

# **City of Santa Ana Washington Avenue Well Project**

**DRAFT**

## **Initial Study/Mitigated Negative Declaration**

**Prepared for:**

**City of Santa Ana  
Public Works Agency  
220 S. Daisy Avenue  
Santa Ana, CA 92703  
*Contact: Armando Fernandez, Senior Civil Engineer, P.E.*  
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**Prepared by:**

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**November 2021**



# WASHINGTON AVENUE WELL PROJECT

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## PROPOSED MITIGATED NEGATIVE DECLARATION AND NOTICE OF INTENT TO ADOPT THE PROPOSED MITIGATED NEGATIVE DECLARATION

This serves as the City of Santa's Notice of Intent to adopt a Mitigated Negative Declaration for the Washington Avenue Well Project, prepared in accordance with the California Environmental Quality Act (CEQA) and CEQA Guidelines.

**Name of Project:** Washington Avenue Well Project

**Project Location:** The proposed City of Santa Ana Washington Avenue Well Project ("Project") site is located in the City of Santa Ana, in the central portion of Orange County (County). The Project site is located at 651-657 East Washington Avenue at the northwest corner of East Washington Avenue and Penn Way in the City of Santa Ana. The proposed connection to the City's existing 16-inch water main will be due east of the lot, underneath the southbound traffic lane of Penn Way.

**Lead Agency:** City of Santa Ana, Public Works Agency  
220 S. Daisy Avenue  
Santa Ana, California 92703

### **Project**

**Description:** The City of Santa Ana (City) encompasses 27.3 square miles and has a population of over 325,000 people. The City operates a potable water distribution system which includes more than 450 miles of water mains and over 44,000 water service connections. The City's potable water supply is derived from a combination of pumping from the Orange County Groundwater Basin (using 21 existing groundwater wells) and importing water via seven (7) Metropolitan Water District pipeline connections.

The 2017 Santa Ana Water Master Plan (Tetra Tech 2018) water system analysis identified low pressures along the border of the Low and High Zones adjacent to the Interstate 5 Freeway. These low-pressure deficiencies were located in the northeastern portion of the Low Zone on the south side of Interstate 5 between East 17<sup>th</sup> Street and East 1<sup>st</sup> Street. To resolve these low-pressure deficiencies, the City is proposing to install a new water supply well and construct ancillary facilities in the vacant lot at the northwest corner of East Washington Avenue and Penn Way. This lot is located approximately 340 feet southeast of the City's Elevated Water Tank.

The disturbed surface area for the construction of the Washington Avenue Well facility and associated pipeline is expected to be approximately 0.75 acres. Construction is anticipated to begin in the second quarter of 2022 and continue until the third quarter of 2023. Once operational, the potential production capacity of the Washington Avenue Well is expected to range from 2,500 to 3,000 gallons per minute.

The Project site is not designated a hazardous waste property, or a hazardous waste disposal site as enumerated under Section 65962.5 of the California Government Code.

**NOTICE IS HEREBY GIVEN THAT** the City of Santa Ana proposes to adopt a Mitigated Negative Declaration for the above-cited Project. Such Mitigated Negative Declaration is based on the finding that, by implementing the identified mitigation measures, the Project's potential impacts will be maintained at a less than significant level. The reasons to support such a finding are documented by the Initial Study prepared by the City of Santa Ana. Copies of the Initial Study, the proposed Mitigated Negative Declaration and supporting materials are available for review at the City of Santa Ana, Public Works Agency located at 220 S. Daisy Avenue, Santa Ana, CA 92703.

For questions regarding the Mitigated Negative Declaration, please contact:

<b>NAME:</b>	Armando Fernandez, P.E.	<b>PHONE:</b>	714.647.3316
<b>TITLE:</b>	Senior Civil Engineer	<b>EMAIL:</b>	AFernandez@santa-ana.org
<b>ADDRESS:</b>	City of Santa Ana Public Works Agency 220 S. Daisy Avenue Santa Ana, CA 92703		

**Public Review Period:** 30 days      **Begins:** 11/09/2021      **Ends:** 12/08/2021

**Public Hearing:** Consideration of adoption of the Mitigated Negative Declaration via public hearing by the City of Santa Ana is scheduled to take place on December 21, 2021 at 5:45 p.m. at the City of Santa Ana located at 22 Civic Center Plaza, Santa Ana, CA 92702.

In accordance with CEQA Guidelines, any comments concerning the findings of the proposed Initial Study/Mitigated Negative Declaration must be submitted in writing and **received by the City of Santa Ana no later than 5:00 p.m. on December 8, 2021**, in order to be considered prior to the City of Santa Ana's final determination on the Project. Please submit your written comments to Armando Fernandez, P.E., Senior Civil Engineer, City of Santa Ana, Public Works Agency located at 220 S. Daisy Avenue, Santa Ana, CA 92703.



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## ABBREVIATIONS AND ACRONYMS

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
AB	Assembly Bill
Air Basin	South Coast Air Basin
APE	area of potential effect
API	area of potential impact
AQMP	Air Quality Management Plan
BMP	Best Management Practices
BP	before present
CalEEMod	California Emissions Estimator Model <sup>®</sup>
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
City	City of Santa Ana
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CUP	Conditional Use Permit
dB	decibel scale
dBA	A-weighted sound level
DPM	diesel particulate matter
EIR	Environmental Impact Report
EPA	United States Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GHG	greenhouse gas
HAP	hazardous air pollutant
LST	localized significance threshold
MLD	Most Likely Descendant
MTCO <sub>2e</sub>	million tonnes of carbon dioxide equivalents
MWD	Metropolitan Water District of Southern California
NAHC	Native American Heritage Commission
NAAQS	National Ambient Air Quality Standards
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
OCFA	Orange County Fire Authority

PM <sub>10</sub>	inhalable particulate matter
PM <sub>2.5</sub>	fine particulate matter
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
Project	Washington Avenue Well Project
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SD84	Specific Development No. 84
SO <sub>2</sub>	sulfur dioxide
TAC	toxic air contaminant
UN	Urban Neighborhood
VOC	volatile organic compound

## **1.0 INTRODUCTION**

The City of Santa Ana (City) is proposing to install a new water supply well and construct ancillary facilities in the vacant lot at 651-657 East Washington Avenue at the northwest corner of East Washington Avenue and Penn Way. The Project includes construction of approximately 140 feet of new pipeline to connect the new well to the existing water supply pipeline in Penn Way. The Project also includes a well pump building, a chemical facility building (for onsite generation of sodium hypochlorite to disinfect well production waters), four material storage bins, an 8-foot tall perimeter block wall, and landscaping.

The City of Santa Ana Washington Avenue Well Project (herein referenced as “Project”) is needed to resolve low pressure deficiencies in the City’s water system.

Following initial review of the proposed Project, the City has determined that it is subject to the guidelines and regulations of the California Environmental Quality Act (CEQA). This Initial Study addresses the environmental effects of the Project, as proposed.

### **1.1 STATUTORY AUTHORITY AND REQUIREMENTS**

This Mitigated Negative Declaration has been prepared by the City with technical assistance from Tetra Tech, Inc. to evaluate if implementation of the Project would have a significant effect on the environment. Pursuant to Section 15070 of the *Guidelines for Implementation of the California Environmental Quality Act* (14 California Code of Regulations §§ 15070-15075), a public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a project subject to CEQA when:

- (a) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or
- (b) The initial study identifies potentially significant effects, but:
  - (1) Revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and
  - (2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

### **1.2 REQUIRED CONTENT**

CEQA Guidelines Section 15071 indicate that a Negative Declaration circulated for public review shall include:

- (a) A brief description of the project, including a commonly used name for the project, if any;
- (b) The location of the project, preferably shown on a map, and the name of the project proponent;
- (c) A proposed finding that the project will not have a significant effect on the environment;
- (d) An attached copy of the Initial Study documenting reasons to support the finding; and
- (e) Mitigation measures, if any, included in the project to avoid potentially significant effects.

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## 2.0 PROJECT INFORMATION

Project title:	Washington Avenue Well Project
Lead agency name and address:	<b>City of Santa Ana Public Works Agency</b> 220 S. Daisy Avenue Santa Ana, California 92703
Contact person and phone number:	<b><i>Armando Fernandez, Senior Civil Engineer, P.E.</i></b> 714.647.3316
Project location:	The proposed City of Santa Ana Washington Avenue Well Project ("Project") site is located in the City of Santa Ana, in the central portion of Orange County. The Project site is located at 651-657 East Washington Avenue at the northwest corner of East Washington Avenue and Penn Way in the City of Santa Ana. The proposed connection to the City's existing 16-inch water main will be due east of the lot, in the southbound traffic lane of Penn Way. See Figure 2-1, Project Vicinity Map.
Project sponsor's name and address:	<b>City of Santa Ana Public Works Agency</b> 220 S. Daisy Avenue Santa Ana, California 92703
General Plan Designation:	UN (Urban Neighborhood)
Zoning Designation:	Specific Development No. 84 (SD84)
Surrounding land uses:	Surrounding land uses primarily consist of municipal, light industrial, commercial, and multi-family residential. Nearby major cross streets are East Washington Avenue and Penn Way to the east, East Washington Avenue and North Poinsettia Street to the west. Interstate 5 is located approximately 0.15 mile to the east.

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## **2.1 ENVIRONMENTAL SETTING**

### **2.1.1 Regional**

The City encompass 27.3 square miles in the west-central part of northern Orange County (City of Santa Ana 1998a). The Santa Ana River is the major drainage channel flowing through the City which diagonally traverses the western portions of the City running from the northeast to the southwest.

The City is surrounded by the incorporated cities of Garden Grove, Anaheim, Orange, Tustin, Irvine, Newport Beach, Costa Mesa, and Fountain Valley. See Figure 2-1, Project Vicinity Map. Regional access to the City is provided by Interstate 5, which diagonally traverses the northeastern portions of the City running southeast-northwest, State Route 22, which generally forms the City's northern boundary; State Route 55, which generally forms the City's eastern boundary; Interstate 405, which runs southeast-northwest south of the City's southern boundary; and State Route 57, which travels north-south from the north side of the City. The City is also accessible from adjacent communities via major arterial surface streets.

Land uses in Santa Ana are characterized as a diverse collection of residential, commercial, light industrial, and public uses, including parks. As the seat for Orange County, the Civic Center area of Santa Ana contains Federal, State, and local governmental facilities including the courts, criminal justice facilities, administrative offices, and service centers (City of Santa Ana 1998a).

### **2.1.2 Project Area**

The Project Area is located in a mixed-use area of the City, approximately 0.15 miles west of Interstate 5. The Project site is located at 651-657 East Washington Avenue at the northwest corner of East Washington Avenue and Penn Way in the City of Santa Ana. The proposed connection to the City's existing 16-inch water main will be due east of the Project site, underneath the southbound traffic lane of Penn Way. See Figure 2-2, Project Location Map. The Project site is bordered by East Washington Avenue on the south, Penn Way on the northeast, and Pacific Plumbing of Southern California on the west. The Project site is undeveloped.

## **2.2 PROJECT DESCRIPTION**

### **2.2.1 General Description**

The City encompasses 27.3 square miles and has a population of over 325,000 people. The City operates a potable water distribution system which includes more than 450 miles of water mains and over 44,000 water service connections. The City's potable water supply is derived from a combination of pumping from the Orange County Groundwater Basin (using 21 existing groundwater wells) and importing water via seven (7) Metropolitan Water District of Southern California (MWD) pipeline connections.

Within the City of Santa Ana 2017 Water Master Plan (Tetra Tech 2018), the water system analysis identified low pressures along the border of the Low and High Zones adjacent to the Interstate 5 Freeway. These low-pressure deficiencies were located in the northeastern portion of the Low Zone on the south side of Interstate 5 between East 17<sup>th</sup> Street and East 1<sup>st</sup> Street. To resolve these low-pressure deficiencies, the Master Plan proposed a future well located in the vicinity of the Water Tank. The Elevated Water Tank is located at the northeast corner of East 14<sup>th</sup> Street and North Poinsettia Street. Without this future well in the vicinity of the Elevated Water Tank, the water pressure in this area may continue to drop and could reach a level of service that is not adequate in comparison to the rest of the City's water system.

The City is proposing to install a new water supply well and construct ancillary facilities in the vacant lot at 651-657 East Washington Avenue at the northwest corner of East Washington Avenue and Penn Way. This lot is located approximately 340 feet southeast of the Water Tank. It is the City's goal to install this new well in order to address the low pressures identified in the water system analysis.

### **2.2.2 Site Plan**

As shown in Figure 2-3, Project Site Plan, the proposed Project will include several above-ground buildings and other improvements:

- One (1) well building, approximately 810 square feet;
- One (1) chemical building approximately 510 square feet;
- Four (4) material storage bins, with concrete block walls on three sides, an overhead cover, and an open front, each about 15 feet wide by 24 feet long and covering a total of approximately 2,000 square feet;
- New pavement area, covering approximately 11,600 square feet of area;
- Miscellaneous onsite concrete ramps and pads, totaling approximately 500 square feet;
- A perimeter block wall, 8-foot tall and extending approximately 650 linear feet, with two (2) access drives employing rolling gates (one each on East Washington Avenue and Penn Way);
- Regulation sidewalk outside of the perimeter block wall adjacent to East Washington Avenue, approximately 2,400 square feet; and
- Landscaping with drought-tolerant plants will be placed along the Penn Way and East Washington Avenue sides of the property between the block wall and sidewalk.

The Project will also include approximately 140 feet of new pipeline to connect the new well to the existing water supply pipeline in Penn Way.

Renderings of the Project are shown in Figures 2-4 through 2-7.

### **2.2.3 Well Facility**

The new well will be drilled to a depth of approximately 1,300 feet below ground surface and be installed with minimum of an 18-inch diameter casing. This will be very similar to the City's other existing wells that pump to the water distribution system. The proposed Washington Well will have the following design parameters: 2,500 to 3,000 gallons per minute well pump flow range; design head of about 400 to 450 feet; well pump driven by a 350 to 400 horsepower electric motor; and the City's typical well to system piping mechanical layout including a well discharge to waste during well start-up. The proposed well building will have three separate rooms, housing the well head and piping; electrical cabinets; and Southern California Edison switchgear. The building will have reinforced, solid-grouted concrete masonry walls, a shallow concrete foundation, a concrete floor slab-on-grade, and a gable roof structure. The masonry walls will provide a high level of security, sound attenuation, durability and strength. The exterior surface of the masonry walls will be colored, textured, scored, and/or fluted to create an appearance that will complement the surrounding structures.

### **2.2.4 Chemical Facility**

Water produced from the new well will be disinfected using sodium hypochlorite before it is discharged into the City's existing water distribution system. The City has standardized the use

of onsite generation at all of their well sites to produce a 0.8 percent solution of sodium hypochlorite for disinfection. The onsite generation disinfection equipment will be housed in a chemical facility building that will separate salt and brine storage areas from the hypochlorite production and storage area.

The building will have reinforced, solid-grouted concrete masonry walls, a shallow concrete foundation, a concrete floor slab-on-grade, and a gable roof structure. The masonry walls will provide a high level of security, sound attenuation, durability and strength. The exterior surface of the masonry walls will be colored, textured, scored, and/or fluted to create an appearance that will complement the surrounding structures.

### **2.2.5 Construction Details**

The Project will be constructed in two phases. Phase 1 will include well drilling and construction of the well (installation of the well screen and casing, filter media, bentonite seal, backfill, and the surface completion). Phase 2 will include construction of the surface facilities other improvements. The anticipated schedule for these phases is expected to be roughly as follows:

Phase 1. April 2022 through September 2022.

Phase 2. October 2022 through August 2023

During Phase 1, well construction will be performed on weekdays only, during regular work hours, with the exception of well drilling which will for 24-hours per day for as many days as needed to reach the completion depth. Phase 2 construction activities will be conducted on weekdays only, during regular work hours.

Phase 1 equipment onsite will include a drill rig, support vehicles (including a mobile crane), and delivery trucks for well casing, well screen, filter media, bentonite, concrete, and other materials. Phase 2 will involve the most onsite equipment and space for storing materials. Heavy equipment onsite for this phase is expected to include, at a minimum, one or more of the following pieces: a bulldozer, an excavator, a wheel loader, a grader, a soil compactor, and a front loader tractor.

Construction Best Management Practices (BMPs) will be used including those for stormwater, erosion/sediment control, and spill prevention. All staging and stockpiling will occur onsite. Waste and excess debris will be hauled away for disposal.

Equipment and material will be hauled from the Site traveling south on North Westwood Avenue, west on West Memory Lane, north on South Bristol Street to the entrance of State Route 22 ramp.

Groundwater generated during well testing will be discharged to baker tanks, that will be located onsite and will later be disposed of as discharge to the storm drain.

### **2.2.6 Operations**

Once operational, the new well can potentially pump up to 3,000 gallons per minute of groundwater into the City's existing water supply system. The City will not need to pump an exact flow rate because changes in the flow due to groundwater level will be gradual but will address the low pressures identified in the water system analysis. During normal operation, the well is expected to operate 24 hours per day, 7 days a week.

The normal operation of the well will require one vehicle trip weekly for one worker to monitor the operation of the well facilities. Maintenance will require one bi-weekly vehicle trip. Periodic maintenance activities will include replacement of the salt pallets and testing and maintaining equipment. Inspections will be made by the City to ensure protection of the public health, safety, and general welfare.

The well will be shut down and restarted approximately two to three times per month for maintenance and testing.

Well operations will require electrical power be provided by Southern California Edison for the electric systems and motor. The City will monitor operation of the plant through the City's supervisory control and data acquisition system.

### **2.3 OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED**

Other public agencies whose approval is expected to be required in the form of permits, financing approval, or participation agreements are as follows:

- Santa Ana Regional Water Quality Control Board – National Pollutant Discharge Elimination System (NPDES) Permit for well rehabilitation; Storm Water Pollution Prevention Plan for construction activities and development discharge;
- Orange County Flood Control District – Discharge Permit;
- Orange County Fire Authority – Planning and Development Fire Service Permit;
- City of Santa Ana, Department of Public Works – Encroachment Permit; and
- City of Santa Ana, Department of Planning and Building – Conditional Use Permit (CUP), Building, Electrical, Plumbing, Mechanical, Grading, and Police Permits.

### 3.0 ENVIRONMENTAL CHECKLIST

#### 3.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

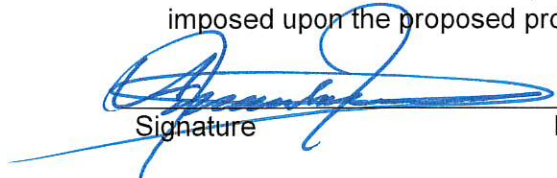
The environmental factors checked would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Aesthetics                | <input type="checkbox"/> Agriculture & Forestry Resources | <input type="checkbox"/> Air Quality                        |
| <input type="checkbox"/> Biological Resources      | <input type="checkbox"/> Cultural Resources               | <input type="checkbox"/> Energy                             |
| <input type="checkbox"/> Geology/Soils             | <input type="checkbox"/> Greenhouse Gas Emissions         | <input type="checkbox"/> Hazards & Hazardous Materials      |
| <input type="checkbox"/> Hydrology/Water Quality   | <input type="checkbox"/> Land Use/Planning                | <input type="checkbox"/> Mineral Resources                  |
| <input type="checkbox"/> Noise                     | <input type="checkbox"/> Population/Housing               | <input type="checkbox"/> Public Services                    |
| <input type="checkbox"/> Recreation                | <input type="checkbox"/> Transportation                   | <input type="checkbox"/> Tribal Cultural Resources          |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Wildfire                         | <input type="checkbox"/> Mandatory Findings of Significance |

#### 3.2 DETERMINATION: (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT (EIR) is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

 11/4/21  
Signature Date

Signature

Date

ARMANDO FERNANDEZ  
Print Name

Print Name



### 3.3 EVALUATION OF ENVIRONMENTAL IMPACTS

- (1) A brief explanation is required for all answers except “no impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “no impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “no impact” answer should be explained if it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- (2) All answers must take account of the whole action involved, including off site as well as on site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- (3) Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially significant impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “potentially significant impact” entries when the determination is made, an EIR is required.
- (4) “Negative declaration: less than significant with mitigation incorporated” applies when the incorporation of mitigation measures has reduced an effect from a “potentially significant impact” to a “less than significant impact.” The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level.
- (5) Earlier analyses may be used if, pursuant to tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063[c][3][D]). In this case, a brief discussion should identify the following:
  - a. Earlier analysis used. Identify and state where earlier analyses are available for review.
  - b. Impacts adequately addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.
  - c. Mitigation measures. For effects that are “less than significant with mitigation incorporated,” describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- (6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, when appropriate, include a reference to the page or pages where the statement is substantiated.
- (7) Supporting information sources. A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.
- (8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.
- (9) The explanation of each issue should identify:
  - a. The significance criteria or threshold, if any, used to evaluate each question, and
  - b. The mitigation measure identified, if any, to reduce the impact to a less than significant level.

### 3.4 ENVIRONMENTAL IMPACT ANALYSIS

#### 3.4.1 AESTHETICS

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

#### Existing Conditions:

The Project site is located in an urban setting characterized by views of municipal, light industrial, commercial, and multi-family residential uses. None of the scenic corridors identified in the City of Santa Ana's General Plan Scenic Corridors Element are near or within the viewshed of the Project site (City of Santa Ana 1982a). The closest identified scenic corridor is Main Street located 0.38 miles to the west. The Project site is located near an identified landmark, the Water Tower (City of Santa Ana 1998b).

The Project site is an undeveloped, vacant lot, see Figure 3-1. Views of the site are limited to the surrounding municipal, light industrial, commercial, and multi-family residential, adjacent roadways, and the Water Tower.

According to the Caltrans Map of Designated Scenic Routes (Caltrans 2018), there are no official State-designated routes in the Project vicinity. State Route 1, an eligible State Scenic Highway, is located over 11 miles to the west. The Project site is not visible from State Route 1 due to distance and intervening structures and topography.

#### Discussion:

##### a. Would the project have a substantial adverse effect on a scenic vista?

**Less Than Significant Impact.** The Project site does not contain a scenic vista. As discussed above, direct views of the Project site are from surrounding municipal, light industrial, commercial, and multi-family residential uses and adjacent roadways. The Water Tower is

located approximately 300 feet northwest of the Project site and is visible from the Project site and surrounding area.

The proposed Project will include a well building with an electrical room (approximately 810 square feet) and a chemical facility building (approximately 510 square feet). Both buildings will have reinforced, solid-grouted concrete masonry walls, a shallow concrete foundation, a concrete floor slab-on-grade, and a gable roof structure. The masonry walls will provide a high level of security, sound attenuation, durability and strength. The exterior surface of the masonry walls will be colored, textured, scored, and/or fluted to create an appearance that will complement the surrounding structures. The Project will also include four material storage bins, with concrete block walls on three sides, an overhead cover, and an open front, each about 15 feet wide by 24 feet long.

An 8-foot high block wall will be installed around the perimeter, with two access drives employing rolling gates (one each on East Washington Avenue and Penn Way). Landscaping with drought-tolerant plants will be placed along the Penn Way and East Washington Avenue sides of the property between the block wall and sidewalk. See Figures 2-3 through 2-7.

Implementation of the proposed Project would not block any scenic vistas. Due to the height of the Water Tower, views of the Water Tower will still be available from the surrounding area after the Project is constructed.

As the Project site and surround areas do not contain any scenic vistas, and because the proposed Project will not block existing views of the Water Tower, implementation of the proposed Project would not significantly impact views of any scenic vista. No significant impact will be experienced.

**Mitigation Measures:** No mitigation is required.

**b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**

**No Impact.** The Project site is not in the viewshed of any designated or eligible State scenic highway. No impact to a scenic highway will occur.

**Mitigation Measures:** No mitigation is required.

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

**Less Than Significant Impact.** The Project site is located in an urbanized area and has a zoning designation of Specific Development No. 84 (SD84). Public utility structures are allowed in this zoning designation with a CUP and screened by a solid wall at least eight feet high (City of Santa Ana 2010). The Project will include an 8-foot block wall. With the approval the CUP for the Project, the Project would not conflict with existing zoning.

The proposed Project would involve both temporary and permanent changes to the visual character of the site. Temporary changes are associated with construction activities, including construction equipment, staging, and Site construction. These visual impacts would be short-term in nature and are not considered to be significant.

Implementation of the proposed Project would result in long-term/permanent changes to the visual character of the site. The visual character will change from that of a vacant lot with chain link fencing to a site with well facilities, an 8-foot block wall, and landscaping. As part of this Project, the new well buildings and block wall will be colored, textured, scored, and/or fluted to create an appearance that will complement the surrounding structures. The Project site will



change from undeveloped to developed, however, the development be similar in nature and visual character to the surrounding area. While the proposed Project would result in a change to the existing visual character of the site, it would not result in the removal or degradation of any significant visual resources and would be consistent in character to the surrounding area. For this reason, impacts are considered to be less than significant.

**Mitigation Measures:** No mitigation is required.

**d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?**

**Less Than Significant Impact.** There are two primary sources of light: light emanating from building interiors that pass-through windows, and light from exterior sources (e.g., street lighting, parking lot lighting, building illumination, security lighting, and landscape lighting). Light introduction can be a nuisance to adjacent uses and diminish the view of the clear night sky. Currently, light and glare in the Project vicinity is produced by vehicle headlights, street lighting, and lighting from the adjacent buildings.

The Project would include access lighting for the building doorways and entrance gates. However, the amount of light produced at the site would be the minimum required for safety and security purposes. The lights on the site would be designed to direct the light toward the site to reduce spillage into the surrounding streets and buildings. The Project would not introduce a substantial amount of additional night lighting or glare compared to the existing lighting around the Project site. Furthermore, since the structures would not include shiny finishes, the Project is not expected to create any daytime glare. Therefore, a less than significant impact from the standpoint of light and glare would occur.

**Mitigation Measures:** No mitigation is required.

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### 3.4.2 AGRICULTURE AND FOREST RESOURCES

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:					
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b.	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?				X
c.	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)) or timberland (as defined in PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d.	Result in the loss of forest land or conversion of forest land to non-forest use?				X
e.	Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?				X

#### Existing Conditions:

The City of Santa Ana is predominately built-out with limited vacant land. On the Farmland Mapping and Monitoring Program Map for California (California Department of Conservation

2018), the Project site and the surrounding area is designated as Urban and Built-Up Land, which is generally described as land occupied by structures that has a variety of uses including residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

**Discussion:**

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

**No Impact.** According to the Farmland Mapping and Monitoring Program Map for California, the Project site is an area designated as Urban and Built-Up Land. No Prime or Unique Farmland, or Farmland of Statewide importance exists within the Project site or vicinity; therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

- b. **Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?**

**No Impact.** The Project site has a zoning designation of SD84 (City of Santa Ana 2010), and there are no agricultural zoning designations or agricultural uses within the Project limits or adjacent areas (City of Santa Ana 1998a). The Project would not convert farmland or conflict with any land zoned for agriculture. No Williamson Act contracts apply to the Project site. Therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

- c. **Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)) or timberland (as defined in PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?**

**No Impact.** The Project site is zoned as SD84. It is surrounded by land zoned as for residential areas intended to accommodate a variety of housing types, with some opportunities for live-work, neighborhood-serving retail, and cafes. Public utility structures are allowed in this zoning designation with a CUP. With approval of a CUP, the proposed Project would not conflict with existing zoning. There are no forest land or timberland resources designations or forest land, or timberland resources uses within the Project limits or adjacent areas. Therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

- d. **Would the project result in the loss of forest land or conversion of forest land to non-forest use?**

**No Impact.** There is no forest land in the vicinity of the Project site. Therefore, the proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use. No impact would occur.

**Mitigation Measures:** No mitigation is required.

- e. **Would the project involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?**

**No Impact.** There is no farmland or forest land located within or near the Project site. Therefore, the Project would not involve any changes that could result in the loss or conversion of farmland or forest land to other uses. No impact would occur.

**Mitigation Measures:** No mitigation is required.

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### 3.4.3 AIR QUALITY

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

The following information is based on Vista Environmental, *Air Quality and Greenhouse Gas Emissions Impact Analysis Washington Avenue Lot Well & Facility Project*, November 5, 2020 (Appendix A).

#### Existing Conditions:

The Project site is located within the South Coast Air Basin ("Air Basin"), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The Air Basin is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Air Basin includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties.

