juvenile owl dispersal likely occurs in September and October (Meyer 2007). The SPOW does not build its own nest but depends on finding suitable, naturally occurring sites in tree cavities or on broken-topped trees or snags, on abandoned raptor or common raven (*Corvus corax*) nests, squirrel nests, dwarf mistletoe (*Arceuthobium* spp.) brooms, or debris accumulations in trees (Davis and Gould 2008). In the San Bernardino Mountains, platform nests predominate (59%) and were in trees with an average diameter at breast height (dbh) of 75 cm, whereas cavity nest trees and broken-top nest trees were significantly larger (mean dbh of 108.3 cm and 122.3 cm, respectively) (LaHaye et al. 1997, as cited in Davis and Gould 2008).

According to LaHaye and Gutierrez (2005), urbanization in the form of primary and vacation homes has degraded or consumed some forest in most mountain ranges. The results of SPOW surveys conducted between 1987 and 1998 in the San Bernardino Mountains indicated that a large area of potentially-suitable SPOW habitat, enough to support 10-15 pairs, existed between Running Springs and Crestline (LaHaye and others 1999, as cited in LaHaye and Gutierrez 2005). However, only four pairs have been found in this area, and owls were found only in undeveloped sites. Thus, residential development within montane forests may preclude SPOW occupancy, even when closed-canopy forest remains on developed sites (LaHaye and Gutierrez 2005).

<u>*Findings*</u>: Per the CNDDB SPOW Observations Database (2020), the nearest documented SPOW activity center (typically a roosting or nesting site) is approximately 3 miles northwest of the Project Area. The nearest documented SPOW non-nesting observation is also approximately 3 miles

northwest of the Project Area and there is suitable forest and woodland habitat for this species within the Project Area. Therefore, pre-construction nesting bird surveys that include a nighttime survey component for nocturnal species would be required to determine whether this species occurs in the Project Area and whether the Project is likely to adversely affect this species.

3.2.2 Special Status Habitats

The Project site is not within any USFWS designated Critical Habitat for any federally-listed species. The nearest Critical Habitat unit is approximately 1.3 miles to the southeast of the Project Area. This Critical Habitat unit consists of the Monrovia USFWS designated Critical Habitat (Unit 5) for the federally-listed as endangered Braunton's milk-vetch. However, no portion of the Project Area is within or adjacent this Critical Habitat unit. Therefore, the Project will not result in any loss or adverse modification of USFWS designated Critical Habitat.

Removal of accumulated silt behind the existing inlet structure and replacement of the damaged raw water collector on the upstream side of the existing concrete wall will temporarily impact Southern Sycamore Alder Riparian Woodland habitat, which is considered a sensitive habitat by the CDFW. However, the work will be temporary and only minor vegetation removal (no large trees) is anticipated. Therefore, the Project will not result in any loss or adverse modification of Southern Sycamore Alder Riparian Woodland habitat.

3.3 Jurisdictional Delineation

The Project Area is within the Pasadena Hydrologic Sub-Area (HSA 412.31). The Pasadena HSA comprises a 73,439-acre drainage area, within the larger Los Angeles Watershed (HUC 18070105). This watershed is almost entirely within Los Angeles County, with a small portion in Ventura County. The Losa Angeles Watershed is bound on the north by the Santa Clara and Antelope-Fremont Valleys Watersheds, on the east and south by the San Gabriel Watershed and on the west by the Santa Monica and Calleguas Watersheds. The Los Angeles Watershed encompasses a portion of the San Gabriel Mountains in the north and is approximately 831 square miles in area. The Los Angeles River is the major hydrogeomorphic feature within the Los Angeles Watershed. One of several major tributaries to the Los Angeles River is Rio Hondo and Sawpit Wash is tributary to Rio Hondo. Therefore, the area of the proposed silt removal behind the existing inlet structure and replacement of the damaged raw water collector was assessed for the presence of jurisdictional waters and jurisdictional habitats.

Waters of the U.S.

The USACE has authority to permit the discharge of dredged or fill material in WoUS under Section 404 of the CWA. According to the EPA and the Department of the Army's April 21, 2020 (effective June 22, 2020) "Navigable Waters Protection Rule: Definition of 'Waters of the United States,'" WoUS are defined as: "The territorial seas and traditional navigable waters; perennial and intermittent tributaries that contribute surface water flow to such waters; certain lakes, ponds, and impoundments of jurisdictional waters; and wetlands adjacent to other jurisdictional waters." (85 FR 22250). The Navigable Waters Protection Rule specifically excludes from the definition of WoUS:

- "Groundwater, including groundwater drained through subsurface drainage systems;
- ephemeral features that flow only in direct response to precipitation, including ephemeral streams, swales, gullies, rills, and pools;
- diffuse stormwater runoff and directional sheet flow over upland;
- ditches that are not traditional navigable waters, tributaries, or that are not constructed in adjacent

wetlands, subject to certain limitations;

- prior converted cropland;
- artificially irrigated areas that would revert to upland if artificial irrigation ceases;
- artificial lakes and ponds that are not jurisdictional impoundments and that are constructed or excavated in upland or non-jurisdictional waters;
- water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdictional waters for the purpose of obtaining fill, sand, or gravel;
- stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater run-off;
- groundwater recharge, water reuse, and wastewater recycling structures constructed or excavated in upland or in non-jurisdictional waters; and
- waste treatment systems." (85 FR 22250).

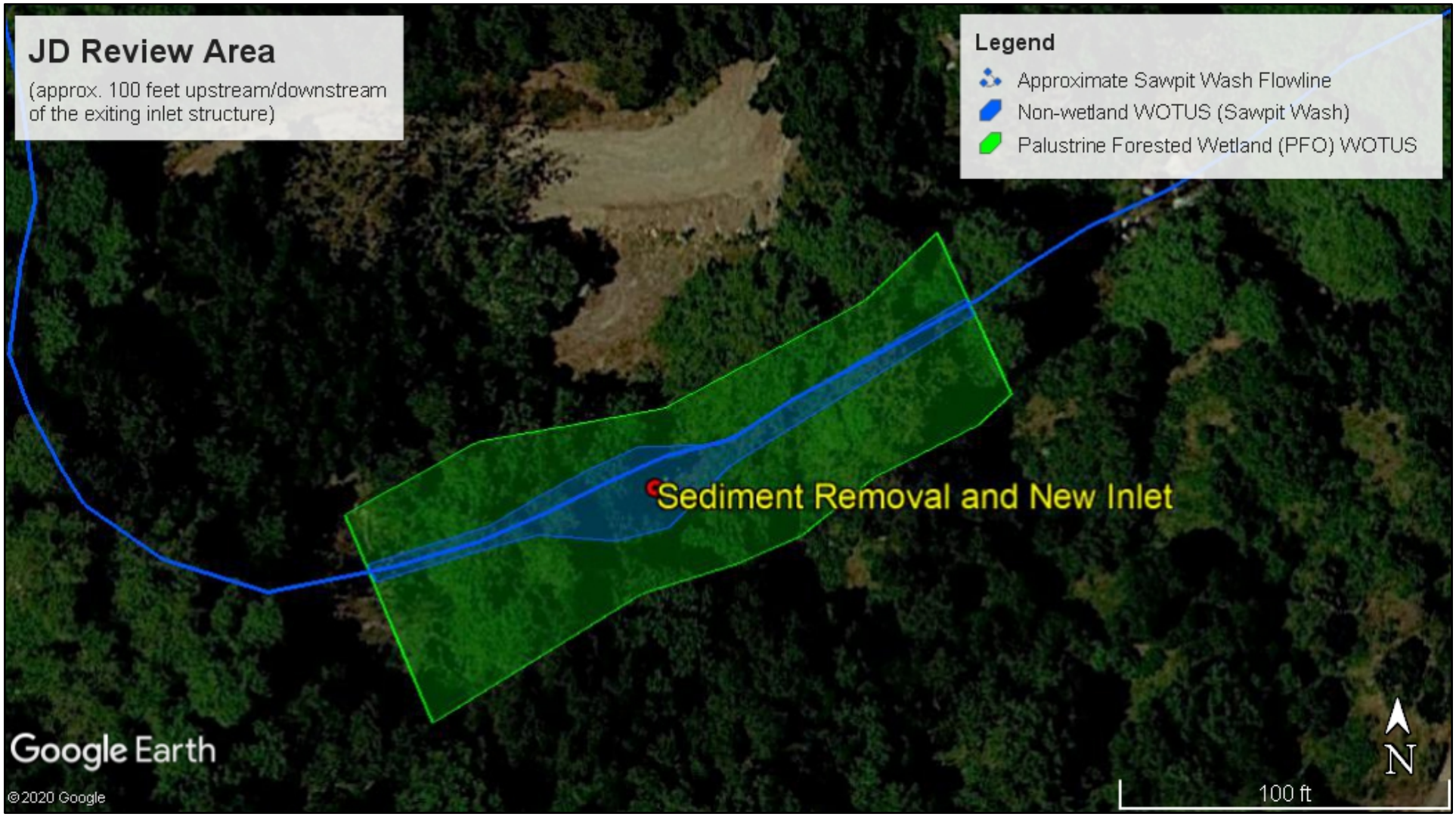
Sawpit Wash is a perennial tributary to Rio Hondo, which is tributary to the Los Angeles River. The Los Angeles River is a Traditional Navigable Water (TNW). Given that Sawpit Wash is a perennial tributary that contributes surface water flow to a TNW, Sawpit Wash is considered a WoUS. Therefore, the Project will result in temporary impacts to jurisdictional waters subject to regulation by the USACE and RWQCB under Sections 404/401 of the CWA (Figure 4).

USACE Wetlands

Areas meeting all three wetland parameters (i.e. hydrophitic vegetation, hydric soils and wetland hydrology) that area also are adjacent to WoUS would be designated as wetland WoUS. According to the USFWS National Wetlands Inventory (NWI) online mapper, the Project Area supports Palustrine Forested (PFO) wetlands along Sawpit Wash (Figure 5). Although soils were not sampled within the Project site, hydrophytic vegetation (i.e *Alnus rhombifolia, Platanus racemosa, Toxicodendron diversilobum, Umbellularia californica* and *Urtica dioica*) dominates the riparian habitat along Sawpit Wash and wetland hydrology is present. Therefore, hydric soils are assumed to be present. Project Area does contain PFO wetlands and will result in temporary impacts to jurisdictional wetlands subject to regulation by the USACE and RWQCB under Sections 404/401 of the CWA (Figure 4).

State Lake/Streambed

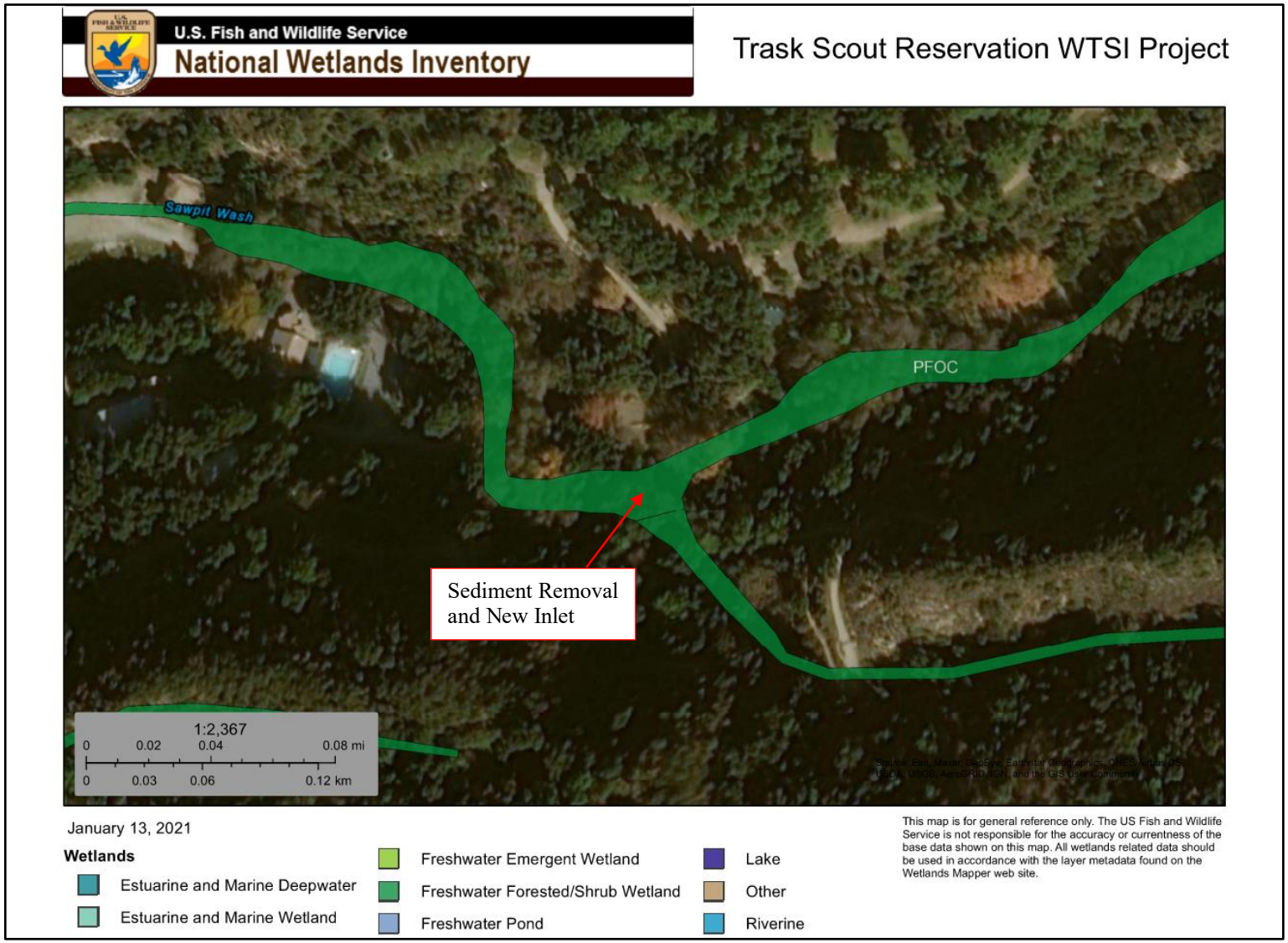
Sawpit Wash is subject to regulation by the CDFW under Section 1602 of the FGC. This drainage feature has an identifiable bed and bank, as well as associated riparian habitat (i.e. white alder groves), which defines the maximal extent of this feature. Therefore, Sawpit Wash and the associated Southern Sycamore Alder Riparian Woodland habitat would fall under CDFW jurisdiction.



SOURCE: Google Earth

FIGURE 4

Jurisdictional Delineation
Trask Scout Reservation Water Treatment System Improvement Project



SOURCE: USFWS NWI Mapper

FIGURE 5

National Wetlands Inventory Map
Trask Scout Reservation Water Treatment System Improvement Project

4 Conclusions and Recommendations

4.1 Sensitive Biological Resources

A BRA survey was conducted by Jacobs in April 2020 to identify potential habitat for special status wildlife and habitats within the Project Area. No State- and/or federally-listed threatened or endangered species or other special status species were observed within the Project Area during the reconnaissance-level assessment survey. The proposed Project is within a developed campground/retreat that consists of camp sites, trails, paved and unpaved roads, parking areas, buildings and other facilities and installations, surrounded by white alder groves and coast live oak woodland and forest. There is some potentially suitable habitat for the State- and federally-listed endangered LBVI and the California Species of Special Concern SPOW within the Project Area. Additionally, Sawpit Wash supports Southern Sycamore Alder Riparian Woodland habitat, which is considered a sensitive habitat by the CDFW.

There is also suitable habitat for the federally-listed endangered Braunton's milk-vetch within the Project Area. However, Jacobs conducted a floristic botanical field survey in April 2020 to determine whether this species was present within the Project Area. The result of the floristic botanical field survey was that the federally listed as endangered Braunton's milk-vetch was not found within the Project Area. Therefore, Braunton's milk-vetch is considered absent from the Project site at the time of survey and there will be no Project-related effect this species. No other special status plant species were detected within the Subject Parcel

Least Bell's Vireo

There is some suitable riparian habitat for LBVI along Sawpit Wash, where the Project proposes to remove accumulated silt from behind the existing inlet structure and replace the damaged raw water collector, as well as hand-remove of a fallen tree from over the existing intake pipe on the downstream side of the existing concrete wall. However, it is unknown whether LBVI occur within the Project Area. Therefore, the following measures are recommended to ensure avoidance of any potential Project-related impacts to LBVI:

- Commencement of any Project-related disturbance should be restricted to outside the LBVI nesting season, which is typically April 1st through July 31st, to avoid any potential adverse effects on this species.

- If commencement of Project-related disturbance cannot be restricted outside the LBVI nesting season, then protocol LBVI presence/absence surveys would be required to determine whether this species occurs in the Project Area and whether the Project is likely to adversely affect this species. According to the USFWS LBVI survey guidelines, "all riparian areas and any other potential vireo habitats should be surveyed at least eight (8) times during the period from April 10 to July 31." Presence/absence surveys should be conducted by a qualified biologist who is familiar with the various LBVI vocalizations and the eight survey visits should be spaced at least 10 days apart.

Other Nesting Birds

There is vegetation throughout the Project Area that is suitable to support nesting birds, including SPOW. Most native bird species are protected from unlawful take by the MBTA (Appendix A). In December 2017, the Department of the Interior (DOI) issued a memorandum concluding that the MBTA's prohibitions on take apply "[…] only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" (DOI 2017). Then in April 2018, the USFWS issued a guidance

memorandum that further clarified that the take of migratory birds or their active nests (i.e., with eggs or young) that is incidental to, and not the purpose of, an otherwise lawful activity does not constitute a violation of the MBTA (USFWS 2018).

However, the State of California provides additional protection for native bird species and their nests in the FGC (Appendix A). Bird nesting protections in the FGC include the following (Sections 3503, 3503.5, 3511, 3513 and 3800):

- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.
- Section 3503.5 prohibits the take, possession, or needless destruction of any nests, eggs, or birds in the orders Falconiformes (new world vultures, hawks, eagles, ospreys, and falcons, among others), and Strigiformes (owls).
- Section 3511 prohibits the take or possession of Fully Protected birds.
- Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that Project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.
- Section 3800 prohibits the take of any non-game bird (i.e., bird that is naturally occurring in California that is not a gamebird, migratory game bird, or fully protected bird).