The Clean Air Act, first passed in 1963 with major amendments in 1970, 1977 and 1990, is the overarching legislation covering regulation of air pollution in the United States. The Clean Air Act has established the mandate for requiring regulation of both mobile and stationary sources of air pollution at the state and federal level. The United States Environmental Protection Agency (EPA) was created in 1970 in order to consolidate research, monitoring, standard-setting and enforcement authority into a single agency.

The EPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. NAAQS pollutants were identified using medical evidence and are shown below in Table 3-1.

**Table 3-1. State and Federal Criteria Pollutant Standards**

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O <sub>3</sub> )	0.09 ppm / 1-hour 0.07 ppm / 8-hour	0.070 ppm / 8-hour	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage.
Carbon Monoxide (CO)	20.0 ppm / 1-hour 9.0 ppm / 8-hour	35.0 ppm / 1-hour 9.0 ppm / 8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO <sub>2</sub> )	0.18 ppm / 1-hour 0.030 ppm / annual	100 ppb / 1-hour 0.053 ppm / annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO <sub>2</sub> )	0.25 ppm / 1-hour 0.04 ppm / 24-hour	75 ppb / 1-hour 0.14 ppm/annual	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM <sub>10</sub> )	50 µg/m <sup>3</sup> / 24-hour 20 µg/m <sup>3</sup> / annual	150 µg/m <sup>3</sup> / 24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in elderly.
Suspended Particulate Matter (PM <sub>2.5</sub> )	12 µg/m <sup>3</sup> / annual	35 µg/m <sup>3</sup> / 24-hour 12 µg/m <sup>3</sup> / annual	
Sulfates	25 µg/m <sup>3</sup> / 24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c ) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage.
Lead	1.5 µg/m <sup>3</sup> / 30-day	0.15 µg/m <sup>3</sup> / 3-month rolling	(a) Learning disabilities; and (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of 10 miles or more due to particles when relative humidity is less than 70 percent.	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent.

Source: <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf> .

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan that demonstrates the means to attain the national standards. The State Implementation Plan must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the State Implementation Plan. The California Air Resources Board (CARB) defines attainment as the category given to an area with no violations in the past three



years. As indicated below in Table 3-2, the Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone and fine particulate matter (PM<sub>2.5</sub>) and partial non-attainment for lead. Currently, the Air Basin is in attainment with the NAAQS for carbon monoxide (CO), inhalable particulate matter (PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), and nitrogen dioxide (NO<sub>2</sub>).

**Table 3-2. South Coast Air Basin Attainment Status**

Criteria Pollutant	Standard	Averaging Time	Designation <sup>a)</sup>	Attainment Date <sup>b)</sup>
1-Hour Ozone <sup>c)</sup>	NAAQS	1979 1-Hour (0.12 ppm)	Nonattainment (Extreme)	2/6/2023 (revised deadline)
	CAAQS	1-Hour (0.09 ppm)	Nonattainment	N/A
8-Hour Ozone <sup>d)</sup>	NAAQS	1997 8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
	NAAQS	2008 8-Hour (0.075 ppm)	Nonattainment (Extreme)	8/3/2038
	NAAQS	2015 8-Hour (0.070 ppm)	Pending – Expect Nonattainment (Extreme)	Pending (beyond 2032)
	CAAQS	8-Hour (0.070 ppm)	Nonattainment	Beyond 2032
CO	NAAQS	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
	CAAQS	1-Hour (20 ppm) 8-Hour (9 ppm)	Attainment	6/11/2007 (attained)
NO <sub>2</sub> <sup>e)</sup>	NAAQS	2010 1-Hour (0.10 ppm)	Unclassifiable/Attainment	N/A (attained)
	NAAQS	1971 Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
	CAAQS	1-Hour (0.18 ppm) Annual (0.030 ppm)	Attainment	---
SO <sub>2</sub> <sup>f)</sup>	NAAQS	2010 1-Hour (75 ppb)	Designations Pending (expect Unclassifiable/Attainment)	N/A (attained)
	NAAQS	1971 24-Hour (0.14 ppm) 1971 Annual (0.03 ppm)	Unclassifiable/Attainment	3/19/1979 (attained)
PM <sub>10</sub>	NAAQS	1987 24-hour (150 µg/m <sup>3</sup> )	Attainment (Maintenance) <sup>g)</sup>	7/26/2013 (attained)
	CAAQS	24-hour (50 µg/m <sup>3</sup> ) Annual (20 µg/m <sup>3</sup> )	Nonattainment	N/A
PM <sub>2.5</sub> <sup>h)</sup>	NAAQS	2006 24-Hour (35 µg/m <sup>3</sup> )	Nonattainment (Serious)	12/31/2019
	NAAQS	1997 Annual (15.0 µg/m <sup>3</sup> )	Attainment (final determination pending)	8/24/2016 (attained 2013)
	NAAQS	2012 Annual (12.0 µg/m <sup>3</sup> )	Nonattainment (Moderate)	12/31/2021
	CAAQS	Annual (12.0 µg/m <sup>3</sup> )	Nonattainment	N/A
Lead <sup>i)</sup>	NAAQS	2008 3-Months Rolling (0.15 µg/m <sup>3</sup> )	Nonattainment (Partial) (Attainment determination requested)	12/31/2015

Notes:

- EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable.
- A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration.
- The 1979 1-hour O<sub>3</sub> standard (0.12 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard and therefore has some continuing obligations with respect to the revoked standard.
- The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm. Effective 12/28/15 with classifications and implementation goals to be finalized by 10/1/17; the 1997 8-hour O<sub>3</sub> NAAQS (0.08 ppm) was revoked in the 2008 O<sub>3</sub> implementation rule, effective 4/6/15; there are continuing obligations under the revoked 1997 and revised 2008 O<sub>3</sub> until they are attained.

- e) New NO<sub>2</sub> 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO<sub>2</sub> standard retained.
- f) The 1971 annual and 24-hour SO<sub>2</sub> standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after EPA promulgates area designations for the 2010 SO<sub>2</sub> 1-hour standard. Area designations are still pending, with Air Basin expected to be designated Unclassifiable /Attainment.
- g) Annual PM<sub>10</sub> standard was revoked, effective December 18, 2006; 24-hour PM<sub>10</sub> NAAQS deadline was 12/31/2006; SCAQMD request for attainment redesignation and PM<sub>10</sub> maintenance plan was approved by EPA on June 26, 2013, effective July 26, 2013.
- h) The attainment deadline for the 2006 24-Hour PM<sub>2.5</sub> NAAQS was 12/31/15 for the former “moderate” classification; EPA approved reclassification to “serious”, effective 2/12/16 with an attainment deadline of 12/31/19; the 2012 (proposal year) annual PM<sub>2.5</sub> NAAQS was revised on 1/15/13, effective 3/18/13, from 15 to 12 µg /m<sup>3</sup>; new annual designations were final 1/15/15, effective 4/15/15; on July 25, 2016 EPA finalized a determination that the Air Basin attained the 1997 annual (15.0 µg/m<sup>3</sup>) and 24-hour PM<sub>2.5</sub> (65 µg/m<sup>3</sup>) NAAQS, effective August 24, 2016.
- i) Partial Nonattainment designation – Los Angeles County portion of Air Basin only for near-source monitors. Expect to remain in attainment based on current monitoring data; attainment re-designation request pending.

Source: SCAQMD, February 2016

In 2015, one or more stations in the Air Basin exceeded the most current federal standards on a total of 146 days (40 percent of the year), including: 8-hour ozone (113 days over 2015 ozone NAAQS), 24-hour PM<sub>2.5</sub> (30 days, including near-road sites; 25 days for ambient sites only), PM<sub>10</sub> (2 days), and NO<sub>2</sub> (1 day). Despite substantial improvement in air quality over the past few decades, some air monitoring stations in the Air Basin still exceed the NAAQS for ozone more frequently than any other area in the United States. Seven of the top 10 stations in the nation most frequently exceeding the 2015 8-hour ozone NAAQS in 2015 were located within the Air Basin, including stations in San Bernardino, Riverside, and Los Angeles Counties (SCAQMD 2017).

PM<sub>2.5</sub> levels in the Air Basin have improved significantly in recent years. By 2013 and again in 2014 and 2015, there were no stations measuring PM<sub>2.5</sub> in the Air Basin that violated the former 1997 annual PM<sub>2.5</sub> NAAQS (15.0 micrograms per cubic meter [µg/m<sup>3</sup>]) for the 3-year design value period. On July 25, 2016 the EPA finalized a determination that the Air Basin attained the 1997 annual (15.0 µg/m<sup>3</sup>) and 24-hour PM<sub>2.5</sub> (65 µg/m<sup>3</sup>) NAAQS, effective August 24, 2016. Of the 17 federal PM<sub>2.5</sub> monitors at ambient stations in the Air Basin for the 2013-2015 period, five stations had design values over the current 2012 annual PM<sub>2.5</sub> NAAQS (12.0 µg/m<sup>3</sup>), including: Mira Loma (Air Basin maximum at 14.1 µg/m<sup>3</sup>), Rubidoux, Fontana, Ontario, Central Los Angeles, and Compton. For the 24-hour PM<sub>2.5</sub> NAAQS (35.0 µg/m<sup>3</sup>) there were 14 stations in the Air Basin in 2015 that had one or more daily exceedances of the standard, with a combined total of 25 days over that standard in the Air Basin. While it was previously anticipated that the Air Basin’s 24-hour PM<sub>2.5</sub> NAAQS would be attained by 2015, this did not occur based on the data for 2013 through 2015. The higher number of days exceeding the 24-hour PM<sub>2.5</sub> NAAQS over what was expected is largely attributed to the severe drought conditions over this period that allowed for more stagnant conditions in the Air Basin with multi-day buildups of higher PM<sub>2.5</sub> concentrations. This was caused by the lack of storm-related dispersion and rain-out of PM and its precursors (SCAQMD 2017).

The Air Basin is currently in attainment for the federal standards for SO<sub>2</sub>, CO, NO<sub>2</sub>, and PM<sub>10</sub> and the Orange County portion of the Air Basin is currently in attainment for the federal standards for lead. While the concentration level of the 1-hour NO<sub>2</sub> federal standard (100 parts per billion) was exceeded in the Air Basin for one day in 2015 (Long Beach-Hudson Station), the NAAQS NO<sub>2</sub> design value has not been exceeded. Therefore, the Air Basin remains in attainment of the NO<sub>2</sub> NAAQS (SCAQMD 2017).

## Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. TACs is a term that is defined under the California Clean Air Act and consists of the same substances that are defined as hazardous air pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different TACs. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

TACs are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to *The California Almanac of Emissions and Air Quality 2013 Edition*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). DPM is a subset of PM<sub>2.5</sub> because the size of diesel particles are typically 2.5 microns and smaller. The identification of DPM as a TAC in 1998 led the CARB to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in DPM by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a TAC was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

### Thresholds of Significance:

**Regional Air Quality:** Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the Air Basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table 3-3.

**Table 3-3. SCAQMD Regional Criteria Pollutant Emission Thresholds of Significance**

	Pollutant Emissions (pounds/day)						
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Lead
Construction	75	100	550	150	150	55	3
Operation	55	55	550	150	150	55	3

Source: <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2>

**Local Air Quality:** Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the Project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. In order to assess local air quality impacts the SCAQMD has developed localized significant thresholds (LSTs) to assess the Project-related air emissions in the Project vicinity. SCAQMD has also provided *Final Localized Significance Threshold Methodology* (LST Methodology), July 2008, revised October 2009, which details the methodology to analyze local air emission impacts. The LST Methodology found that the primary emissions of concern are NO<sub>2</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>.

The LST Methodology provides Look-Up Tables with different thresholds based on the location and size of the Project site and distance to the nearest sensitive receptors. The Project site is located in Air Monitoring Area 17, which covers the central portion of Orange County. The Look-Up Tables provided in the LST Methodology include project site acreage sizes of 1-acre, 2-acres and 5-acres. The 1-acre Project site values in the Look-Up Tables have been utilized in this analysis, since that is the nearest size available for the 0.75-acre Project site. The nearest offsite sensitive receptors are the residents at the multi-family homes located as near as 100 feet (30 meters) northeast of the Project site. In order to provide a conservative analysis, the 25-meter threshold has been utilized in this analysis. Table 3-4 below shows the LSTs for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> for both construction and operational activities.

**Table 3-4. SCAQMD Local Air Quality Thresholds of Significance**

Activity	Allowable Emissions (pounds/day) <sup>1</sup>			
	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Construction	81	485	4	3
Operation	81	485	1	1

Notes:

<sup>1</sup> The nearest offsite sensitive receptors are multi-family homes located as near as 100 feet (30 meters) northeast of the Project site. In order to provide a conservative analysis, the 25-meter threshold was utilized.

Source: Calculated from SCAQMD's Mass Rate Look-up Tables for one acre in Air Monitoring Area 17, Central Orange County.

**Toxic Air Contaminants:** According to the SCAQMD CEQA Handbook, any project that has the potential to expose the public to TACs in excess of the following thresholds would be considered to have a significant air quality impact:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed Project may have a significant impact related to TACs, the Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis, (Diesel Analysis) prepared by SCAQMD, August 2003, recommends that if the proposed Project is anticipated to create TACs through stationary

sources or regular operations of diesel trucks on the Project site, then the proximity of the nearest receptors to the source of the TAC and the toxicity of the HAP should be analyzed through a comprehensive facility-wide health risk assessment.

**Odor Impacts:** The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed Project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

“A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.”

If the proposed Project results in a violation of Rule 402 with regards to odor impacts, then the proposed Project would create a significant odor impact.

**Discussion:**

**a. Would the project conflict with or obstruct implementation of the applicable air quality plan?**

**Less Than Significant Impact.** The CEQA requires a discussion of any inconsistencies between a proposed Project and applicable General Plans and regional plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed Project includes the SCAQMD Air Quality Management Plan (AQMP). Therefore, this section discusses any potential inconsistencies of the proposed Project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed Project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed Project is inconsistent, the lead agency may consider Project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed Project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

- (1) Whether the Project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- (2) Whether the Project will exceed the assumptions in the AQMP, or increments based on the year of Project buildout and phase.

Both of these criteria are evaluated in the following sections.

- Criterion 1 - Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this report, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance or local thresholds of significance discussed above. The ongoing operation of the proposed Project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on



SCAQMD thresholds of significance discussed above. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. A less than significant long-term impact would occur, and no mitigation would be required.

Therefore, based on the information provided above, the proposed Project would be consistent with the first criterion.

- Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed Project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the proposed Project are based on the same forecasts as the AQMP. The AQMP is developed through use of the planning forecasts provided in the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and Federal Transportation Improvement Program. The RTP/SCS is a major planning document for the regional transportation and land use network within Southern California. The RTP/SCS is a long-range plan that is required by federal and state requirements placed on Southern California Association of Governments and is updated every four years. The Federal Transportation Improvement Program provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this Project, the Land Use Element of the City of Santa Ana General Plan defines the assumptions that are represented in AQMP.

The Project site is currently designated as Urban Neighborhood (UN) and zoned SD84. Within the UN General Plan, the existing land use designation is Industrial. Within SD84 the Project site is zoned Multi-Family Residential (R-3). Since well construction activities are all allowed uses in all land use designations, including industrial and R-3, the proposed Project is consistent with the current land use designations and would not require a General Plan Amendment or zone change. Therefore, the proposed Project would not result in an inconsistency with the current land use designations with respect to the regional forecasts utilized by the AQMPs. As such, the proposed Project is not anticipated to exceed the AQMP assumptions for the Project site and is found to be consistent with the AQMP for the second criterion. Based on the above, the proposed Project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

**Mitigation Measures:** No mitigation is required.

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

**Less Than Significant Impact.** The proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State ambient air quality standard. The following section calculates the potential air emissions associated with the construction and operations of the proposed Project and compares the emissions to the SCAQMD standards.

### **Construction Emissions**

The proposed Project would consist of construction of a new water supply well and ancillary facilities that would be constructed over two phases. The construction emissions have been analyzed for both regional and local air quality impacts.

### Construction-Related Regional Impacts

The California Emissions Estimator Model® (CalEEMod) model has been utilized to calculate the construction-related regional emissions from the proposed Project. The worst-case summer or winter daily construction-related criteria pollutant emissions from the proposed Project for each phase of construction activities are shown below in Table 3-5 and the CalEEMod daily printouts are shown in Appendix A.

**Table 3-5. Construction-Related Regional Criteria Pollutant Emissions**

Activity	Pollutant Emissions (pounds/day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Phase 1: Well Drilling and Construction</b>						
Onsite <sup>1</sup>	5.65	55.20	33.80	0.12	2.02	1.86
Offsite <sup>2</sup>	0.04	0.02	0.30	0.00	0.11	0.03
<b>Total</b>	<b>5.69</b>	<b>55.22</b>	<b>34.10</b>	<b>0.13</b>	<b>2.13</b>	<b>1.89</b>
<b>Phase 2: Surface Facilities and Other Improvements</b>						
Onsite	2.36	25.39	14.29	0.03	1.17	1.08
Offsite	0.04	0.30	0.29	0.00	0.10	0.03
<b>Total</b>	<b>2.39</b>	<b>25.69</b>	<b>14.58</b>	<b>0.03</b>	<b>1.27</b>	<b>1.10</b>
<b>Maximum Daily Emission</b>	<b>5.69</b>	<b>55.22</b>	<b>34.10</b>	<b>0.13</b>	<b>2.13</b>	<b>1.89</b>
<b>SCQAMD Thresholds</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
Exceeds Threshold?	No	No	No	No	No	No

Notes:

<sup>1</sup> Onsite emissions from equipment not operated on public roads.

<sup>2</sup> Offsite emissions from vehicles operating on public roads.

Source: CalEEMod Version 2016.3.2.

Table 3-5 shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds during either phase of construction. Therefore, a less than significant regional air quality impact would occur from construction of the proposed Project.

### Construction-Related Local Impacts

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the Project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from construction were analyzed through utilizing the methodology described in LST Methodology, prepared by SCAQMD. The LST Methodology found the primary criteria pollutant emissions of concern are nitrogen oxide (NO<sub>x</sub>), CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. In order to determine if any of these pollutants require a detailed analysis of the local air quality impacts, each phase of construction was screened using the SCAQMD's Mass Rate LST Look-up Tables. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily onsite emissions of CO, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> from the proposed Project could result in a significant impact to the local air quality. Table 3-6 shows the onsite emissions from the CalEEMod model for the different construction phases.

**Table 3-6. Construction-Related Local Criteria Pollutant Emissions**

Phase	Onsite Pollutant Emissions (pounds/day)			
	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Phase 1: Well Drilling and Construction	55.20	33.80	2.02	1.86
Phase 2: Surface Facilities and Other Improvements	25.39	14.29	1.17	1.08
<b>Maximum Daily Construction Emissions</b>	<b>55.20</b>	<b>33.80</b>	<b>2.02</b>	<b>1.86</b>
<b>SCAQMD Local Construction Thresholds<sup>1</sup></b>	<b>81</b>	<b>485</b>	<b>4</b>	<b>3</b>
Exceeds Threshold?	No	No	No	No

Notes:

<sup>1</sup> The nearest offsite sensitive receptors are multi-family homes located as near as 100 feet (30 meters) northeast of the Project site. In order to provide a conservative analysis, the 25-meter threshold was utilized.

Source: Calculated from SCAQMD's Mass Rate Look-up Tables for one acre in Air Monitoring Area 17, Central Orange County.

The data provided in Table 3-6 shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds during either phase of construction. Therefore, a less than significant local air quality impact would occur from construction of the proposed Project.

### Operational Emissions

In general, operation of the well and facility would be passive as the well equipment would operate automatically. The normal operation of the well would generate one trip weekly for a worker to monitor the operation of the well facilities and perform maintenance as necessary. Periodic maintenance activities such as replacement of tanks and testing and maintaining equipment will require bi-weekly trips to the Project site. The following section provides an analysis of potential long-term air quality impacts due to regional air quality and local air quality impacts with the on-going operations of the proposed Project.

#### Operations-Related Regional Criteria Pollutant Analysis

The operations-related regional criteria air quality impacts created by the proposed Project have been analyzed through use of the CalEEMod model. The worst-case summer or winter volatile organic compound (VOC), NO<sub>x</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> daily emissions created from the proposed Project's long-term operations have been calculated and are summarized below in Table 3-7 and the CalEEMod daily emissions printouts are shown in Appendix A.

**Table 3-7. Operational Regional Criteria Pollutant Emissions**

Activity	Pollutant Emissions (pounds/day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Area Sources <sup>1</sup>	0.08	0.00	0.00	0.00	0.00	0.00
Energy Usage <sup>2</sup>	0.00	0.02	0.02	0.00	0.03	0.00
Mobile Sources <sup>3</sup>	0.00	0.01	0.05	0.00	0.02	0.01
<b>Total Emissions</b>	<b>0.09</b>	<b>0.03</b>	<b>0.07</b>	<b>0.00</b>	<b>0.02</b>	<b>0.01</b>
<b>SCQAMD Operational Thresholds</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
Exceeds Threshold?	No	No	No	No	No	No

Notes:

<sup>1</sup> Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.

<sup>2</sup> Energy usage consist of emissions from electricity and natural gas usage.

<sup>3</sup> Mobile sources consist of emissions from vehicles and road dust.

Source: Calculated from CalEEMod Version 2016.3.2 and CAPCOA, 1997.



The data provided in Table 3-7 shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the proposed Project.

#### Friant Ranch Case

The operations-related regional criteria air quality impacts In *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (also referred to as "*Friant Ranch*"), the California Supreme Court held that when an EIR concluded that when a project would have significant impacts to air quality impacts, an EIR should "make a reasonable effort to substantively connect a project's air quality impacts to likely health consequences." In order to determine compliance with this Case, the Court developed a multi-part test that includes the following:

- 1) The air quality discussion shall describe the specific health risks created from each criteria pollutant, including DPM.

This air quality analysis details the specific health risks created from each criteria pollutant in Table 3-2. In addition, the specific health risks created from DPM are detailed above in this analysis. As such, this analysis meets the part 1 requirements of the Friant Ranch Case.

- 2) The analysis shall identify the magnitude of the health risks created from the Project. The Ruling details how to identify the magnitude of the health risks. Specifically, on page 24 of the ruling it states "The Court of Appeal identified several ways in which the EIR could have framed the analysis so as to adequately inform the public and decision makers of possible adverse health effects. The County could have, for example, identified the Project's impact on the days of nonattainment per year."

The Friant Ranch Case found that an EIR's air quality analysis must meaningfully connect the identified air quality impacts to the human health consequences of those impacts, or meaningfully explain why that analysis cannot be provided. As noted in the Brief of Amicus Curiae by the SCAQMD in the Friant Ranch case (<https://www.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf>), SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, and thus it is uniquely situated to express an opinion on how lead agencies should correlate air quality impacts with specific health outcomes. The SCAQMD discusses that it may be infeasible to quantify health risks caused by projects similar to the proposed Project, due to many factors. It is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence).

The Brief of Amicus Curiae states that it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk, it does not necessarily mean anyone will contract cancer as a result of the Project. The Brief of Amicus Curiae also cites the author of the CARB methodology, which reported that a PM<sub>2.5</sub> methodology is not suited for small projects and may yield unreliable results. Similarly, SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO<sub>x</sub> or VOC emissions from relatively small projects, due to photochemistry and regional model limitations. The Brief of Amicus Curiae concludes, with respect to the Friant Ranch EIR, that although it may have been technically possible to plug the data into a methodology, the results would not have been reliable or meaningful.

On the other hand, for extremely large regional projects (unlike the proposed Project), the SCAQMD states that it has been able to correlate potential health outcomes for very large emissions sources – as part of their rulemaking activity, specifically 6,620 pounds per day of NO<sub>x</sub> and 89,180 pounds per day of VOC were expected to result in approximately 20 premature

deaths per year and 89,947 school absences due to ozone. As shown above in Table 3-5, Project-related construction activities would generate a maximum of 5.69 pounds per day of VOC and 55.22 pounds per day of NO<sub>x</sub>. As shown above in Table 3-7, operation of the proposed Project would generate 0.09 pounds per day of VOC and 0.03 pounds per day of NO<sub>x</sub>. The proposed Project would not generate anywhere near these levels of 6,620 pounds per day of NO<sub>x</sub> or 89,190 pounds per day of VOC emissions. Therefore, the proposed Project's emissions are not sufficiently high enough to use a regional modeling program to correlate health effects on a basin-wide level.

Notwithstanding, this analysis does evaluate the proposed Project's localized impact to air quality for emissions of CO, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> by comparing the proposed Project's onsite emissions to the SCAQMD's applicable LST thresholds. As evaluated in this analysis, the proposed Project would not result in emissions that exceeded the SCAQMD's LSTs. Therefore, the proposed Project would not be expected to exceed the most stringent applicable federal or state ambient air quality standards for emissions of CO, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>.

#### Operations-Related Local Air Quality Impacts

The proposed Project has been analyzed for the potential local CO emission impacts from the Project-generated vehicular trips and from the potential local air quality impacts from onsite operations. The following analyzes the vehicular CO emissions and local impacts from onsite operations.

##### *Local CO Hotspot Impacts from Project-Generated Vehicular Trips*

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with Project CO levels to the State and Federal CO standards of 20 parts per million (ppm) over one hour or 9 ppm over 8 hours.

At the time of the 1993 Handbook, the Air Basin was designated nonattainment under the California Ambient Air Quality Standards and NAAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Air Basin and in the state have steadily declined. According to the SCAQMD Air Quality Data Tables, in 2007 Central Orange County had maximum CO concentrations of 4.0 ppm for 1 hour and 2.9 ppm for 8-hours and in 2018 Central Orange County had maximum CO concentrations of 2.3 ppm for 1-hour and 1.9 ppm for 8-hours, which represent decreases in CO concentrations of 43 percent and 34 percent, respectively between 2018 and 2007. In 2007, the Air Basin was designated in attainment for CO under both the California Ambient Air Quality Standards and NAAQS. SCAQMD conducted a CO hot spot analysis for attainment at the busiest intersections in Los Angeles<sup>1</sup> during the peak morning and afternoon periods and did not predict a violation of CO standards. Since the nearby intersections to the proposed Project are much smaller with less traffic than what was analyzed by the SCAQMD and since the CO concentrations are now at least 34 percent lower than when CO was designated in attainment in 2007, no local CO Hotspot are anticipated to be created from the proposed Project and no CO Hotspot modeling was performed. Therefore, a less than significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed Project.

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<sup>1</sup> The four intersections analyzed by the SCAQMD were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning and LOS F in the evening peak hour.

### *Local Criteria Pollutant Impacts from Onsite Operations*

Project-related air emissions from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances may have the potential to create emissions areas that exceed the State and Federal air quality standards in the Project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from onsite operations were analyzed using the SCAQMD's Mass Rate LST Look-up Tables and the methodology described in LST Methodology. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> from the proposed Project could result in a significant impact to the local air quality. Table 3-8 shows the onsite emissions from the CalEEMod model that includes area sources, energy usage, and vehicles operating in the immediate vicinity of the Project site and the calculated emissions thresholds.

The data provided in Table 3-8 shows that the on-going operations of the proposed Project would not exceed the local NO<sub>x</sub>, CO, PM<sub>10</sub> and PM<sub>2.5</sub> thresholds of significance. Therefore, the on-going operations of the proposed Project would create a less than significant operations-related impact to local air quality due to onsite emissions and no mitigation would be required.

**Table 3-8. Operations-Related Local Criteria Pollutant Emissions**

Onsite Emission Source	Pollutant Emissions (pounds/day)			
	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Area Sources	0.00	0.00	0.00	0.00
Energy Usage	0.02	0.02	0.00	0.00
Mobile Sources	0.01	0.05	0.02	0.01
<b>Total Emissions</b>	<b>0.03</b>	<b>0.07</b>	<b>0.02</b>	<b>0.01</b>
<b>SCAQMD Local Operational Thresholds<sup>1</sup></b>	<b>81</b>	<b>485</b>	<b>1</b>	<b>1</b>
Exceeds Threshold?	No	No	No	No

Notes:

<sup>1</sup> The nearest offsite sensitive receptors are multi-family homes located as near as 100 feet (30 meters) northeast of the Project site. In order to provide a conservative analysis, the 25-meter threshold was utilized.

Source: Calculated from SCAQMD's Mass Rate Look-up Tables for one acre in Air Monitoring Area 17, Central Orange County

**Mitigation Measures:** No mitigation is required.

### **c. Would the project expose sensitive receptors to substantial pollutant concentrations?**

**Less Than Significant Impact.** The nearest sensitive receptors to the Project site are residential apartments located as near as 100 feet west of the Project site. Additionally, there are residential homes located as near as 145 feet south of the Project site. The nearest school to the Project site is Davis Elementary School that is located as near as 400 feet northwest of the Project site.

### **Construction-Related Sensitive Receptor Impacts**

The proposed Project would consist of construction of a new water supply well and ancillary facilities that would be constructed over two phases. Construction activities may expose sensitive receptors to substantial pollutant concentrations of localized criteria pollutant concentrations and from TAC emissions created from onsite construction equipment, which are described below.

### Local Criteria Pollutant Impacts from Construction

The local air quality impacts from construction of the proposed Project has been analyzed above and found that the construction of the proposed Project would not exceed the local NO<sub>x</sub>, CO, PM<sub>10</sub> and PM<sub>2.5</sub> thresholds of significance. Therefore, construction of the proposed Project would create a less than significant construction-related impact to local air quality and no mitigation would be required.

### Toxic Air Contaminants Impacts from Construction

The greatest potential for TAC emissions would be related to DPM emissions associated with heavy equipment operations during construction of the proposed Project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of “individual cancer risk”. “Individual Cancer Risk” is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30-year exposure period for the nearby sensitive receptors (OEHHA 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed Project would not result in a long-term (i.e., 30 or 70 years) substantial source of TAC emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet’s usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. As of January 2019, 25 percent or more of all contractors’ equipment fleets must be Tier 2 or higher. Therefore, no significant short-term TAC impacts would occur during construction of the proposed Project. As such, construction of the proposed Project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

### **Operations-Related Sensitive Receptor Impacts**

The on-going operations of the proposed Project may expose sensitive receptors to substantial pollutant concentrations of local CO emission impacts from the Project-generated vehicular trips and from the potential local air quality impacts from onsite operations. The following analyzes the vehicular CO emissions. Local criteria pollutant impacts from onsite operations, and TAC impacts.

### Local CO Hotspot Impacts from Project-Generated Vehicle Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential impacts to sensitive receptors. The analysis provided shows that no local CO Hotspots are anticipated to be created at any nearby intersections from the vehicle traffic generated by the proposed Project. Therefore, operation of the proposed Project would result in a less than significant exposure of offsite sensitive receptors to substantial pollutant concentrations.

### Local Criteria Pollutant Impacts from Onsite Operations

The local air quality impacts from the operation of the proposed Project would occur from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances. The analysis provided above found that the operation of the proposed Project would not exceed the local NO<sub>x</sub>, CO, PM<sub>10</sub> and PM<sub>2.5</sub> thresholds of significance. Therefore, the on-going operations of the proposed Project would create a less than significant operations-related impact to local air quality due to onsite emissions and no mitigation would be required.

### Operations-Related Toxic Air Contaminant Impacts

Particulate matter (PM) from diesel exhaust is the predominant TAC in most areas and according to *The California Almanac of Emissions and Air Quality 2013 Edition*, prepared by CARB, about 80 percent of the outdoor TAC cancer risk is from diesel exhaust. Some chemicals in diesel exhaust, such as benzene and formaldehyde have been listed as carcinogens by State Proposition 65 and the Federal HAPs program. Due to the nominal number of diesel truck trips that are anticipated to be generated by the proposed Project, a less than significant TAC impact would occur during the on-going operations of the proposed Project and no mitigation would be required.

Therefore, operation of the proposed Project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

**Mitigation Measures:** No mitigation is required.

#### **d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

**Less Than Significant Impact.** The proposed Project would not create objectionable odors affecting a substantial number of people. Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the Project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration. Potential odor impacts have been analyzed separately for construction and operations below.

### **Construction-Related Odor Impacts**

Potential sources that may emit odors during construction activities include the extraction of drilling mud and from diesel exhaust associated with the operation of construction equipment.



The objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the Project site's boundaries. Due to the transitory nature of construction odors, a less than significant odor impact would occur, and no mitigation would be required.

### **Operations-Related Odor Impacts**

In general, operation of the well and facility would be passive as the well equipment would operate automatically. The normal operation of the well would generate one trip weekly for a worker to monitor the operation of the well facilities and perform maintenance as necessary. Periodic maintenance activities such as replacement of tanks and testing and maintaining equipment will require bi-weekly trips to the Project site. Potential sources that may emit odors during operational activities include the operation of diesel-powered maintenance trucks and equipment. As discussed above for the construction-related odor analysis, the objectionable odors that may be produced from diesel-powered maintenance trucks and equipment would be temporary and would not likely be noticeable for extended periods of time beyond the Project site's boundaries. Therefore, due to the transitory nature and infrequency of operations-related odors, a less than significant odor impact would occur from operation of the proposed Project.

**Mitigation Measures:** No mitigation is required.

### 3.4.4 BIOLOGICAL RESOURCES

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				X
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				X
c.	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?				X
d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		X		
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
f.	Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?				X

#### Existing Conditions:

##### Regional and Local Plans

The Project site is not located within or near a Habitat Conservation Plan area or a Natural Community Conservation Plan area (County of Orange 2012).

According to the City of Santa Ana General Plan Conservation Element, the City is a built-up, urban community with limited natural habitat and wildlife resources (City of Santa Ana 1982b).

The Project Area is highly urbanized and is an area that has been heavily modified by humans, including roadways, existing buildings, and landscaping with ornamental vegetation. Because of the high degree of disturbance in these areas, they generally have low habitat value for wildlife; wildlife found here are adapted to living in heavily urbanized areas.

### **City Tree Ordinance**

Article VII (Regulation of the Planting, Maintenance, and Removal of Trees), establishes policies, regulations and standards necessary to ensure that the city will continue to realize the benefits provided by its urban forest. Section 33-188 of Article VII, states that:

“Site plan review shall require the planting of street trees to coincide with the development, redevelopment, renovating of any tract or parcel. The site plan for development or improvement of any tract or parcel of land shall be evaluated and approved by the city's transportation and development services division and street maintenance division for the placement of street trees by the developer in accordance with SAMC sections 33-47 through 33-53 and section 34-81. The approved site plan, in addition to the usual requirements of the zoning code, contained in chapter 41 of this Code, shall show the approximate location, size, and species of all existing trees to be maintained, trees to be removed and trees required for approval of the project.”

### **Wetlands/Riparian Habitat**

The U.S. Fish and Wildlife Service National Wetlands Inventory (USFWS 2020) was reviewed for potential wetlands and riparian habitat in the vicinity of the Project site. No wetlands or riparian areas are mapped in or near the Project site. The closest resources are the Santa Ana River, located approximately 2.5 miles to the west of the Project site and Santiago Creek, located approximately 1.25 miles to the north of the Project site.

### **Project Site**

The Project site will be developed a vacant lot with new well facilities, and is surrounded by municipal, light industrial, commercial, and multi-family residential uses. Three medium sized mature street trees are located adjacent to the Project site along East Washington Avenue. No wetlands or riparian habitat occur on or in the vicinity of the Project site.

### **Discussion:**

- a. **Would the project have a substantial adverse impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?**

**No Impact.** The Project site is a vacant lot surrounded by municipal, light industrial, commercial, and multi-family residential uses. The Project site does not contain any sensitive habitat or wildlife resources. Therefore, the Project will result in no impact to biological resources.

**Mitigation Measures:** No mitigation is required.

- b. **Would the project have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?**

**No Impact.** There are no riparian habitats or sensitive natural communities present on or near the Project site. No impacts would occur to riparian habitats or sensitive natural communities.



**Mitigation Measures:** No mitigation is required.

- c. **Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?**

**No Impact.** There are no wetlands, marshes, or vernal pools within or in the vicinity of the Project site. Therefore, no impact would occur to any federally protected wetlands under the Clean Water Act.

**Mitigation Measures:** No mitigation is required.

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

**Less Than Significant with Mitigation Incorporated.** With no native habitat, and no wildlife corridors that traverse the Project site, implementation of the proposed Project is not anticipated to interfere with the movement of native animals of any kind, or to impede the use of any native wildlife nursery sites. The closest resources are the Santa Ana River, located approximately 2.5 miles to the west of the Project site and Santiago Creek, located approximately 1.25 miles to the north of the Project site. These are both separated from the site by urban development.

The Project site supports trees that could potentially provide cover, forage, and nesting habitats for bird species that have adapted to urban areas, such as rock pigeons (*Columba livia*) or mourning doves (*Zenaida macroura*). Mourning doves are protected by the Migratory Bird Treaty Act and certain Fish and Game Codes. The statutes make it unlawful to take native breeding birds, and their nests, eggs, and young. Implementation of mitigation measure BIO-1, provided in the event that any nesting birds are found at the Project site location during construction, will reduce impacts to less than significant.

**Mitigation Measures:**

**BIO-1: Nesting Birds** – Project activities that will remove or disturb potential nest sites will be scheduled outside the breeding bird season. The breeding bird nesting season typically extends from February 15 through September 15.

If Project activities cannot be avoided during February 15 through September 15, a qualified biologist will conduct a pre-construction breeding bird survey for breeding birds and active nests or potential nesting sites within the limits of Project disturbance. The survey will be conducted at least seven days prior to the onset of scheduled activities, such as mobilization and staging. It will end no more than three days prior to vegetation, substrate, and structure removal and/or disturbance.

If no breeding birds or active nests are observed during the pre-construction survey or they are observed and will not be impacted, Project activities may begin, and no further mitigation will be required.

If a breeding bird territory or an active bird nest is located during the pre-construction survey and will potentially be impacted, the site will be mapped on engineering drawings and a no-activity buffer zone will be marked (fencing, stakes, flagging, orange snow fencing, etc.) a minimum of 100 feet in all directions or 500 feet in all directions for listed bird species and all raptors. The biologist will determine the appropriate buffer size based on the type of activities planned near the nest and the type of bird that created the nest. Some bird species are more tolerant than others of noise and activities occurring near their nest. This no-activity buffer zone will not be disturbed until a qualified biologist has determined that the nest is inactive, the young have fledged, the young are no longer being fed by the parents, the young have left the area, or the young will no longer be impacted by Project activities. Periodic monitoring by a biologist will

be performed to determine when nesting is complete. Once the nesting cycle has finished, Project activities may begin within the buffer zone.

If listed bird species are observed within the Project site during the pre-construction survey, the biologist will immediately map the area and notify the appropriate resource agency to determine suitable protection measures and/or mitigation measures and to determine if additional surveys or focused protocol surveys are necessary. Project activities may begin within the area only when concurrence is received from the appropriate resource agency.

Birds or their active nests will not be disturbed, captured, handled or moved. Active nests cannot be removed or disturbed; however, nests can be removed or disturbed if determined inactive by a qualified biologist.

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

**Less than Significant Impact.** The proposed Project would require the removal of three trees. See Figure 2-3. Each of these trees will be replaced with a 24-inch box tree (at a minimum), the species and new location to be determined by the City. Also, as part of this Project, the new well site will incorporate landscaping with drought-tolerant plants along the Penn Way and East Washington Avenue sides of the property between the block wall and sidewalk. The proposed Project would not conflict with any local policies protecting biological resources and no impact would occur.

**Mitigation Measures:** No mitigation is required.

**f. Would the project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or any other approved local, regional, or state habitat conservation plan?**

**No Impact.** The Project site is not located within a Habitat Conservation Plan area, a Natural Community Conservation Plan area, or in any other local, regional, or State habitat conservation plan areas. Therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

### 3.4.5 CULTURAL RESOURCES

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

A historic evaluation and records search were conducted by Tetra Tech and is provided under Appendix B. The following summarizes the results and conclusions.

#### Existing Conditions:

Section 15064.5(a) of the CEQA Guidelines generally defines a historical resource as one that is (a) listed in, or eligible for listing in, the California Register of Historical Resources, (b) listed in a local register of historical resources, (c) identified as significant in a historical resource survey (meeting the requirements of Section 5024.1(g) of the Public Resources Code [PRC]), or (d) determined to be a historical resource by a project's lead agency. Historic, cultural, and paleontological resources include historic buildings, structures, artifacts, sites, and districts of historic, architectural, archaeological, or paleontological significance.

The prehistory of the Southern California region has been summarized within four major horizons or cultural periods: Horizon 1 - Early Period (12,000 to 7,500 years before present [BP]), Horizon II - Millingstone Horizon (7,500 to 4,000 BP), Horizon III - Intermediate Cultures (3,000 to 1,000 BP), and Horizon IV - Late Prehistoric (1,000 BP to European historic contact). At the time of historic contact, the modern-day region of Orange County was home to the Gabrieliño (Tongva) people. European settlement began in 1771, when Spanish missionaries began to settle along the California coast and adjacent inland areas. Following the Mexican-American War and secularization of the nearby missions in 1834, the region was transferred to private landowners (ranchos) who established a primary economy of cattle ranching. The Project is within the Rancho Santiago de Santa Ana. After the fall of the rancho system, European settlers such as Jacob Ross, Sr., purchased substantial land holdings in the area. The economy included large-scale farming and fruit orchards and ranching. In the late 1860s, William Spurgeon purchased just under 100 acres of land that would become Santa Ana.

Santa Ana was founded in 1869 by William Spurgeon (City of Santa Ana 1982b). The original town, laid out by Mr. Spurgeon, consisted of 24 blocks. The town served as a shopping center and post office for surrounding agricultural areas. In 1878 the Southern Pacific Railroad arrived, and the Santa Fe Railroad followed in 1886. This encouraged development of the City. In 1889 the Orange County seat was located in Santa Ana and this further stimulated the development of businesses, stores, financial institutions and hotels serving the metropolitan population. Citrus and walnut farms were still plentiful and buying and selling land became the number one enterprise. Many of the structures in downtown and the surrounding bungalow homes were built in the early 1900s and 1920s. Today the City is developed with urban uses and limited vacant land.

The town's water supply also began with Mr. Spurgeon. In 1869, his artesian well and small water tower supplied the residents' water. Today, from the U.S. Interstate 5 Freeway, a high Santa Ana water tower can be seen. It holds very little water and today is mainly a landmark. Now 30 percent of the City's water supply is stored underground; since 1928 the other 70 percent is a blend of California Aqueduct water and Colorado River water supplied by the MWD.

To tap into water sources from outside the area, the City joined with 12 other Southern California cities to form and be an original member agency of the MWD on February 27, 1931. MWD, as a regional wholesaler, supplies imported water to Southern California from the Colorado River and from the State Water Project from Northern California.

The Project is within the city limits of Santa Ana at an elevation of approximately 42 meters above mean sea level. The Project is within a densely populated urban area surrounded by residential, commercial, and industrial use. No vegetation is present at the Project site or surrounding area. Prior to historic development, vegetation communities in the surrounding region consisted of riparian and wetland vegetation types and coastal sage scrub and chaparral. Subsurface deposits of the Project site consist of young alluvial fan deposits (Holocene and Late Pleistocene). The predominant soil series of the Project site soils consist of Mocho loam and imported gravels.

According to the County of Orange General Plan (County of Orange 2012), sub-surface resources such as archaeological and paleontological sites are abundant in South Orange County, along the coast and in creek areas. Based on the County of Orange General Plan (2012), the Project site is not located in areas mapped for archaeological sensitivity or historical areas.

The Project area of potential impact (API) includes the horizontal and vertical areas of ground disturbance. The vertical API is estimated to range from 0 to 8 feet in depth for the building and pipeline construction, and 1,300 feet for the well site construction.

### **Record Search Results**

A record search of the cultural resources site and project file collection at the South Central Coastal Information Center (SCCIC), California State University, Fullerton, of the California Historical Resources Information System, was conducted on November 11, 2020 (see Enclosure 2, SCCIC Record Search Results). As part of this records search, the SCCIC database of survey reports and overviews was consulted, as well as documented cultural resources, cultural landscapes, and ethnic resources. Additionally, the search included a review of the following publications and lists: California Office of Historic Preservation Historic Properties Directory, National Register of Historic Places, Office of Historic Preservation Archaeological Determinations of Eligibility, California Inventory of Historical Resources/California Register of Historical Resources, California Points of Historical Interest, and California Historical Landmarks. A literature search of ethnographic information, historical literature, historical maps and plats, and local historic resource inventories was also conducted. The records search focused specifically on the proposed area of potential effect (APE) and a 1-mile buffer centered on the APE. See Appendix B for record search results.

The SCCIC results indicate no previously conducted cultural resource surveys are within the Project Area. Twenty previously conducted studies were identified within 1 mile of the Project Area. These surveys were conducted between 1978 and 2017. These previous investigations consist of archaeological and architectural surveys and reporting. The Project Area has not been previously surveyed for archaeological resources.

No previously recorded cultural resources were identified within the Project Area or within a half of mile of the Project Area.

The records search results for previously conducted surveys within the APE are in Table 3-9 and are provided on the attached data sheet and illustrated on the attached Figure.

**Table 3-9. Cultural Resource Studies Conducted within and within 1 mile of the APE.**

Report No.	Year	Author(s) or Affiliation	Title	Survey Type	Resources Identified
OR-00332	1978	Van Horn, David M.	<i>Surveyed the Logan Area of Santa Ana, California</i>	Archaeological survey	--
OR-00508	1979	Caltrans	<i>Department of Transportation Archaeological Survey Report for Category 4b and 5 Projects: Ramp Metering, Bypass Lane, Auxiliary Acceleration Lane and Sound Walls in the City of Santa Ana Northbound Route 5 Between Route 55 and Route 22 Interchanges</i>	Archaeological survey	--
OR-00814	1982	Caltrans	<i>Department of Transportation Archaeological Survey Report for the Route I-5 Santa Ana Transportation Corridor, Route 405 in Orange County to Route 605 in Los Angeles County Pm 21.30/44.38; 0.00/6.85</i>	Archaeological survey	--
OR-02024	1999	Padon, Beth	<i>Cultural Resource Assessment for Grand Avenue Widening Project City of Santa Ana, Orange County</i>	Literature search, desktop study	Over 10, see attached data sheet
OR-02451	2002	Huard-Spencer, Christine	<i>Draft Environmental Impact Report for the Proposed Grand Avenue Widening Sch No. 1998051068 Technical Appendices</i>	Literature search, desktop study	--
OR-02452	2002	Huard-Spencer, Christine	<i>Draft Focused Environmental Impact Report for the Proposed Grand Avenue Widening Sch No. 1998051068</i>	Literature search, desktop study	--
OR-02466	2002	Duke, Curt	<i>Cultural Resource Assessment Cingular Wireless Facility No. Sc 055-02 Orange County, California</i>	Cultural resource assessment	--
OR-02502	2002	Padon, Beth and Teresa Grimes	<i>Cultural Resources Assessment for One Broadway Plaza Project, City of Santa Ana, Orange County</i>	Cultural resource assessment	--
OR-02507	1978	Huey, Gene and Lois Webb	<i>Phase I Archaeological Survey - Buffalo On- Ramp, City of Santa Ana</i>	Archaeological survey	--
OR-03303	2000	Slawson, Dana N.	<i>Historical Resources Assessment, Quonset Hunt, 625 North Poinsettia Street, Santa Ana, California</i>	Historic resource assessment	--
OR-03373	2006	SWCA Environmental Consultants, Inc.	<i>Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and II</i>	Cultural resource monitoring	--
OR-03597	2008	LSA Associates, Inc.	<i>Cultural Resources Assessment- 601 and 611-613 East Santa Ana Blvd., Santa Ana, CA</i>	Cultural resource assessment	30-161037, 30-179882
OR-03837	2004	MBA Associates	<i>A Historic Resource Evaluation Report for the Santa Ana Art Wall Project Located in an Unsectioned Portion of T.5S R.9W City of Santa Ana, California</i>	Architectural survey	30-176801, 30-176802
OR-03926	2010	Michael Brandman Associates	<i>Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate LA33824-D (St. Joseph School), 730 North Garfield Street, Santa Ana, Orange County, California</i>	Literature search, desktop study, site visit	30-160930, 30-160931, 30-160934
OR-04195	2011	Federal Transit Authority	<i>Section 106 Consultation for the Santa Ana and Garden Grove Fixed Guideway Corridor Project, Orange County, CA</i>	Desktop study	Over 10, see attached data sheet



Report No.	Year	Author(s) or Affiliation	Title	Survey Type	Resources Identified
OR-04229	2012	AECOM	<i>Archaeological Survey Report the I-5 (SR-55 to SR57) HOV Lanes Improvement Project County of Orange, California</i>	Archaeological survey	Over 10, see attached data sheet
OR-04292	2012 0122	AECOM	<i>Historic Property Survey Report, improvements to Interstate 5 (I-5) between State Route 55 and State Route 57</i>	Architectural survey	Over 10, see attached data sheet
OR-04312	2014	Rincon Consultants	<i>Cultural Resources Study for the Depot at Santiago Project, Santa Ana, Orange County, California</i>	Cultural resource assessment	Over 10, see attached data sheet
OR-04429	2014		<i>Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate LA02024A (CM024 Water Tower) 1405 North French Street, Santa Ana, Orange County, California</i>	Literature search, desktop study, site visit	Over 10, see attached data sheet
OR-04601	2017	Rincon Consultants, Inc.	<i>Aqua Housing Development Cultural Resources Assessment</i>	Cultural resource assessment	30-177659

### Review of Historic Aerial Photography, U.S. Geologic Survey Topographical Maps, General Land Office Map, and Patents for Township 5 South and Range 9 West, Section 7

Review of the historic aerials indicates that a building was within the Project Area from 1946 to 1963, Table 3-10. By 1972, the building was no longer extant, and the Project Area was paved and used as a parking or storage lot into the 1980s. The Project Area appears in its current configuration by 1995 as a graded vacant lot. Historic maps illustrate a railroad adjacent (west) of the Project Area in the 1940s and 1960s, but historic aerials indicate the railroad is no longer extant by the 1970s. No General Land Office Plat maps or patents were available for the Project Area.

**Table 3-10. Historic Aerial Photography, Historic U.S. Geologic Survey Maps of Township 5 South and Range 9 West, Northern Portion of Section 7**

Map Name/Scale or Historic Aerial	Date	Author	Potential Resource
Aerial Photography	1946, 1952, 1963	Netronline	A building is within the Project Area and a road is to the west, the railroad line (illustrated on historic maps) no longer appears extant. The surrounding area is developed with residential and commercial buildings, and orchards. No changes in 1952 or 1963.
Aerial Photography	1972, 1980	Netronline	The building is no longer extant by the 1972, and the Project Area appears as a paved lot. The surrounding area is developed with residential and commercial buildings. No changes in 1980.
Aerial Photography	1995	Netronline	The Project Area appears in its current configuration and is a graded vacant lot, Pena Road is under development to the east, a building with a paved parking area is adjacent to the west. The surrounding area is developed with residential and commercial buildings.
USGS, 1:62,500 Anaheim	1942, 1962	USGS, Geological Survey	Railroad line illustrated adjacent (west) of the Project Area. No buildings or features are illustrated in the Project Area.
USGS, 1:31, Orange, California	1934, revised 1946	USGS, Geological Survey	Railroad line illustrated adjacent (west) of the Project Area. No buildings or features are illustrated in the Project Area.
USGS 1:24,000, Orange, California	1949	USGS, Geological Survey	Sothorn Pacific railroad line illustrated adjacent (west) to Project Area. No other buildings or features illustrated in the Project Area. The surrounding area is developed with major roads, residential, and commercial.
USGS 1:24,000, Orange, California	1964	USGS, Geological Survey	No changes.

USGS – U.S. Geological Survey

### **Native American Heritage Commission Sacred Lands Files Search**

The California Native American Heritage Commission (NAHC) was contacted on September 25, 2020 to request a Sacred Lands File search. The NAHC responded on September 25, 2020 that no Native American sacred lands were identified by its database as within or near the Project Area (Enclosure 3). The NAHC recommends conducting outreach to the listed tribes or individuals as they may have knowledge of cultural resources within or near the Project Area. The lead state agency is responsible for government to government tribal consultation under Assembly Bill (AB) 52. The NAHC list includes the following tribes:

- Gabrieleño Band of Mission Indians-Kizh Nation
- Gabrieliño/Tongva San Gabriel Band of Mission Indians
- Gabrieliño/Tongva Nation
- Gabrieliño/Tongva Indians of California Tribal Council
- Gabrieliño/Tongva Tribe
- Juaneño Band of Mission Indians Acjachemen Nation – Belardes
- Pala Band of Mission Indians
- Santa Rosa Band of Cahuilla Indians
- Soboba Band of Luiseno Indians

### **Discussion:**

**a. Would the project cause a substantial adverse change in the significance of a historical resource as defined in State CEQA Guidelines Section 15064.5?**

**Less than Significant Impact.** Section 15064.5 of the CEQA Guidelines specifically defines a “historical resource” as a resource that meets one or more of the following criteria:

- Listed in, or determined eligible for listing in, the California Register of Historical Resources; or
- A resource listed in a local register of historical resources, as defined in Section 5020.1(k) of the PRC; or
- Identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the PRC; or
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California that may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

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 (PRC, Section 5024.1, Title 14 California Code of Regulation, Section 4852) including the following:

- An association with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
- An association with the lives of persons important to local, California, or national history.

- An embodiment of the distinctive characteristics of a type, period, region, or method of construction, or a representation of the work of a master, or possesses high artistic values.
- A resource that has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

The Project site does not contain any known historic resources. The proposed Project would not cause a substantial adverse change in the significance of a historical resource defined in Section 15064.5 of the CEQA guidelines. Therefore, the proposed Project would not cause a substantial adverse change in the significance of an historical resource and no Project impact would result.

**Mitigation Measures:** No mitigation is required.

**b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines Section 15064.5?**

**Less Than Significant with Mitigation Incorporated.** A total of approximately 0.75 acres were surveyed and no cultural resources were identified. Based on the urban setting and previous ground disturbance associated with development, SCCIC records search results (including historic maps and aerial photographs), previous survey coverage of the Project, density of archaeological sites within 0.5 mile of the Project, and this Phase 1 archaeological survey results, the API is assessed as having a low to moderate sensitivity for cultural resources within undisturbed subsurface deposits. The surficial deposits within the Project have been subjected to previous ground disturbance due to past development and the disturbance depth is estimated at approximately 2 feet below ground surface. If construction ground disturbance depths range within native soils (below 2 feet), there would be a potential to impact previously unrecorded subsurface cultural resources. With Mitigation Measure CUL-1 and CUL-2 incorporated, a less than significant impact is anticipated.

**Mitigation Measures:**

**CUL-1: Worker Environmental Awareness Training:** Prior to any proposed construction ground disturbing activities within the Project Area, Project personnel (e.g. contractors, construction workers) will be briefed by a qualified archaeologist (retained on-call by applicant) about the potential and procedures for an inadvertent discovery of prehistoric and historic archaeological resources. In addition, the training will include established procedures for temporarily halting or redirecting work in the event of a discovery, identification and evaluation procedures for finds, and a discussion on the importance of, and the legal basis for, the protection of archaeological resources. Personnel will be given a training brochure/handout regarding identification of cultural resources, protocols for inadvertent discoveries, and contact procedures in the event of a discovery.

**CUL 2: Inadvertent Discovery of Archaeological Resources:** If the construction staff or others observe previously unidentified archaeological resources during ground disturbing activities, they will halt work within a 100-foot radius of the find(s), delineate the area of the find with flagging tape or rope (may also include dirt spoils from the find area), and immediately notify a qualified archaeologist (retained on-call by applicant). Construction will halt within the flagged or roped-off area. The archaeologist will assess the resource as soon as possible and determine appropriate next steps. Such finds will be formally recorded and evaluated. The resource will be protected from further disturbance or looting pending evaluation.