In general, impacts to all bird species (common and special status) can be avoided by conducting work outside of the nesting season, which is generally February 1st through August 31st. However, if all work cannot be conducted outside of nesting season, the following is recommended:

- To avoid impacts to nesting birds (common and special status) during the nesting season, a qualified Avian Biologist should conduct pre-construction nesting bird surveys prior to any Project-related disturbance to suitable nesting areas to identify any active nests or roosts. The nesting bird surveys should include both daytime and nighttime survey visits to determine the presence/absence of both diurnal and nocturnal species within the Project Area, including SPOW.
- If no active nests or roosts are found, no further action would be required.
- If an active nest is found, the biologist should set appropriate no-work buffers around the nest which would be based upon the nesting species, its sensitivity to disturbance, nesting stage and expected types, intensity and duration of disturbance. The nest(s) and buffer zones should be field checked weekly by a qualified biological monitor. The approved no-work buffer zone should be clearly marked in the field, within which no disturbance activity should commence until the qualified biologist has determined the young birds have successfully fledged and the nest is inactive.

Southern Sycamore Alder Riparian Woodland

There is Southern Sycamore Alder Riparian Woodland habitat along Sawpit Wash, where the Project proposes to remove accumulated silt from behind the existing inlet structure and replace the damaged raw water collector, as well as hand-remove of a fallen tree from over the existing intake pipe on the downstream side of the existing concrete wall. However, the work will be temporary and only minor vegetation removal

(no large trees) is anticipated. Therefore, the Project will not result in any loss or adverse modification of Southern Sycamore Alder Riparian Woodland habitat.

4.2 Jurisdictional Waters

Sawpit Wash is a jurisdictional perennial stream that is subject to the CWA and FGC under the jurisdictions of USACE, RWQCB, and CDFW, respectively. Therefore, any proposed permanent or temporary impacts to this feature would require a Streambed Alteration Agreement from the CDFW, as well as CWA Sections 401/404 permits from the RWQCB and USACE, respectively.

The Project will result in temporary impacts to jurisdictional waters consisting of temporary excavation to remove accumulated silt from behind the existing inlet structure and replace the damaged raw water collector on the upstream side of the existing concrete wall within Sawpit Wash. Temporary impacts to Sawpit Wash would likely be minimal and would be restricted to the area where the existing inlet structure and concrete wall are (Figures 3&4).

USACE 404 Permit

The two most common types of permits issued by USACE under Section 404 of the CWA to authorize the discharge of dredged or fill material into WoUS are: a nation-wide permit (NWP) or an individual permit (IP). NWPs are general permits for specific categories of activities that result in minimal impacts to aquatic resources. The discharge must not cause the loss of greater than ½ acre to WoUS, including the loss of no more than 300 linear feet of streambed. Projects that would exceed these limits would likely require an IP.

The temporary construction impacts associated with the accumulated silt removal and replacement of the damaged raw water collector would likely be covered under Nationwide Permit No. 3 (NWP 3) involving Maintenance. NWP 3 has an upper threshold limit of no more than 200 feet in any direction from existing the structure for sediment removal and authorizes the repair, rehabilitation, or replacement of existing structures, with only minor deviations in the structure's configuration or filled area.

Regional Water Quality Control Board 401 Certification

The Project Area is within the jurisdiction of the Los Angeles RWQCB (Regional Board 4). Under Section 401 of the CWA, the RWQCB must certify that the discharge of dredged or fill material into WoUS does not violate state water quality standards. The RWQCB also regulates impacts to Waters of the State of California under the Porter Cologne Water Quality Control Act through issuance of a Construction General Permit, State General Waste Discharge Order, or Waste Discharge Requirements, depending upon the level of impact and the waterway. In addition to the formal application materials and fee (based on area of impact), a copy of the appropriate California Environmental Quality Act (CEQA) documentation must be included with the application.

FGC Section 1602 Lake or Streambed Alteration Agreement

A FGC Section 1602 Lake or Streambed Alteration (LSA) Agreement is required for all activities that alter streams and lakes and their associated riparian habitat. In addition to the formal application materials and fee (based on cost of the Project), a copy of the appropriate CEQA documentation must be included with the application.

The Project will temporarily impact CDFW jurisdictional streambed, where the Project proposes to remove accumulated silt from behind the existing inlet structure and replace the damaged raw water collector on

the upstream side of the existing concrete wall within Sawpit Wash. No permanent impacts to CDFW jurisdictional streambed will result from the Project. However, temporary excavation within Sawpit Wash would occur. Additionally, some minor temporary impacts to riparian habitat (i.e. white alder groves) consisting of minimal vegetation clearing/trimming will likely be necessary to access the channel, remove the accumulated sediment and remove/replace the damaged raw water collector. Therefore, the Project would require a Section 1602 LSA Agreement.

5 References

Backlin, A.R., Hitchcock, C.J., Fisher, R.N., Warburton, M.L., Trenham, P., Hathaway, S.A., Brehme, C.S. 2004. Natural history and recovery analysis for southern California populations of the mountain yellow-legged frog (*Rana muscosa*), 2003. US Geological Survey Final Report prepared for the California Department of Fish and Game, Angeles and San Bernardino National Forests, pp. 1–96.

Calflora: Information on California plants for education, research and conservation. [web application]. 2020. Berkeley, California: The Calflora Database [a non-profit organization]. Available at: http://www.calflora.org/. (Accessed: October 7, 2020).

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California [online edition, v8-03 0.45]. Available at: http://www.rareplants.cnps.org. (Accessed: October 7, 2020).

California Natural Diversity Database (CNDDB). 2020. RareFind 5 [Internet]. California Department of Fish and Wildlife, Version 5.2.14. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. (Accessed: October 7, 2020).

Davis, J., and Gould Jr., G. 2008. California Spotted Owl (*Strix occidentalis occidentalis*). In W.D. Shuford and T. Gardali (Eds.), California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

Goldwasser, S. 1981. Habitat requirements of the Least Bell's Vireo. Calif. Dept. Fish & Game, Nongame Wildlife Investigations Rep. 81.09, Proj. E-W4, Job IV-38.1. Nongame Bird and Mammal Sec. Rep. 81.09.

Jennings, Mark R.; Hayes, Marc P. 1994b. The decline of native ranid frogs in the desert southwest. In: Brown, Philip R.; Wright, John W., editors. Proceedings of a symposium on the herpetology of the North American deserts. Southwestern Herpetologists Society, Special Publication (5); 183-211.

Jepson Flora Project (eds.) 2020, Jepson eFlora. Available at: http://ucjeps.berkeley.edu/eflora/. (Accessed: October 7, 2020).

LaHaye, William S. and Gutiérrez, R. J. 2005. The Spotted Owl in Southern California: Ecology and Special Concerns for Maintaining a Forest-Dwelling Species in a Human-Dominated Desert Landscape. In Barbara E. Kus and Jan L. Beyers (technical coordinators), Planning for Biodiversity: Bringing Research and Management Together. Gen. Tech. Rep. PSW-GTR-195. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture; 274 p.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.

National Wetlands Inventory (NWI). 2020. U.S. Fish and Wildlife Service Wetlands Mapper. Available online at: https://www.fws.gov/wetlands/data/mapper.html; (Accessed: October 7, 2020).

Natural Resources Conservation Service (NRCS). 2020. Web Soil Survey. Map Unit Descriptions. Lyon County, Kansas. Available online at: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm; (Accessed: October 7, 2020).

Sawyer, John O., Keeler-Wolf, Todd, and Evens, Julie M. 2009. A manual of California vegetation. Second Edition.

California Native Plant Society, Sacramento, California, USA. 1,300 pages.

U.S. Army Corps of Engineers (USACE). 2001. USACE Minimum Standards for Acceptance of Preliminary Wetlands Delineations, November 30, 2001 (Minimum Standards).

U.S. Army Corps of Engineers (USACE). 2007. Jurisdictional Determination Form Instructional Guidebook (JD Form Guidebook). May 30.

U.S. Army Corps of Engineers (USACE). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Army Corps of Engineers (USACE). 2014. A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States (OHWM Manual). August 2014.

U.S. Army Corps of Engineers (USACE). 2016. Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (Minimum Standards). January 2016.

U.S. Department of the Interior (DOI). 2017. Memorandum to the Secretary, Deputy Secretary, Assistant Secretary for Land and Minerals Management and Assistant Secretary for Fish and Wildlife and Parks from the Principal Deputy Solicitor Exercising the Authority of the Solicitor Pursuant to Secretary's Order 3345, Subject: The Migratory Bird Treaty Act Does Not Prohibit Incidental Take. M-37050.

U.S. Fish and Wildlife Service (USFWS). 2018. Memorandum to the Service Directorate from the Principal Deputy Director, Subject: Guidance on the recent M-Opinion affecting the Migratory Bird Treaty Act.

U.S. Fish and Wildlife Service 1994. Final Determination of Critical Habitat for the Least Bell's Vireo (*Vireo bellii pusillus*); Final Rule. 59 FR 4845.

U.S. Fish and Wildlife Service 1998. Draft recovery plan for the least Bell's vireo. U.S. Fish and Wildlife Office. April 8 3 pp.

U.S. Fish and Wildlife Service (USFWS). 1999. Recovery Plan for Six Plants from the Mountains Surrounding the Los Angeles Basin. U.S. Department of the Interior Fish and Wildlife Service Region 1, Portland, Oregon.

U.S. Fish and Wildlife Service (USFWS). 2000. 65 FR 19686. Endangered and threatened wildlife and plants; threatened status for the Santa Ana sucker. Federal Register 65: 19686–19698.

U.S. Fish and Wildlife Service (USFWS). 2002. Endangered and threatened wildlife and plants; determination of endangered status for the southern California distinct vertebrate population segment of the mountain yellow-legged frog (*Rana muscosa*). Federal Register 67(127): 44382-44392. July 2, 2002.

U.S. Fish and Wildlife Service (USFWS). 2006. Least Bell's Vireo (*Vireo bellii pusillus*) 5-Year Review: Summary and Evaluation. Carlsbad Fish and Wildlife Office, Carlsbad, California.

U.S. Fish and Wildlife Service (USFWS). 2009. 74 FR 65056. Endangered and threatened wildlife and plants; revised critical habitat for the Santa Ana sucker (*Catostomus santaanae*); proposed rule. Federal Register 74: 65056-65087.

U.S. Fish and Wildlife Service (USFWS). 2011. Santa Ana sucker (*Catostomus santaanae*) 5-Year Review: Summary and Evaluation. Carlsbad Fish and Wildlife Office, Carlsbad, California.

U.S. Fish and Wildlife Service (USFWS). 2014. Draft Recovery Plan for Santa Ana sucker (*Catostomus santaanae*).

Region 8 U.S. Fish and Wildlife Service, Sacramento, California. 61 pp.

Western Regional Climate Center. Period of Record Monthly Climate Summary for San Gabriel Canyon, California (047776). Available at: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7776. (Accessed: October 7, 2020).

Table 2 –
CNDDB Species
Occurrence Potential

Table 2. CNDDB Species and Habitats Documented Within the *Azusa* and *Mt. Wilson* USGS 7.5-minute Quadrangle