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

**Less than Significant Impact.** Ground disturbance within native soils may potentially contain unanticipated human remains, including those interred outside of formal cemeteries. California



state law requires all project excavation activities to halt if human remains are encountered and the County Coroner must be notified. Any discovery of human remains on the Project site would be treated in accordance with PRC Section 5097.98 and Section 7050.5 of the State Health and Safety Code. Pursuant to State Health and Safety Code Section 7050.5, if human remains and/or cultural items defined by the Health and Safety Code Section 7050.5, are inadvertently discovered during Project activities, all work within a 100-foot radius of the find or an area reasonably suspected to overlie adjacent remains (whichever is larger) will cease, the find will be flagged and protected for avoidance, and the Orange County Coroner (714) 647-7400 will be contacted immediately. The remains must be securely protected, and Project personnel must ensure confidentiality of the find on a need-to-know basis and ensure that the remains are treated with dignity, not touched, moved, photographed, discussed on social media sources (e.g., Facebook, Instagram, Twitter), or further disturbed. If the remains are found to be Native American as defined by Health and Safety Code Section 7050.5, the coroner will contact the NAHC by telephone within 24 hours. The NAHC shall immediately notify the person it believes to be the Most Likely Descendant (MLD) as stipulated by California PRC Section 5097.98. The MLD(s), with the permission of the landowner and/or authorized representative, shall inspect the site of the discovered remains and recommend treatment regarding the remains and any associated grave goods. The MLD shall complete their inspection and make their recommendations within 48 hours of notification by the NAHC. Construction will not proceed within the 100-foot area (or protected area) around the discovery until the appropriate approvals are obtained. Work may be delayed in the vicinity of the human remains up to 30 days. With compliance with existing regulations, Project impact would be less than significant.

**Mitigation Measures:** No mitigation is required. Compliance with existing regulations will ensure that any Project impact on human remains would be less than significant.

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### 3.4.6 ENERGY

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

#### Existing Conditions:

The largest types of energy use in the City are, in order: transportation (gasoline and diesel fuel), energy conversion and transmission bases, and residential natural gas and electricity (City of Santa Ana 1982c). The Energy Element of the General Plan contains energy consumption reduction strategies including increasing the energy efficiency of all aspects of City operations. In 2008, City municipal operations consumed approximately 57.7 million kilowatt hours of electricity (ICLEI-USA 2015).

#### Discussion:

- a. **Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?**

**Less Than Significant Impact.** According to the CEQA Guidelines, “[u]ses of nonrenewable resources during the initial and continued phases of the Project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the Project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.” Therefore, the purpose of this analysis is to identify any significant irreversible environmental effects of Project implementation that cannot be avoided.

Both construction and operation of the Proposed Project would lead to the consumption of limited, slowly renewable, and non-renewable resources, committing such resources to uses that future generations would be unable to reverse. The Project would require the commitment of resources that include: (1) building materials; (2) fuel and operational materials/resources; and (3) the transportation of goods and people to and from the Proposed Project.

During Project construction, energy will be consumed in the form of electricity associated with powering lights, electronic equipment, or other construction activities necessitating electrical power. Project construction will also consume energy in the form of petroleum-based fuels associated with the use of construction vehicles and equipment on the Project site, construction worker travel to and from the Project site, and truck trips delivering building materials to the Project site and hauling solid waste from the Project site.

During Project operation, energy consumption will involve electricity to run the well facilities and petroleum-based fuels associated maintenance trips to and from the Project site.

The construction of the Project will require an estimated 1,814 gallons of gasoline from worker trips. Diesel delivery trucks will use 678 gallons and off-road equipment will use 113,697 gallons for a total of 114,375 gallons of diesel. Annual Project operations is estimated to demand 123 gallons of gasoline and 1,693,811 kilowatt hours of electricity.

Consumption of fuel would be short-term during construction. During operation, the weekly trips would consume small amounts of fuel, that may be further reduced when the City uses one of its alternative fuel vehicles. The estimated operational electricity usage of the Project represents approximately 0.03 percent of the estimated annual electricity demand for the City of Santa Ana's municipal operations in the year 2008.

The Proposed Project will comply with all applicable regulations and codes which require achievement of various levels of energy efficiency in building construction, design and operation. The consumption of such resources would represent a long-term commitment of those resources. The commitment of resources required for the construction and operation of the Proposed Project would limit the availability of such resources for future generations or for other uses during the life of the Project. However, use of such resources will be short-term and minimal during construction and during operation will not result in energy consumption requiring a significant increase in energy production for the energy provider. In addition, the Proposed Project will comply with all applicable regulations and codes. Therefore, the energy demand associated with the proposed Project will be less than significant.

**Mitigation Measures:** No mitigation is required. Regulatory compliance will maintain impacts at a less than significant level.

**b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?**

**No Impact.** As noted above, the Project will not result in energy consumption requiring a significant increase in energy production for the energy provider. In addition, the Project will facilitate the City's goal of lessening their reliance on imported water from MWD, which will also reduce the energy required to deliver the imported water. The Project is not expected to conflict with or obstruct a state or local plan for renewable energy or energy efficiency and therefore, no impacts are expected.

**Mitigation Measures:** No mitigation is required.

### 3.4.7 GEOLOGY AND SOILS

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

#### Existing Conditions:

The Project site and pipeline alignment are not located within an Alquist-Priolo Earthquake Fault Zone (CGS 2020). The principal seismic hazard that could affect the site is ground shaking resulting from an earthquake occurring along any one of several major active faults in the region. The known regional faults that could produce the most significant ground shaking at the Project site include the Newport-Inglewood and Elsinore-Whittier faults (City of Santa Ana 1982d).

The Project site is not located within a liquefaction zone or a landslide zone (CGS 2020).

**Discussion:**

**a. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:**

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

**Less than Significant Impact.** The Project site is not located within an Alquist-Priolo Earthquake Fault Zone (CGS 2020). No active faults are known to cross the well sites or pipeline route (City of Santa Ana 1982d). The probability of damage because of surface ground rupture is low due to the lack of known active faults crossing the Project Area. The proposed water well and supporting facilities have been designed in accordance with applicable seismic safety standards. The operation of the proposed Project, therefore, is not anticipated to expose people or structures to potential substantial adverse effects, including risk of loss, injury, or death from the rupture of a known earthquake fault. The impact is anticipated to be less than significant.

**Mitigation Measures:** No mitigation is required.

- ii.) Strong seismic ground shaking?**

**Less than Significant Impact.** The Project is located within the seismically active Southern California region and is likely to experience strong ground shaking from seismic events generated on regionally active faults. The Project has been designed in accordance with applicable seismic safety standards. The operation of the proposed Project, therefore, is not anticipated to expose people or structures to potential substantial adverse effects from strong seismic ground-shaking. The impact is anticipated to be less than significant.

**Mitigation Measures:** No mitigation is required.

- iii.) Seismic-related ground failure, including liquefaction?**

**No Impact.** The Project is not located within a liquefaction hazard zone (CGS 2020). Construction of the well and associated Project facilities will comply with applicable measures of the California Building Code regarding seismic safety measures. Operation of the proposed Project would not expose people or structures to substantial impacts involving seismic-related ground failure from liquefaction; therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

- iv.) Landslides?**

**No Impact.** The Project site is not located in a landslide area. The land within and in the vicinity of the Project site is relatively flat; thus, no impact from landslides is anticipated.

**Mitigation Measures:** No mitigation is required.

**b. Would the project result in substantial soil erosion or the loss of topsoil?**

**Less than Significant Impact.** Construction of the Project would include ground-disturbing activities, such as excavation, drilling, and grading in order to build the proposed Project. As the proposed Project is less than one acre, the proposed Project would not be subject to the requirements of the Construction General Permit under the NPDES program administered by the State Water Resources Control Board. However, construction of the proposed Project would be required to comply with water quality control measures of the City's Municipal Code including specifically Chapter 18.156 – Control of urban runoff (City of Santa Ana 2019). The Project site will be paved or landscaped so that no exposed soil would remain. The Project will have a less

than significant impact related to erosion and loss of topsoil in the construction and operational phases.

**Mitigation Measures:** No mitigation is required.

- c. **Is the project located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslides, lateral spreading, subsidence, liquefaction, or collapse?**

**Less than Significant Impact.** Based on the analysis provided in Responses (a.) (iii. and iv.) above, no impact would be experienced related to liquefaction or onsite or off-site landslides. The Project site is not located in a subsidence hazard zone (City of Santa Ana 1982d). Construction of the well facilities will comply with applicable measures of the California Building Code regarding seismic safety measures. Operation of the proposed Project would not expose people or structures to substantial impacts involving unstable geology or unstable soils; therefore, a less than significant impact would occur.

**Mitigation Measures:** No mitigation is required.

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

**Less than Significant Impact.** Expansiveness refers to the potential to swell and shrink with repeated cycles of wetting and drying and is a common feature of fine-grained clayey soils. This wetting and drying causes damage due to differential settlement within buildings and other improvements. The City of Santa Ana General Plan does not identify areas of expansive soils; however, the design and construction of the Project will comply with applicable regulations and standard specifications to prevent potential risk of damage from expansive soils. The Project would be required to comply with building codes in order to minimize the potential for hazards due to expansive soils. Therefore, regulatory compliance will ensure that impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

- e. **Would the project have soils that are incapable of supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?**

**No Impact.** No septic tanks or alternative wastewater systems will be constructed as part of the Project, and no impacts will occur.

**Mitigation Measures:** No mitigation is required.

- f. **Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

**Less Than Significant with Mitigation Incorporated.** The Project site is not located in an area of paleontological sensitivity (County of Orange 2012). Given the highly disturbed condition of the Project site and surroundings, the likelihood that paleontological resources or unique geologic features exist onsite is considered low. Nevertheless, ground-disturbing activities, such as grading or excavation, could unearth undocumented paleontological resources or unique geologic features by disturbing native soils that may contain such resources. The proposed Project could potentially cause a substantial adverse change in significance to a paleontological resource, but incorporation of the following Mitigation Measure GEO-1 would reduce the potential impact on paleontological resources to less than significant.

**Mitigation Measures:**

**GEO-1:** *Inadvertent Discoveries of Paleontological Resources* — If the construction staff or others observe previously unidentified paleontological resources during ground disturbing activities, they will halt work within a 200-foot radius of the find(s), delineate the area of the find with flagging tape or rope (may also include dirt spoils from the find area), and immediately notify a qualified Paleontologist. Construction will halt within the flagged or roped-off area. The Paleontologist will assess the resource as soon as possible and determine appropriate next steps in coordination with the City. Such finds will be formally recorded and evaluated. The resource will be protected from further disturbance or looting pending evaluation.



### 3.4.8 GREENHOUSE GAS EMISSIONS

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

The following information is based on Vista Environmental, *Air Quality and Greenhouse Gas Emissions Impact Analysis Washington Avenue Lot Well & Facility Project*, November 5, 2020 (Appendix A).

#### Existing Conditions:

The State of California has enacted key legislation in an effort to reduce its contribution to climate change. Climate change is a result of greenhouse gases (GHG) emitted all around the world from sources such as the combustion of fuel for transportation and heat, cement manufacture, and refrigerant emissions.

AB 32, the California Global Warming Solutions Act of 2006, requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. The Air Resources Board is the State agency charged with monitoring and regulating sources of emissions of GHGs. AB 32 requires the Air Resources Board to adopt and implement a list of discrete and early action GHG reduction measures, which was completed in October 2007.

The Southern California Association of Governments is the regional planning agency for ensuring implementation of Senate Bill 375. Senate Bill 375, or the Sustainable Communities and Climate Protection Act of 2008, supports the State's climate action goals to reduce GHG emissions through coordinated transportation and land use planning with the goal of more sustainable communities. Under the Sustainable Communities Act, the Air Resources Board sets regional targets for GHG emissions reductions from passenger vehicle use.

Area sources of GHG include emissions from natural gas combustion, fireplaces, landscaping equipment, consumer products, and architectural coatings. Indirect sources include emissions from energy consumption and water conveyance. Mobile sources include emissions from passenger vehicles and delivery trucks. Typically, mobile sources are the primary contributor of GHG emissions.

#### Thresholds of Significance:

The City of Santa Ana has adopted a Climate Action Plan (Santa Ana CAP) that has been prepared to assist the City in conforming to the GHG emissions reductions as mandated under AB 32. The Santa Ana CAP provides community wide GHG emissions reduction goals of 15 percent below the baseline year 2008 by 2020 and 30 percent below the baseline year 2008 by 2035. Since the Santa Ana CAP does not provide any quantitative GHG emissions thresholds for new development projects nor does it provide any direction on how to analyze new development projects within the City, the SCAQMD GHG emissions reduction thresholds have been utilized in this analysis.

In order to identify significance criteria under CEQA for development projects, SCAQMD initiated a Working Group, which provided detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,000 million tonnes of carbon dioxide equivalents (MTCO<sub>2</sub>e) for all land use projects. Although the SCAQMD provided substantial evidence supporting the use of the above threshold, as of November 2017, the SCAQMD Board has not yet considered or approved the Working Group's thresholds.

It should be noted that SCAQMD's Working Group's thresholds were prepared prior to the issuance of Executive Order B-30-15 on April 29, 2015 that provided a reduction goal of 40 percent below 1990 levels by 2030. This target was codified into statute through passage of AB 197 and SB 32 in September 2016. However, to date no air district or local agency within California has provided guidance on how to address AB 197 and SB 32 with relation to land use projects. In addition, the California Supreme Court's ruling on *Cleveland National Forest Foundation v. San Diego Association of Governments* (Cleveland v. SANDAG), Filed July 13, 2017 stated:

SANDAG did not abuse its discretion in declining to adopt the 2050 goal as a measure of significance in light of the fact that the Executive Order does not specify any plan or implementation measures to achieve its goal. In its response to comments, the EIR said: "It is uncertain what role regional land use and transportation strategies can or should play in achieving the EO's 2050 emissions reduction target. A recent California Energy Commission report concludes, however, that the primary strategies to achieve this target should be major 'decarbonization' of electricity supplies and fuels, and major improvements in energy efficiency [citation]".

Although, the above court case was referencing California's GHG emission targets for the year 2050, at this time it is also unclear what role land use strategies can or should play in achieving the AB 197 and SB 32 reduction goal of 40 percent below 1990 levels by 2030. As such this analysis has relied on the SCAQMD Working Group's recommended thresholds. Therefore, the proposed Project would be considered to create a significant cumulative GHG impact if the proposed Project would exceed the annual threshold of 3,000 MTCO<sub>2</sub>e.

#### **Discussion:**

- a. **Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

**Less than Significant Impact.** The proposed Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The proposed Project would consist of development of a new water supply well and ancillary facilities. The proposed Project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste disposal, water usage, and construction equipment. The Project's GHG emissions have been calculated with the CalEEMod model based on the construction and operational parameters. A summary of the results is shown below in Table 3-11 and the CalEEMod model run is provided in Appendix A.

**Table 3-11. Project Related Greenhouse Gas Annual Emissions**

Category	Greenhouse Gas Emissions (Metric Tons per Year)			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
<b>Construction</b>				
Phase 1: Well Drilling and Construction	712.96	0.03	0.00	718.68
Phase 2: Surface Facilities and Other Improvements	349.80	0.11	0.00	352.48
Total Construction Emissions	1,062.76	0.34	0.00	1,071.17
<b>Amortized Construction Emissions<sup>1</sup> (30 Years)</b>	<b>35.43</b>	<b>0.01</b>	<b>0.00</b>	<b>35.71</b>
<b>Operations</b>				
Area Sources <sup>2</sup>	0.00	0.00	0.00	0.00
Energy Usage <sup>3</sup>	12.64	0.00	0.00	12.70
Mobile Sources <sup>4</sup>	0.47	0.00	0.00	0.47
Solid Waste <sup>5</sup>	0.84	0.05	0.00	2.07
Water and Wastewater <sup>6</sup>	3.43	0.03	0.00	4.24
<b>Total Operational Emissions</b>	<b>17.38</b>	<b>0.07</b>	<b>0.00</b>	<b>19.48</b>
<b>Total Annual Emission ( Construction and Operations)</b>	<b>52.80</b>	<b>0.09</b>	<b>0.00</b>	<b>55.18</b>
<b>SCAQMD Draft Threshold of Significance</b>				<b>3,000</b>
<b>Exceed Thresholds?</b>				<b>No</b>

Notes:

<sup>1</sup> Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.

<sup>2</sup> Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.

<sup>3</sup> Energy usage consists of GHG emissions from electricity and natural gas usage.

<sup>4</sup> Mobile sources consist of GHG emissions from vehicles.

<sup>5</sup> Waste includes the CO<sub>2</sub> and CH<sub>4</sub> emissions created from the solid waste placed in landfills.

<sup>6</sup> Water includes GHG emissions from electricity used for transport of water and processing of wastewater.

Source: CalEEMod Version 2016.3.2.

The data provided in Table 3-11 shows that the proposed Project would create 55.18 MTCO<sub>2</sub>e per year. According to the SCAQMD draft threshold of significance detailed above under Thresholds of Significance, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations would exceed 3,000 MTCO<sub>2</sub>e per year. Therefore, a less than significant generation of GHG emissions would occur from development of the proposed Project. Impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

**b. Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?**

**Less Than Significant Impact.** The proposed Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The applicable plan for the proposed Project is the *Santa Ana Climatic Action Plan*, adopted December 2015. The Santa Ana CAP provides community wide GHG emissions reduction goals of 15 percent below the baseline year 2008 by 2020 and 30 percent below the baseline year 2008 by 2035. The Santa Ana CAP includes numerous measures to reduce GHG emissions, however the measures are not directed toward new development projects, including

the proposed Project. It should be noted that the proposed Project would result in the development of a new water supply in an area of the City that is showing a deficiency of water. As such, the Project would reduce the energy usage associated with the transport of water to this area of the City. In addition, the proposed Project would be required to meet the most current Title 24 Part 6 Building Energy Efficiency standards and the Title 24 Part 10 CalGreen standards. Therefore, the proposed Project would be in compliance with the Santa Ana CAP and would be in compliance with the SCAQMD's GHG emissions thresholds. As such, the proposed Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

### 3.4.9 HAZARDS AND HAZARDOUS MATERIALS

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c.	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?			X	
d.	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e.	Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and result in a safety hazard or excessive noise for people residing or working in the project area?				X
f.	Impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g.	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.				X

#### Existing Conditions:

The Project Area is urbanized with municipal, light industrial, commercial, and multi-family residential uses.

The Project site is not included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (DTSC 2020, CWRCB 2020).

The Project site is also not located within 2 miles of a public airport or public use airport. The nearest airport is John Wayne Airport located approximately 5 miles to the south. The Project

site is not within the Orange County Airport Land Use Plan Area or the John Wayne Airport Safety Zone for John Wayne Airport (ALUC 2005).

The Orange County Fire Authority (OCFA) provides emergency response to fires and hazardous materials incidents in the City of Santa Ana. The City of Santa Ana maintains an Emergency Services Plan which provides direction and guidance for officials and citizens in the event of emergency; including emergencies related to major fires and/or explosions, industrial accidents, traffic control, and hazardous materials spills (City of Santa Ana 1982e).

**Discussion:**

**a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

**Less than Significant Impact.** The short-term construction process for the proposed Project would not involve any routine transport, use, or disposal of hazardous materials. Some examples of hazardous materials include fuels, lubricating fluids such as paints and adhesives, and solvents. Fuels and solvents for construction would be stored and utilized pursuant to existing regulatory requirements. Therefore, short-term construction impacts would be less than significant.

Operation of the well would require limited transport, storage, use, and disposal of hazardous materials. The Project would involve the use of sodium hypochlorite for disinfection. The chemical storage area will be fully contained and covered for protection from the elements.

All chemical storage and usage would comply with existing federal, State, and local requirements (including chemical hygiene requirements administered by the California Division of Occupational Safety and Health). During filling of storage tanks, City personnel will be present to guard against spillage. Wash down/containment facilities will also be available in the event of a spill. Property inspections will be made by the City to ensure protection of the public health, safety, and general welfare.

Strict safety procedures and best management practices will be implemented for fuel transport and during tank refueling. No disposal of hazardous materials would occur onsite. With the aforementioned procedures and BMPs implemented as part of the Project, impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

**b. Would the project create a significant hazard to the public or the environment through the reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?**

**Less than Significant Impact.** During construction, there is a potential for accidental release of hazardous substances such as petroleum-based fuels or hydraulic fluid used by construction equipment. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials utilized during construction. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, State, and federal law. As with the discussion for 3.4.8(a) above, all chemical and fuel storage and usage would comply with existing federal, State, and local requirements (including chemical hygiene requirements administered by the California Division of Occupational Safety and Health). During filling of storage tanks, personnel will be present to guard against spillage. Wash down/containment facilities will also be available in the event of a spill. Property inspections will be made to ensure protection of the public health,



safety, and general welfare. With the aforementioned measures implemented as part of the proposed Project, impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

- c. **Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?**

**Less Than Significant Impact.** Davis Elementary School is located approximately 0.1 mile to the northwest of the Project site. There is a potential for release of hazardous emissions or handling of hazardous materials and substances during the short-term construction activities during the development of the Project elements. However, because substantial federal, state and local regulations addressing the transport, use, storage and disposal of hazardous materials are in place, the potential for impacts and risks from hazardous emissions, including to schools, would be less than significant. Compliance with applicable hazardous materials regulations would reduce the likelihood of unsafe release of hazardous emissions to less than significant levels.

**Mitigation Measures:** No mitigation is required.

- d. **Is the project located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

**No Impact.** Since the well site is not on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, there would be no hazard to the public or environment and therefore, no impact would be experienced.

**Mitigation Measures:** No mitigation is required.

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

**No Impact.** The Project site is also not located within 2 miles of a public airport or public use airport. The nearest airport is John Wayne Airport located approximately 5 miles to the south. The Project would not result in a safety hazard for people residing or working in the Project Area and no impact would occur.

**Mitigation Measures:** No mitigation is required.

- f. **Would the project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?**

**Less Than Significant Impact.** For construction of the proposed Project, traffic control will be needed to temporarily reduce available lanes during the construction of the pipeline, storm drain, utility services and street resurfacing. Full road closures are not anticipated, however. In addition, a traffic control plan will be prepared to accommodate this work area width along the pipeline route. These impacts would be short term and temporary and would have a less than significant impact to roadways utilized for emergency purposes. During operation, the Project would not require full time employees at the site and thus would not increase the burden on existing emergency response plans. Only one weekly trip to the Site would be required during operation and thus would not generate traffic congestion, nor obstruct traffic flow or emergency operations. During Project operation, emergency access would be maintained to all residences and public facilities since the existing adjacent roads would not be altered. Therefore, the proposed Project would not impair implementation of or physically interfere with an adopted

emergency response plan or emergency evacuation plan and impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

- g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.**

**No Impact.** The Project site is located in an urbanized and fully developed area and is not located within or near any wildland areas (County of Orange 2012). Also, the proposed landscaping would not create hazardous conditions due to wildland fires. Therefore, the Project would not pose a fire hazard due to wildland fires and no impact would occur.

**Mitigation Measures:** No mitigation is required.



### 3.4.10 HYDROLOGY AND WATER QUALITY

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

#### Existing Conditions:

##### Surface Water

The Project Area is urbanized with municipal, light industrial, commercial, and multi-family residential uses. Stormwater flows across the site to storm drains located in the surrounding streets.

The Project and the surrounding areas are in a Federal Emergency Management Agency (FEMA) Flood Zone X, where the probability of flooding inundation has been evaluated to be 0.2 percent (i.e. a 500-year event; FEMA 2009). The Project is not within the Prado Dam Inundation Area or the Santiago Reservoir Inundation Area (City of Santa Ana 1982e).

The Project site is not located in a tsunami run-up area (California Emergency Management Agency 2009).

The Santa Ana River is the major drainage channel flowing through the City and many of the major storm drains in the City, are (directly or indirectly) connected to it. The reach through Santa Ana consists mostly of a trapezoidal, concrete lined channel with a bottom width of 180 feet. Santiago Creek is the main tributary to the Santa Ana River, joining the Santa Ana River just south of Garden Grove Boulevard (City of Santa Ana 1998a). The Santa Ana River is located approximately 2.5 miles to the west of the Project site and Santiago Creek is located approximately 1.25 miles to the north of the Project site.

The City of Santa Ana is served by two primary flood control and drainage systems: City-operated and City-maintained storm drain system, including catch basins and storm drain pipes; and flood control facilities operated and maintained by the Orange County Flood Control District, including the large flood control channels in the City (City of Santa Ana 2015). The NPDES Stormwater Permit issued to the County of Orange and its co-permittees (including the City of Santa Ana) requires development projects to incorporate appropriate best management practices to minimize pollutant levels in runoff (County of Orange 2017).

The City of Santa Ana's Municipal Code Section 18-156 Control of urban runoff sets forth the requirements to ensure that all new development and significant redevelopment meet the requirements of the NPDES permit and the Orange County Drainage Area Master Plan (City of Santa Ana 2019).

#### **Discussion:**

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

#### **Less than Significant Impact.**

##### **Short-term Impacts**

The proposed Project could potentially result in water quality impacts during the short-term construction process. The grading and excavation required for Project implementation would result in exposed soils that may be subject to wind and water erosion. Since the Project impact area would be below one acre, the proposed Project would not be subject to the requirements of the Construction General Permit under the NPDES program administered by the State Water Resources Control Board. However, construction of the proposed Project would be required to comply with water quality control measures of the City's Municipal Code including specifically Chapter 18.156 – Control of urban runoff (City of Santa Ana 2019). This would include requirements for the implementation of BMPs to minimize the potential for water quality impacts during construction.

An approximately 12-inch storm drain will convey site stormwater and pump waste discharge from the new well to an existing City storm drain inlet on the northwest corner of the Project site, adjacent to Penn Way. The storm drain will be constructed based on Regional Water Quality Control Board Non-Stormwater discharge requirements. Upon adherence to these existing requirements, short-term impacts to water quality standards and waste discharge requirements would be less than significant.

##### **Long-Term Operational Impacts**

The proposed Project would not affect water quality in the Project Area upon completion of construction. Development of the Project site, the majority of the site will have an impervious surface, however, the reduction of pervious area is relatively small as the site is under one acre

in size. The Project is not expected to alter the drainage conditions in the Project Area. Impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

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

**Less than Significant Impact.** The City's potable water is obtained by pumping from the Orange County Groundwater Basin using 21 existing groundwater wells or importing water via seven (7) MWD connections. The City of Santa Ana 2017 Water Master Plan (Tetra Tech 2018), identified low pressures along the border of the Low and High Zones adjacent to the Interstate 5 Freeway. To resolve these low-pressure deficiencies, the Master Plan proposed a future well located in the vicinity of the Water Tank. Without this future well in the vicinity of the Water Tank, the water pressure in this area may continue to drop and could reach a level of service that is not adequate in comparison to the rest of the City's water system.

Implementation of the Project would not result in any exceedance of the City's existing water entitlements. Rather, it would address the low pressures identified in the water system analysis, improving reliability and efficiency of the supply system. In addition, the Project will result in a small increase in impervious surface and will not result in any significant change to groundwater recharge opportunity, thus, the Project would not deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the groundwater table level. Therefore, impacts to groundwater supply would be less than significant.

**Mitigation Measures:** No mitigation is required.

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

**(i). Result in substantial erosion or siltation on site or off site?**

**Less than Significant Impact.** Refer to Response 3.4.10(a) above. Development of the Project is not expected to significantly alter drainage conditions in the Project Area. As noted above, the proposed Project will construct storm drains based on Regional Water Quality Control Board Non-Stormwater discharge requirements. Thus, impacts in this regard would be less than significant.

**Mitigation Measures:** No mitigation is required.

**(ii). Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site?**

**Less than Significant Impact.** Refer to Responses 3.4.10(a) and 3.4.10(c) above. The proposed Project is not expected to significantly alter off-site runoff in comparison to existing conditions. Impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

**(iii). Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?**

**Less than Significant Impact.** Refer to responses 3.4.10(a) and 3.4.10(c) above. The Project is not expected to significantly alter off-site runoff in comparison to existing conditions. Therefore, impacts to stormwater drainage systems would be less than significant.

**Mitigation Measures:** No mitigation is required.

**(iv). Impede or redirect flood flows?**

**Less than Significant Impact.** Refer to responses 3.4.10(a) and 3.4.10(c) above. Impacts to water quality are expected to be less than significant.

**Mitigation Measures:** No mitigation is required.

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

**Less than Significant Impact.** The Project site is not located within a 100-year floodplain (FEMA 2009). The Project and the surrounding areas are in FEMA Flood Zone X where the probability of flood inundation is only 0.2 percent. As a result, potential impacts to structures would be less than significant, and these facilities will not require active and onsite operations personnel so no injury or death from flooding is anticipated. The Project site is not located near any areas at risk for seiche, tsunami or mudflows; therefore, no impacts associated with these hazards would occur.