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Anaxyrus californicus	arroyo toad	Endangered/ None	G2G3; S2S3; CDFW: SSC	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range.	No suitable habitat for this species exists within the project area and the only documented occurrence for this species in the *Azusa* and *Mt. Wilson* quads (2016) is approximately 5.8 miles NW of the project site. Occurrence potential is **low**.
Anniella stebbinsi	southern California legless lizard	None/ None	G3; S3; CDFW: SSC	Generally, south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County. Variety of habitats; generally, in moist, loose soil. They prefer soils with a high moisture content.	There is some suitable habitat for this species within the project area. Occurrence potential is **moderate**.
Antrozous pallidus	pallid bat	None/ None	G5; S3; CDFW: SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	The project area is within an active camp subject to ongoing human disturbance. Occurrence potential is **low**.
Arctostaphylos glandulosa ssp. *gabrielensis*	San Gabriel manzanita	None/ None	G5T3; S3; CNPS: 1B.2	Chaparral. Rocky outcrops; can be dominant shrub where it occurs. 960-2015 m.	The project is outside the known elevation range for this species. Occurrence potential is **low**.
Aspidoscelis tigris stejnegeri	coastal whiptail	None/ None	G5T5; S3; CDFW: SSC	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	There is suitable habitat for this species within the project area. Occurrence potential is **high**.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Astragalus brauntonii	Braunton's milk-vetch	Endangered/ None	G2; S2; CNPS: 1B.1	Chaparral, coastal scrub, valley and foothill grassland. Recent burns or disturbed areas; usually on sandstone with carbonate layers. Soil specialist; requires shallow soils to defeat pocket gophers and open areas, preferably on hilltops, saddles or bowls between hills. 3-640 m.	Some of the environmental conditions this species is associated with are present within the project area. However, the result of April 2020 focused botanical surveys conducted by Jacobs is that this species is **absent** from the project site.
Bombus crotchii	Crotch bumble bee	None/ Candidate Endangered	G3G4; S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia,* and *Eriogonum*.	Although several of the food plant genera for this species are present in the project area, the habitats this species is associated with are absent from the project area. Furthermore, the only documented occurrence for this species in the *Azusa* and *Mt. Wilson* quads is a historical collection (1970) from the general vicinity of Eaton Canyon, Altadena. Occurrence potential is **low**.
Calochortus clavatus var. *gracilis*	slender mariposa-lily	None/ None	G4T2T3; S2S3; CNPS: 1B.2	Chaparral, coastal scrub, valley and foothill grassland. Shaded foothill canyons; often on grassy slopes within other habitat. 210-1815 m.	Some of the environmental conditions this species is associated with are present within the project area. However, the result of April 2020 focused botanical surveys conducted by Jacobs is that this species is **absent** from the project site.
Calochortus plummerae	Plummer's mariposa-lily	None/ None	G4; S4; CNPS: 4.2	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60-2500 m.	Some of the environmental conditions this species is associated with are present within the project area. Occurrence potential is **moderate**.
Calochortus weedii var. *intermedius*	intermediate mariposa-lily	None/ None	G3G4T2; S2; CNPS: 1B.2	Coastal scrub, chaparral, valley and foothill grassland. Dry, rocky calcareous slopes and rock outcrops. 60-1575 m.	The environmental conditions this species is associated with do not exist within the project area. Occurrence potential is **low**.
	Canyon Live Oak Ravine Forest	None/ None	G3; S3.3		This habitat is **absent** from the project area.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Catostomus santaanae	Santa Ana sucker	Threatened/ None	G1; S1	Endemic to Los Angeles Basin south coastal streams. Habitat generalists, but prefer sand-rubble-boulder bottoms, cool, clear water, and algae.	The project area is outside the current known distribution of this species and this species has not been documented in the project area. Furthermore, the nearest documented extant occurrence for this species (2006) is approx. 4.5 miles N of the project area, in the West Fork San Gabriel River, which has no connectivity with Sawpit Wash (CNDDB 2020). Occurrence potential is **low**.
Centromadia parryi ssp. *australis*	southern tarplant	None/ None	G3T2; S2; CNPS: 1B.1	Marshes and swamps (margins), valley and foothill grassland, vernal pools. Often in disturbed sites near the coast at marsh edges; also, in alkaline soils sometimes with saltgrass. Sometimes on vernal pool margins. 0-975 m.	The environmental conditions this species is associated with do not exist within the project area. Occurrence potential is **low**.
Chorizanthe parryi var. *parryi*	Parry's spineflower	None/ None	G3T2; S2; CNPS: 1B.1	Coastal scrub, chaparral, cismontane woodland, valley and foothill grassland. Dry slopes and flats; sometimes at interface of two vegetation types, such as chaparral and oak woodland. Dry, sandy soils. 90-1220 m.	Some of the environmental conditions this species is associated with are present within the project area, but the nearest documented occurrence for this species (1986) is approx. 3.6 miles SE of the project area. Occurrence potential is **low**.
Cladium californicum	California saw-grass	None/ None	G4; S2; CNPS: 2B.2	Meadows and seeps, marshes and swamps (alkaline or freshwater). Freshwater or alkaline moist habitats. -20-2135 m.	The only documented occurrence for this species in the *Azusa* and *Mt. Wilson* quads is a historical collection (1861) from the general vicinity of Santa Anita Canyon, San Gabriel and is considered extirpated (CNDDB 2020). Occurrence potential is **low**.
Corynorhinus townsendii	Townsend's big-eared bat	None/ None	G3G4; S2; CDFW: SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	The project area is within an active camp subject to ongoing human disturbance. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Cypseloides niger	black swift	None/ None	G4; S2; CDFW: SSC	Coastal belt of Santa Cruz and Monterey counties; central and southern Sierra Nevada; San Bernardino and San Jacinto Mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely.	There are no suitable nest sites within the project area and the nearest documented occurrence (extirpated) for this species is a historical collection (1894) from the general vicinity of Alhambra. Occurrence potential is **low**.
Dodecahema leptoceras	slender-horned spineflower	Endangered/ Endangered	G1; S1; CNPS: 1B.1	Chaparral, cismontane woodland, coastal scrub (alluvial fan sage scrub). Flood deposited terraces and washes; associates include *Encelia, Dalea, Lepidospartum,* etc. Sandy soils. 200-765 m.	The environmental conditions this species is associated with do not exist within the project area and the nearest documented occurrence for this species is a historical collection (1920) from approx. 2.8 miles SW of the project area. Occurrence potential is **low**.
Dudleya cymosa ssp. *crebrifolia*	San Gabriel River dudleya	None/ None	G5T2; S2; CNPS: 1B.2	Chaparral. On granite cliffs and outcrops, surrounded by scrub. 365-1250 m.	The environmental conditions this species is associated with do not exist within the project area. Occurrence potential is **low**.
Dudleya densiflora	San Gabriel Mountains dudleya	None/ None	G2; S2; CNPS: 1B.1	Chaparral, coastal scrub, cismontane woodland, lower montane coniferous forest, riparian forest. In crevices and on decomposed granite on cliffs and canyon walls. 270-1100 m.	The environmental conditions this species is associated with do not exist within the project area. Occurrence potential is **low**.
Dudleya multicaulis	many-stemmed dudleya	None/ None	G2; S2; CNPS: 1B.2	Chaparral, coastal scrub, valley and foothill grassland. In heavy, often clayey soils or grassy slopes. 1-910 m.	The only documented occurrence for this species in the *Azusa* and *Mt. Wilson* quads is a historical collection (1884) from the general vicinity of Azusa. Occurrence potential is **low**.
Empidonax traillii extimus	southwestern willow flycatcher	Endangered/ Endangered	G5T2; S1	Riparian woodlands in Southern California.	There is marginally-suitable riparian habitat present within the sediment removal and raw water collector replacement portion of the project. Furthermore, the only documented occurrence for this species in the *Azusa* and *Mt. Wilson* quads is a historical collection (1906) from the general vicinity of Pasadena. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Emys marmorata	western pond turtle	None/ None	G3G4; S3; CDFW: SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Sawpit Wash is a small stream that provides minimal aquatic habitat for this species. Occurrence potential is **low**.
Eumops perotis californicus	western mastiff bat	None/ None	G5T4; S3S4; CDFW: SSC	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Some suitable habitat for this species is associated with are present within the project area. Occurrence potential is **moderate**.
Galium grande	San Gabriel bedstraw	None/ None	G1; S1; CNPS: 1B.2	Cismontane woodland, chaparral, broadleafed upland forest, lower montane coniferous forest. Open chaparral and low, open oak forest; on rocky slopes; probably under collected due to inaccessible habitat. 425-1450 m.	Some suitable habitat for this species is associated with are present within the project area. However, the result of April 2020 focused botanical surveys conducted by Jacobs is that this species is **absent** from the project site.
Gila orcuttii	arroyo chub	None/ None	G2; S2; CDFW: SSC	Native to streams from Malibu Creek to San Luis Rey River basin. Introduced into streams in Santa Clara, Ventura, Santa Ynez, Mojave and San Diego river basins. Slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	The sediment removal and raw water collector replacement portion of the project is within a narrow, fast moving section of Sawpit Wash and the nearest documented occurrence for this species (2004) is approx. 4.6 miles N of the project area. Occurrence potential is **low**.
Horkelia cuneata var. *puberula*	mesa horkelia	None/ None	G4T1; S1; CNPS: 1B.1	Chaparral, cismontane woodland, coastal scrub. Sandy or gravelly sites. 15-1645 m.	The nearest documented occurrence for this species (1918) is a historical collection from approx. 4.2 miles SW of the project area and this occurrence is considered extirpated (CNDDB 2020). Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Imperata brevifolia	California satintail	None/ None	G4; S3; CNPS: 2B.1	Coastal scrub, chaparral, riparian scrub, Mojavean desert scrub, meadows and seeps (alkali), riparian scrub. Mesic sites, alkali seeps, riparian areas. 3-1495 m.	The only documented occurrence for this species in the *Azusa* and *Mt. Wilson* quads is a historical collection (1964) from approx. 4.2 miles E of the project area. Occurrence potential is **low**.
Lasiurus blossevillii	western red bat	None/ None	G5; S3; CDFW: SSC	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	There is suitable habitat for this species within the project area and this species has been documented approx. 2.3 miles W of the project site. Occurrence potential is **moderate – high**.
Lasiurus cinereus	hoary bat	None/ None	G5; S4	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	There is suitable habitat for this species within the project area and this species has been documented approx. 2.5 miles NW of the project site. Occurrence potential is **moderate – high**.
Lasiurus xanthinus	western yellow bat	None/ None	G5; S3; CDFW: SSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	There is suitable habitat for this species within the project area, but the only documented occurrence for this species in the *Azusa* and *Mt. Wilson* quads is a historical collection (1987) from the general vicinity of Azusa. Occurrence potential is **low – moderate**.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/ None	G5T3; S3; CNPS: 4.3	Chaparral, coastal scrub. Dry soils, shrubland. 4-1435 m.	The environmental conditions this species is associated with are lacking within the project area. Occurrence potential is **low**.
Linanthus concinnus	San Gabriel linanthus	None/ None	G2; S2; CNPS: 1B.2	Lower montane coniferous forest, upper montane coniferous forest, chaparral. Dry rocky slopes, often in Jeffrey pine/canyon oak forest. 1310-2560 m.	The project is outside the known elevation range for this species. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Muhlenbergia californica	California muhly	None/ None	G4; S4; CNPS: 4.3	Coastal scrub, chaparral, lower montane coniferous forest, meadows and seeps. Usually found near streams or seeps. 100-2000 m.	The only documented occurrence for this species in the *Azusa* and *Mt. Wilson* quads is a historical collection (1899) from the general vicinity of Mt. Lowe. Occurrence potential is **low**.
Nyctinomops macrotis	big free-tailed bat	None/ None	G5; S3; CDFW: SSC	Low-lying arid areas in Southern California. Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	No suitable roosting sites for this species exist within the project area. Occurrence potential is **low**.
	Open Engelmann Oak Woodland	None/ None	G2; S2.2		This habitat is **absent** form the project area.
Orobanche valida ssp. *valida*	Rock Creek broomrape	None/ None	G4T2; S2; CNPS: 1B.2	Chaparral, pinyon and juniper woodland. On slopes of loose decomposed granite; parasitic on various chaparral shrubs. 975-1985 m.	The project is outside the known elevation range for this species. Occurrence potential is **low**.
Ovis canadensis nelsoni	desert bighorn sheep	None/ None	G4T4; S3; CDFW: FP	Widely distributed from the White Mountains in Mono County to the Chocolate Mountains in Imperial County. Open, rocky, steep areas with available water and herbaceous forage.	No suitable habitat for this species exists within the project area. Occurrence potential is **low**.
Phrynosoma blainvillii	coast horned lizard	None/ None	G3G4; S3S4; CDFW: SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Some marginally-suitable habitat for this species exists within the project area, but the nearest documented occurrence for this species is a historical collection (1933) from approx. 3.2 miles W of the project area. Occurrence potential is **low**.
Polioptila californica californica	coastal California gnatcatcher	Threatened/ None	G4G5T2Q; S2; CDFW: SSC	Obligate, permanent resident of coastal sage scrub below 2,500 feet in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	No suitable habitat for this species exists within the project area and the only documented occurrence for this species in the *Azusa* and *Mt. Wilson* quads is a historical collection (1928) from the general vicinity of Arcadia. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Pseudognaphalium leucocephalum	white rabbit-tobacco	None/ None	G4; S2; CNPS: 2B.2	Riparian woodland, cismontane woodland, coastal scrub, chaparral. Sandy, gravelly sites. 35-515 m.	The nearest documented occurrence for this species is a historical collection (1881) from approx. 5.6 miles SE of the project area and this occurrence is considered extirpated (CNDDB 2020). Occurrence potential is **low**.
Rana boylii	foothill yellow-legged frog	None/ Candidate Threatened	G3; S3; CDFW: SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	The only documented occurrence for this species in the *Azusa* and *Mt. Wilson* quads is a historical collection (1959 & 1969) from approx. 6.8 miles NE of the project area and this species is considered extirpated from the San Gabriel Mountains (CNDDB 2020). Occurrence potential is **low**.
Rana muscosa	southern mountain yellow-legged frog	Endangered/ Endangered	G1; S1; CDFW: WL	Federal listing refers to populations in the San Gabriel, San Jacinto and San Bernardino Mountains (southern DPS). Northern DPS was determined to warrant listing as endangered, Apr 2014, effective Jun 30, 2014. Always encountered within a few feet of water. Tadpoles may require 2-4 years to complete their aquatic development.	The project area is outside the current known distribution of this species and this species has not been documented in the project area. Furthermore, the nearest documented occurrence (1932) for this species, which is approx. 1 mile W (downstream) of the project area, is separated from the project area by a large dam and is considered possibly extirpated (CNDDB 2020). Occurrence potential is **low**.
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	None/ None	G5T1; S1; CDFW: SSC	Headwaters of the Santa Ana and San Gabriel rivers. May be extirpated from the Los Angeles River system. Requires permanent flowing streams with summer water temps of 17-20 Celsius. Usually inhabits shallow cobble and gravel riffles.	There is some suitable habitat for this species in the project area and the nearest documented occurrence for this species () is approx. 3.1 miles SE of the project site. Occurrence potential is **moderate**.
Ribes divaricatum var. *parishii*	Parish's gooseberry	None/ None	G5TX; SX; CNPS: 1A	Riparian woodland. *Salix* swales in riparian habitats. 65-300 m.	The microhabitat this species is associated with (*Salix* swales) are absent from the project area. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Riparia riparia	bank swallow	None/ Threatened	G5; S2	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	There are no suitable nest sites within the project area and the nearest documented occurrence (extirpated) for this species is a historical collection (1894) from the general vicinity of Alhambra. Occurrence potential is **low**.
	Riversidian Alluvial Fan Sage Scrub	None/ None	G1; S1.1		This habitat is **absent** from the project area.
	Southern California Arroyo Chub/Santa Ana Sucker Stream	None/ None	GNR; SNR		This habitat is **absent** from the project area.
	Southern Coast Live Oak Riparian Forest	None/ None	G4; S4		This habitat is **absent** from the project area.
	Southern Sycamore Alder Riparian Woodland	None/ None	G4; S4		This habitat is **present** within the sediment removal and raw water collector replacement portion of the project area.
Spea hammondii	western spadefoot	None/ None	G3; S3; CDFW: SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	There are no suitable breeding sites within the project area and there are no extant occurrences of this species documented in the *Azusa* and *Mt. Wilson* quads (CNDDB 2020). Occurrence potential is **low**.
Symphyotrichum greatae	Greata's aster	None/ None	G2; S2; CNPS: 1B.3	Chaparral, cismontane woodland, broadleafed upland forest, lower montane coniferous forest, riparian woodland. Mesic canyons. 335-2015 m.	Some of the environmental conditions this species is associated with are present within the project area. Occurrence potential is **moderate**.
Taricha torosa	Coast Range newt	None/ None	G4; S4; CDFW: SSC	Coastal drainages from Mendocino County to San Diego County. Lives in terrestrial habitats and will migrate over 1 km to breed in ponds, reservoirs and slow-moving streams.	The sediment removal and raw water collector replacement portion of the project is within a narrow, fast moving section of Sawpit Wash and the nearest documented occurrence for this species (2013) is approx. 3 miles NW of the project area. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Thamnophis hammondii	two-striped garter snake	None/ None	G4; S3S4; CDFW: SSC	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 feet elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	Some suitable habitat for this species is associated with are present within the project area. Occurrence potential is **moderate**.
Thelypteris puberula var. *sonorensis*	Sonoran maiden fern	None/ None	G5T3; S2; CNPS: 2B.2	Meadows and seeps. Along streams, seepage areas. 60-930 m.	Some suitable habitat for this species is associated with are present within the project area. However, the result of April 2020 focused botanical surveys conducted by Jacobs is that this species is **absent** from the project site.
Vireo bellii pusillus	least Bell's vireo	Endangered/ Endangered	G5T2; S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, *Baccharis*, mesquite.	There is marginally-suitable riparian woodland vegetation and associated upland habitat present within the sediment removal and raw water collector replacement portion of the project and the nearest documented occurrence for this species (1978) is approx. 3 miles SE of the project area. Occurrence potential is **low – moderate**.

Coding and Terms

E = Endangered T = Threatened C = Candidate FP = Fully Protected SSC = Species of Special Concern R = Rare

State Species of Special Concern: An administrative designation given to vertebrate species that appear to be vulnerable to extinction because of declining populations, limited acreages, and/or continuing threats. Raptor and owls are protected under section 3502.5 of the California Fish and Game code: "It is unlawful to take, possess or destroy any birds in the orders Falconiformes or Strigiformes or to take, possess or destroy the nest or eggs of any such bird."

State Fully Protected: The classification of Fully Protected was the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians and reptiles. Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

Global Rankings (Species or Natural Community Level):

G1 = Critically Imperiled – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G2 = Imperiled – At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
G3 = Vulnerable – At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
G4 = Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
G5 = Secure – Common; widespread and abundant.

Subspecies Level: Taxa which are subspecies or varieties receive a taxon rank (T-rank**)** attached to their G-rank. Where the G-rank reflects the condition of the entire species, the T-rank reflects the global situation of just the subspecies. For example: the Point Reyes mountain beaver, *Aplodontia rufa* ssp. *phaea* is ranked G5T2. The G-rank refers to the whole species range i.e., *Aplodontia rufa.* The T-rank refers only to the global condition of ssp. *phaea*.

State Ranking:

S1 = Critically Imperiled – Critically imperiled in the State because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the State.
S2 = Imperiled – Imperiled in the State because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the State.
S3 = Vulnerable – Vulnerable in the State due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the State.
S4 = Apparently Secure – Uncommon but not rare in the State; some cause for long-term concern due to declines or other factors.
S5 = Secure – Common, widespread, and abundant in the State.

California Rare Plant Rankings (CNPS List):

1A = Plants presumed extirpated in California and either rare or extinct elsewhere.
1B = Plants rare, threatened, or endangered in California and elsewhere.
2A = Plants presumed extirpated in California, but common elsewhere.
2B = Plants rare, threatened, or endangered in California, but more common elsewhere.
3 = Plants about which more information is needed; a review list.
4 = Plants of limited distribution; a watch list.

Threat Ranks:

.1 = Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 = Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
.3 = Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

SITE PHOTOS


9
10-11
12
8
7
1
4
2-3
5-6
Sawpit Wash
Google Earth
© 2020 Google
N
500 ft

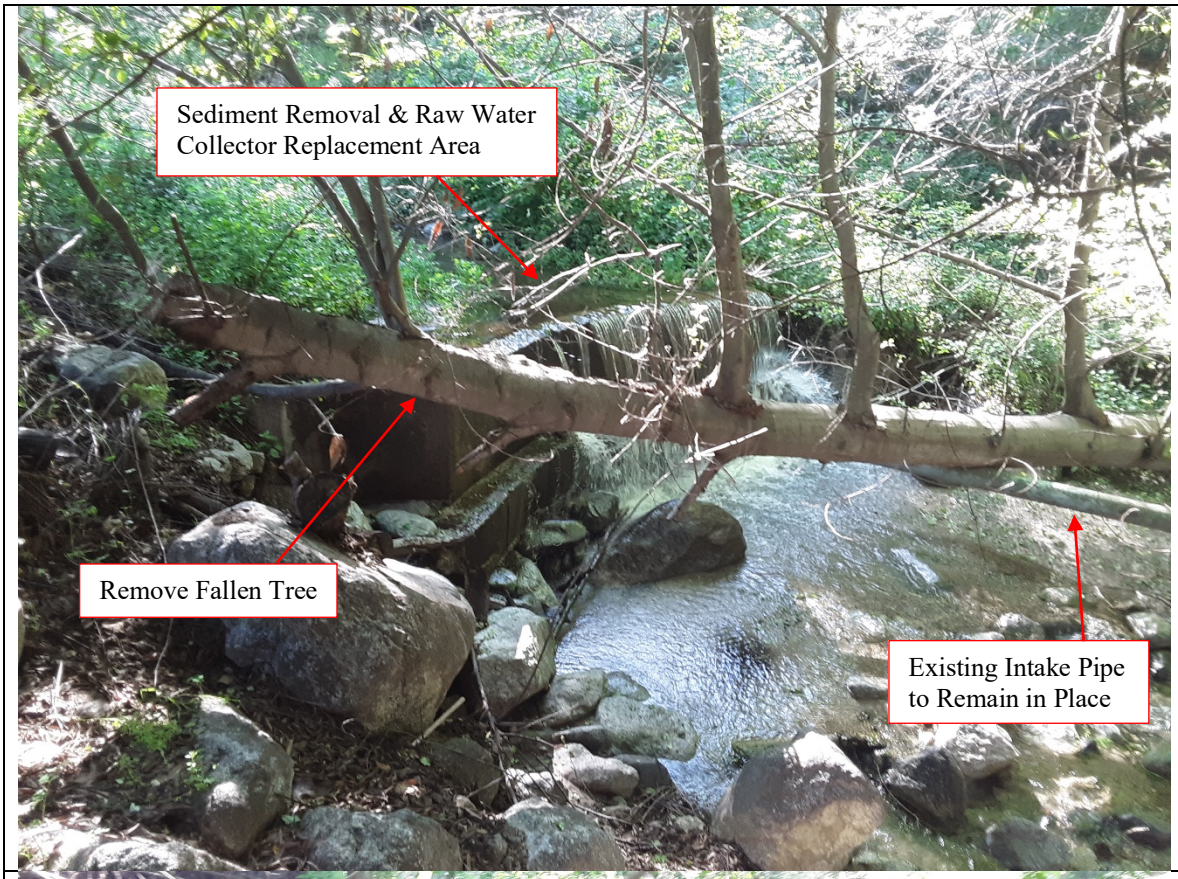


Photo 1. Looking SE at existing intake structure from N side of Sawpit Wash.

Photo 2. Intake pipe on downstream side of existing intake structure to remain in place.

Photo 3. Remove fallen California bay tree (*Umbellularia californica*) over existing intake pipe.