**Mitigation Measures:** No mitigation is required.

**e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?**

**Less than Significant.** Refer to Response 3.4.10(a) and 3.4.10(b) above. Development of the Project would include requirements for the implementation of BMPs to minimize the potential for water quality impacts during construction. In addition, the Project would not deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the groundwater table level. A less than significant impact would occur.

**Mitigation Measures:** No mitigation is required.

### 3.4.11 LAND USE AND PLANNING

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

#### Existing Conditions:

The Project is located in an urban setting characterized by views of municipal, light industrial, commercial, and multi-family residential uses. The Project site is currently undeveloped.

Land use in the City of Santa Ana is directed by the City of Santa Ana General Plan (City of Santa Ana 1998a). According to the Santa Ana General Plan Land Use Map, the land use designation for the Project site and surrounding area is UN and is zoned SD84. Public utility structures are allowed in this zoning designation with a CUP and screened by a solid wall at least eight feet high (City of Santa Ana 2010).

The Project site is not located within any habitat conservation plan areas or natural community conservation plan areas.

#### Discussion:

##### a. Would the project physically divide an established community?

**No Impact.** The Project site is in an urbanized area and is small in size. Construction of the Project would not hinder pedestrians or travelers on the adjacent streets or sidewalks from accessing other areas in the surrounding community. Therefore, the proposed Project would not divide an established community and no impact would occur.

**Mitigation Measures:** No mitigation is required.

##### b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

**Less Than Significant Impact.** Public utility structures are allowed in the UN zoning designation with a CUP and screened by a solid wall at least eight feet high. The Project will include an 8-foot block wall. With the approval the CUP for the Project, the Project would not conflict with existing zoning. The proposed Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project; therefore, no significant impacts would occur.

**Mitigation Measures:** No mitigation is required.

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### 3.4.12 MINERAL RESOURCES

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

#### Existing Conditions:

Mineral Resource Zones are commercially viable mineral or aggregate deposits, such as sand, gravel, and other construction aggregate. The mineral resources in Orange County consist of deposits of regionally significant aggregate resources identified by the California Department of Conservation, Divisions of Mines and Geology (County of Orange 2012). These significant sand and gravel resources for the Orange County region are located in portions of the Santa Ana River, Santiago Creek, San Juan Creek, Arroyo Trabuco and other areas. Orange County's petroleum resources are in the form of oil and natural gas deposits. The primary petroleum resource areas of the County are Huntington Beach, Newport Beach, Seal Beach and the Brea/La Habra foothill regions. The Project site is not located near any of these areas.

#### Discussion:

- a. **Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?**

**No Impact.** No mineral recovery activities currently occur in the Project Area, and the Project site is not underlain by any known mineral resources of value to the region and residents of the State. Thus, no impacts would occur.

**Mitigation Measures:** No mitigation is required.

- b. **Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?**

**No Impact.** As stated above, the Project site is not located within a Mineral Resource Zone or an area of oil and gas resources. Thus, no impacts would occur.

**Mitigation Measures:** No mitigation is required.



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### 3.4.13 NOISE

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

The following is based on Vista Environmental, *Noise Impact Analysis Washington Avenue Lot Well & Facility Project*, November 9, 2020 (Appendix C).

#### Existing Environment:

To determine the existing noise levels, noise measurements have been taken in the vicinity of the Project site. The field survey noted that noise within the proposed Project Area is generally characterized by vehicle traffic on Washington Avenue that is located adjacent to the south side of the Project site and Penn Way that is located adjacent to the northeast side of the Project site. There is also noise in the Project vicinity from the nearby industrial uses and Interstate 5 that is as near as 800 feet northeast of the Project site.

The noise monitoring locations were selected in order to obtain noise measurements of the current noise levels in the vicinity of the nearest homes to the west and south of the Project site. Descriptions of the noise monitoring sites are provided below in Table 3-12. Appendix C includes a photo index of the study area and noise level measurement locations.

The results of the noise level measurements are presented in Table 3-12. The measured sound pressure levels in dBA have been used to calculate the minimum and maximum  $L_{eq}$  averaged over 1-hour intervals. Table 3-12 also shows the  $L_{eq}$ ,  $L_{max}$ , and CNEL, based on the entire measurement time. The noise monitoring data printouts are included in Appendix C.

**Table 3-12. Existing (Ambient) Noise Level Measurements**

Site No.	Site Description	Average (dBA L <sub>eq</sub> )	Maximum (dBA L <sub>max</sub> )	(dBA L <sub>eq</sub> 1-hour/Time)		Average (dBA CNEL)
				Minimum	Maximum	
1	Located west of the Project site on an equipment rack in the northern portion of the yard of Pacific Plumbing, approximately 20 feet west of the apartments.	54.5	79.8	48.6 2:21 a.m.	58.4 6:35 a.m.	60.5
2	Located south of the Project site on a tree that was near the north property line of the home at 1113 Poinsettia Street, approximately 30 feet east of the Poinsettia Street centerline.	60.1	86.5	48.1 2:15 a.m.	66.8 9:14 p.m.	64.0

Source: Noise measurements were taken with two Extech Model 407780 Type 2 sound level meters between Thursday, August 13 and Friday, August 14, 2020.

#### Discussion:

- a. **Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in local general plan or noise ordinance or applicable standards of other agencies?**

**Less than Significant with Mitigation Incorporated.** The proposed Project would consist of construction of a new water supply well and ancillary facilities that would be constructed over two phases. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed Project and compares the noise levels to the City standards.

#### Construction-Related Noise

Construction activities would be completed in two phases. Phase 1 would include well drilling that will be continuous (i.e. 24-hours per day for as many days as needed to reach the completion depth) and well construction will be performed on weekdays only, during regular work hours. Phase 2 will include construction of the surface facilities other improvements. Phase 2 construction activities will be conducted on weekdays only, during regular work hours.

Noise impacts from construction activities associated with the proposed Project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptors to the Project site are residential apartments located as near as 100 feet west of the Project site. Additionally, there are residential homes located as near as 145 feet south of the Project site.

Section 18-314(e) of the City's Municipal Code exempts construction noise that occurs between 7:00 a.m. and 8:00 p.m. from the City's noise standards. Construction activities are not exempt from the Municipal Code at any time on Sundays or federal holidays. Since, the Municipal Code does not provide any limits to the noise levels that may be created from construction activities that occur during the allowable times for construction, the Federal Transit Administration (FTA) construction noise thresholds shown in Table 3-13 have been utilized that limit noise impacts to 80 dBA Leq during the daytime.

**Table 3-13. FTA Construction Noise Criteria**

Land Use	Day (dBA Leq <sub>(8-hour)</sub> )	Night (dBA Leq <sub>(8-hour)</sub> )	30-day Average (dBA Ldn)
Residential	80	70	75
Commercial	85	85	80 <sup>(1)</sup>
Industrial	90	90	85 <sup>(1)</sup>

Notes:

<sup>(1)</sup> Use a 24-hour Leq (24 hour) instead of Ldn (30 day).

Source: Federal Transit Administration, 2018.

For construction activities that occur outside of the exempt times, construction noise is limited to the noise standards provided in Section 18-312(a) of the Municipal Code that limits noise levels to 55 dBA between 7:00 a.m. and 10:00 p.m. and 50 dBA between 10:00 p.m. and 7:00 a.m. at the exterior of any residential home and Section 18-313(a) of the Municipal Code limits noise levels to 55 dBA between 7:00 a.m. and 10:00 p.m. and 45 dBA between 10:00 p.m. and 7:00 a.m. at the interior of any residential home. The two phases of construction have been analyzed separately below.

#### Phase 1: Well Drilling and Construction

Phase 1 construction activities would include well drilling and construction of the well. The proposed well would be drilled by using flooded reverse circulation rotary drilling method. To reduce the risk of a borehole collapse during the drilling and well construction phase, a 24-hour operation of activities will be required. Since, some construction activities would occur outside of the times when construction noise is exempt as detailed in Section 18-314(e) of the Municipal Code, Phase 1 construction activities would be required to adhere to both the daytime and nighttime exterior noise standards detailed in Section 18-312(a) of the Municipal Code and the daytime and nighttime interior noise standards detailed in Section 18-313(a) of the Municipal Code. As such both the exterior and interior noise levels at the nearby homes have been analyzed separately below.

#### *Exterior Noise Impacts at Nearby Homes*

The exterior noise levels created during Phase 1 well drilling and construction is shown in Table 3-14, which are based on the ground level receiver locations in the SoundPlan model at the analyzed homes. The SoundPlan printouts are provided in Appendix C.

Table 3-14 shows that the Phase 1 well drilling, and construction activities would create exterior noise levels as high as 58.3 dBA Leq at the apartments to the west (north building) of the well site and as high as 62.9 dBA Leq at the single-family home to the south. Table 3-14 shows that both of these locations would exceed both the daytime noise standard of 55 dBA and the nighttime noise standard of 50 dBA as detailed in Section 18-312(a) of the Municipal Code. This would be considered a significant impact.

Mitigation Measure NOISE-1 has been provided that would require the City's contractor to construct an 8-foot high sound wall on the west and south sides of the Project site, prior to the start of Phase 1 well drilling and construction activities. The sound wall may either be the proposed 8-foot high perimeter wall that is detailed in the Project description, or it may be a temporary sound wall constructed with minimum 5/8-inch plywood or oriented strand board.

**Table 3-14. Phase 1 Well Drilling and Construction Exterior Noise Levels Prior to Mitigation**

Receiver <sup>1</sup>	Description	Daytime Construction Noise Levels (dBA Leq)			Nighttime Construction Noise Levels (dBA Leq)		
		Noise Level	Daytime Standard <sup>2</sup>	Exceed Standard?	Noise Level	Nighttime Standard <sup>3</sup>	Exceed Standard?
1	Apartments to West – North Building	58.3	55	Yes	58.3	50	Yes
2	Apartments to West – East Building	44.7	55	No	44.7	50	No
3	Apartments to West – South Building	44.2	55	No	44.2	50	No
4	Single-Family home to south	62.9	55	Yes	62.9	50	Yes

Notes:

<sup>1</sup> Receiver locations shown in Appendix C.

<sup>2</sup> The Daytime (7:00 a.m. to 10:00 p.m.) standard is 55 dBA for the nearby residential as detailed in Section 18-312(a) of the Municipal Code.

<sup>3</sup> The Nighttime (10:00 p.m. to 7:00 a.m.) standard is 50 dBA as detailed in Section 18-312(a) of the Municipal Code.

Source: SoundPlan Version 8.2.

The SoundPlan model was re-run with implementation of the proposed sound wall in Mitigation Measure NOISE-1 and the calculated mitigated noise levels at the nearby homes is shown in Table 3-15. The mitigated Phase 1 well construction SoundPlan printouts are provided in Appendix C.

**Table 3-15. Mitigated Phase 1 Well Drilling and Construction Exterior Noise Levels**

Receiver <sup>1</sup>	Description	Daytime Construction Noise Levels (dBA Leq)			Nighttime Construction Noise Levels (dBA Leq)		
		Noise Level	Daytime Standard <sup>2</sup>	Exceed Standard?	Noise Level	Nighttime Standard <sup>3</sup>	Exceed Standard?
1	Apartments to West – North Building	44.1	55	No	44.1	50	No
2	Apartments to West – East Building	39.7	55	No	39.7	50	No
3	Apartments to West – South Building	41.3	55	No	41.3	50	No
4	Single-Family home to south	45.7	55	No	45.7	50	No

Notes:

<sup>1</sup> Receiver locations shown in Appendix C.

<sup>2</sup> The Daytime (7:00 a.m. to 10:00 p.m.) standard is 55 dBA for the nearby residential as detailed in Section 18-312(a) of the Municipal Code.

<sup>3</sup> The Nighttime (10:00 p.m. to 7:00 a.m.) standard is 50 dBA as detailed in Section 18-312(a) of the Municipal Code.

Source: SoundPlan Version 8.2 (see Appendix C)

Table 3-15 shows that with implementation of Mitigation Measure NOISE-1, the noise levels from all phase of construction at the exterior of the nearby homes to the west and south would be below both the daytime noise standard of 55 dBA and the nighttime noise standard of 50 dBA as detailed in Section 18-312(a) of the Municipal Code. Therefore, with implementation

of Mitigation Measure NOISE-1, Phase 1 construction noise impacts would be less than significant at the exterior of the nearby homes.

### *Interior Noise Impacts at Nearby Homes*

The noise levels created during Phase 1 well drilling and construction is shown in Table 3-16 for the interior noise levels. Since a typical home with windows closed provided 25 dB of exterior to interior noise reduction or attenuation, the interior noise levels were calculated by subtracting 25 dB from the noise levels calculated by SoundPlan at the facades of the nearby homes. The SoundPlan printouts are provided in Appendix C.

**Table 3-16. Phase 1 Well Drilling and Construction Interior Noise Levels**

Receiver <sup>1</sup>	Description	Floor	Daytime Construction Noise Levels (dBA Leq)			Nighttime Construction Noise Levels (dBA Leq)		
			Noise Level <sup>2</sup>	Daytime Standard <sup>3</sup>	Exceed Standard?	Noise Level <sup>2</sup>	Nighttime Standard <sup>4</sup>	Exceed Standard?
1	Apartments to West – North Building	1 <sup>st</sup>	38.3	55	No	38.3	45	No
		2 <sup>nd</sup>	38.6	55	No	38.6	45	No
		3 <sup>rd</sup>	38.6	55	No	38.6	45	No
2	Apartments to West – East Building	1 <sup>st</sup>	24.7	55	No	24.7	45	No
		2 <sup>nd</sup>	27.5	55	No	27.5	45	No
		3 <sup>rd</sup>	34.1	55	No	34.1	45	No
3	Apartments to West – South Building	1 <sup>st</sup>	24.2	55	No	24.2	45	No
		2 <sup>nd</sup>	27.4	55	No	27.4	45	No
		3 <sup>rd</sup>	32.6	55	No	32.6	45	No
4	Single-Family home to south	1 <sup>st</sup>	42.9	55	No	42.9	45	No
		2 <sup>nd</sup>	43.0	55	No	43.0	45	No

Notes:

<sup>1</sup> Receiver locations shown in Appendix C.

<sup>2</sup> The interior noise level calculated based on a exterior to interior noise reduction rate of 25 dB.

<sup>3</sup> The Daytime (7:00 a.m. to 10:00 p.m.) standard is 55 dBA for the nearby residential as detailed in Section 18-313(a) of the Municipal Code.

<sup>4</sup> The Nighttime (10:00 p.m. to 7:00 a.m.) standard is 45 dBA as detailed in Section 18-313(a) of the Municipal Code.

Source: SoundPlan Version 8.2.

Table 3-16 shows that the Phase 1 well drilling and construction activities would create interior noise levels as high as 38.6 dBA Leq at the apartments to the west (north building) of the well site and as high as 42.9 dBA Leq at the single-family home to the south. Table 3-16 shows that all analyzed locations would be within both the daytime noise standard of 55 dBA and the nighttime noise standard of 45 dBA as detailed in Section 18-313(a) of the Municipal Code. Therefore, Phase 1 construction noise impacts would be less than significant at the interior of the nearby homes.

### Phase 2: Surface Facilities and Other Improvements

Phase 2 will include construction of the surface facilities other improvements. Construction activities for Phase 2 will be limited to during the allowable construction times detailed in Section 18-314(e) of the City's Municipal Code that exempts construction noise that occurs between 7:00 a.m. and 8:00 p.m. from the City's noise standards. Since, the Municipal Code does not

provide any limits to the noise levels that may be created from construction activities that occur during the allowable times for construction, the FTA construction noise thresholds shown previously in Table 3-13 have been utilized that limit noise impacts to 80 dBA Leq during the daytime at the exterior of the nearby homes.

The noise levels created during Phase 2 construction activities is shown in Table 3-17, which are based on the ground level receiver locations in the SoundPlan model at the analyzed homes. The SoundPlan printouts are provided in Appendix C.

**Table 3-17. Phase 2 Surface Facilities and Other Improvements Exterior Noise Levels**

Receiver <sup>1</sup>	Description	Construction Noise Level <sup>2</sup> (dBA Leq)	Noise Standard <sup>3</sup> (dBA Leq)	Exceed Standard ?
1	Apartments to West – North Building	69.5	80	No
2	Apartments to West – East Building	60.2	80	No
3	Apartments to West – South Building	52.6	80	No
4	Single-Family home to south	71.9	80	No

Notes:

<sup>1</sup> Receiver locations shown in Appendix C.

<sup>2</sup> The calculated construction noise level is based on implementation of Project Design Feature 1 (Installation of Sound Wall) prior to utility clearance activities.

<sup>3</sup> All construction activities during Phase 2 would adhere to the limitation in construction hours provided in Section 13-280(a) of the Municipal Code. The 80 dBA threshold was obtained from the FTA construction noise criteria provided above in Table 3-13.

Source: SoundPlan Version 8.2.

Table 3-17 shows that Phase 2 construction activities would create noise levels as high as 71.9 dBA Leq at the exterior of the single-family home that is located south of the Project site. Table 3-17 shows that none of the Receivers would exceed the FTA's daytime construction noise standard of 80 dBA Leq. Through adherence to the limitations of allowable construction times provided in Section 18-314(e) of the City's Municipal Code, noise impacts from Phase 2 construction activities would be less than significant.

### Operational-Related Noise

In general, operation of the well and facility would be passive as the well equipment would operate automatically. The normal operation of the well would generate one trip weekly for a worker to monitor the operation of the well facilities and perform maintenance as necessary. Periodic maintenance activities such as replacement of tanks and testing and maintaining equipment will require bi-weekly trips to the Project site. Since operational noise impacts would be limited to bi-weekly vehicle trips to and from the Project site, the operational activities would create nominal noise impacts. Impacts would be less than significant.

### Mitigation Measures:

**NOISE-1:** Prior to the start of Phase 1 well drilling and construction activities, the contractor for the proposed Project shall preform one of the following actions to reduce the construction-related noise impacts:

- Construct a temporary 8-foot high wall along the west and south property Lines. The temporary wall must be constructed with minimum 5/8-inch plywood or oriented strand board and shall be maintained until completion of the grading phase; or
- Construct the proposed 8-foot high perimeter wall on the west and south property lines that is detailed in the Project description and proposed site plan.



**b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?**

**Less than Significant Impact.** Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. Table 3-18 gives approximate vibration levels for particular construction activities. The data in Table 3-18 provides a reasonable estimate for a wide range of soil conditions.

**Table 3-18. Vibration Source Levels for Construction Equipment**

Equipment		Peak Particle Velocity (inches/second)	Approximate Vibration Level ( $L_v$ ) at 25 feet
Pile driver (impact)	Upper range	1.518	112
	typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drill		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Federal Transit Administration 2018.

The construction-related vibration impacts have been calculated through the vibration levels shown above in Table 3-18 and through typical vibration propagation rates.

The proposed Project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the proposed Project.

**Construction-Related Vibration Impacts**

The proposed Project would consist of construction of a new water supply well and ancillary facilities that would be constructed over two phases. Vibration impacts from construction activities associated with the proposed Project would typically be created from the operation of heavy off-road equipment. The nearest offsite sensitive receptors are the residents at the multi-family homes located as near as 100 feet northeast of the Project site.

Since neither the City's Municipal Code nor the General Plan provides a quantifiable vibration threshold level, Caltrans guidance has been utilized, which defines the threshold of perception from transient sources at 0.25 inch per second peak particle velocity (PPV).

The primary source of vibration during construction would be from the operation of a vibratory roller. From Table 3-18 above a vibratory roller would create a vibration level of 0.21 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest offsite sensitive receptor (multi-family homes 100 feet to the east) would be 0.046 inch per second PPV. The vibration level at the nearest offsite sensitive receptor would be within the

0.25 inch per second PPV threshold. Therefore, a less than significant vibration impact is anticipated from construction of the proposed Project.

#### **Operations-Related Vibration Impacts**

In general, operation of the well and facility would be passive as the well equipment would operate automatically. The normal operation of the well would generate one trip weekly for a worker to monitor the operation of the well facilities and perform maintenance as necessary. Periodic maintenance activities such as replacement of tanks and testing and maintaining equipment will require bi-weekly trips to the Project site. The on-going operation of the proposed Project would not include the operation of any known vibration sources. Therefore, a less than significant vibration impact is anticipated from operation of the proposed Project.

**Mitigation Measures:** No mitigation is required.

- c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?**

**No Impact.** The proposed Project would not expose people residing or working in the Project Area to excessive noise levels from aircraft. The nearest airport is John Wayne Airport that is located as near as five miles south of the Project site. The Project site is located outside of the 60 dBA CNEL noise contours of this airport. In addition, the proposed Project consists of the development of a well and facility that would generally be passive as the well equipment would operate automatically, that would not introduce new sensitive receptors to the Project site. No aircraft noise impacts would occur.

**Mitigation Measures:** No mitigation is required.

### 3.4.14 POPULATION AND HOUSING

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?			X	
b.	Displace a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

#### Existing Conditions:

According to the City of Santa Ana's 2014-2021 Housing Element (City of Santa Ana 2014), population growth in the City of Santa Ana during the 1990s was significantly slower than surrounding communities and the county as a whole. Between 2000 and 2010 the City's population decreased by about 4 percent. In 2010, the City of Santa Ana's estimated population of 324,528 represented approximately 11 percent of the county's total population, ranking Santa Ana as the second most populated city in the county behind Anaheim. Estimates from the California Department of Finance show the City of Santa Ana's 2019 population to be 335,052, a 0.8 percent decrease from 2018 (California Department of Finance 2020a). The City has an estimated 76,919 housing units (California Department of Finance 2020b).

#### Discussion:

- a. **Would the project induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?**

**Less than Significant Impact.** The proposed Project would improve local groundwater water reliability. However, implementation of the Project would not result in any exceedance of the City's existing water entitlements, just improve reliability and efficiency of the water supply system. The proposed Project would not involve the construction of any homes, businesses, or other uses that would result in direct population growth. Therefore, impacts in regard to growth-inducement would be less than significant.

**Mitigation Measures:** No mitigation is required.

- b. **Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?**

**No Impact.** The Project site is undeveloped. Construction of the Project would not require the removal or obstruction of existing housing and thus would not require the displacement of people or the construction of replacement housing elsewhere. Therefore, no impacts would occur.

**Mitigation Measures:** No mitigation is required.

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### 3.4.15 PUBLIC SERVICES

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
	i.) Fire protection?				X
	ii.) Police protection?				X
	iii.) Schools?				X
	iv.) Parks?				X
	v.) Other public facilities?				X

#### Existing Conditions:

Public services include critical facilities such as police stations, fire stations, hospitals, shelters, and other facilities that provide important services to the community. Other public services include schools and parks and libraries that serve the communities.

Fire protection and other related services in Santa Ana are provided by the OCFA. The closest OCFA station to the Project site is Station No. 75, located at 120 W. Walnut Street, Santa Ana, approximately 0.9 miles southwest of the Project site (OCFA 2020).

Police protection services for the City of Santa Ana are provided by the City of Santa Ana Police Department at the Santa Ana Civic Center located at 60 Civic Center Plaza, approximately 1.2 miles southwest of the Project site (SAPD 2020).

The City of Santa Ana is served by four school districts: Santa Ana Unified, Garden Grove Unified, Tustin Unified, and Orange Unified (City of Santa Ana 1988). The City owns and operates approximately 35 parks including Morrison Park (City of Santa Ana 1982g). The City library system consists of a central library in Civic Center Plaza and two branch libraries in the western portion of Santa Ana: the McFadden and Newhope Branches (City of Santa Ana 1982f).

#### Discussion:

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

#### i.) Fire Protection

**No Impact.** The proposed Project would not increase the need for fire protection services as no residential uses are proposed and the Project is not expected to result in an increase in the City

of Santa Ana's population. The water well would not cause the development of uses that would result in a substantial increase in the likelihood of a fire or other hazard. Moreover, by improving the City's water supply reliability for its service area, the Project is expected to result in beneficial impacts related to fire flow and protection. Therefore, no impacts to fire protection services or facilities are expected.

**Mitigation Measures:** No mitigation is required.

#### **ii.) Police Protection**

**No Impact.** The proposed Project would not increase the need for additional police protection services. The proposed Project would not introduce residential, commercial, or other uses, that would require an increase in demand for police protection beyond what is currently provided and therefore, would not require police facilities to be altered. The buildings onsite would be equipped with an alarm system for security purposes, and the proposed security fencing would limit unauthorized access. Therefore, no impacts to police protection services or facilities are expected.

**Mitigation Measures:** No mitigation is required.

#### **iii.) Schools**

**No Impact.** Implementation of the proposed Project would not result in the need for the construction of additional school facilities, as the Project would not result in an increase in population nor would it result in a removal of a school, a reduction of school capacity, or displacement of students from existing schools. Therefore, no impact to school services or facilities are expected.

**Mitigation Measures:** No mitigation is required.

#### **iv.) Parks**

**No Impact.** Implementation of the proposed Project would not result in the need for the construction of additional park facilities, as the Project would not result in an increase in population nor would it result in a removal of a park. Therefore, no impact to parks are expected.

**Mitigation Measures:** No mitigation is required.

#### **v.) Other Public Facilities**

**No Impact.** The proposed Project would not alter any of the government facilities in the area or produce a need for additional or new government services; therefore, no impacts to other public facilities are expected.

**Mitigation Measures:** No mitigation is required.

### 3.4.16 RECREATION

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b.	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				X

#### Existing Conditions:

The City owns and operates approximately 35 parks, comprising about 400 acres (City of Santa Ana 1982g).

#### Discussion:

- a. **Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?**

**No Impact.** The construction or operation of the proposed Project would not involve temporary access to, or use of, any park. The proposed Project would not add additional residences or business in the neighborhood and thus would not cause additional use of any park or other recreational facilities in the area. Therefore, no impact to existing neighborhood and regional parks or other recreational facilities would occur.

**Mitigation Measures:** No mitigation is required.

- b. **Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?**

**No Impact.** The proposed Project does not include recreational facilities or expansion of existing recreational facilities; therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.



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### 3.4.17 TRANSPORTATION

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

#### Existing Conditions:

The Project site located at the northwest corner of East Washington Avenue and Penn Way. The nearest airport is John Wayne Airport located approximately 5 miles to the south.

#### Discussion:

- a. **Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle lanes and pedestrian facilities?**

**Less than Significant Impact.** The proposed Project would not conflict with any transit plan or ordinance. Traffic control will be needed to temporarily reduce available lanes during construction of the pipeline and street resurfacing, but full road closures are not anticipated during construction. Construction equipment and staging for the well would be contained within the Project site. These impacts would be short term and temporary and would have a less than significant impact on circulation surrounding the site.

The normal operation of the well would generate one trip weekly for a worker to monitor the operation of the well facilities and perform maintenance as necessary. Periodic maintenance activities such as replacement of tanks and testing and maintaining equipment will require bi-weekly trips to the Project site. This is considered an insignificant change in the trips in the vicinity of the Project site. Therefore, long-term impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

- b. **Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?**

**Less than Significant Impact.** As discussed in Section 3.4.17 (a), the Project would have less than significant impacts to traffic and circulation.

**Mitigation Measures:** No mitigation is required.

- c. **Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

**Less Than Significant Impact.** The proposed Project would include pavement replacement over the pipeline trenches. These changes are not expected to result in any design features that would increase hazards, and impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

- d. **Would the project result in inadequate emergency access?**

**No Impact.** The proposed Project would not result in inadequate emergency access. The Project is the rehabilitation of a water well and supporting facilities, and will maintain adequate emergency access; therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

### 3.4.18 TRIBAL CULTURAL RESOURCES

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

PRC section 21074 defines tribal resources as follows:

(a) “Tribal cultural resources” are either of the following:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

(A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

(B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

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

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “nonunique archaeological resource” as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

### Existing Conditions:

The SCCIC records search and NAHC sacred lands search did not identify any historical resources within or adjacent to the Project Area of potential effect. As specified in the PRC Section 21080.31,<sup>2</sup> as amended by AB 52, Gatto, lead agencies must provide notice inviting consultation to California Native American tribes that are traditionally and culturally affiliated with the geographic area of a proposed project if the Tribe has submitted a request in writing to be notified of proposed projects. The City was contacted by the Juaneño Band of Mission Indians/Acjachemen Nation and the Gabrieleño Band of Mission Indians – Kizh Nation through AB 52 to be notified of the City's proposed projects.