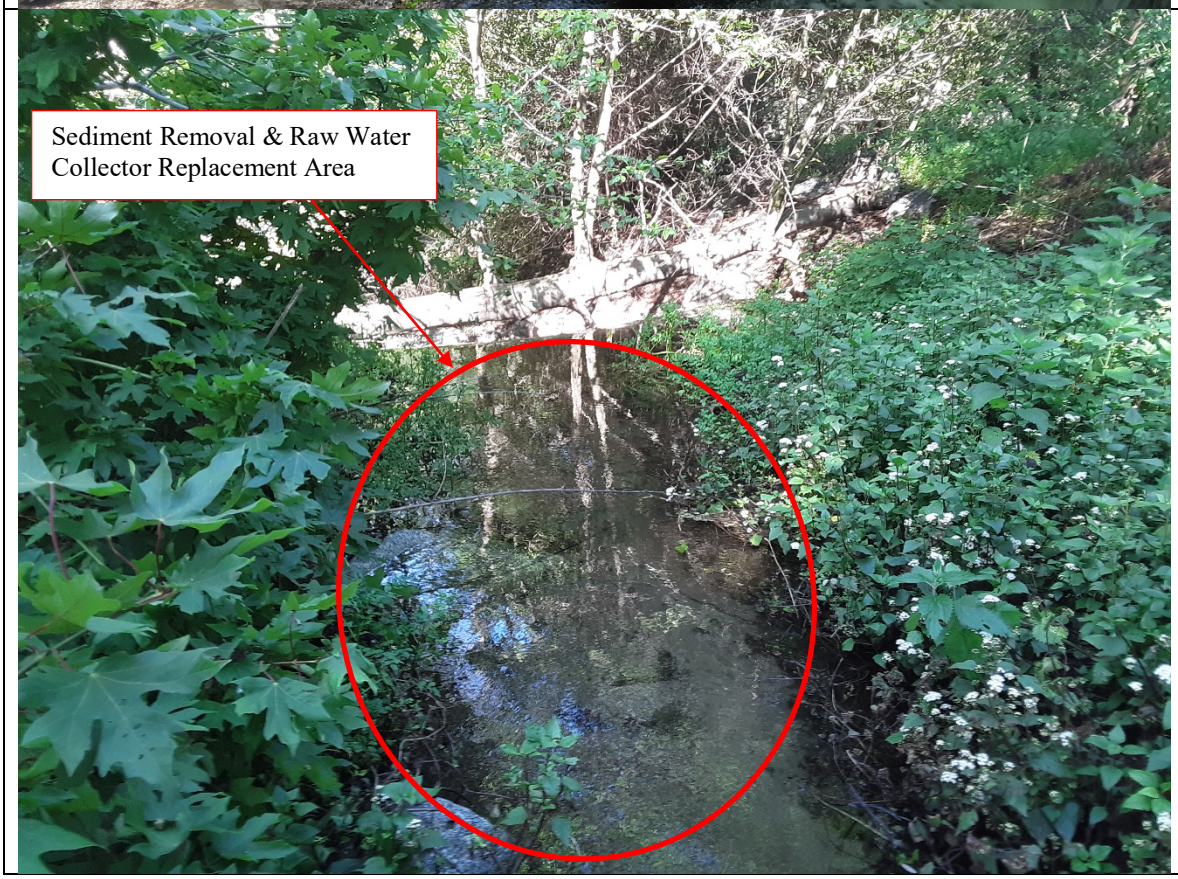


Photo 4. Looking W along Sawpit Wash at existing intake structure sediment removal and raw water collector replacement area.

	Photo 5. Pre-treatment system W (downstream) of existing intake structure.
	Photo 6. Temporary intake (to be removed) located W (downstream) of existing intake structure.

Photo 7. Looking NW at existing slow sand filtration structure and pump house. Slow sand filtration structure to be modified into a clear well with a pump station.

Photo 8. Looking SE at existing pump house and slow sand filtration structure.

Photo 9. Looking E, at existing water storage reservoir (to be replaced).

Photo 10. Looking NW, at existing water storage reservoir (to be replaced).

	Photo 11. Looking SW, at potential alternative new water storage reservoir site. Would require oak tree removals.
	Photo 12. Potential new fire hydrant installation location.

Appendix A

REGULATORY FRAMEWORK

Federal Regulations

Clean Water Act

The purpose of the Clean Water Act (CWA) of 1977 is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into "waters of the United States" without a permit from the United States Army Corps of Engineers (USACE). The definition of waters of the United States includes rivers, streams, estuaries, territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water 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 7b). The U.S. Environmental Protection Agency (EPA) also has authority over wetlands and may override a USACE permit. Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; in California this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

Federal Endangered Species Act (ESA)

The federal Endangered Species Act (ESA) of 1973 protects plants and wildlife that are listed by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) as endangered or threatened. Section 9 of the ESA (USA) prohibits the taking of endangered wildlife, where taking is defined as any effort to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 United States Code [USC] 1538). Under Section 7 of the ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect an endangered species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the action will not jeopardize the continued existence of the species. The ESA specifies that the USFWS designate habitat for a species at the time of its listing in which are found the physical or biological features "essential to the conservation of the species," or which may require "special Management consideration or protection..." (16 USC § 1533[a][3].2; 16 USC § 1532[a]). This designated Critical Habitat is then afforded the same protection under the ESA as individuals of the species itself, requiring issuance of an Incidental Take Permit prior to any activity that results in "the destruction or adverse modification of habitat determined to be critical" (16 USC § 1536[a][2]).

Interagency Consultation and Biological Assessments

Section 7 of ESA provides a means for authorizing the "take" of threatened or endangered species by federal agencies, and applies to actions that are conducted, permitted, or funded by a federal agency. The statute requires federal agencies to consult with the USFWS or National Marine Fisheries Service (NMFS), as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical

habitat for these species. If a Proposed Project "may affect" a listed species or destroy or modify critical habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the potential effect.

Habitat Conservation Plans

Section 10 of the federal ESA requires the acquisition of an Incidental Take Permit (ITP) from the USFWS by non-federal landowners for activities that might incidentally harm (or "take") endangered or threatened wildlife on their land. To obtain a permit, an applicant must develop a Habitat Conservation Plan that is designed to offset any harmful impacts the proposed activity might have on the species.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 U.S.C. Sections 661 to 667e et seq.) applies to any federal Project where any body of water is impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the appropriate state wildlife agency.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (The Eagle Act) (1940), amended in 1962, was originally implemented for the protection of bald eagles (*Haliaeetus leucocephalus*). In 1962, Congress amended the Eagle Act to cover golden eagles (*Aquila chrysaetos*), a move that was partially an attempt to strengthen protection of bald eagles, since the latter were often killed by people mistaking them for golden eagles. This act makes it illegal to import, export, take (molest or disturb), sell, purchase, or barter any bald eagle or golden eagle or part thereof. The golden eagle, however, is accorded somewhat lighter protection under the Eagle Act than that of the bald eagle.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 implements international treaties between the United States and other nations created to protect migratory birds, any of their parts, eggs, and nests from activities, such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR Part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code (CFGC).

However, on December 22, 2017 the U.S. Department of the Interior (DOI) issued a memorandum concluding that MBTA's prohibitions on take apply "[…] only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" (DOI 2017). Therefore, take of migratory birds or their active nests (i.e., with eggs or young) that is incidental to, and not the purpose of, an otherwise lawful activity does not constitute a violation of the MBTA. Then, on April 11, 2018, the USFWS issued a guidance memorandum that provided further clarification on their interpretation:

> "We interpret the M-Opinion to mean that the MBTA's prohibitions on take apply when the purpose of an action is to take migratory birds, their eggs, or their nests. Conversely, the take of birds, eggs or nests occurring as the result of an activity, the purpose of which is not to take birds,

eggs or nests, is not prohibited by the MBTA" (USFWS 2018).

Therefore, the MBTA is currently interpreted to prohibit the take of birds, nests or eggs when the *purpose* or *intent* of the action is to take birds, eggs or nests, not when the take of birds, eggs or nests is incidental to but not the intended purpose of an otherwise lawful action.

Executive Orders (EO)

Invasive Species – EO 13112 (1999): Issued on February 3, 1999, promotes the prevention and introduction of invasive species and provides for their control and minimizes the economic, ecological, and human health impacts that invasive species cause through the creation of the Invasive Species Council and Invasive Species Management Plan.

Migratory Bird – EO 13186 (2001): Issued on January 10, 2001, promotes the conservation of migratory birds and their habitats and directs federal agencies to implement the Migratory Bird Treaty Act. Protection and Enhancement of Environmental Quality—EO 11514 (1970a), issued on March 5, 1970, supports the purpose and policies of the National Environmental Policy Act (NEPA) and directs federal agencies to take measures to meet national environmental goals.

Migratory Bird Treaty Reform Act

The Migratory Bird Treaty Reform Act (Division E, Title I, Section 143 of the Consolidated Appropriations Act, 2005, PL 108–447) amends the Migratory Bird Treaty Act (16 U.S.C. Sections 703 to 712) such that nonnative birds or birds that have been introduced by humans to the United States or its territories are excluded from protection under the Act. It defines a native migratory bird as a species present in the United States and its territories as a result of natural biological or ecological processes. This list excluded two additional species commonly observed in the United States, the rock pigeon (*Columba livia*) and domestic goose (*Anser domesticus*).

Birds of Conservation Concern

Birds of Conservation Concern (BCC) is a USFWS list of bird species identified to have the highest conservation priority, and with the potential for becoming candidates for listing as federally threatened or endangered. The chief legal authority for BCC is the Fish and Wildlife Conservation Act of 1980 (FWCA). Other authorities include the FESA, the Fish and Wildlife Act of 1956, and the Department of the Interior U.S Code (16 U.S.C. § 701). The 1988 amendment to the FWCA (Public Law 100-653, Title VIII) requires the Secretary of the Interior, through the USFWS, to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973" (USFWS, 2008a).

State Regulations

California Fish and Game Code Sections 1600 through 1606 of the CFGC

This section requires that a Streambed Alteration Application be submitted to the CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFW reviews the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the Department and the applicant is the Streambed Alteration Agreement. Often, Projects that require a Streambed Alteration Agreement also require a permit from the USACE under

Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

California Endangered Species Act

The California Endangered Species Act (CESA) (Sections 2050 to 2085) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats by protecting "all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation." Animal species are listed by the CDFW as threatened or endangered, and plants are listed as rare, threatened, or endangered. However, only those plant species listed as threatened or endangered receive protection under the California ESA.

CESA mandates that state agencies do not approve a Project that would jeopardize the continued existence of these species if reasonable and prudent alternatives are available that would avoid a jeopardy finding. There are no state agency consultation procedures under the California ESA. For Projects that would affect a species that is federally and State listed, compliance with ESA satisfies the California ESA if the California Department of Fish and Wildlife (CDFW) determines that the federal incidental take authorization is consistent with the California ESA under Section 2080.1. For Projects that would result in take of a species that is state listed only, the Project sponsor must apply for a take permit, in accordance with Section 2081(b).

Fully Protected Species

Four sections of the California Fish and Game Code (CFGC) list 37 fully protected species (CFGC Sections 3511, 4700, 5050, and 5515). These sections prohibit take or possession "at any time" of the species listed, with few exceptions, and state that "no provision of this code or any other law will be construed to authorize the issuance of permits or licenses to 'take' the species," and that no previously issued permits or licenses for take of the species "shall have any force or effect" for authorizing take or possession.

Bird Nesting Protections

Bird nesting protections (Sections 3503, 3503.5, 3511, 3513 and 3800) in the CFGC include the following:

- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.
- Section 3503.5 prohibits the take, possession, or needless destruction of any nests, eggs, or birds in the orders Falconiformes (new world vultures, hawks, eagles, ospreys, and falcons, among others), and Strigiformes (owls).
- Section 3511 prohibits the take or possession of Fully protected birds.
- Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that Project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.
- Section 3800 prohibits the take of any any non-game bird (i.e., bird that is naturally occurring in California that is not a gamebird, migratory game bird, or fully protected bird)

Native Plant Protection Act

The Native Plant Protect Act (NPPA) (1977) (CFGC Sections 1900-1913) was created with the intent to "preserve, protect, and enhance rare and endangered plants in this State." The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as endangered or rare and to protect endangered and rare plants from take. CESA (CFGC 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code.

APPENDIX 5

IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

TALLMAN H. TRASK SCOUT RESERVATION WATER SYSTEM REHABILITATION AND ENHANCEMENT PROJECT

City of Monrovia
Los Angeles County, California

For Submittal to:

City of Monrovia, Planning Division
415 South Ivy Avenue
Monrovia, CA 91016
and
Angeles National Forest
United States Forest Service
12371 Little Tujunga Canyon Road
San Fernando, CA 91342

Prepared for:

Tom Dodson & Associates
2150 North Arrowhead Avenue
San Bernardino, CA 92405

Prepared by:

CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324

Bai "Tom" Tang, Principal Investigator
Michael Hogan, Principal Investigator

May 7, 2021
USFS Authorization No. SGM602
CRM TECH Contract No. 3652

Title: Identification and Evaluation of Historic Properties: Tallman H. Trask Scout Reservation Water System Rehabilitation and Enhancement Project, City of Monrovia, Los Angeles County, California

Author(s): Bai "Tom" Tang, Principal Investigator, History/Architectural History
Michael Hogan, Principal Investigator, Archaeology
Ben Kerridge, Archaeologist/Report Writer

Consulting Firm: CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324
(909) 824-6400

Date: May 7, 2021

For Submittal to: City of Monrovia, Planning Division
415 South Ivy Avenue
Monrovia, CA 91016
and
Angeles National Forest
United States Forest Service
12371 Little Tujunga Canyon Road
San Fernando, CA 91342

Prepared for: Tom Dodson, President
Tom Dodson & Associates
2150 North Arrowhead Avenue
San Bernardino, CA 92405
(909) 882-3612

USGS Quadrangle: Azusa, Calif., 7.5' quadrangle (Sections 7 and 18, T1N R10W, and Section 13, T1N R11W, San Bernardino Baseline and Meridian)

Keywords: San Gabriel Mountains; Phase I historical/ archaeological resources survey; Rincon-Red Box-Sawpit Roads Complex (19-186917), circa 1907-1942; Tallman H. Trask Scout Reservation (Camp Trask), circa 1966-1972; no "historic properties" or "historical resources" in the Area of Potential Effects

EXECUTIVE SUMMARY

Between August 2020 and May 2021, at the request of Tom Dodson & Associates, CRM TECH performed a cultural resources study on the Area of Potential Effects (APE) for the proposed Tallman H. Trask Scout Reservation Water System Rehabilitation and Enhancement Project in the City of Monrovia, Los Angeles County, California. The project entails primarily improvements to the existing surface water treatment system and water distribution infrastructure at the scout camp, which will require the replacement, installation, and/or modification of various existing potable water procurement, processing, conveyance, and storage facilities. Restoration of trails, landscaping, and the Sawpit Creek streambed is also proposed as a part of the project.

The APE is delineated to encompass the maximum extent of ground disturbance required for the implementation of the project, which measures approximately 0.2 acre in total surface area, consisting mostly of linear alignments along the various pipelines and trails. It is located entirely within the footprint of the Tallman H. Trask Scout Reservation, also known as Camp Trask, which occupies portions of Parcel Numbers 8501-010-010 and 8689-005-906, within Sections 7 and 18 of T1N R10W and Section 13 of T1N R11W, San Bernardino Baseline and Meridian. The vertical extent of the APE, represented by the maximum depth of excavation required, will not exceed three feet, limited mainly within the previously disturbed surface and near-surface soils.

The present study is a part of the environmental review process for the proposed project. The City of Monrovia, as the lead agency for the project, required the study pursuant to the California Environmental Quality Act (CEQA). As the APE lies on public land under the jurisdiction of the United States Forest Service (USFS), the project qualifies as a federal "undertaking," which necessitates compliance with Section 106 of the National Historic Preservation Act (NHPA) as well. The purpose of this study, conducted under the provisions of both CEQA and NHPA Section 106, is to provide the City of Monrovia and the USFS with the necessary information and analysis to determine whether the undertaking would have an effect on any "historic properties," as defined by 36 CFR 800.16(l), or "historical resources" as defined by Calif. PRC §5020.1(j), that may exist in or near the APE.

In order to accomplish this objective, CRM TECH conducted a cultural resources records search, historical and geoarchaeological background research, consultation with Native American representatives, and a systematic field survey of the APE. The results of these research procedures indicate that four historic-period sites were previously recorded as lying partially within or in close proximity to the APE, namely the Angeles National Forest (19-186535), the Rincon-Red Box-Sawpit Roads Complex (19-186917), the Ben Overturff Trail (19-187818), and the Cogswell Dam Telecommunication Line (19-192340). During the course of this study, the Trask Scout Reservation compound itself, founded during the late historic period (1966-1972), was also recorded into the California Historical Resources Inventory as a site.

As the result of the field inspection and other subsequent research, three of these five sites, 19-186535, 19-187818, and 19-192340, are determined to be outside the horizontal and vertical extents of the APE, while the other two, 19-186917 and the Trask Scout Reservation, were found not to meet the

definition of “historic properties” or “historical resources.” Meanwhile, the subsurface sediments within the vertical extent of the APE appear to be relatively low in archaeological sensitivity.

Based on these findings, and pursuant to 36 CFR 800.4(d)(1) and Calif. PRC §21084.1, CRM TECH recommends to the City of Monrovia and the USFS a conclusion that *no “historic properties” or “historical resources” will be affected by the proposed undertaking*. No further cultural resources investigation is recommended for the undertaking unless project plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are discovered during earth-moving operations associated with the undertaking, all work in the immediate area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the find.

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

Between August 2020 and May 2021, at the request of Tom Dodson & Associates, CRM TECH performed a cultural resources study on the Area of Potential Effects (APE) for the proposed Tallman H. Trask Scout Reservation Water System Rehabilitation and Enhancement Project in the City of Monrovia, Los Angeles County, California (Figure 1). The project entails primarily improvements to the existing surface water treatment system and water distribution infrastructure at the scout camp, which will require the replacement, installation, and/or modification of various existing potable water procurement, processing, conveyance, and storage facilities. Restoration of trails, landscaping, and the Sawpit Creek streambed is also proposed as a part of the project.

The APE is delineated to encompass the maximum extent of ground disturbance required for the implementation of the project, which measures approximately 0.2 acre in total surface area, consisting mostly of linear alignments along the various pipelines and trails (Figures 2, 3). It is located entirely within the footprint of the Tallman H. Trask Scout Reservation, also known as Camp Trask, which occupies portions of Parcel Numbers 8501-010-010 and 8689-005-906, within Sections 7 and 18 of T1N R10W and Section 13 of T1N R11W, San Bernardino Baseline and Meridian (Figure 2). The vertical extent of the APE, represented by the maximum depth of excavation required, will not exceed three feet, limited mainly within the previously disturbed surface and near-surface soils.