### Discussion:

- a. **Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1 (k)?**

**Less Than Significant Impact with Mitigation Incorporated.** The SCCIC records search and NAHC sacred lands search did not identify any historical resources within or adjacent to the Project Area of potential effect. As a result, it is believed the proposed Project would not cause a substantial adverse change in the significance of a known historic resource as defined in PRC 5020.1 (k).

If construction ground disturbance depths range within native soils (below 2 feet), there would be a potential to impact previously unrecorded subsurface tribal cultural resources. With Mitigation Measures CUL-1 and CUL-2 incorporated, a less than significant impact is anticipated.

As specified in AB 52, the City provided written notification on September 27, 2021 to the Juaneño Band of Mission Indians/Acjachemen Nation and the Gabrieleño Band of Mission Indians – Kizh Nation representatives regarding the proposed Project. The Gabrieleño Band of Mission Indians – Kizh Nation requested consultation on this Project. Consultation between the City and representatives of the Gabrieleño Band of Mission Indians – Kizh Nation is ongoing. To protect tribal cultural resources and potential unanticipated discoveries associated with tribal cultural resources, Mitigation Measures CUL-1 and CUL-2 were incorporated into this Project. Therefore, Project impact would be less than significant with mitigation incorporated, and no further analysis is required.

- b. **Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.**

**Less Than Significant with Mitigation Incorporated.** The records search and NAHC sacred lands search did not identify any significant tribal cultural resources within or adjacent to the Project API.

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<sup>2</sup> PRC, Division 13, Chapter 2.6, Section 21.080.3.1.

The City sent formal AB 52 notification letters on September 27, 2021 to the following:

- Joyce Stanfield Perry  
Tribal Manager  
Juaneño Band of Mission Indians – Acjachemen Nation  
4955 Paseo Segovia  
Irvine, CA 92603
- Andrew Salas  
Chairman  
Gabrieleño Band of Mission Indians – Kizh Nation  
PO Box 393  
Covina, CA 91723

The Gabrieleño Band of Mission Indians – Kizh Nation requested consultation on this Project. Consultation between the City and representatives of the Gabrieleño Band of Mission Indians – Kizh Nation is ongoing.

With implementation of Mitigation Measures CUL-1 and CUL-2, impacts to tribal cultural resources would be less than significant.

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### 3.4.19 UTILITIES AND SERVICE SYSTEMS

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

#### Existing Conditions:

The City of Santa Ana's sewer collection system consists of approximately 450 miles of sewer mains, including approximately 60 miles of Orange County Sanitation District trunk sewers within the City (City of Santa Ana 2016).

The City of Santa Ana is served by two primary flood control and drainage systems: City-operated and -maintained storm drain system, including catch basins and storm drain pipes; and flood control facilities operated and maintained by the Orange County Flood Control District, including the large flood control channels in the City (City of Santa Ana 2015). The NPDES Stormwater Permit issued to the County of Orange and its co-permittees (including the City of Santa Ana) requires development projects to incorporate appropriate best management practices to minimize pollutant levels in runoff (County of Orange 2017).

The City operates a water distribution system which includes over 450 miles of water mains and over 44,000 water services. The City's potable water is obtained by pumping from the Orange County Groundwater Basin using 21 existing groundwater wells or importing water via seven (7) MWD connections.

The City of Santa Ana Public Works Agency coordinates the collection and recycling of solid waste. In 2019, nearly 80 percent of the solid waste landfilled from the City of Santa Ana was disposed of at the Frank Bowerman Landfill (Calrecycle 2020).

**Discussion:**

- a. **Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?**

**Less than Significant Impact.** The proposed Project involves construction a water well and associated housing structure and ancillary facilities. Construction of the well facilities would result in temporary and minor impacts to air, noise, and traffic during construction activities, but these have been reduced through mitigation, where necessary, to maintain impacts at a less than significant level. All impacts from well operations are less than significant or no impact. Overall, impacts from construction and operation of the wells would be less than significant.

**Mitigation Measures:** No mitigation is required.

- b. **Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?**

**No Impact.** Implementation of the wells would not result in any exceedance of the City's existing water entitlements. Rather, it would improve reliability and efficiency of the supply system. As such, no impacts would occur.

**Mitigation Measures:** No mitigation is required.

- c. **Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?**

**No Impact.** The proposed Project would not require wastewater treatment and therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

- d. **Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?**

**Less than Significant Impact.** The Project would not include any habitable structures and would not have the capability to produce solid waste during long-term operations. Although the Project may require the disposal of construction/demolition debris during the construction process (soil, asphalt, demolished materials, etc.), the generation of these materials would be short-term in nature and would not have the capability to substantially affect the capacity of regional landfills; therefore, impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

- e. **Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?**

**No Impact.** The proposed Project would comply with all federal, State, and local statutes and regulations related to solid waste, including the California Integrated Waste Management Act and City requirements for solid waste generated during the construction process; therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

### 3.4.20 WILDFIRE

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

#### Existing Conditions:

The Project site is located in an urbanized and fully developed area and is not located within or near any wildland areas (County of Orange 2012). The Project site is not located in a landslide area. The land within and in the vicinity of the Project site is relatively flat.

The OCFA provides emergency response to fires and hazardous materials incidents in the City of Santa Ana. The City of Santa Ana maintains an Emergency Services Plan which provides direction and guidance for officials and citizens in the event of emergency; including emergencies related to major fires and/or explosions, industrial accidents, traffic control, and hazardous materials spills (City of Santa Ana 1982e).

#### Discussion:

##### a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

**Less than Significant Impact.** The Project site is not located within or near any wildland areas (County of Orange 2012). For construction of the proposed Project, traffic control will be needed to temporarily reduce available lanes during the construction of the pipeline, storm drain, utility services and street resurfacing. Full road closures are not anticipated, however. In addition, a traffic control plan will be prepared to accommodate this work area width along the pipeline route. These impacts would be short term and temporary and would have a less than significant impact to roadways utilized for emergency purposes. During operation, the Project would not require full time employees at the site and thus would not increase the burden on existing emergency response plans. Only one weekly trip to the Project site would be required during

operation and thus would not generate traffic congestion, nor obstruct traffic flow or emergency operations. During Project operation, emergency access would be maintained to all residences and public facilities since the existing adjacent roads would not be altered. Therefore, the proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan and impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

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

**No Impact.** The Project site is not located within or near any wildland areas (County of Orange 2012). The land within and in the vicinity of the Project site is relatively flat. In addition, the Project involves construction of a well and does not include any habitable structures. Therefore, the Project would not expose people to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

**Mitigation Measures:** No mitigation is required.

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

**Less Than Significant Impact.** The Project site is not located within or near any wildland areas (County of Orange 2012) and involves construction of a well. These facilities will not exacerbate fire risk. Impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

**d. Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?**

**No Impact.** The land within and in the vicinity of the Project site is relatively flat. The Project and the surrounding areas are in FEMA Flood Zone X where the probability of flood inundation is only 0.2 percent. The Project site is not located within or near any wildland areas. The rehabilitation of an existing well would not exacerbate any flooding or landslide risks associated with post-fire conditions, therefore, no impacts are expected.

**Mitigation Measures:** No mitigation is required.

### 3.4.21 MANDATORY FINDINGS OF SIGNIFICANCE

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

#### Discussion:

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

**Less than Significant Impact with Mitigation Incorporated.** As discussed in Section 3.4.4, Biological Resources, the Project is located in an urban area and does not provide biological habitat for species of concern or for federally listed species. The proposed Project would not have the potential to substantially degrade the quality of the existing environment, reduce habitat of fish or wildlife species, threaten plant or animal communities, and/or reduce the number or restrict the range of rare plants or animals.

In addition, as discussed in Section 3.4.5, Cultural Resources, the Project site and surrounding area has been completely disturbed by development and has been subject to extensive ground disturbance in the past. As such, any historical, archaeological, and paleontological resources which may have existed in the Project site would have likely been disturbed. However, adherence to Mitigation Measures **CUL-1**, **CUL-2**, and **GEO-1** would be required in the event unexpected resources are uncovered during the grading and excavation process. With

implementation of recommended mitigation, the proposed Project is not expected to eliminate important examples of the major periods of California history or prehistory, and impacts would be less than significant.

**Mitigation Measures:** Implement Mitigation Measures **CUL-1**, **CUL-2**, and **GEO-1**.

- b. **Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)**

**Less than Significant Impact.** Since the Project would supplement existing well production, the Project would serve to enhance the efficiency and reliability of the City’s water supply system. The Project would not result in substantial population growth within the area, either directly or indirectly. Although the Project may incrementally affect other resources at a less than significant level, the Project’s contribution to these effects is not considered “cumulatively considerable”, in consideration of the relatively nominal impacts of the Project and the mitigation measures provided to lessen impacts. Therefore, cumulative impacts would be considered less than significant.

**Mitigation Measures:** No additional mitigation is required beyond what is already included previously.

- c. **Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?**

**Less than Significant Impact with Mitigation Incorporated.** Previous sections of this Initial Study/Mitigated Negative Declaration reviewed the proposed Project’s potential impacts related to aesthetics, air quality, geology and soils, GHGs, hydrology/water quality, noise, hazards and hazardous materials, traffic, and other issues. As concluded in these previous discussions, the proposed Project would result in less than significant environmental impacts with implementation of the mitigation measure for noise; therefore, the proposed Project would not result in environmental impacts that would cause substantial adverse effects on human beings and impacts would be less than significant.

**Mitigation Measures:** Implement Mitigation Measure **NOISE-1** to mitigate Project noise impacts.

## **4.0 LIST OF PREPARERS**

### **City of Santa Ana, Public Works Agency (Lead Agency)**

Armando Fernandez, P.E., Project Manager

### **Tetra Tech, Inc. (Technical Assistance)**

Paula Fell, Project Manager  
Derrick Coleman, PhD, Deputy Project Manager  
Elizabeth Bradley, Environmental Planner  
Jenna Farrell, Cultural Resources  
Gena Granger, Cultural Resources  
DeeAnna Garcia, Word Processor/Editor  
Sierra Marrs, Mapping/Graphics

### **Vista Environmental (Air Quality, GHG, Noise Technical Assistance)**

Greg Tonkovich, AICP, Technical Specialist



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## 5.0 REFERENCES

### Airport Land Use Commission (ALUC)

- 2005 Airport Land Use Commission for Orange County Airport Planning Areas, Figure 1. July 21.

### California Code of Regulations

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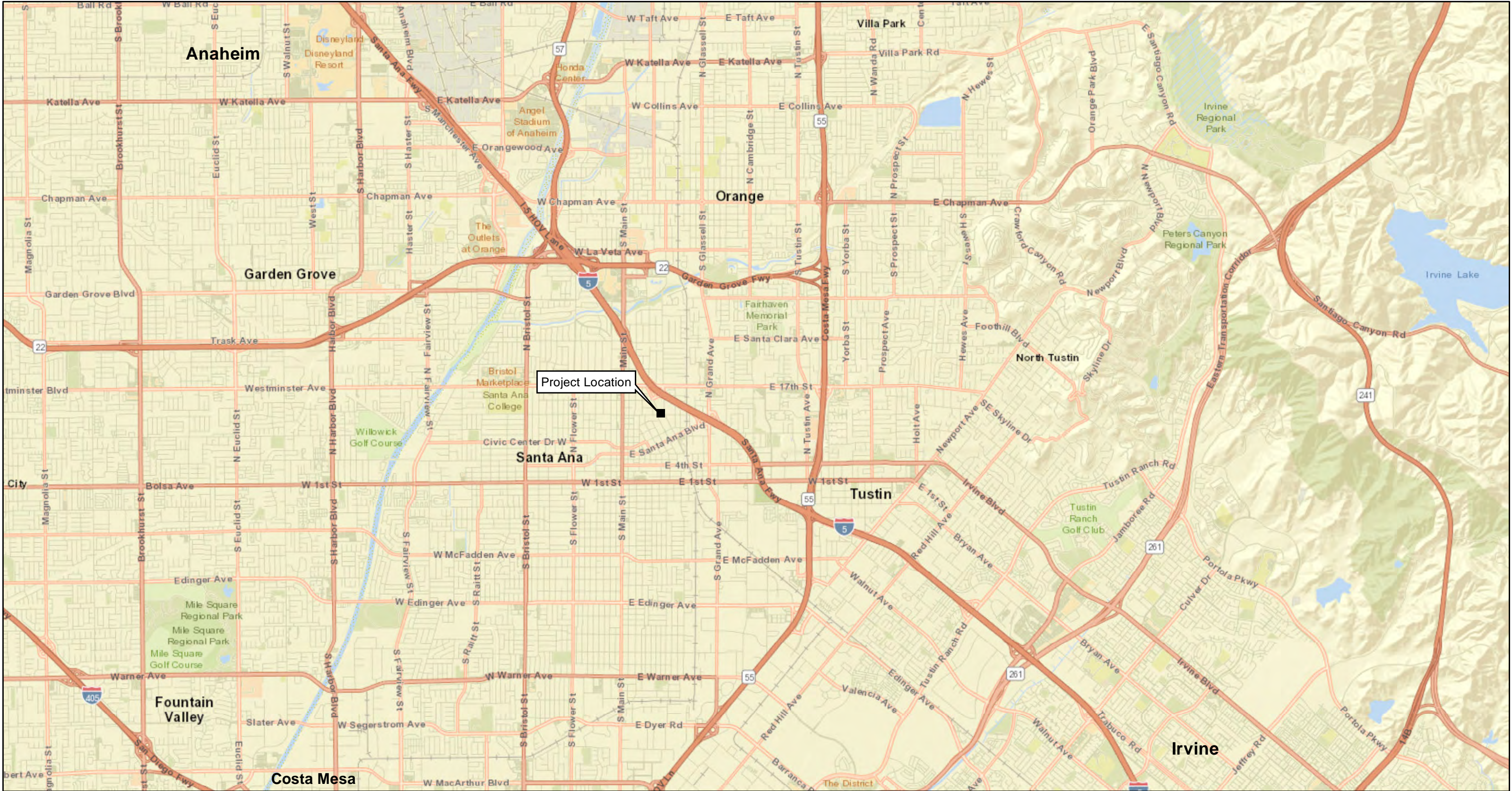
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## FIGURES

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■ Project Area

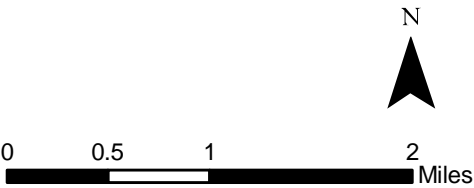


Figure 2-1  
Project Vicinity

Washington Avenue Lot  
Well and Facility Site Plan - Phase 1  
City of Santa Ana, California





 Project Area

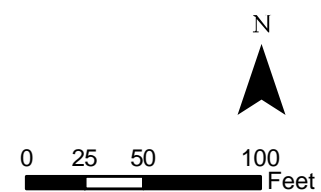


Figure 2-2  
Project Location

Washington Avenue Lot  
Well and Facility Site Plan - Phase 1  
City of Santa Ana, California



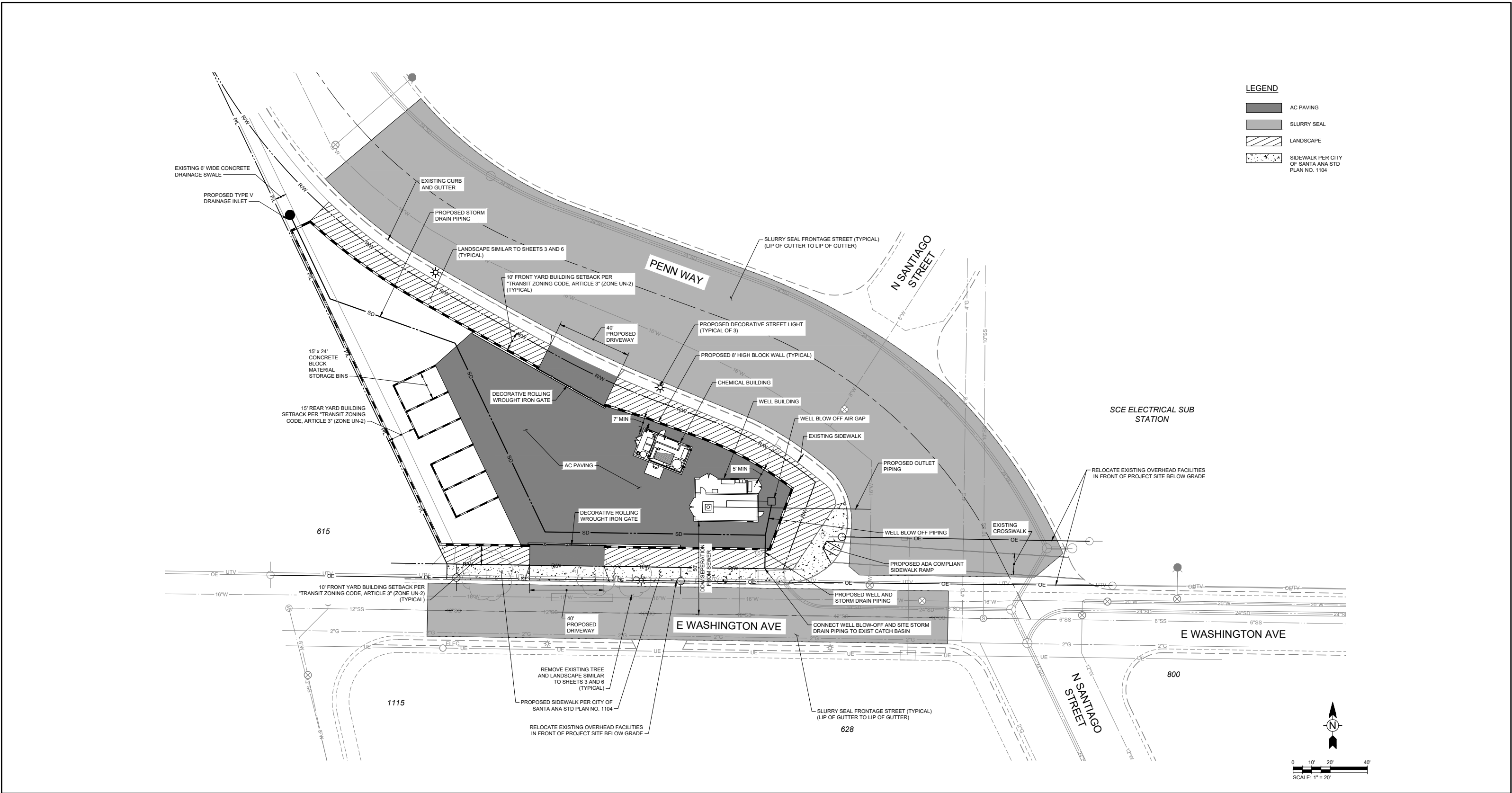


Figure 2-3  
Project Site Plan

Washington Avenue Lot  
Well and Facility Site Plan - Phase 1  
City of Santa Ana, California





Figure 2-4  
Project Site Architectural Rendering

Washington Avenue Lot  
Well and Facility Site Plan - Phase 1  
City of Santa Ana, California





Figure 2-5  
Project South Architectural Rendering

Washington Avenue Lot  
Well and Facility Site Plan - Phase 1  
City of Santa Ana, California





Figure 2-6  
Project North Architectural Rendering

Washington Avenue Lot  
Well and Facility Site Plan - Phase 1  
City of Santa Ana, California





Figure 2-7  
Project East Architectural Rendering

Washington Avenue Lot  
Well and Facility Site Plan - Phase 1  
City of Santa Ana, California





View of Project Site from corner of E. Washington Avenue and Penn Way



View of Project Site from corner of Penn Way and N. Santiago Street



Figure 3-1  
Project Site Existing Conditions

Washington Avenue Lot  
Well and Facility Site Plan - Phase 1  
City of Santa Ana, California



## **APPENDIX A**

### **AIR QUALITY AND GREENHOUSE GAS EMISSIONS**



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# **AIR QUALITY AND GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS**

## **WASHINGTON AVENUE LOT WELL & FACILITY PROJECT**

**CITY OF SANTA ANA**

---

*Lead Agency:*

**City of Santa Ana Public Works Agency**

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Santa Ana, CA 92701

*Prepared by:*

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Project No. 20056

December 21, 2020

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## ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
Air Basin	South Coast Air Basin
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
BSFC	Brake Specific Fuel Consumption
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
Cf <sub>4</sub>	tetrafluoromethane
C <sub>2</sub> F <sub>6</sub>	hexafluoroethane
C <sub>2</sub> H <sub>6</sub>	ethane
CH <sub>4</sub>	Methane
City	City of Santa Ana
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
CPUC	California Public Utilities Commission
DPM	Diesel particulate matter
EPA	Environmental Protection Agency
°F	Fahrenheit
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse gas
GWP	Global warming potential
HAP	Hazardous Air Pollutants
HFCs	Hydrofluorocarbons

---

IPCC	International Panel on Climate Change
kWhr	kilowatt-hour
LCFS	Low Carbon Fuel Standard
LST	Localized Significant Thresholds
MATES	Multiple Air Toxics Exposure Study
MMTCO <sub>2</sub> e	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MWh	Megawatt-hour
NAAQS	National Ambient Air Quality Standards
NO <sub>x</sub>	Nitrogen oxides
NO <sub>2</sub>	Nitrogen dioxide
O <sub>3</sub>	Ozone
OPR	Office of Planning and Research
Pb	Lead
Pfc	Perfluorocarbons
PM	Particle matter
PM <sub>10</sub>	Particles that are less than 10 micrometers in diameter
PM <sub>2.5</sub>	Particles that are less than 2.5 micrometers in diameter
PPM	Parts per million
PPB	Parts per billion
PPT	Parts per trillion
RTIP	Regional Transportation Improvement Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SF <sub>6</sub>	Sulfur Hexafluoride
SIP	State Implementation Plan
SO <sub>x</sub>	Sulfur oxides
TAC	Toxic air contaminants
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile organic compounds

---

## 1.0 INTRODUCTION

### ***1.1 Purpose of Analysis and Study Objectives***

This Air Quality and Greenhouse Gas (GHG) Emissions Analysis has been completed to determine the air quality and GHG emissions impacts associated with the proposed Washington Avenue Lot Well and Facility project (proposed project). The following is provided in this report:

- A description of the proposed project;
- A description of the atmospheric setting;
- A description of the criteria pollutants and GHGs;
- A description of the air quality regulatory framework;
- A description of the GHG emissions regulatory framework;
- A description of the air quality, and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the conformity of the proposed project with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP);
- An analysis of the short-term construction related and long-term operational air quality and GHG emissions impacts; and
- An analysis of the conformity of the proposed project with all applicable GHG emissions reduction plans and policies.

### ***1.2 Site Location and Study Area***

The project site is located in the southern portion of the City of Santa Ana (City) at the northwest corner of Penn Way and Washington Avenue. The disturbed surface area for construction of the Washington Avenue Well facility and associated pipeline is expected to be approximately 0.75 acres in size. The project site is currently vacant land and is bounded by Penn Way and industrial uses to the north, Penn Way and industrial uses to the east, Washington Avenue, industrial uses and residential uses to the south, and commercial and residential uses to the west. The project local study area is shown in Figure 1.

### ***Sensitive Receptors in Project Vicinity***

The nearest sensitive receptors to the project site are residential apartments located as near as 100 feet west of the project site. Additionally, there are residential homes located as near as 145 feet south of the project site. The nearest school to the project site is Davis Elementary School that is located as near as 400 feet northwest of the project site.

### ***1.3 Proposed Project Description***

The proposed project consists of development of a potable water well, well building, and chemical building. Approximately 140 feet of new pipeline will be needed to connect the new well to the existing water supply pipeline under Penn Way. The proposed project will also include several new above-ground buildings and other improvements:

- One (1) Well building, approximately 810 square feet;



- 
- One (1) Chemical building approximately 510 square feet;
  - Four (4) Material Storage bins, with concrete block walls on three sides, an overhead cover, and an open front, each about 15 feet wide by 24 feet deep and covering a total of approximately 2,000 square feet;
  - New pavement area, covering approximately 11,600 square feet of area;
  - Miscellaneous on-site concrete ramps and pads, totaling approximately 500 square feet;
  - A perimeter block wall, 8-foot tall and extending approximately 650 linear feet, with two access drives employing rolling gates (one each on East Washington Avenue and Penn Way;
  - Regulation sidewalk outside of the perimeter block wall adjacent to East Washington Avenue, approximately 2,400 square feet; and
  - Landscaping with drought-tolerant plants will be placed along the Penn Way and East Washington Avenue sides of the property between the block wall and sidewalk.

The new well will be drilled to a depth of approximately 1,300 feet below ground surface and be installed with minimum of an 18-inch diameter casing. The pumping capacity is expected to range from 2,500 to 3,000 gallons per minute (gpm). The water produced from the new well will be disinfected using sodium hypochlorite (NaOCl) before it is discharged into the City's existing water distribution system.

The project will be constructed in two phases. Phase 1 will include well drilling and construction of the well (installation of the well screen and casing, filter media, bentonite seal, backfill, and the surface completion). Phase 2 will include construction of the surface facilities other improvements. The anticipated schedule for these phases is expected to be roughly as follows:

Phase 1: January 2021 through June 2021.

Phase 2: July 2021 through June 2022

Activities associated with Phase 1 well drilling will be continuous (i.e. 24-hours per day for as many days as needed to reach the completion depth) and well construction will be performed on weekdays only, during regular work hours. Phase 2 construction activities will be conducted on weekdays only, during regular work hours.

The disturbed surface area for construction of the Washington Avenue Well facility and associated pipeline is expected to be approximately 0.75 acres in size. All construction activities will be staged (equipment and materials) on the project site. Phase 1 equipment on-site will include a drill rig, support vehicles (including a mobile crane), and delivery trucks for well casing, well screen, filter media, bentonite, concrete, and other materials. Phase 2 will involve the most on-site equipment and space for storing materials. Heavy equipment on-site for this phase is expected to include, at a minimum, one or more of the following pieces: a bulldozer, an excavator, a wheel loader, a grader, a soil compactor, and a front loader tractor. The proposed project site plan is shown in Figure 2.

---

## **1.4 Executive Summary**

### **Standard Air Quality and GHG Regulatory Conditions**

The proposed project will be required to comply with the following regulatory conditions from the SCAQMD and State of California (State).

#### South Coast Air Quality Management District Rules

The following lists the SCAQMD rules that are applicable, but not limited to the proposed project.

- Rule 402 Nuisance – Controls the emissions of odors and other air contaminants;
- Rule 403 Fugitive Dust – Controls the emissions of fugitive dust;
- Rules 1108 and 1108.1 Cutback and Emulsified Asphalt – Controls the VOC content in asphalt;
- Rule 1113 Architectural Coatings – Controls the VOC content in paints and solvents;
- Rule 1143 Paint Thinners – Controls the VOC content in paint thinners; and

#### State of California Rules

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to the proposed project.

- CCR Title 13, Article 4.8, Chapter 9, Section 2449 – In use Off-Road Diesel Vehicles;
- CCR Title 13, Section 2025 – On-Road Diesel Truck Fleets;
- CCR Title 24 Part 6 – California Building Energy Standards; and
- CCR Title 24 Part 11 – California Green Building Standards.

### **Summary of Analysis Results**

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines air quality and GHG emissions checklist questions.

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

Less than significant impact.

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

Less than significant impact.

#### Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact.

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

Less than significant impact.

---

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

Less than significant impact.

Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

Less than significant impact.

### ***1.5 Mitigation Measures for the Proposed Project***

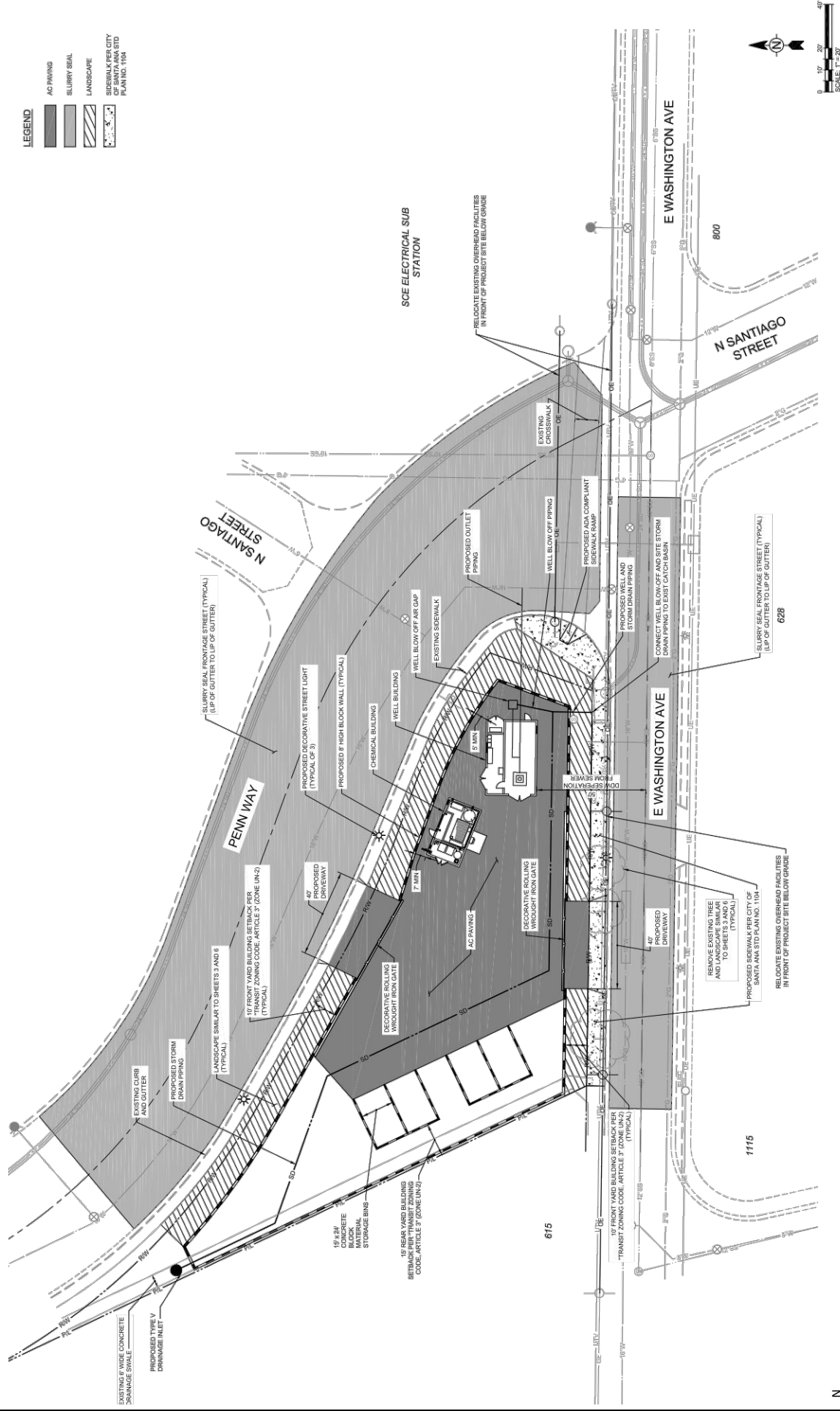
This analysis found that implementation of the State and SCAQMD air quality and GHG emissions reductions regulations were adequate to limit criteria pollutants, toxic air contaminants, odors, and GHG emissions from the proposed project to less than significant levels. No mitigation measures are required for the proposed project with respect to air quality and GHG emissions.





SOURCE: Petra Tech.





## Figure 2 Proposed Site Plan

---

## 2.0 AIR POLLUTANTS

Air pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

### 2.1 Criteria Pollutants and Ozone Precursors

The criteria pollutants consist of: ozone, NO<sub>x</sub>, CO, SO<sub>x</sub>, lead (Pb), and particulate matter (PM). The ozone precursors consist of NO<sub>x</sub> and VOC. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants “criteria” air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants and ozone precursors.

#### Nitrogen Oxides

Nitrogen Oxides (NO<sub>x</sub>) is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NO<sub>x</sub> are colorless and odorless, concentrations of NO<sub>2</sub> can often be seen as a reddish-brown layer over many urban areas. NO<sub>x</sub> form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO<sub>x</sub> are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NO<sub>x</sub> reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO<sub>2</sub>, which cause respiratory problems. NO<sub>x</sub> and the pollutants formed from NO<sub>x</sub> can be transported over long distances, following the patterns of prevailing winds. Therefore, controlling NO<sub>x</sub> is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

#### Ozone

Ozone is not usually emitted directly into the air but in the vicinity of ground-level is created by a chemical reaction between NO<sub>x</sub> and volatile organic compounds (VOC) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NO<sub>x</sub> and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NO<sub>x</sub> and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NO<sub>x</sub> and VOC emissions.

#### Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes approximately 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and

---

chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

### **Sulfur Oxides**

Sulfur Oxide (SO<sub>x</sub>) gases are formed when fuel containing sulfur, such as coal and oil is burned, as well as from the refining of gasoline. SO<sub>x</sub> dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

### **Lead**

Lead is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

### **Particulate Matter**

Particle matter (PM) is the term for a mixture of solid particles and liquid droplets found in the air. PM is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM<sub>10</sub>) that are also known as *Respirable Particulate Matter* are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM<sub>2.5</sub>) that are also known as *Fine Particulate Matter* have been designated as a subset of PM<sub>10</sub> due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

---

## **Volatile Organic Compounds**

Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O<sub>3</sub> are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

VOC is not classified as a criteria pollutant, since VOCs by themselves are not a known source of adverse health effects. The primary health effects of VOCs result from the formation of O<sub>3</sub> and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered toxic air contaminants (TACs). There are no separate health standards for VOCs as a group.

## **2.2 Other Pollutants of Concern**

### **Toxic Air Contaminants**

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. TACs is a term that is defined under the California Clean Air Act and consists of the same substances that are defined as Hazardous Air Pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

TACs are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to *The California Almanac of Emissions and Air Quality 2013 Edition*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is DPM. DPM is a subset of PM<sub>2.5</sub> because the size of diesel particles are typically 2.5 microns and smaller. The identification of DPM as a TAC in 1998 led the CARB to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in DPM by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.



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## Asbestos

Asbestos is listed as a TAC by CARB and as a HAP by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. The nearest likely locations of naturally occurring asbestos, as identified in the *General Location Guide for Ultramafic Rocks in California*, prepared by the California Division of Mines and Geology, is located in Santa Barbara County. The nearest historic asbestos mine to the project site, as identified in the *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California*, prepared by U.S. Geological Survey, is located at Asbestos Mountain, which is approximately 80 miles east of the project site in the San Jacinto Mountains. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

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## 3.0 GREENHOUSE GASES

### 3.1 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHGs), play a critical role in the Earth's radiation amount by trapping infrared radiation from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), ozone (O<sub>3</sub>), water vapor, nitrous oxide (N<sub>2</sub>O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Emissions of CO<sub>2</sub> and N<sub>2</sub>O are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO<sub>2</sub>, where CO<sub>2</sub> is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

#### Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

#### Carbon Dioxide

The natural production and absorption of CO<sub>2</sub> is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid 1700s, each of these activities has increased in scale and distribution. CO<sub>2</sub> was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20<sup>th</sup> century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This

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could result in an average global temperature rise of at least two degrees Celsius or 3.6 degrees Fahrenheit.

### **Methane**

CH<sub>4</sub> is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO<sub>2</sub>. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO<sub>2</sub>, N<sub>2</sub>O, and Chlorofluorocarbons (CFCs)). CH<sub>4</sub> has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

### **Nitrous Oxide**

Concentrations of N<sub>2</sub>O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N<sub>2</sub>O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. N<sub>2</sub>O is also commonly used as an aerosol spray propellant (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and race cars).

### **Chlorofluorocarbons**

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C<sub>2</sub>H<sub>6</sub>) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

### **Hydrofluorocarbons**

HFCs are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF<sub>3</sub>), HFC-134a (CF<sub>3</sub>CH<sub>2</sub>F), and HFC-152a (CH<sub>3</sub>CHF<sub>2</sub>). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

### **Perfluorocarbons**

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF<sub>4</sub>) and hexafluoroethane (C<sub>2</sub>F<sub>6</sub>).

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Concentrations of CF<sub>4</sub> in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

### Sulfur Hexafluoride

Sulfur Hexafluoride (SF<sub>6</sub>) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF<sub>6</sub> has the highest global warming potential of any gas evaluated; 23,900 times that of CO<sub>2</sub>. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

### Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

## 3.2 Global Warming Potential

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas, CO<sub>2</sub>. The GHGs listed by the IPCC and the CEQA Guidelines are discussed in this section in order of abundance in the atmosphere. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. To simplify reporting and analysis, GHGs are commonly defined in terms of their GWP. The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO<sub>2</sub>e. As such, the GWP of CO<sub>2</sub> is equal to 1. The GWP values used in this analysis are based on the 2007 IPCC Fourth Assessment Report, which are used in CARB's 2014 Scoping Plan Update and the CalEEMod Model Version 2016.3.2 and are detailed in Table A. The IPCC has updated the Global Warming Potentials of some gases in their Fifth Assessment Report, however the new values have not yet been incorporated into the CalEEMod model that has been utilized in this analysis.

**Table A – Global Warming Potentials, Atmospheric Lifetimes and Abundances of GHGs**

Gas	Atmospheric Lifetime (years) <sup>1</sup>	Global Warming Potential (100 Year Horizon) <sup>2</sup>	Atmospheric Abundance
Carbon Dioxide (CO <sub>2</sub> )	50-200	1	379 ppm
Methane (CH <sub>4</sub> )	9-15	25	1,774 ppb
Nitrous Oxide (N <sub>2</sub> O)	114	298	319 ppb
HFC-23	270	14,800	18 ppt
HFC-134a	14	1,430	35 ppt
HFC-152a	1.4	124	3.9 ppt
PFC: Tetrafluoromethane (CF <sub>4</sub> )	50,000	7,390	74 ppt
PFC: Hexafluoroethane (C <sub>2</sub> F <sub>6</sub> )	10,000	12,200	2.9 ppt
Sulfur Hexafluoride (SF <sub>6</sub> )	3,200	22,800	5.6 ppt

Notes:

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<sup>1</sup> Defined as the half-life of the gas.

<sup>2</sup> Compared to the same quantity of CO<sub>2</sub> emissions and is based on the Intergovernmental Panel On Climate Change (IPCC) 2007 standard, which is utilized in CalEEMod (Version 2016.3.2), that is used in this report (CalEEMod user guide: Appendix A).

Definitions: ppm = parts per million; ppb = parts per billion; ppt = parts per trillion

Source: IPCC 2007, EPA 2015

### **3.3 Greenhouse Gas Emissions Inventory**

According to [https://cdiac.ess-dive.lbl.gov/trends/emis/tre\\_glob\\_2014.html](https://cdiac.ess-dive.lbl.gov/trends/emis/tre_glob_2014.html) 9,855 million metric tons (MMT) of CO<sub>2</sub> equivalent (CO<sub>2</sub>e) emissions were created globally in the year 2014. According to <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data> the breakdown of global GHG emissions by sector consists of: 25 percent from electricity and heat production; 21 percent from industry; 24 percent from agriculture, forestry and other land use activities; 14 percent from transportation; 6 percent from building energy use; and 10 percent from all other sources of energy use.

According to *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2018*, prepared by EPA, April 13, 2020, in 2018 total U.S. GHG emissions were 6,676.6 million metric tons (MMT) of CO<sub>2</sub> equivalent (CO<sub>2</sub>e) emissions. Total U.S. emissions have increased by 3.7 percent between 1990 and 2018, which is down from a high of 15.2 percent above 1990 levels in 2007. Emissions increased by 2.9 percent or 188.4 MMTCO<sub>2</sub>e between 2017 and 2018. The recent increase in GHG emissions was largely driven by an increase in CO<sub>2</sub> emissions from fossil fuel combustion, that was a result of multiple factors including greater heating and cooling needs due to a colder winter and hotter summer in 2018 compared to 2017.

According to <https://www.arb.ca.gov/cc/inventory/data/data.htm> the State of California created 424.1 MMTCO<sub>2</sub>e in 2017. The breakdown of California GHG emissions by sector consists of: 41 percent from transportation; 24 percent from industrial; 15 percent from electricity generation; 8 percent from agriculture; 7 percent from residential buildings; and 5 percent from commercial buildings. In 2017, GHG emissions were 5 MMTCO<sub>2</sub>e lower than 2016 levels, which is 7 MMTCO<sub>2</sub>e below the 2020 GHG limit of 431 MMTCO<sub>2</sub>e established by AB 32.



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## 4.0 AIR QUALITY MANAGEMENT

The air quality at the project site is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

### ***4.1 Federal – United States Environmental Protection Agency***

The Clean Air Act, first passed in 1963 with major amendments in 1970, 1977 and 1990, is the overarching legislation covering regulation of air pollution in the United States. The Clean Air Act has established the mandate for requiring regulation of both mobile and stationary sources of air pollution at the state and federal level. The Environmental Protection Agency (EPA) was created in 1970 in order to consolidate research, monitoring, standard-setting and enforcement authority into a single agency.

The EPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. NAAQS pollutants were identified using medical evidence and are shown below in Table B.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The SIP must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP. The CARB defines attainment as the category given to an area with no violations in the past three years. As indicated below in Table C, the Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone and PM<sub>2.5</sub> and partial non-attainment for lead. Currently, the Air Basin is in attainment with the national ambient air quality standards for CO, PM<sub>10</sub>, SO<sub>2</sub>, and NO<sub>2</sub>.

**Table B – State and Federal Criteria Pollutant Standards**

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O <sub>3</sub> )	0.09 ppm / 1-hour 0.07 ppm / 8-hour	0.070 ppm, / 8-hour	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage.
Carbon Monoxide (CO)	20.0 ppm / 1-hour 9.0 ppm / 8-hour	35.0 ppm / 1-hour 9.0 ppm / 8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO <sub>2</sub> )	0.18 ppm / 1-hour 0.030 ppm / annual	100 ppb / 1-hour 0.053 ppm / annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO <sub>2</sub> )	0.25 ppm / 1-hour 0.04 ppm / 24-hour	75 ppb / 1-hour 0.14 ppm/annual	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM <sub>10</sub> )	50 µg/m <sup>3</sup> / 24-hour 20 µg/m <sup>3</sup> / annual	150 µg/m <sup>3</sup> / 24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in elderly.
Suspended Particulate Matter (PM <sub>2.5</sub> )	12 µg/m <sup>3</sup> / annual	35 µg/m <sup>3</sup> / 24-hour 12 µg/m <sup>3</sup> / annual	
Sulfates	25 µg/m <sup>3</sup> / 24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c ) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage.
Lead	1.5 µg/m <sup>3</sup> / 30-day	0.15 µg/m <sup>3</sup> /3-month rolling	(a) Learning disabilities; and (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent.

Source: <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>.

**Table C – South Coast Air Basin Attainment Status**

Criteria Pollutant	Standard	Averaging Time	Designation <sup>a)</sup>	Attainment Date <sup>b)</sup>
1-Hour Ozone <sup>c)</sup>	NAAQS	1979 1-Hour (0.12 ppm)	Nonattainment (Extreme)	2/6/2023 (revised deadline)
	CAAQS	1-Hour (0.09 ppm)	Nonattainment	N/A
8-Hour Ozone <sup>d)</sup>	NAAQS	1997 8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
	NAAQS	2008 8-Hour (0.075 ppm)	Nonattainment (Extreme)	8/3/2038
	NAAQS	2015 8-Hour (0.070 ppm)	Pending – Expect Nonattainment (Extreme)	Pending (beyond 2032)
	CAAQS	8-Hour (0.070 ppm)	Nonattainment	Beyond 2032
CO	NAAQS	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
	CAAQS	1-Hour (20 ppm) 8-Hour (9 ppm)	Attainment	6/11/2007 (attained)
NO <sub>2</sub> <sup>e)</sup>	NAAQS	2010 1-Hour (0.10 ppm)	Unclassifiable/ Attainment	N/A (attained)
	NAAQS	1971 Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
	CAAQS	1-Hour (0.18 ppm) Annual (0.030 ppm)	Attainment	---
SO <sub>2</sub> <sup>f)</sup>	NAAQS	2010 1-Hour (75 ppb)	Designations Pending (expect Unclassifiable/ Attainment)	N/A (attained)
	NAAQS	1971 24-Hour (0.14 ppm) 1971 Annual (0.03 ppm)	Unclassifiable/ Attainment	3/19/1979 (attained)
PM <sub>10</sub>	NAAQS	1987 24-hour (150 µg/m <sup>3</sup> )	Attainment (Maintenance) <sup>g)</sup>	7/26/2013 (attained)
	CAAQS	24-hour (50 µg/m <sup>3</sup> ) Annual (20 µg/m <sup>3</sup> )	Nonattainment	N/A
PM <sub>2.5</sub> <sup>h)</sup>	NAAQS	2006 24-Hour (35 µg/m <sup>3</sup> )	Nonattainment (Serious)	12/31/2019
	NAAQS	1997 Annual (15.0 µg/m <sup>3</sup> )	Attainment (final determination pending)	8/24/2016 (attained 2013)
	NAAQS	2012 Annual (12.0 µg/m <sup>3</sup> )	Nonattainment (Moderate)	12/31/2021
	CAAQS	Annual (12.0 µg/m <sup>3</sup> )	Nonattainment	N/A
Lead <sup>i)</sup>	NAAQS	2008 3-Months Rolling (0.15 µg/m <sup>3</sup> )	Nonattainment (Partial) (Attainment determination requested)	12/31/2015

Source: SCAQMD, February 2016

Notes:

a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable

b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration

c) The 1979 1-hour O<sub>3</sub> standard (0.12 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard and therefore has some continuing obligations with respect to the revoked standard

d) The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm. Effective 12/28/15 with classifications and implementation goals to be finalized by 10/1/17; the 1997 8-hour O<sub>3</sub> NAAQS (0.08 ppm) was revoked in the 2008 O<sub>3</sub> implementation rule, effective 4/6/15; there are continuing obligations under the revoked 1997 and revised 2008 O<sub>3</sub> until they are attained.

e) New NO<sub>2</sub> 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO<sub>2</sub> standard retained

f) The 1971 annual and 24-hour SO<sub>2</sub> standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect

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until one year after U.S. EPA promulgates area designations for the 2010 SO<sub>2</sub> 1-hour standard. Area designations are still pending, with Basin expected to be designated Unclassifiable /Attainment.

g) Annual PM<sub>10</sub> standard was revoked, effective December 18, 2006; 24-hour PM<sub>10</sub> NAAQS deadline was 12/31/2006; SCAQMD request for attainment redesignation and PM<sub>10</sub> maintenance plan was approved by U.S. EPA on June 26, 2013, effective July 26, 2013.

h) The attainment deadline for the 2006 24-Hour PM<sub>2.5</sub> NAAQS was 12/31/15 for the former “moderate” classification; EPA approved reclassification to “serious”, effective 2/12/16 with an attainment deadline of 12/31/19; the 2012 (proposal year) annual PM<sub>2.5</sub> NAAQS was revised on 1/15/13, effective 3/18/13, from 15 to 12 µg/m<sup>3</sup>; new annual designations were final 1/15/15, effective 4/15/15; on July 25, 2016 EPA finalized a determination that the Basin attained the 1997 annual (15.0 µg/m<sup>3</sup>) and 24-hour PM<sub>2.5</sub> (65 µg/m<sup>3</sup>) NAAQS, effective August 24, 2016

i) Partial Nonattainment designation – Los Angeles County portion of Basin only for near-source monitors. Expect to remain in attainment based on current monitoring data; attainment re-designation request pending.

In 2015, one or more stations in the Air Basin exceeded the most current federal standards on a total of 146 days (40 percent of the year), including: 8-hour ozone (113 days over 2015 ozone NAAQS), 24-hour PM<sub>2.5</sub> (30 days, including near-road sites; 25 days for ambient sites only), PM<sub>10</sub> (2 days), and NO<sub>2</sub> (1 day). Despite substantial improvement in air quality over the past few decades, some air monitoring stations in the Air Basin still exceed the NAAQS for ozone more frequently than any other area in the United States. Seven of the top 10 stations in the nation most frequently exceeding the 2015 8-hour ozone NAAQS in 2015 were located within the Air Basin, including stations in San Bernardino, Riverside, and Los Angeles Counties (SCAQMD, 2016).

PM<sub>2.5</sub> levels in the Air Basin have improved significantly in recent years. By 2013 and again in 2014 and 2015, there were no stations measuring PM<sub>2.5</sub> in the Air Basin that violated the former 1997 annual PM<sub>2.5</sub> NAAQS (15.0 µg/m<sup>3</sup>) for the 3-year design value period. On July 25, 2016 the EPA finalized a determination that the Basin attained the 1997 annual (15.0 µg/m<sup>3</sup>) and 24-hour PM<sub>2.5</sub> (65 µg/m<sup>3</sup>) NAAQS, effective August 24, 2016. Of the 17 federal PM<sub>2.5</sub> monitors at ambient stations in the Air Basin for the 2013-2015 period, five stations had design values over the current 2012 annual PM<sub>2.5</sub> NAAQS (12.0 µg/m<sup>3</sup>), including: Mira Loma (Air Basin maximum at 14.1 µg/m<sup>3</sup>), Rubidoux, Fontana, Ontario, Central Los Angeles, and Compton. For the 24-hour PM<sub>2.5</sub> NAAQS (35.0 µg/m<sup>3</sup>) there were 14 stations in the Air Basin in 2015 that had one or more daily exceedances of the standard, with a combined total of 25 days over that standard in the Air Basin. While it was previously anticipated that the Air Basin’s 24-hour PM<sub>2.5</sub> NAAQS would be attained by 2015, this did not occur based on the data for 2013 through 2015. The higher number of days exceeding the 24-hour PM<sub>2.5</sub> NAAQS over what was expected is largely attributed to the severe drought conditions over this period that allowed for more stagnant conditions in the Air Basin with multi-day buildups of higher PM<sub>2.5</sub> concentrations. This was caused by the lack of storm-related dispersion and rain-out of PM and its precursors (SCAQMD, 2016).

The Air Basin is currently in attainment for the federal standards for SO<sub>2</sub>, CO, NO<sub>2</sub>, and PM<sub>10</sub> and the Orange County portion of the Air Basin is currently in attainment for the federal standards for lead. While the concentration level of the 1-hour NO<sub>2</sub> federal standard (100 ppb) was exceeded in the Air Basin for one day in 2015 (Long Beach-Hudson Station), the NAAQS NO<sub>2</sub> design value has not been exceeded. Therefore, the Air Basin remains in attainment of the NO<sub>2</sub> NAAQS (SCAQMD, 2016).

#### **4.2 State – California Air Resources Board**

The California Air Resources Board (CARB), which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The CAAQS for criteria pollutants are shown above in Table B. In addition, the CARB establishes emission standards for motor vehicles sold

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in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The Air Basin has been designated by the CARB as a non-attainment area for ozone, PM10 and PM2.5. Currently, the Air Basin is in attainment with the ambient air quality standards for CO, NO<sub>2</sub>, SO<sub>2</sub>, lead, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to all warehouse projects in the State.

### **Assembly Bill 2588**

The Air Toxics “Hot Spots” Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release in California. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

### **CARB Regulation for In-Use Off-Road Diesel Vehicles**

On July 26, 2007, the California Air Resources Board (CARB) adopted California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 to reduce diesel particulate matter (DPM) and NOx emissions from in-use off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. Performance requirements of the rule are based on a fleet’s average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirement making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less). Currently, no commercial operation in California may add any equipment to their fleet that has a Tier 0 or Tier 1 engine. By January 1, 2018 medium and large fleets will be restricted from adding Tier 2 engines to their fleets and by January 2023, no commercial operation will be allowed to add Tier 2 engines to their fleets. It should be noted that commercial fleets may continue to use their existing Tier 0 and 1 equipment, if they can demonstrate that the average emissions from their entire fleet emissions meet the NOx emissions targets.

### **CARB Resolution 08-43 for On-Road Diesel Truck Fleets**

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4 Final) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. By January 1, 2014, 50 percent of a truck fleet is required to have installed Best Available Control Technology (BACT) for NOx emissions and 100 percent of a truck fleet installed BACT for PM10 emissions. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California. All on-road diesel trucks utilized during construction of the proposed project will be required to comply with Resolution 08-43.



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### **4.3 Regional – Southern California**

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

#### **South Coast Air Quality Management District**

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. The *Final 2016 Air Quality Management Plan* (2016 AQMP) was adopted by the SCAQMD Board on March 3, 2016 and was adopted by CARB on March 23, 2017 for inclusion into the California State Implementation Plan (SIP). The 2016 AQMP was prepared in order to meet the following standards:

- 8-hour Ozone (75 ppb) by 2032
- Annual PM<sub>2.5</sub> (12 µg/m<sup>3</sup>) by 2021-2025
- 8-hour Ozone (80 ppb) by 2024 (updated from the 2007 and 2012 AQMPs)
- 1-hour Ozone (120 ppb) by 2023 (updated from the 2012 AQMP)
- 24-hour PM<sub>2.5</sub> (35 µg/m<sup>3</sup>) by 2019 (updated from the 2012 AQMP)

In addition to meeting the above standards, the 2016 AQMP also includes revisions to the attainment demonstrations for the 1997 8-hour ozone NAAQS and the 1979 1-hour ozone NAAQS. The prior 2012 AQMP was prepared in order to demonstrate attainment with the 24-hour PM<sub>2.5</sub> standard by 2014 through adoption of all feasible measures. The prior 2007 AQMP demonstrated attainment with the 1997 8-hour ozone (80 ppb) standard by 2023, through implementation of future improvements in control techniques and technologies. These “black box” emissions reductions represent 65 percent of the remaining NO<sub>x</sub> emission reductions by 2023 in order to show attainment with the 1997 8-hour ozone NAAQS. Given the magnitude of these needed emissions reductions, additional NO<sub>x</sub> control measures have been provided in the 2012 AQMP even though the primary purpose was to show compliance with 24-hour PM<sub>2.5</sub> emissions standards.

The 2016 AQMP provides a new approach that focuses on available, proven and cost effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities to promote reductions in GHG emissions and TAC emissions as well as efficiencies in energy use, transportation, and goods movement. The 2016 AQMP recognizes the critical importance of working with other agencies to develop funding and other incentives that encourage the accelerated transition of vehicles, buildings and industrial facilities to cleaner technologies in a manner that benefits not only air quality, but also local businesses and the regional economy.

Although SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the Air Basin. Instead, this is controlled through local jurisdictions in accordance to the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the *CEQA Air Quality Handbook* (SCAQMD CEQA Handbook), prepared by SCAQMD, 1993, with the most

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current updates found at <http://www.aqmd.gov/ceqa/hdbk.html>, was developed in accordance with the projections and programs detailed in the AQMPs. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The SCAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the Air Basin, and adverse impacts will be minimized.

The following lists the SCAQMD rules that are applicable but not limited to residential development projects in the Air Basin.

#### Rule 402 - Nuisance

Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. Compliance with Rule 402 will reduce local air quality and odor impacts to nearby sensitive receptors.

#### Rule 403- Fugitive Dust

Rule 403 governs emissions of fugitive dust during construction activities and requires that no person shall cause or allow the emissions of fugitive dust such that dust remains visible in the atmosphere beyond the property line or the dust emission exceeds 20 percent opacity, if the dust is from the operation of a motorized vehicle. Compliance with this rule is achieved through application of standard Best Available Control Measures, which include but are not limited to the measures below. Compliance with these rules would reduce local air quality impacts to nearby sensitive receptors.

- Utilize either a pad of washed gravel 50 feet long, 100 feet of paved surface, a wheel shaker, or a wheel washing device to remove material from vehicle tires and undercarriages before leaving project site.
- Do not allow any track out of material to extend more than 25 feet onto a public roadway and remove all track out at the end of each workday.
- Water all exposed areas on active sites at least three times per day and pre-water all areas prior to clearing and soil moving activities.
- Apply nontoxic chemical stabilizers according to manufacturer specifications to all construction areas that will remain inactive for 10 days or longer.
- Pre-water all material to be exported prior to loading, and either cover all loads or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code Section 23114.
- Replant all disturbed area as soon as practical.
- Suspend all grading activities when wind speeds (including wind gusts) exceed 25 miles per hour.

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- Restrict traffic speeds on all unpaved roads to 15 miles per hour or less.

#### Rules 1108 and 1108.1 – Cutback and Emulsified Asphalt

Rules 1108 and 1108.1 govern the sale, use, and manufacturing of asphalt and limits the VOC content in asphalt. This rule regulates the VOC contents of asphalt used during construction as well as any on-going maintenance during operations. Therefore, all asphalt used during construction and operation of the proposed project must comply with SCAQMD Rules 1108 and 1108.1.