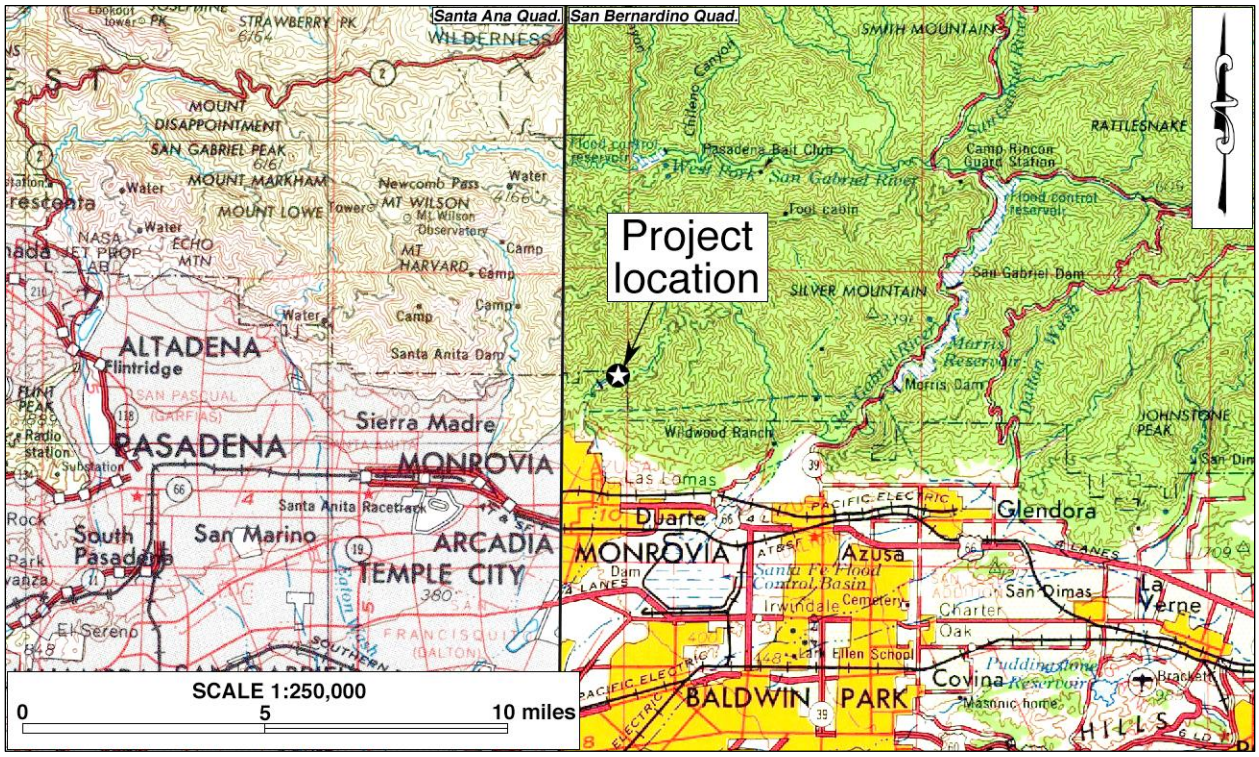


Figure 1. Project vicinity. (Based on USGS San Bernardino and Los Angeles, Calif., 60'x120' quadrangles [USGS 1969; 1975])

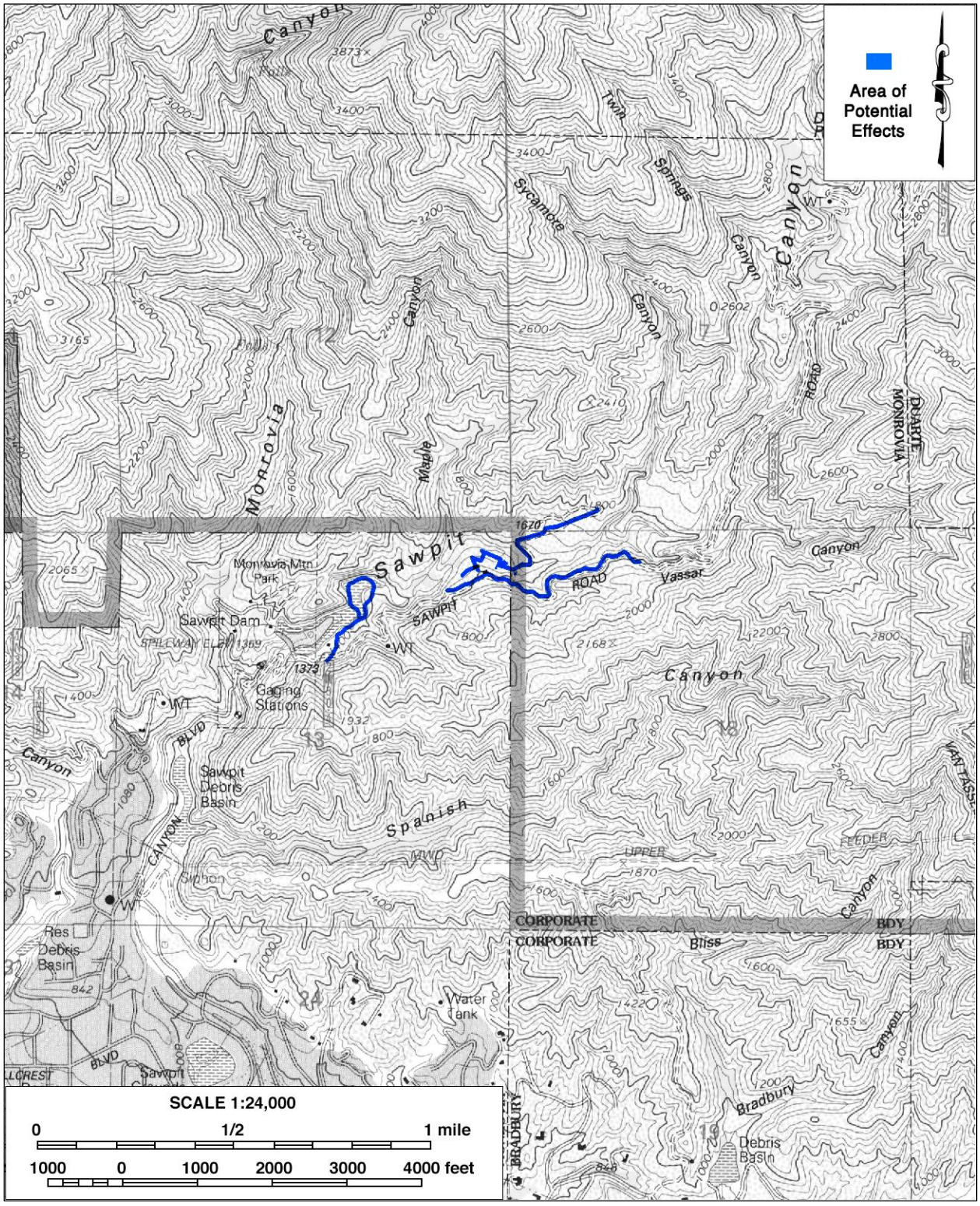


Figure 2. Project location. (Based on USGS Azusa, Calif., 7.5' quadrangle [USGS 1995])

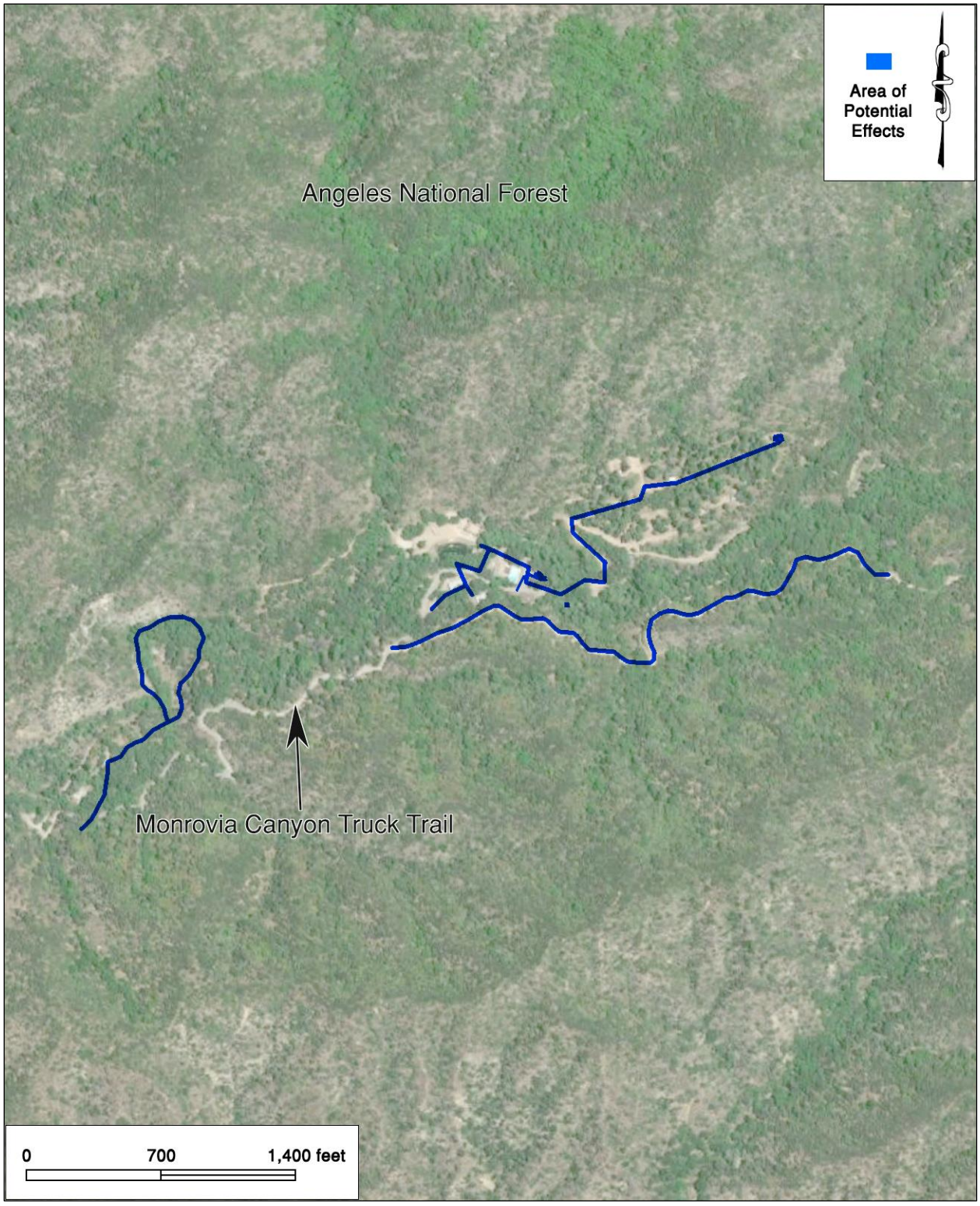


Figure 3. Area of Potential Effects.

The present study is a part of the environmental review process for the proposed project. The City of Monrovia, as the lead agency for the project, required the study pursuant to the California Environmental Quality Act (CEQA). As the APE lies on public land under the jurisdiction of the United States Forest Service (USFS), the project qualifies as a federal "undertaking," which necessitates compliance with Section 106 of the National Historic Preservation Act (NHPA) as well. The purpose of this study, conducted under the provisions of both CEQA and NHPA Section 106, is to provide the City of Monrovia and the USFS with the necessary information and analysis to determine whether the undertaking would have an effect on any "historic properties," as defined by 36 CFR 800.16(l), or "historical resources" as defined by Calif. PRC §5020.1(j), that may exist in or near the APE.

In order to accomplish this objective, CRM TECH conducted a cultural resources records search, historical and geoarchaeological background research, consultation with Native American representatives, and a systematic field survey of the APE. The following report is a complete account of the methods and results of the various avenues of research and the final conclusion of the study. Personnel who participated in the study are named in the appropriate sections, and their qualifications are provided in Appendix 1.

SETTING

CURRENT NATURAL SETTING

The City of Monrovia is situated on the northern rim of the San Gabriel Valley, one of the principal valleys of southern California, and near the foothills of the San Gabriel Mountains, approximately 10 miles northeast of Los Angeles. The natural environment of the region is characterized by its temperate Mediterranean climate, featuring hot, dry summers and mild, rainy winters, typical of the southern California coastal plains. The average rainfall in this area is approximately 15 inches per year, most of which occurs between November and March.

The APE and the Trask Scout Reservation lie along Sawpit Creek on forest land in the foothills (Figure 4). The creek flows southwest into the San Gabriel River, which empties into the Pacific Ocean between the Cities of Long Beach and Seal Beach. At this elevation, the typical daily temperatures range between 25ºF and 60ºF in winter and between 55ºF and 95ºF in summer. Existing facilities at the camp, operated by the Boy Scouts of America, include an administration building, a residence for the camp ranger, a warehouse, a cafeteria, a number of cabins, a wooden "fort," an amphitheater, and other recreational amenities for the campers and visitors.

In its natural state, this forest area would belong to the Cismontane chaparral ecosystem. This lower-elevation shrubland would be dominated by chamise, manzanita, and scrub oak, with numerous other plants, such as sand verbena, copper leaf, sages, yucca, various yarrow species, ferns, grasses, and flowering plants, also present. Animals native to the area include black bears, gray foxes, bobcats, cougars, mule deer, bighorn sheep, rattlesnakes, coyotes, lizards, mice, and rats. Native people would have used many of the plants, animals, and minerals in the area for food, clothing, shelter, tools, and other necessities.

Figure 4. Typical landscape within the APE, view to the northwest. (Photograph taken on March 30, 2021)

The APE is divided into three distinct parts: the new trail on the western end, the northern alignment, and the southern alignment, both of the latter on the eastern end (Figures 2, 3). The area of the proposed new trail is mostly in its native state, although the 2020 Bobcat Fire burned the area, resulting in the presence of incipient plant species. Parts of the area are still barren, and ash is visible in the surface soils (Figure 5). The route of the new trail will likely be along existing benches and terraces, with the adjacent steep hillsides, cliff faces, and ravines being avoided.

The northern alignment portion of the APE starts in the main administration area of the Trask Scout Reservation, which has been impacted by the development of the camp facilities, with some areas having been paved and others cleared. As the proposed pipeline route leaves this area, it follows an existing dirt jeep trail. In the middle part of the alignment, the jeep trail was built by cutting into a hillside, so that it is flanked by a downward slope on one side and an upward slope on the other. As the road reaches the point where it turns to the northeast and heads toward an existing water tank, the landform becomes more level. This portion of the APE was severely impacted by the Bobcat Fire, as evidenced by burnt remnants of cabins. This northeast trending part of the jeep track is mostly overgrown with ruderal low-lying plants (Figure 6).

The southern alignment coincides with Monrovia Canyon Truck Trail (a.k.a. Sawpit Road; Forest Road 2N30), a well-maintained forest service road that has been cut into the hillside along this segment, again with a steep drop-off on one side and a steep upslope on the other (Figure 7). Low-lying intrusive plants line the narrow margins of the road. The surface soils consist of gravels from the decomposing granite mixed with silt.

Figure 5. New trail portion of the APE, view to the northeast. (Photograph taken on March 30, 2021)

Figure 6. Northern alignment of the APE, view to the northeast. (Photograph taken on March 30, 2021)

Figure 7. Southern alignment of the APE, view to the north. (Photograph taken on March 30, 2021)

CULTURAL SETTING

Prehistoric Context

It is widely acknowledged that human occupation in what is now the State of California began 8,000-12,000 years ago. In attempting to describe and understand the cultural processes that occurred in the ensuing years, archaeologists have developed a number of chronological frameworks that endeavor to correlate the technological and cultural changes that are observable in archaeological records to distinct time periods. The general framework for the prehistory of the southern Californian coastal region is outlined in Moratto (1984), which is the basis for the following discussion.

Migration of indigenous groups from the interior deserts of southern California to the already inhabited coastal region appears to have taken place around 7,500 years ago. Unfortunately, very little is known about the coastal groups during this early period in prehistory. With the immigration of people from the interior, a fusion of regional cultural traits, specifically those pertaining to subsistence procurement, occurred between the newcomers and coastal inhabitants. The newcomers introduced new plant resources and plant processing techniques to the coast groups while they learned to exploit more intensively the littoral resources.

Archaeological investigations at various sites along the southern Californian coast have uncovered valuable data regarding later time periods in this region. Sites dating to the La Jolla I Period, ca. 5500-3500 B.C., have yielded numerous millingstone tools, crudely shaped scrapers, and flexed

burials. The La Jolla II Period, ca. 3500-2000 B.C., is distinguished from the previous period by the presence of cemeteries, discoidals, and various projectile point types. Following this is the La Jolla III Period, ca. 2000-1000 B.C., which is characterized by the influence of Yuman cultural traits from the east on the coastal cultures.

With this second intrusion of eastern groups to the area, increased exploitation of terrestrial food sources further diminished the coastal people's dependence on littoral resources. With an increasing focus on acorn-processing activities, indigenous groups along the southern Californian coast slowly began settling the interior regions. There was also a shift from inhumation to cremation around 500 B.C., possibly another result of eastern influences.

Ethnohistoric Context

The San Gabriel Valley is an important part of the traditional territory of the Gabrielino, a Takic-speaking people who first entered the region around 500 B.C. and gradually replaced the indigenous Hokan speakers (Howard and Raab 1997; Porcasi 1998). By the time of European contact, the Gabrielino were considered the most populous and most powerful ethnic nationality in southern California (Bean and Smith 1978:538). The Gabrielino's territory spanned from San Clemente Island along the coast to the present-day San Bernardino-Riverside area and south into southern Orange County, and their influence spread as far as the San Joaquin Valley, the Colorado River, and Baja California. The leading ethnographic sources on Gabrielino culture and history include Bean and Smith (1978), Miller (1991), and McCawley (1996). The following summary is based mainly on these sources.

Prior to European contact, native subsistence practices were defined by the varying surrounding landscape and primarily based on the cultivating and gathering of wild foods, hunting, and fishing, exploiting nearly all of the resources available in a highly developed seasonal mobility system. In inland areas, the predominant food sources included acorns, piñon nuts, other seeds, roots, wild fruits/berries, and wild onions. Medicinal and ceremonial plants such as yerba buena, elderberry, and sage were typically cultivated near villages. Common game animals included deer, antelope, rabbits, wood rats, fish, and waterfowl. Coastal Gabrielino utilized marine resources and had an advanced maritime navigation technology with an emphasis on the *ti'at*, the plank canoe used by only a handle of groups in North America (Gamble 2002).

Both inland and coastal Gabrielino populations had a variety of technological skills that they used to acquire subsistence, shelter, and medicine or to create ornaments and decorations. Common tools included manos and metates, mortars and pestles, hammerstones, fire drills, awls, arrow straighteners, and stone knives and scrapers. These lithic tools were made from locally sourced material as well as those procured through trade or travel. They also used wood, horn, and bone spoons and stirrers, as well as baskets for winnowing, leaching, grinding, transporting, parching, storing, and cooking. However, much of this material cultural, elaborately decorated, does not survive in the archaeological record. As usual, the main items found archaeologically relate to subsistence activities.

The intricacies of Gabrielino social organization are not well known, although evidence suggests the existence of a moiety system in which various clans belonged to one or the other of two main social/

cultural divisions. There also seems to have existed at least three hierarchically ordered social classes, topped with an elite consisting of the chiefs, their immediate families, and the very rich. Some individuals owned land, and property boundaries were marked by the owner's personalized symbol. Villages were politically autonomous, composed of nonlocalized lineages, each with its own leader. The dominant lineage's leader was usually the village chief, whose office was generally hereditary through the male line. Often several villages were allied under the leadership of a single chief. The villages were frequently engaged in warfare against one another, resulting in what some consider to be a state of constant enmity between coastal and inland Gabrielino groups.

As early as 1542, the Gabrielino were in contact with the Spanish during the historic expedition of Juan Rodríguez Cabrillo, but it was not until 1769 that the Spaniards took steps to colonize Gabrielino territory. Shortly afterwards, most of the Gabrielino people were incorporated into Mission San Gabriel and other missions in southern California. Due to forced labor, dietary deficiencies, introduced diseases, and forceful reduction, Gabrielino population dwindled rapidly. By 1900, they had almost ceased to exist as a culturally identifiable group (Bean and Smith 1978:540). In recent decades, however, there has been a renaissance of Native American activism and cultural revitalization among groups of Gabrielino descendants, including the reconstruction and utilization of *ti'at* and incorporating the ethnographic names *Kizh* and *Tongva* into official documentation (Stickel 2016).

Historic Context

The San Gabriel Valley acquired its name from Mission San Gabriel Arcangel, which was established by the Franciscan missionaries in 1771, originally at present-day Whittier Narrows, before being moved to its current location in 1775. The valley remained the domain of the mission until the 1830s, when the Mexican government began to secularize the mission system. Subsequently, a number of vast land grant ranchos were established in the San Gabriel Valley during the remaining years of Mexican rule in Alta California. The nearest land grands to the project location were the 6,596-acre Rancho Azusa de Duarte, awarded in 1841 to Andres Duarte, a former Mexican soldier, and the 13,319-acre Rancho Santa Anita, awarded in 1845 to naturalized Scottish immigrant Hugo Reid, both of which extended to the southern base of the San Gabriel Mountains, roughly 1.5 miles from the APE (GLO 1882; 1884).

As elsewhere in Alta California during the so-called rancho period, cattle-raising was the primary economic activity on these and other land grants in the San Gabriel Valley until the influx of American settlers eventually brought an end to this now-romanticized lifestyle during the second half of the 19th century. The rugged foothills around the APE, however, were not included in any of these land grants and thus remains beyond private ownership when Alta California was annexed by the United States in 1848.

For much of southern California, the first major growth spurt came during the 1880s. Spurred by the completion of the Southern Pacific Railroad in 1876-1877 and, in particular, the competing Santa Fe Railway in 1883-1885, a land boom swept through the Los Angeles Basin and beyond, creating an immediate and significant boost to the growth of the region. Dozens of communities, surrounded by irrigated agricultural land, were laid out in the San Gabriel Valley before the end of the 19th century,

most of them established in close proximity to the rail lines, including those that ultimately grew into the cities around the project location.

Historical maps from the turn of the century clearly illustrate this developmental pattern, featuring clusters of road grids fanning out from the railroad tracks, outlining the layout of the newly subdivided agricultural lands (USGS 1894). Some of these new towns soon became incorporated cities, such as Monrovia, which incorporated in 1887. Nevertheless, for the remainder of the 19th century and well into the 20th, the San Gabriel Valley remained largely agrarian in character, dominated particularly by citrus growing after the successful introduction of the navel orange in the mid-1870s. During the Depression years, the communities in the San Gabriel Valley fell on hard times like numerous other small rural towns throughout the United States. As farm profits plummeted, many of the large groves and orchards were sold and subdivided into residential lots, starting a far-reaching trend that gradually transformed the towns into bedroom communities (SGVEP n.d.).

By the mid- and late 20th century, the forces of industrialization, urbanization, and suburbanization had dramatically altered the formerly agrarian landscape as urban expansion and residential development increasingly assumed a dominant role (SGVEP n.d.). Settlement, though still dense along the railroad, shifted to a more contemporary urban/suburban patterns, as industries in need of rail transportation remained clustered along the railroad corridors while residential areas and new urban cores developed closer to major roadways and away from the rail lines (NETR Online 1952-1972). Today, continued development has essentially merged the urban cores of the cities in the San Gabriel Valley into one metropolitan area.

In the immediate vicinity of the APE, the Sawpit Canyon area was only marginally involved in the various "booms" on the fertile San Gabriel Valley floor below. Although some settlement activities had occurred in the canyon at least by the mid-1880s (GLO 1884), for most of the historic period the area around the APE was largely devoid of notable man-made features, with the exception of the forerunner of present-day Monrovia Canyon Truck Trail, until the construction of the Boy Scout camp in the mid-1960s (USGS 1894-1966; NETR Online 1952-1972; see further discussion below).

In 1966, the Boy Scouts of America purchased 160 acres of mountainous land around the APE and then, in 1968, leased another 320 acres from the City of Monrovia (Minnihan n.d.). Construction evidently started soon afterwards, and by 1972 at least two buildings, corresponding in location with what are now the ranger's house and the warehouse, had been completed (NETR Online 1964; 1972). Most of the buildings and other facilities at the camp today, however, were constructed over the years after 1972 (NETR Online 1972-2016). The unique wooden "fort" known as Fort Rotary, for example, was built in 2003 with the help of local rotary clubs in Arcadia, Monrovia, and Sierra Madre (Google Earth 1994-2003; Miller 2019).

Originally known as the Monrovia Scout Reservation, the camp hosted the first official event in 1970 (Minnihan n.d.). Two years later, it was renamed after Tallman H. Trask (1890-1974), a longtime executive with the Boy Scouts of America and the YMCA in Los Angeles who played an important role in the establishment of a number of facilities for these organization in the early 20th century (*Catalina Islander* 1931; Findagrave.com n.d.). On May 13, 1972, the camp was formally dedicated as the Tallman H. Trask Scout Reservation (Minnihan n.d.).

RESEARCH METHODS

RECORDS SEARCH

The historical/archaeological resources records search service for this study was provided by the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System on August 17, 2020. Located on the campus of California State University, Fullerton, the SCCIC is the State of California's official cultural resource records repository for the County of Los Angeles. During the records search, SCCIC staff examined maps and records on file for previously identified cultural resources and existing cultural resources reports within a one-mile radius of the APE. In addition to records of the SCCIC, the USFS also provided CRM TECH with similar records maintained at the office of the Angeles National Forest.

HISTORICAL BACKGROUND RESEARCH

Historical background research for this study was conducted by CRM TECH principal investigator/ historian Bai "Tom" Tang. In addition to published literature in local and regional history, sources consulted during the research included contemporary news accounts, building safety records of the County of Los Angeles and the City of Monrovia, online genealogical databases, historical maps by the U.S. General Land Office (GLO) and the U.S. Geological Survey (USGS), and aerial photographs of the project vicinity. The historical maps, dated 1882-1995, are accessible at the webpages of the U.S. Bureau of Land Management and the USGS, and the aerial photographs, taken between 1952 and 2020, are available at the Nationwide Environmental Title Research (NETR) Online website and through the Google Earth software.

NATIVE AMERICAN PARTICIPATION

On August 13, 2020, CRM TECH submitted a written request to the State of California Native American Heritage Commission (NAHC) for a records search in the commission's Sacred Lands File. Following the NAHC's recommendations, CRM TECH further contacted the Gabrieleño Band of Mission Indians–Kizh Nation and four other tribal representatives in writing on August 27, 2020, and by telephone between September 10 and 17, 2020, for additional information on potential Native American cultural resources in or near the APE. The correspondence between CRM TECH and the Native American representatives is attached to this report as Appendix 2.

FIELD SURVEY

On March 30, 2021, CRM TECH principal investigator/archaeologist Michael Hogan carried out the field survey of the APE, starting from the new trail portion on the western end. Despite the digital locational data previously imported into a handheld GPS unit and onsite assistance from camp employee Anthony Villalobos, the precise alignment of the proposed new trail was difficult to ascertain in the field. As a result, the entire area around the trail alignment was surveyed on foot at an intensive level to ensure sufficient coverage. The few granitic bedrock outcrops in this area were closely inspected for any milling features or other evidence of human use during the prehistoric or historic period.

The proposed pipeline alignments on the eastern end of the APE were surveyed at different intensity as the existing landscape warranted. Where the alignments followed Monrovia Canyon Truck Trail and the jeep trail, the survey was conducted at a reconnaissance level by observing the surrounding ground surface from a motor vehicle, and the well-maintained roadbeds were considered to be low in sensitivity for prehistoric or historical features and artifacts. The rest of the alignments, across less disturbed hillsides and within the main camp area, were surveyed at an intensive level by walking two parallel transects on either side of the project center line. Using these methods, the ground surface in the entire APE was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic period (i.e., 50 years ago or older).

GEOARCHAEOLOGICAL ANALYSIS

As a part of the research procedures, CRM TECH archaeologist Ben Kerridge pursued geoarchaeological analysis to assess the APE's potential for the deposition and preservation of subsurface cultural deposits from the prehistoric period, which cannot be detected through a standard surface archaeological survey. Sources consulted for this purpose included primarily topographic and geologic maps and reports pertaining to the project vicinity. Findings from these sources were used to develop a geomorphologic history of the APE and address geoarchaeological sensitivity of the vertical APE.

RESULTS AND FINDINGS

RECORDS SEARCH

The records search by the SCCIC identified five previous cultural resources studies that covered at least a portion of the current APE between 1991 and 2009 (Figure 8), while USFS records yielded some of the same studies pertaining to the project location. The majority of these studies are linear surveys for road improvement projects along Monrovia Canyon Truck Trail, although one 2000 study is apparently focused on Trask Scout Reservation as a whole (Demcak 2000). Unfortunately, due to facility closure during the COVID-19 pandemic, the SCCIC staff were unable to provide copies of these reports, none of which had been fully digitized and made available for remote access.

Records of the SCCIC and the USFS further indicate that four cultural resources have been recorded as lying partially within or in close proximity to the APE, as listed below (see Appendix 3 for further details):

- Site 19-186535: Angeles National Forest, first national forest in California and the second in the United States. Designated California Historical Landmark No. 717, this site nominally refers to the 700,000-acre Angeles National Forest in its entirety but is focused primarily on a monument established in 1959 to commemorate the creation of the national forest in 1892, which is located on State Route 2 in the La Cañada area, more than 10 miles to the northwest.
- Site 19-186917: Rincon-Red Box-Sawpit Roads Complex, a system of four dirt roads running generally east-west for approximately 40 miles along ridge lines, including Monrovia Canyon Truck Trail. The earliest portions of the complex date at least to 1907, with the rest competed

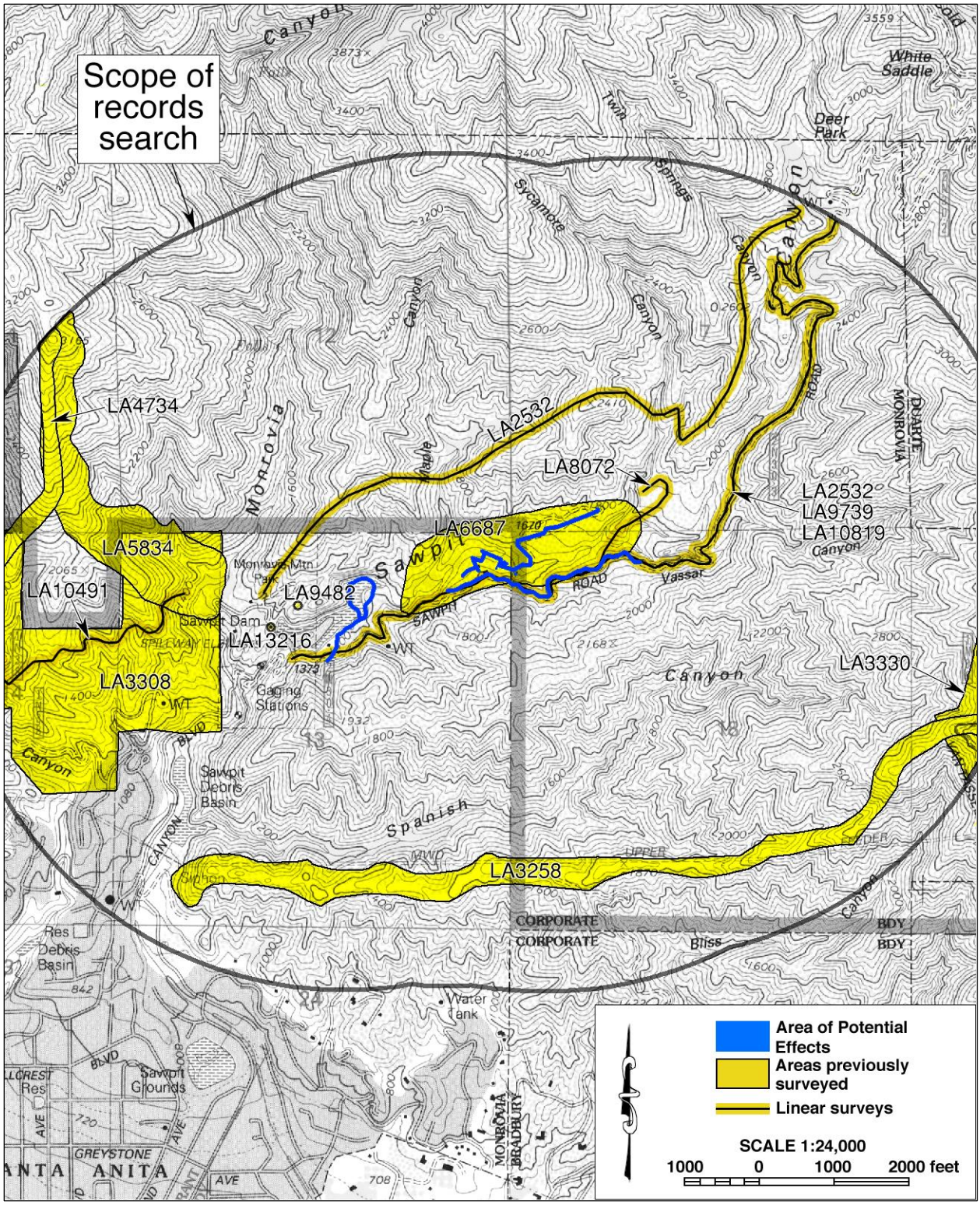


Figure 8. Previous cultural resources studies in the vicinity of the APE, listed by SCCIC file number. Locations of historical/archaeological sites are not shown as a protective measure.

between then and 1942. The road complex is now part of the forest service road system in the Angeles National Forest and is actively maintained by the USFS.

- Site 19-187818: Ben Overturff Trail, an approximately 1.6-mile-long trail from Sawpit Canyon to the location of a cabin built by early Monrovia settler Ben Overturff (1877-1954) in 1907. Now a popular hiking trail managed and maintained by the USFS, the southern end of the Ben Overturff Trail terminates on the north side of Monrovia Canyon Truck Trail, wherein the southern alignment of the APE lies.
- Site 19-192340: Cogswell Dam Telecommunication Line, an abandoned telephone line that was built in the mid-1930s from Cogswell Dam in the San Gabriel Mountains to Sawpit Dam to the west of the APE.

Within the one-mile scope of the records search, SCCIC identified 10 additional studies on various tracts of land and linear features (Figure 5), covering approximately 15 percent of the land. As a result of these and other similar studies in the vicinity, three additional historical/archaeological sites have been recorded within the scope of the records search. One of these sites, 19-002107, was prehistoric in origin and consisted of a highly disturbed assemblage of lithic tools. The other two sites, 19-002108 and 19-004717, dated to the historic period and represented a grave site and another dirt road. None of these three sites was found in the immediate vicinity of the APE.

HISTORICAL BACKGROUND RESEARCH

As mentioned above (see "Historic Context"), despite early evidence of settlement activities in the vicinity, for most of the historic period the APE contained no notable man-made features except the forerunner of present-day Monrovia Canyon Truck Trail. In 1881-1884, the house and agricultural fields of a settler named Butler were noted in the general vicinity of the main camp area of the Trask Scout Reservation (Figure 9). Between 1894 and 1966, however, no buildings were present in this area or anywhere near the APE, leaving the winding dirt road, first depicted on maps from surveys conducted in the 1920s-1930s, the only man-made feature in or near the APE (Figures 10-13). The beginning of the Trask Scout Reservation in 1966-1970, therefore, represented the first major development known to have occurred around the APE since the 1880s.

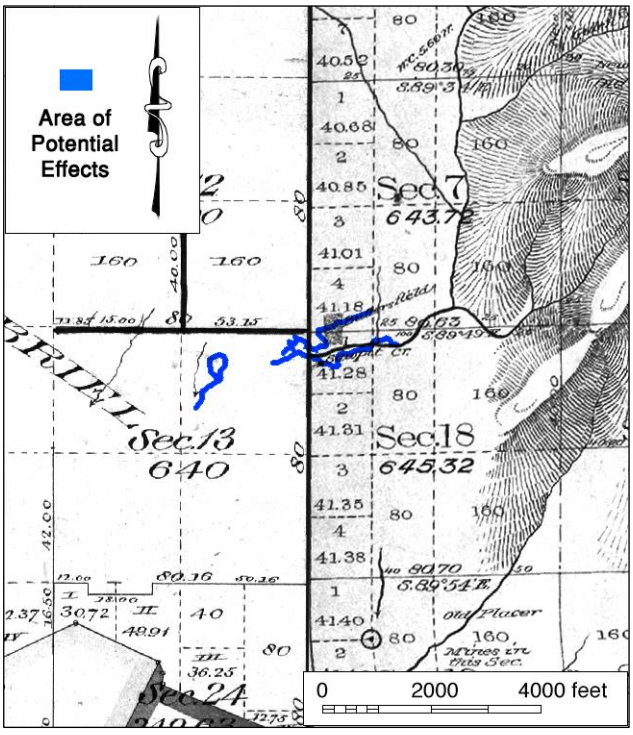


Figure 9. The APE and vicinity in 1881-1884 (Source: GLO 1882; 1884)

NATIVE AMERICAN PARTICIPATION

In response to CRM TECH's inquiry, the NAHC reported in a letter dated August 26, 2020, that the Sacred Lands File identified unspecified Native American cultural resources in the general vicinity of the APE and recommended that the Gabrieleño Band of Mission Indians–

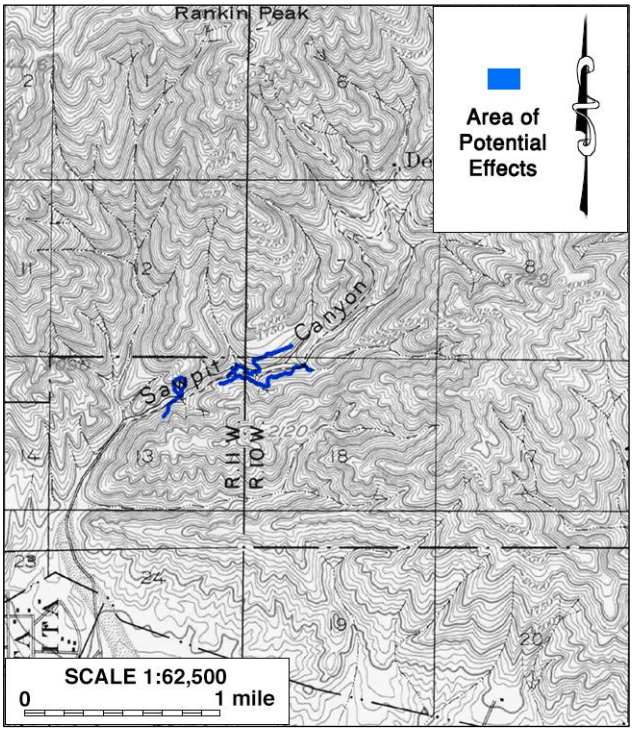


Figure 10. The APE and vicinity in 1894. (Source: USGS 1894)

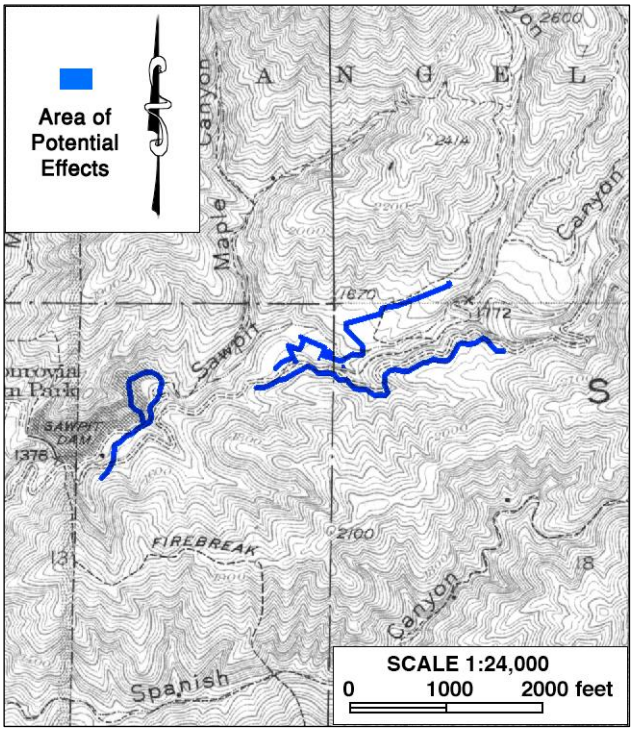


Figure 11. The APE and vicinity in 1924-1933. (Source: USGS 1939)

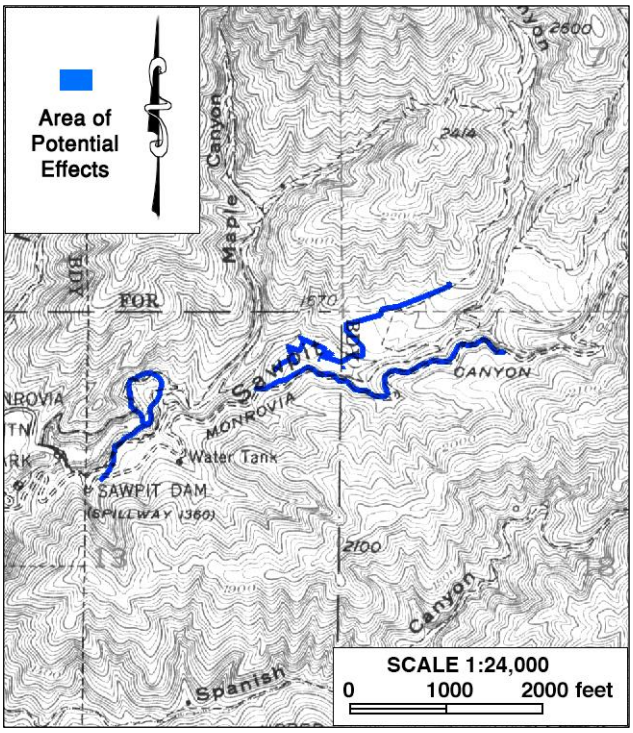


Figure 12. The APE and vicinity in 1952-1953. (Source: USGS 1953)

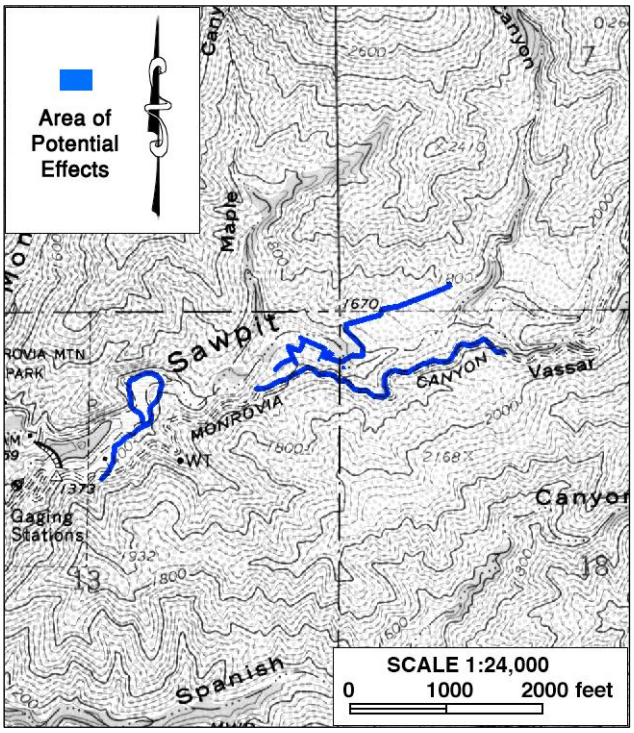


Figure 13. The APE and vicinity in 1964-1966. (Source: USGS 1966)

Kizh Nation be contacted for further information. In addition, the NAHC recommended that other local Native American groups be consulted as well and provided a list of potential contacts in the region (see Appendix 2).

Upon receiving the NAHC's reply, on August 27, 2020, CRM TECH sent written requests for comments to all five Native American groups of Gabrielino heritage on the NAHC's referral list, including the Gabrieleño Band of Mission Indians–Kizh Nation (see Appendix 2). Follow-up telephone solicitations were then carried out between September 10 and 17, 2020 (see Appendix 2). The five tribal representatives contacted during this study are listed below:

- Andy Salas, Chairperson of the Gabrieleño Band of Mission Indians–Kizh Nation;
- Sandonne Goad, Chairperson of the Gabrielino/Tongva Nation;
- Anthony Morales, Chairperson of the Gabrieleno/Tongva San Gabriel Band of Mission Indians;
- Robert Dorame, Chairperson of the Gabrielino Tongva Indians of California Tribal Council;
- Charles Alvarez, Chairperson of the Gabrielino Tongva Tribe.

As of this time, one of the tribes has responded in writing, and two others have provided their comments via telephone (see Appendix 2). Among them, the Gabrieleño Band of Mission Indians–Kizh Nation requested contact information of the lead agencies in order to seek further consultation on a government-to-government basis, which was provided to the tribe by electronic mail on September 17, 2020. The Gabrieleno/Tongva San Gabriel Band of Mission Indians and the Gabrielino Tongva Indians of California Tribal Council both recommended Native American monitoring of ground-disturbing activities associated with the undertaking, and each of them further requested participation by their monitors. In addition, the Gabrielino Tongva Indians of California Tribal Council also expressed the desire to participate in further consultation with the lead agencies and the project proponent.

FIELD SURVEY

During the field survey, Site 19-187818, the Ben Overturff Trail, and Site 19-192340, the Cogswell Dam Telecommunication Line, were observed at their recorded locations. However, Site 19-187818 was determined to be adjacent to but outside the APE. Site 19-192340 also lies adjacent to the APE and crosses it overhead, but none of the physical components of the telephone line is inside the horizontal and vertical extents of the APE. Meanwhile, given the nature and scope of the proposed project activities, the undertaking has no potential for any substantial impact on the overall characteristics and potential significance of Site 19-186535, the Angeles National Forest. Based on these observations and considerations, Sites 19-186535, 19-187818, and 19-192340, are excluded from the APE for this undertaking.

Among the four previously recorded sites reported to be partially within or in close proximity to the APE, only 19-186917, the Rincon-Red Box-Sawpit Roads Complex, was found to be present within the APE, represented at this location by Monrovia Canyon Truck Trail. The segment of the road the coincides with the southern alignment of the APE is a well maintained, nondescript dirt road that has evidently been graded. As a working component of the modern transportation infrastructure, it demonstrate no distinctive historical characters (Figure 7).

In addition to the four previously recorded sites, the Trask Scout Reservation as a whole traces its history to the late historic period (i.e., 1966-1972). The buildings at the camp are typically wood or concrete structures of plain design and utilitarian character, with the notable exception of the "fort" constructed in 2003, and the vast majority of them are in fact modern in age, as discussed above. Nonetheless, in light of the historical origin of the oldest components, such as the ranger's residence and the warehouse, the camp was recorded on standard record forms during this study to ensure proper documentation in the California Historical Resources Inventory (see Appendix 3).

GEOARCHAEOLOGICAL ANALYSIS

Recent geologic maps of the project vicinity identify the surface sediments in the APE as *Qoa* ("older desiccated terrace remnant alluvial gravels occurring near stream channels"), *Qg* ("stream channel gravels of Holocene age"), *Qd* ("quartz diorite plutonic rock formations of cretaceous age"), and *Gn* ("grey banded gneiss Precambrian formations;" Dibblee and Ehrenspeck 1998). Also, the APE lies just to the south of the South Sawpit Fault. The portions of the APE atop the older plutonic and metamorphic rock formations of *Qd* and *Gn* generally have little sensitivity for buried cultural resources. While the *Qg* sediments are of appropriate age to have the potential for buried cultural resources beneath the ground surface, these soils are associated with active stream channels and are therefore typically prone to erosion and displacement.

Therefore, only the areas of the APE atop *Qoa*, namely early Holocene to Late Pleistocene alluvial remnant gravels, have any notable potential to contain significant buried deposits of cultural resources. However, the flash flow character of the nearby washes, specifically Sawpit Creek, would render intact preservation of subsurface cultural resources in the APE extremely unlikely. Additionally, the proximity of the APE to the Southern Sawpit Fault would stimulate significant movement of subsurface soils and make for poor preservation conditions. In light of its location within the disturbed footprint of an existing facility, near a fault, and within a flash flowing wash area, the APE appears to be relatively low in sensitivity for buried deposits of intact, potentially significant archaeological remains of prehistoric origin within its limited vertical extent (i.e., three feet at the maximum).

MANAGEMENT CONSIDERATIONS

The purpose of this study is to identify and evaluate any "historic properties" or "historical resources" that may exist within or adjacent to the APE. "Historic properties," as defined by the Advisory Council on Historic Preservation, include "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior" (36 CFR 800.16(l)). The eligibility for inclusion in the National Register is determined by applying the following criteria, developed by the National Park Service as per provision of the National Historic Preservation Act:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
> (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or

(b) that are associated with the lives of persons significant in our past; or
(c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
(d) that have yielded, or may be likely to yield, information important in prehistory or history. (36 CFR 60.4)

For CEQA-compliance considerations, the State of California's Public Resources Code (PRC) establishes the definitions and criteria for "historical resources," which require similar protection to what NHPA Section 106 mandates for "historic properties." "Historical resources," according to PRC §5020.1(j), "includes, but is 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."

More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the lead agency (Title 14 CCR §15064.5(a)(1)-(3)). Regarding the proper criteria of historical significance, CEQA guidelines mandate that "generally a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

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

As stated above, while four historic-period sites were previously recorded as lying partially within or in close proximity to the APE, three of them, namely the Angeles National Forest (19-186535), the Ben Overturff Trail (19-187818), and the Cogswell Dam Telecommunication Line (19-192340), are determined to be outside the horizontal and vertical extents of the APE. The fourth site, the Rincon-Red Box-Sawpit Roads Complex (19-186917), and the newly recorded Trask Scout Reservation compound, both date to the historic period, but neither of them is known to be closely associated with any persons or events of recognized significance in national, state, or local history. The namesake of Trask Scout Reservation, Tallman H. Trask, was only marginally associated with the facility through his long service with the local chapter of the Boy Scouts of America, and there is no evidence that he attained the level of historic significance required by the National Register or California Register criteria.

Neither the Rincon-Red Box-Sawpit Roads Complex, represented in the APE by Monrovia Canyon Truck Trail, nor the Trask Scout Reservation demonstrates any outstanding merits in design, construction, engineering, or aesthetics, nor are they known to embody the work of any distinguished designer or builder, or to hold the potential for important historical/archaeological

data. More importantly, as the results of alterations and/or significant additions since the end of the historic period, both of them are essentially modern in character today, and neither retains sufficient historic integrity in terms of design, materials, workmanship, feeling, and association to relate adequately to their period of origin. As such, neither of them appears eligible for listing in the National Register of Historic Places or the California Register of Historical Resources. Therefore, they do not appear to meet the definition of "historic properties" or "historical resources."

CONCLUSION AND RECOMMENDATIONS

Section 106 of the National Historic Preservation Act mandates that federal agencies take into account the effects of their undertakings on historic properties and seek ways to avoid, minimize, or mitigate any adverse effects on such properties (36 CFR 800.1(a)). Similarly, CEQA establishes that a project that may cause a substantial adverse change in the significance of a "historical resource" is a project that may have a significant effect on the environment (PRC §21084.1-2). "Substantial adverse change," according to PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired."

In summary of the research results outlined in this report, a total of five sites of historical origin were identified as lying partially within or in close proximity to the APE, but three of them were subsequently determined to be outside the horizontal and vertical extents of the APE while the other two, including the Trask Scout Reservation itself, were found not to constitute "historic properties" or "historical resources," as defined by Section 106, CEQA, and associated regulations. Meanwhile, the subsurface sediments within the vertical extent of the APE appear to be relatively low in archaeological sensitivity. Based on these findings, CRM TECH presents the following recommendations to the City of Monrovia and the USFS:

- No "historic properties" or "historical resources" will be affected by the proposed undertaking.
- No further cultural resources investigation will be necessary for the undertaking unless project plans undergo such changes as to include areas not covered by this study.
- If buried cultural materials are discovered during earth-moving operations associated with the undertaking, all work in the immediate area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the find.

REFERENCES

Bean, Lowell John, and Charles R. Smith
1978 Serrano. In Robert F. Heizer (ed.): *Handbook of North American Indians*, Vol. 8: *California*; pp. 570-574. Smithsonian Institution, Washington, D.C.

Brock, James, and John F. Elliott
1988 A Cultural Resources Assessment for the Raiders Stadium Project, Irwindale, California. On file, South Central Coastal Information Center, California State University, Fullerton.

Catalina Islander, *The*
1931 Windle's History of Catalina Island. August 12:4. http://cat.stparchive.com/Archive/CAT/CAT08121931P04.php.

Demcak, Carol R.
2000 Cultural Resources Assessment of Proposed Improvements to Boy Scout Camp, City of Monrovia and Angeles National Forest, Los Angeles County, California. On file, South Central Coastal Information Center, California State University, Fullerton.
Dibblee, T.W., and Ehrenspeck, H.E.
2004 Geologic Map of the Mt. Wilson and Azusa Quadrangles, Los Angeles County, California (1:24,000). Dibblee Geological Foundation Map DF-67. Santa Barbara, California.
Findagrave.com
n.d. Tallman H. Trask. https://www.findagrave.com/memorial/17809582/tallman-h_-trask
Gamble, Lynn H.
2002 Archaeological Evidence for the Origin of the Plank Canoe in North America. *American Antiquity* 67(2):301-315.
GLO (General Land Office, U.S. Department of the Interior)
1882 Plat Map: Township No. 1 North Range No. 11 West, San Bernardino Meridian; surveyed in 1881.
1884 Plat Map: Township No. 1 North Range No. 10 West, San Bernardino Meridian; surveyed in 1884.
Google Earth
1994-2003 Aerial photographs of the project vicinity; taken in 1994, 2002, and 2003. Available through the Google Earth software.
Howard, W.J., and L.M. Raab
1993 Olivella Grooved Rectangle Beads as Evidence of an Early Period Southern California Channel Island Interaction Sphere. *Pacific Coast Archaeological Society Quarterly* 29(3):1-11.
McCawley, William
1996 *The First Angelinos: The Gabrielino Indians of Los Angeles*. Malki Museum Press/ Ballena Press, Banning/Novato, California.
Miller, Bruce W.
1991 *The Gabrielino*. Sand River Press, Los Osos, California.
Miller, Terry
2019 Organizations Plan to Rehabilitate Fort Rotary—Camp Trask in Monrovia Canyon. *The Monrovia Weekly* November 21. https://www.monroviaweekly.com/non-profits/organizations-plan-to-rehabilitate-fort-rotary-camp-trask-in-monrovia-canyon/.
Minnihan, Dave
n.d. History of Ta Tanka Lodge. http://oa-archive.org/oaarchivev2/files/original/ 30ced3fa9262ba3a1fb01c46c9994db9.pdf.
Moratto, Michael J.
1984 California Archaeology. Academic Press, Orlando, Florida.
NETR (Nationwide Environmental Title Research) Online
1952-2016 Aerial photographs of the project vicinity; taken in 1952, 1954, 1964, 1972, 1977, 1980, 1994, 2002, 2003, 2005, 2009, 2010, 2012, 2014, and 2016. http://www.historicaerials.com.
Porcasi, Judith F.
1998 Middle Holocene Ceramic Technology on the Southern California Coast: New Evidence from Little Harbor, Santa Catalina Island. *Journal of California and Great Basin Anthropology* 20:270-284.

SGVEP (San Gabriel Valley Economic Partnership)
n.d. History of the San Gabriel Valley: 1941—The First Freeway in the U.S., the Pasadena Freeway (110) is Built. http://www.visitsangabrielvalley.com/history.htm.
Stickel, E. Gary
2016 *Why the Original Indian Tribe of the Greater Los Angeles Area Is Called Kizh Not Tongva*. Kizh Tribal Press, San Gabriel, California.
USGS (United States Geological Survey, U.S. Department of the Interior)
1894 Map: Pomona, Calif. (15', 1:62,500); surveyed in 1894.
1933 Map: Azusa, Calif. (6', 1:24,000); surveyed in 1933.
1939 Map: Azusa, Calif. (6', 1:24,000); surveyed in 1924-1933.
1953 Map: Azusa, Calif. (7.5', 1:24,000); aerial photographs taken in 1952, field checked in 1953.
1966 Map: Azusa, Calif. (7.5', 1:24,000); aerial photographs taken in 1964, field checked in 1966.
1969 Map: San Bernardino, Calif. (60'x120', 1:250,000); 1958 edition revised.
1975 Map: Los Angeles, Calif. (60'x120', 1:250,000); aerial photographs taken in 1972.
1995 Map: Azusa, Calif., (7.5', 1:24,000); 1966 edition photorevised in 1995.

APPENDIX 1
PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR, HISTORY/ARCHITECTURAL HISTORY
Bai "Tom" Tang, M.A.

Education

1988-1993	Graduate Program in Public History/Historic Preservation, University of California, Riverside.
1987	M.A., American History, Yale University, New Haven, Connecticut.
1982	B.A., History, Northwestern University, Xi'an, China.
2000	"Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
1994	"Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1993-2002	Project Historian/Architectural Historian, CRM TECH, Riverside, California.
1993-1997	Project Historian, Greenwood and Associates, Pacific Palisades, California.
1991-1993	Project Historian, Archaeological Research Unit, University of California, Riverside.
1990	Intern Researcher, California State Office of Historic Preservation, Sacramento.
1990-1992	Teaching Assistant, History of Modern World, University of California, Riverside.
1988-1993	Research Assistant, American Social History, University of California, Riverside.
1985-1988	Research Assistant, Modern Chinese History, Yale University.
1985-1986	Teaching Assistant, Modern Chinese History, Yale University.
1982-1985	Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (with Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

PRINCIPAL INVESTIGATOR, ARCHAEOLOGY
Michael Hogan, Ph.D., RPA*

Education

1991	Ph.D., Anthropology, University of California, Riverside.
1981	B.S., Anthropology, University of California, Riverside; with honors.
1980-1981	Education Abroad Program, Lima, Peru.
2002	Section 106—National Historic Preservation Act: Federal Law at the Local Level. UCLA Extension Course #888.
2002	"Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
2002	"Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
1992	"Southern California Ceramics Workshop," presented by Jerry Schaeffer.
1992	"Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist/Field Director, CRM TECH, Riverside.
1996-1998	Project Director and Ethnographer, Statistical Research, Inc., Redlands.
1992-1998	Assistant Research Anthropologist, University of California, Riverside
1992-1995	Project Director, Archaeological Research Unit, U. C. Riverside.
1993-1994	Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
1991-1992	Crew Chief, Archaeological Research Unit, U. C. Riverside.
1984-1998	Archaeological Technician, Field Director, and Project Director for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Author and co-author of, contributor to, and principal investigator for numerous cultural resources management study reports since 1986.

Memberships

* Register of Professional Archaeologists; Society for American Archaeology; Society for California Archaeology; Pacific Coast Archaeological Society; Coachella Valley Archaeological Society.

PROJECT ARCHAEOLOGIST/REPORT WRITER
Ben Kerridge, M.A.

Education

2014	Archaeological Field School, Institute for Field Research, Kephallenia, Greece.
2010	M.A., Anthropology, California State University, Fullerton.
2009	Project Management Training, Project Management Institute/CH2M HILL, Santa Ana, California.
2004	B.A., Anthropology, California State University, Fullerton.

Professional Experience

2015-	Project Archaeologist/Report Writer, CRM TECH, Colton, California.
2015	Teaching Assistant, Institute for Field Research, Kephallenia, Greece.
2009-2014	Publications Delivery Manager, CH2M HILL, Santa Ana, California.
2010-	Naturalist, Newport Bay Conservancy, Newport Beach, California.
2006-2009	Technical Publishing Specialist, CH2M HILL, Santa Ana, California.
2002-2007	Host and Head Writer, *The Rational Voice* Radio Program, Titan Radio, California State University, Fullerton.
2002-2006	English Composition/College Preparation Tutor, various locations, California.

Papers Presented

- Geomorphological Survey of Tracts T126–T151 to Support Archaeological Shoreline Research Project. Institute for Field Research, Kephallenia, Greece, 2014.
- The Uncanny Valley of the Shadow of Modernity: A Re-examination of Anthropological Approaches to Christianity. Graduate Thesis, California State University, Fullerton, 2010.
- Ethnographic Endeavors into the World of Counterstrike. 74th Annual Conference of the Southwestern Anthropological Association, 2003.

Cultural Resources Management Reports

Co-author and contributor to numerous cultural resources management reports since 2013.

Memberships

Society for California Archaeology; Pacific Coast Archaeological Society.

APPENDIX 2

CORRESPONDENCE WITH NATIVE AMERICAN REPRESENTATIVES*

* Five local Native American representatives were contacted during this study; a sample letter is included in the appendix.

SACRED LANDS FILE & NATIVE AMERICAN CONTACTS LIST REQUEST

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691
(916)373-3710
(916)373-5471 (Fax)
nahc@nahc.ca.gov

Project: Trask Scout Reservation Water System Rehabilitation and Enhancement Project; APNs 8501-010-010 and 8689-005-906 (CRM TECH No. 3652)

County: Los Angeles

USGS Quadrangle Name: Azusa, Calif.

Township 1 North **Range** 10 West SB **BM; Section(s)**: 7 and 18

Township 1 North **Range** 11 West SB **BM; Section(s)**: 13

Company/Firm/Agency: CRM TECH

Contact Person: Nina Gallardo

Street Address: 1016 E. Cooley Drive, Suite A/B

City: Colton, CA **Zip:** 92324

Phone: (909) 824-6400 **Fax:** (909) 824-6405

Email: ngallardo@crmtech.us

Project Description: The primary component of the project is to rehabilitate and make improvements to the existing camp water treatment system on approximately 0.2 acre of land and 0.3 linear mile of access road and trail located in and near the Trask Scout Reservation facility at 1100 N. Canyon Boulevard, City of Monrovia, Los Angeles County, California.

August 13, 2020

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

August 26, 2020

Nina Gallardo
CRM Tech

Via Email to: ngallardo@crmtech.us

Re: Proposed Greater Los Angeles Area Council of Boy Scouts of America Trask Scout Reservation Water System Rehabilitation and Enhancement Project, Los Angeles County

Dear Ms. Gallardo:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were positive. Please contact the Gabrieleno Band of Mission Indians – Kizh Nation on the attached list for more information. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: steven.quinn@nahc.ca.gov.

Sincerely,

Steven Quinn
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Los Angeles County
8/26/2020

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393 — Gabrieleno
Covina, CA, 91723
Phone: (626) 926 - 4131
admin@gabrielenoindians.org

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 — Gabrieleno
San Gabriel, CA, 91778
Phone: (626) 483 - 3564
Fax: (626) 286-1262
GTTribalcouncil@aol.com

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231 — Gabrielino
Los Angeles, CA, 90012
Phone: (951) 807 - 0479
sgoad@gabrielino-tongva.com

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490 — Gabrielino
Bellflower, CA, 90707
Phone: (562) 761 - 6417
Fax: (562) 761-6417
gtongva@gmail.com

Gabrielino-Tongva Tribe
Charles Alvarez,
23454 Vanowen Street — Gabrielino
West Hills, CA, 91307
Phone: (310) 403 - 6048
roadkingcharles@aol.com

Santa Rosa Band of Cahuilla Indians
Lovina Redner, Tribal Chair
P.O. Box 391820 — Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
lsaul@santarosacahuilla-nsn.gov

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Soboba Band of Luiseno Indians
Scott Cozart, Chairperson
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92583 — Luiseno
Phone: (951) 654 - 2765
Fax: (951) 654-4198
jontiveros@soboba-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 Proposed Greater Los Angeles Area Council of Boy Scouts of America Trask Scout Reservation Water System Rehabilitation and Enhancement Project, Los Angeles County.

August 27, 2020

Andrew Salas, Chairperson
Gabrieleño Band of Mission Indians–Kizh Nation
P. O. Box 393
Covina, CA 91723

RE: Trask Scout Reservation Water System Rehabilitation and Enhancement Project
Assessor's Parcel Numbers 8501-010-010 and 8689-005-906
1100 N. Canyon Boulevard, City of Monrovia
Los Angeles County, California
CRM TECH Contract #3652

Dear Mr. Salas:

I am writing to bring your attention to an ongoing CEQA- and Section 106-compliance study for the proposed project referenced above, which entails improvements to an existing surface water treatment system within the Trask Scout Reservation. The Area of Potential Effect (APE) for the undertaking consists of approximately 0.2 acres of land and 0.9 linear mile within APNs 8501-010-010 and 8689-005-906, located at 1100 N. Canyon Boulevard, in the Sawpit Canyon area of the Angeles National Forest. The accompanying map, based on USGS Azusa, Calif., 7.5' quadrangle, depicts the location of the APE in Section 13, T1N R11W, and Sections 7 and 18, T1N R10W, SBBM.

In a letter dated August 26, 2020, the Native American Heritage Commission reports that the results of the Sacred Lands File search were positive for tribal cultural resources and recommends specifically contacting the Gabrieleño Band of Mission Indians–Kizh Nation for further information (see attached). Therefore, as part of the cultural resources study for this project, I am writing to request your input on any specific information that you can provide in regarding to the positive Sacred Lands File Results for any Native American cultural resources in or near the APE.

Please respond at your earliest convenience if you have any specific knowledge of sacred/religious sites or other sites of Native American traditional cultural value in or near the APE, or any other information to consider during the cultural resources investigations. Any information or concerns may be forwarded to CRM TECH by telephone, e-mail, facsimile, or standard mail. Requests for documentation or information we cannot provide will be forwarded to our client and/or the lead agencies, namely the City of Monrovia, the Los Angeles Regional Water Quality Control Board (RWQCB), and United State Army Corps of Engineers (USACE).

We would also like to clarify that, as the cultural resources consultant for the project, CRM TECH is not involved in the government-to-government consultations, such as the AB 52-compliance process under state law. The purpose of this letter is to seek any information that you may have to help us determine if there are cultural resources in or near the project area that we should be aware of and to help us assess the sensitivity of the APE. Thank you for your time and effort in addressing this important matter.

Respectfully,

Nina Gallardo
Project Archaeologist/Native American liaison
CRM TECH
Email: ngallardo@crmtech.us

From: Gabrieleno Administration <admin@gabrielenoindians.org>
Sent: Wednesday, September 16, 2020 12:10 PM
To: Nina Gallardo
Subject: Re: Trask Scout Reservation Water System Rehabilitation and Enhancement Project; CRM TECH #3652

Hello Nina

Can you please provide the lead agency's contact information?

Thank you

Sincerely,

Brandy Salas
Admin Specialist
Gabrieleno Band of Mission Indians - Kizh Nation
PO Box 393
Covina, CA 91723
Office: 844-390-0787
website: www.gabrielenoindians.org

From: Nina Gallardo <ngallardo@crmtech.us>
Sent: Thursday, September 17, 2020 9:53 AM
To: 'Gabrieleno Administration'
Subject: Re: Trask Scout Reservation Water System Rehabilitation and Enhancement Project; CRM TECH #3652

Hello Brandy,

Here is the information that was requested in the email regarding lead agency contact information.
The lead agency on this one under CEQA is the City of Monrovia. The lead agency under NEPA is the US Forest Service.

Here is the contact person at the City of Monrovia:

Sheri Bermejo: sbermejo@ci.monrovia.ca.us
Planning Division Manager
City of Monrovia
(626) 932-5539

Please let me know if you have any other questions or if you need the contact information under NEPA.

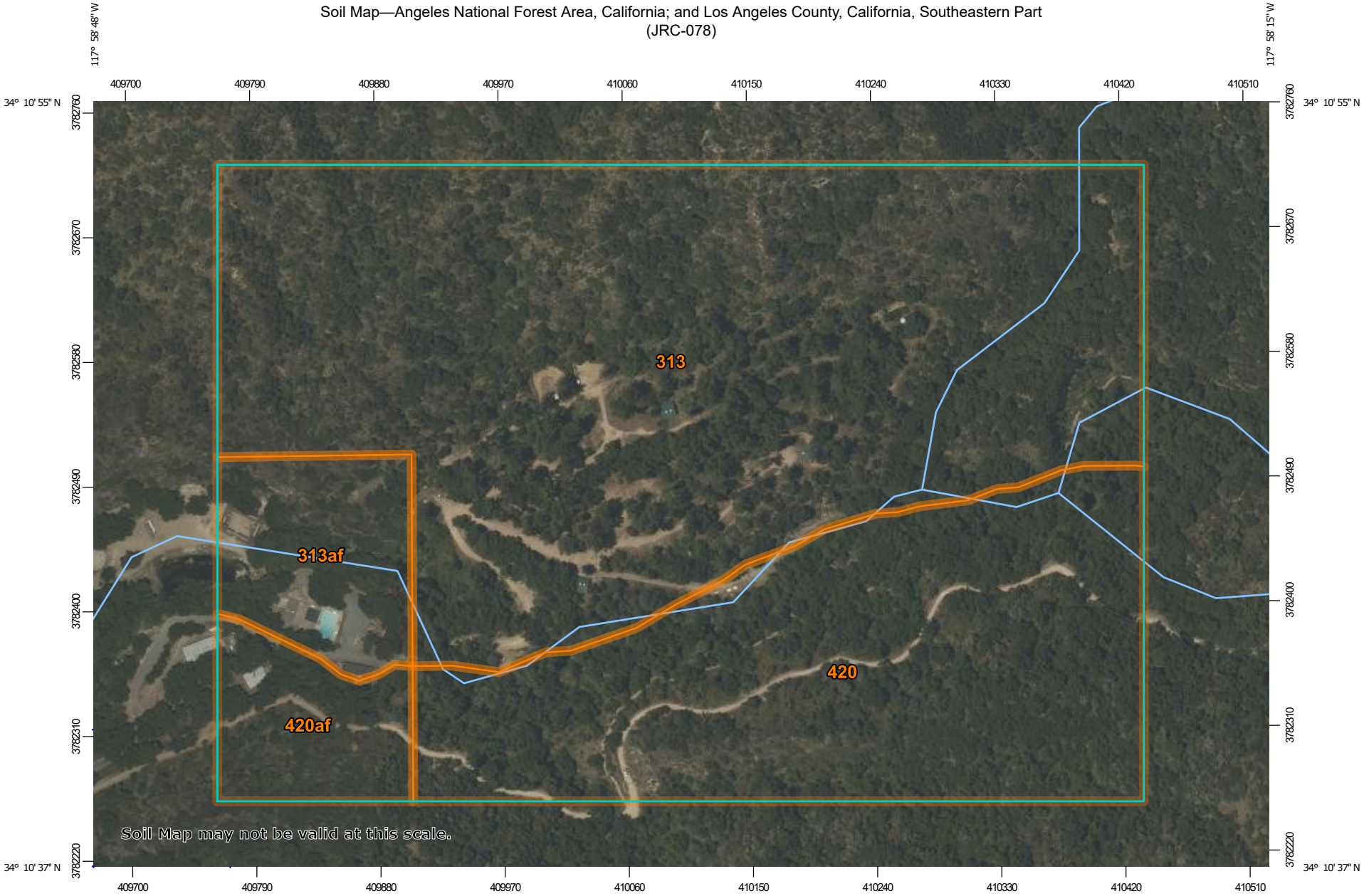
Nina Gallardo
CRM TECH

APPENDIX 3

CALIFORNIA HISTORICAL RESOURCES INVENTORY RECORD FORMS

APPENDIX 6

Soil Map—Angeles National Forest Area, California; and Los Angeles County, California, Southeastern Part
(JRC-078)



Map Scale: 1:3,900 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Angeles National Forest Area, California
Survey Area Data: Version 14, May 27, 2020

Soil Survey Area: Los Angeles County, California, Southeastern Part
Survey Area Data: Version 7, May 27, 2020

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 26, 2019—Jul 8, 2019

MAP LEGEND

MAP INFORMATION

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
313	Trigo family, granitic substratum, 60 to 90 percent slopes	45.3	59.2%
420	Olete-Kilburn-Etsel families complex, 50 to 80 percent slopes	22.5	29.4%
Subtotals for Soil Survey Area		**67.8**	**88.6%**
Totals for Area of Interest		**76.6**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
313af	Trigo family, granitic substratum, 60 to 90 percent slopes	5.0	6.5%
420af	Olete-Kilburn-Etsel families complex, 50 to 80 percent slopes	3.8	5.0%
Subtotals for Soil Survey Area		**8.7**	**11.4%**
Totals for Area of Interest		**76.6**	**100.0%**