#### Rule 1113 – Architectural Coatings

Rule 1113 governs the sale, use, and manufacturing of architectural coatings and limits the VOC content in sealers, coatings, paints and solvents. This rule regulates the VOC contents of paints available during construction. Therefore, all paints and solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1113.

#### Rule 1143 – Paint Thinners

Rule 1143 governs the sale, use, and manufacturing of paint thinners and multi-purpose solvents that are used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations. This rule regulates the VOC content of solvents used during construction. Solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1143.

### **Southern California Association of Governments**

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS), adopted April, 2016 and the *2019 Federal Transportation Improvement Program* (FTIP), adopted September 2018, which addresses regional development and growth forecasts. Although the RTP/SCS and FTIP are primarily planning documents for future transportation projects a key component of these plans are to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The RTP/SCS, FTIP, and AQMP are based on projections originating within the City and County General Plans.

### **4.4 Local – City of Santa Ana**

Local jurisdictions, such as the City of Santa, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the AQMPs. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assess the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

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In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the Cities and region will meet federal and state standards. Instead, the City relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

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## 5.0 GLOBAL CLIMATE CHANGE MANAGEMENT

The regulatory setting related to global climate change is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to reduce GHG emissions through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for global climate change regulations are discussed below.

### ***5.1 International***

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. The parties of the UNFCCC adopted the Kyoto Protocol, which set binding GHG reduction targets for 37 industrialized countries, the objective of reducing their collective GHG emissions by five percent below 1990 levels by 2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. It should be noted that Japan and Canada opted out of the Kyoto Protocol and the remaining developed countries that ratified the Kyoto Protocol have not met their Kyoto targets. The Kyoto Protocol expired in 2012 and the amendment for the second commitment period from 2013 to 2020 has not yet entered into legal force. The Parties to the Kyoto Protocol negotiated the Paris Agreement in December 2015, agreeing to set a goal of limiting global warming to less than 2 degrees Celsius compared with pre-industrial levels. The Paris Agreement has been adopted by 195 nations with 147 ratifying it, including the United States by President Obama, who ratified it by Executive Order on September 3, 2016. On June 1, 2017, President Trump announced that the United States is withdrawing from the Paris Agreement, however the Paris Agreement is still legally binding by the other remaining nations.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

### ***5.2 Federal – United States Environmental Protection Agency***

The United States Environmental Protection Agency (EPA) is responsible for implementing federal policy to address global climate change. The Federal government administers a wide array of public-private partnerships to reduce U.S. GHG intensity. These programs focus on energy efficiency, renewable energy, methane, and other non-CO<sub>2</sub> gases, agricultural practices and implementation of technologies to achieve GHG reductions. EPA implements several voluntary programs that substantially contribute to the reduction of GHG emissions.

In *Massachusetts v. Environmental Protection Agency* (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO<sub>2</sub> and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).



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In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions did not impose any requirements on industry or other entities, however, since 2009 the EPA has been providing GHG emission standards for vehicles and other stationary sources of GHG emissions that are regulated by the EPA. On September 13, 2013 the EPA Administrator signed 40 CFR Part 60, that limits emissions from new sources to 1,100 pounds of CO<sub>2</sub> per MWh for fossil fuel-fired utility boilers and 1,000 pounds of CO<sub>2</sub> per MWh for large natural gas-fired combustion units.

On August 3, 2015, the EPA announced the Clean Power Plan, emissions guidelines for U.S. states to follow in developing plans to reduce GHG emissions from existing fossil fuel-fired power plants (Federal Register Vol. 80, No. 205, October 23 2015). On February 9, 2016 the Supreme Court stayed implementation of the Clean Power Plan due to a legal challenge from 29 states and in April 2017, the Supreme Court put the case on a 60 day hold and directed both sides to make arguments for whether it should keep the case on hold indefinitely or close it and remand the issue to the EPA. On October 11, 2017, the EPA issued a formal proposal to repeal the Clean Power Plan and on June 19, 2019, the EPA issued the Affordable Clean Energy Rule that replaces the Clean Power Plan.

On September 27, 2019, the EPA and the National Highway Safety Administration published the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule). Part One of the Rule revokes California's authority to set its own GHG emissions standards and zero-emission vehicle mandates in California, which results in one emission standard to be used nationally for all passenger cars and light trucks that is set by the EPA.

### **5.3 State**

The California Air Resources Board (CARB) has the primary responsible for implementing state policy to address global climate change, however there are State regulations related to global climate change that affect a variety of State agencies. CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both the federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

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In 2008, CARB approved a Climate Change Scoping Plan that proposes a “comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health” (CARB 2008). The Climate Change Scoping Plan has a range of GHG reduction actions which include direct regulations; alternative compliance mechanisms; monetary and non-monetary incentives; voluntary actions; market-based mechanisms such as a cap-and-trade system. In 2014, CARB approved the First Update to the Climate Change Scoping Plan (CARB, 2014) that identifies additional strategies moving beyond the 2020 targets to the year 2050. On December 14, 2017 CARB adopted the California’s 2017 Climate Change Scoping Plan, November 2017 (CARB, 2017) that provides specific statewide policies and measures to achieve the 2030 GHG reduction target of 40 percent below 1990 levels by 2030 and the aspirational 2050 GHG reduction target of 80 percent below 1990 levels by 2050. In addition, the State has passed the following laws directing CARB to develop actions to reduce GHG emissions, which are listed below in chronological order, with the most current first.

### **Senate Bill 100**

Senate Bill 100 (SB 100) was adopted September 2018 and requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity. SB 100 supersedes the renewable energy requirements set by SB 350, SB 1078, SB 107, and SB X1-2. However, the interim renewable energy thresholds from the prior Bills of 44 percent by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, will remain in effect.

### **Executive Order B-48-18 and Assembly Bill 2127**

The California Governor issued Executive Order B-48-18 on January 26, 2018 that orders all state entities to work with the private sector to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025. Currently there are approximately 350,000 electric vehicles operating in California, which represents approximately 1.5 percent of the 24 million vehicles total currently operating in California. Implementation of Executive Order B-48-18 would result in approximately 20 percent of all vehicles in California to be zero emission electric vehicles. Assembly Bill 2127 (AB 2127) was codified into statute on September 13, 2018 and requires that the California Energy Commission working with the State Air Resources Board prepare biannual assessments of the statewide electric vehicle charging infrastructure needed to support the levels of zero emission vehicle adoption required for the State to meet its goals of putting at least 5 million zero-emission vehicles on California roads by 2030.

### **Executive Order B-30-15, Senate Bill 32 and Assembly Bill 197**

The California Governor issued Executive Order B-30-15 on April 29, 2015 that aims to reduce California’s GHG emissions 40 percent below 1990 levels by 2030. This executive order aligns California’s GHG reduction targets with those of other international governments, such as the European Union that set the same target for 2030 in October, 2014. This target will make it possible to reach the ultimate goal of reducing GHG emissions 80 percent under 1990 levels by 2050 that is based on scientifically established levels needed in the U.S.A to limit global warming below 2 degrees Celsius – the warming threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels. Assembly Bill 197 (AB 197) (September 8, 2016) and Senate Bill 32 (SB 32) (September 8, 2016) codified into statute the GHG emissions reduction targets of at least 40 percent below 1990 levels by 2030 as detailed in Executive Order B-30-15. AB 197 also requires additional GHG emissions reporting that is

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broken down to sub-county levels and requires CARB to consider the social costs of emissions impacting disadvantaged communities.

### **Executive Order B-29-15**

The California Governor issued Executive Order B-29-15 on April 1, 2015 and directed the State Water Resources Control Board to impose restrictions to achieve a statewide 25% reduction in urban water usage and directed the Department of Water Resources to replace 50 million square feet of lawn with drought tolerant landscaping through an update to the State's Model Water Efficient Landscape Ordinance. The Ordinance also requires installation of more efficient irrigation systems, promotion of greywater usage and onsite stormwater capture, and limits the turf planted in new residential landscapes to 25 percent of the total area and restricts turf from being planted in median strips or in parkways unless the parkway is next to a parking strip and a flat surface is required to enter and exit vehicles. Executive Order B-29-15 would reduce GHG emissions associated with the energy used to transport and filter water.

### **Assembly Bill 341 and Senate Bills 939 and 1374**

Senate Bill 939 (SB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills. Assembly Bill 341 (AB 341) was adopted in 2011 and builds upon the waste reduction measures of SB 939 and 1374, and sets a new target of a 75 percent reduction in solid waste generated by the year 2020.

### **Senate Bill 375**

Senate Bill 375 (SB 375) was adopted September 2008 in order to support the State's climate action goals to reduce GHG emissions through coordinated regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires CARB to set regional targets for GHG emissions reductions from passenger vehicle use. In 2010, CARB established targets for 2020 and 2035 for each Metropolitan Planning Organizations (MPO) within the State. It was up to each MPO to adopt a sustainable communities strategy (SCS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP) to meet CARB's 2020 and 2035 GHG emission reduction targets. These reduction targets are required to be updated every eight years and the most current targets are detailed at: <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets>, which provides GHG emissions reduction targets for SCAG of 8 percent by 2020 and 19 percent by 2035.

The *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)*, adopted by SCAG April, 2016 provides a 2020 GHG emission reduction target of 8 percent and a 2035 GHG emission reduction target of 18 percent. SCAG will need to develop additional strategies in its next revision of the RTP/SCS in order to meet CARB's new 19 percent GHG emission reduction target for 2035. CARB is also charged with reviewing SCAG's RTP/SCS for consistency with its assigned targets.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS. However, new provisions of CEQA incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS and categorized as "transit priority projects."

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## **Assembly Bill 1109**

California Assembly Bill 1109 (AB 1109) was adopted October 2007, also known as the Lighting Efficiency and Toxics Reduction Act, prohibits the manufacturing of lights after January 1, 2010 that contain levels of hazardous substances prohibited by the European Union pursuant to the RoHS Directive. AB 1109 also requires reductions in energy usage for lighting and is structured to reduce lighting electrical consumption by: (1) At least 50 percent reduction from 2007 levels for indoor residential lighting; and (2) At least 25 percent reduction from 2007 levels for indoor commercial and all outdoor lighting by 2018. AB 1109 would reduce GHG emissions through reducing the amount of electricity required to be generated by fossil fuels in California.

## **Executive Order S-1-07**

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Executive Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

In 2009 CARB approved the proposed regulation to implement the LCFS. The standard was challenged in the courts, but has been in effect since 2011 and was re-approved by the CARB in 2015. The LCFS is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The LCFS is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet annually. Reformulated gasoline mixed with corn-derived ethanol and low-sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel. Compressed natural gas and liquefied natural gas also may be low-carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles, are also considered as low-carbon fuels.

## **Senate Bill 97**

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the State CEQA guidelines that addresses GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate Action Plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.

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- Local governments are encouraged to quantify the GHG emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
  - When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
  - New amendments include guidelines for determining methods to mitigate the effects of GHG emissions in Appendix F of the CEQA Guidelines.
  - OPR is clear to state that “to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation.”
  - OPR’s emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
  - Environmental impact reports must specifically consider a project's energy use and energy efficiency potential.

### **Assembly Bill 32**

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and utilize best management practices that are technologically feasible and cost effective.

In 2007 CARB released the calculated Year 1990 GHG emissions of 431 million metric tons of CO<sub>2</sub>e (MMTCO<sub>2</sub>e). The 2020 target of 431 MMTCO<sub>2</sub>e requires the reduction of 78 MMTCO<sub>2</sub>e, or approximately 16 percent from the State’s projected 2020 business as usual emissions of 509 MMTCO<sub>2</sub>e (CARB, 2014). Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO<sub>2</sub> in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources, all of which became enforceable on or before January 1, 2010.

CARB’s Scoping Plan that was adopted in 2009, proposes a variety of measures including: strengthening energy efficiency and building standards; targeted fees on water and energy use; a market-based cap-and-trade system; achieving a 33 percent renewable energy mix; and a fee regulation to fund the program. The 2014 update to the Scoping Plan identifies strategies moving beyond the 2020 targets to the year 2050.



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The Cap and Trade Program established under the Scoping Plan sets a statewide limit on sources responsible for 85 percent of California’s GHG emissions, and has established a market for long-term investment in energy efficiency and cleaner fuels since 2012.

### **Executive Order S-3-05**

In 2005 the California Governor issued Executive Order S 3-05, GHG Emission, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels;
- 2020: Reduce greenhouse gas emissions to 1990 levels;
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs. The State achieved its first goal of reducing GHG emissions to 2000 levels by 2010.

### **Assembly Bill 1493**

AB 1493 or the Pavley Bill sets tailpipe GHG emissions limits for passenger vehicles in California as well as fuel economy standards and is described in more detail above in Section 5.1 under Energy Conservation Management.

### **5.4 Regional – Southern California**

California Assembly Bill 1493 (also known as the Pavley Bill, in reference to its author Fran Pavley) was enacted on July 22, 2002 and required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2004, CARB approved the “Pavley I” regulations limiting the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. These regulations will reduce GHG emissions by 30 percent from 2002 levels by 2016. In June 2009, the EPA granted California the authority to implement GHG emission reduction standards for light duty vehicles, in September 2009, amendments to the Pavley I regulations were adopted by CARB and implementation of the “Pavley I” regulations started in 2009.

The second set of regulations “Pavley II” was developed in 2010, and is being phased in between model years 2017 through 2025 with the goal of reducing GHG emissions by 45 percent by the year 2020 as compared to the 2002 fleet. The Pavley II standards were developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the “LEV III” (third stage of the Low Emission Vehicle standards) into a single regulatory framework. The new rules reduce emissions from gasoline-powered cars as well as promote zero-emissions auto technologies such as electricity and hydrogen, and through increasing the infrastructure for fueling hydrogen vehicles. In 2009, the U.S. EPA granted California the authority to implement the GHG standards for passenger cars, pickup trucks and sport utility vehicles and these GHG emissions standards are currently being implemented nationwide. However, EPA has performed a midterm evaluation of the longer-term standards for model years 2022-2025, and based on the findings of this midterm evaluation, the EPA has proposed to amend the corporate average fuel economy (CAFE) and GHG emissions standards for light vehicles for model years 2021

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through 2026. The EPA's proposed amendments do not include any extension of the legal waiver granted to California by the 1970 Clean Air Act and which has allowed the State to set tighter standards for vehicle pipe emissions than the EPA standards. On September 20, 2019, California filed suit over the EPA decision to revoke California's legal waiver that has been joined by 22 other states.

### **South Coast Air Quality Management District**

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. The SCAQMD is also responsible for GHG emissions for projects where it is the lead agency. However, for other projects in the SCAB where it is not the lead agency, it is limited to providing resources to other lead agencies in order to assist them in determining GHG emission thresholds and GHG reduction measures. In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a working group, which is described below.

#### SCAQMD Working Group

Since neither CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that either provides a quantitative annual thresholds of 3,500 MTCO<sub>2</sub>e for residential uses, 1,400 MTCO<sub>2</sub>e for commercial uses, and 3,000 MTCO<sub>2</sub>e for mixed uses. An alternative annual threshold of 3,000 MTCO<sub>2</sub>e for all land use types is also proposed.

### **Southern California Association of Governments**

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), adopted April, 2016 and the *2019 Federal Transportation Improvement Program* (FTIP), adopted September 2018, which addresses regional development and growth forecasts. Although the RTP/SCS and FTIP are primarily planning documents for future transportation projects a key component of these plans are to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The RTP/SCS, FTIP, and AQMP are based on projections originating within the City and County General Plans.

### **5.5 Local – City of Santa Ana**

Local jurisdictions, such as the City of Santa Ana, have the authority and responsibility to reduce GHG emissions through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of GHG emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the City assesses the global climate change potential of new development projects, requires mitigation of potentially significant global climate change impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

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On December 15, 2015, the City prepared a Climate Action Plan (CAP), which provides a framework for reducing GHG emissions and managing resources to best prepare for a changing climate (48). The CAP recommends GHG emissions targets that are consistent with the reduction targets of the State of California and presents a number of strategies that will make it possible for the City to meet the recommended targets. Projects that demonstrate consistency with the strategies, actions, and emission reduction targets contained in the CAP would have a less than significant impact on climate change.

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## 6.0 ATMOSPHERIC SETTING

### 6.1 South Coast Air Basin

The project site is located within Orange County, which is part of the South Coast Air Basin (Air Basin) that includes the non-desert portions of Riverside, San Bernardino, and Los Angeles Counties and all of Orange County. The Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter.

### 6.2 Local Climate

Orange County is located on a coastal plain with connecting broad valleys and low hills to the east. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern.

Although the Air Basin has a semi-arid climate, the air near the surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the Air Basin by offshore winds, the ocean effect is dominant. Periods of heavy fog are frequent and low stratus clouds, often referred to as “high fog” are a characteristic climate feature.

Winds are an important parameter in characterizing the air quality environment of a project site because they determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in Orange County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean. These winds are usually the strongest in the dry summer months. Nighttime winds in Orange County are a result mainly from the drainage of cool air off of the mountains to the east and they occur more often during the winter months and are usually lighter than the daytime winds. Between the periods of dominant airflow, periods of air stagnation may occur, both in the morning and evening hours. Whether such a period of stagnation occurs is one of the critical determinants of air quality conditions on any given day.

During the winter and fall months, surface high-pressure systems north of the Air Basin combined with other meteorological conditions, can result in very strong winds, called “Santa Ana Winds”, from the northeast. These winds normally have durations of a few days before predominant meteorological conditions are reestablished. The highest wind speed typically occurs during the afternoon due to daytime thermal convection caused by surface heating. This convection brings about a downward transfer of momentum from stronger winds aloft. It is not uncommon to have sustained winds of 60 miles per hour with higher gusts during a Santa Ana Wind event.

The temperature and precipitation levels for the Santa Ana Monitoring Station is shown below in Table D. Table D shows that August is typically the warmest month and December is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

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**Table D – Monthly Climate Data**

Month	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Average Total Precipitation (inches)
January	68.1	43.1	2.73
February	68.9	44.9	3.05
March	70.7	46.7	2.21
April	73.1	50.0	1.05
May	75.2	54.0	0.25
June	78.6	57.4	0.06
July	83.5	60.9	0.02
August	84.7	61.6	0.06
September	83.9	59.3	0.22
October	79.4	54.5	0.49
November	74.2	47.5	1.28
December	68.8	43.6	2.28
<b>Annual</b>	<b>75.8</b>	<b>52.0</b>	<b>13.69</b>

Source: <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7888>

### **6.3 Monitored Local Air Quality**

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the Air Basin. Estimates of the existing emissions in the Air Basin provided in the 2012 AQMP, indicate that collectively, mobile sources account for 59 percent of the VOC, 88 percent of the NOx emissions and 40 percent of directly emitted PM2.5, with another 10 percent of PM2.5 from road dust. The 2016 AQMP found that since 2012 AQMP projections were made stationary source VOC emissions have decreased by approximately 12 percent, but mobile VOC emissions have increased by 5 percent. The percentage of NOx emissions remain unchanged between the 2012 and 2016 projections.

SCAQMD has divided the Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in air monitoring area 17, which covers the central portion of Orange County. The nearest air monitoring station to the project site is the Anaheim-Pampas Lane Monitoring Station (Anaheim Station), which is located approximately seven miles northwest of the project site at 1630 Pampas Lane, Anaheim. The monitoring data is presented in Table E and shows the most recent three years of monitoring data from CARB. CO measurements have not been provided, since CO is currently in attainment in the Air Basin and monitoring of CO within the Air Basin ended on March 31, 2013.



**Table E – Local Area Air Quality Monitoring Summary**

Pollutant 1 (Standard)	Year <sup>1</sup>		
	2016	2017	2018
<b>Ozone:</b>			
Maximum 1-Hour Concentration (ppm)	0.103	0.090	0.112
Days > CAAQS (0.09 ppm)	<b>2</b>	<b>0</b>	<b>1</b>
Maximum 8-Hour Concentration (ppm)	0.074	0.076	0.071
Days > NAAQS (0.070 ppm)	<b>4</b>	<b>4</b>	<b>1</b>
Days > CAAQS (0.070 ppm)	<b>4</b>	<b>4</b>	<b>1</b>
<b>Nitrogen Dioxide:</b>			
Maximum 1-Hour Concentration (ppb)	64.3	81.2	66.0
Days > NAAQS (100 ppb)	<b>0</b>	<b>0</b>	<b>0</b>
Days > CAAQS (180 ppb)	<b>0</b>	<b>0</b>	<b>0</b>
<b>Inhalable Particulates (PM10) :</b>			
Maximum 24-Hour National Measurement (ug/m <sup>3</sup> )	74.0	95.7	94.6
Days > NAAQS (150 ug/m <sup>3</sup> )	<b>0</b>	<b>0</b>	<b>0</b>
Days > CAAQS (50 ug/m <sup>3</sup> )	<b>3</b>	<b>5</b>	<b>2</b>
Annual Arithmetic Mean (AAM) (ug/m <sup>3</sup> )	27.5	26.9	27.9
Annual > NAAQS (50 ug/m <sup>3</sup> )	<b>No</b>	<b>No</b>	<b>No</b>
Annual > CAAQS (20 ug/m <sup>3</sup> )	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>Ultra-Fine Particulates (PM2.5):</b>			
Maximum 24-Hour National Measurement (ug/m <sup>3</sup> )	44.4	53.9	63.1
Days > NAAQS (35 ug/m <sup>3</sup> )	<b>1</b>	<b>7</b>	<b>7</b>
Annual Arithmetic Mean (AAM) (ug/m <sup>3</sup> )	9.4	ND	11.4
Annual > NAAQS and CAAQS (12 ug/m <sup>3</sup> )	<b>No</b>	<b>ND</b>	<b>No</b>

Notes: Exceedances are listed in **bold**. CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion; ND = no data available.

<sup>1</sup> Data obtained from the Anaheim Station.

Source: <http://www.arb.ca.gov/adam/>

## Ozone

During the last three years, the State 1-hour concentration standard for ozone has been exceeded between zero and two days each year at the Anaheim Station. Both the State and federal 8-hour ozone standards have been exceeded between one and four days each year over the last three years at the Anaheim Station. Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO<sub>2</sub>, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of Southern California contribute to the ozone levels experienced at this monitoring station, with the more significant areas being those directly upwind.

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## **Nitrogen Dioxide**

The Anaheim Station did not record an exceedance of either the Federal or State 1-hour NO<sub>2</sub> standards for the last three years.

## **Particulate Matter**

The State 24-hour concentration standard for PM<sub>10</sub> has been exceeded between two and five days each year over the past three years at the Anaheim Station. Over the past three years the Federal 24-hour standard for PM<sub>10</sub> has not been exceeded at the Anaheim Station. The annual PM<sub>10</sub> concentration at the Anaheim Station has exceeded the State standard for the past three years and has not exceeded the Federal standard for the past three years.

Over the past three years the 24-hour concentration standard for PM<sub>2.5</sub> has been exceeded between one and seven days each year over the past three years at the Anaheim Station. The annual PM<sub>2.5</sub> concentrations at the Anaheim Station has not exceeded either the State or Federal standard for the past three years. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM<sub>10</sub> and PM<sub>2.5</sub>). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM<sub>10</sub> and PM<sub>2.5</sub>. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

## **6.4 Toxic Air Contaminant Levels in the Air Basin**

In order to determine the Air Basin-wide risks associated with major airborne carcinogens, the SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES) studies. According to the SCAQMD's MATES-IV study, the project site has an estimated cancer risk of 772 per million persons chance of cancer. In comparison, the average cancer risk for the Air Basin is 991 per million persons, which is based on the use of age-sensitivity factors detailed in the OEHHA Guidelines (OEHHA, 2015).

In order to provide a perspective of risk, it is often estimated that the incidence in cancer over a lifetime for the U.S. population ranges between 1 in 3 to 4 and 1 in 3, or a risk of about 300,000 per million persons. The MATES-III study referenced a Harvard Report on Cancer Prevention, which estimated that of cancers associated with known risk factors, about 30 percent were related to tobacco, about 30 percent were related to diet and obesity, and about 2 percent were associated with environmental pollution related exposures that includes hazardous air pollutants.

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## 7.0 MODELING PARAMETERS AND ASSUMPTIONS

### 7.1 CalEEMod Model Input Parameters

The criteria air pollution and GHG emissions impacts created by the proposed project have been analyzed through use of CalEEMod Version 2016.3.2. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2014 computer program to calculate the emission rates specific for Orange County for employee, vendor and haul truck vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy equipment operations. EMFAC2014 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour.

The project characteristics in the CalEEMod model were set to a project location of Orange County, a Climate Zone of 8, utility company of Southern California Edison and an opening year of 2021 was utilized in this analysis.

#### Land Use Parameters

The proposed project would consist of the development of a new water supply well and ancillary facilities that include an 810 square foot well building and a 510 square foot chemical building, and four material storage bins that total approximately 2,000 square feet, for a total of 3,320 square feet of building space. The proposed project would also include construction of new pavement area, covering approximately 11,600 square feet of area, miscellaneous on-site concrete ramps and pads, totaling approximately 500 square feet, and a new sidewalk adjacent to Washington Avenue, totaling approximately 2,400 square feet, for a total of 14,500 square feet of new pavement area. The proposed project would include installation of approximately 140 feet of new pipeline that will run from the new well to the existing water supply line in Penn Way. The proposed project's land use parameters that were entered into the CalEEMod model are shown in Table F.

**Table F – CalEEMod Land Use Parameters**

Proposed Land Use	Land Use Subtype in CalEEMod	Land Use Size <sup>1</sup>	Lot Acreage <sup>1</sup>	Building/Paving <sup>2</sup> (square feet)
Proposed Structures	General Light Industry	3.32 TSF	0.42	3,320
New Pavement Area	Other Asphalt Surfaces	14.5 TSF	0.33	14,500

Notes:

<sup>1</sup> TSF = Thousand Square Feet

<sup>1</sup> Lot acreage calculated based on the total disturbed area of 0.75-acre.

<sup>2</sup> Building/Paving square feet represent area where architectural coatings will be applied.

#### Construction Parameters

Construction activities have been modeled as starting in January 2021 and would be completed by June 2022. The construction-related GHG emissions were based on a 30-year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The phases of construction activities that have been analyzed are detailed below and include:

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### Phase 1

Phase 1 would occur from January 2021 to June 2021. Phase 1 would include well drilling that will be continuous (i.e. 24-hours per day for as many days as needed to reach the completion depth) and well construction will be performed on weekdays only, during regular work hours. Phase 1 equipment on-site will include a drill rig, support vehicles (including a mobile crane), and delivery trucks.

### Phase 2

Phase 2 would occur from July 2021 to June 2022. Phase 2 will include construction of the surface facilities other improvements. Phase 2 construction activities will be conducted on weekdays only, during regular work hours. Phase 2 will involve the most on-site equipment and space for storing materials. Heavy equipment on-site for this phase is expected to include, at a minimum, one or more of the following pieces: a bulldozer, an excavator, a wheel loader, a grader, a soil compactor, and a front loader tractor.

### **Operational Emissions Modeling**

In general, operation of the well and facility would be passive as the well equipment would operate automatically. The normal operation of the well would generate one trip weekly for a worker to monitor the operation of the well facilities and perform maintenance as necessary. Periodic maintenance activities such as replacement of tanks and testing and maintaining equipment will require bi-weekly trips to the project site. As such the project-generated vehicle trips were set to equal two daily trips on Saturdays and zero trips for weekdays and Sundays in the CalEEMod model. The area source, energy usage, solid waste and water and waste water sources were based on the CalEEMod default values.

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## 8.0 THRESHOLDS OF SIGNIFICANCE

### 8.1 Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the Air Basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table G.

**Table G – SCAQMD Regional Criteria Pollutant Emission Thresholds of Significance**

	Pollutant Emissions (pounds/day)						
	VOC	NOx	CO	SOx	PM10	PM2.5	Lead
Construction	75	100	550	150	150	55	3
Operation	55	55	550	150	150	55	3

Source: <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2>

### 8.2 Local Air Quality

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. SCAQMD has also provided *Final Localized Significance Threshold Methodology* (LST Methodology), July 2008, which details the methodology to analyze local air emission impacts. The LST Methodology found that the primary emissions of concern are NO<sub>2</sub>, CO, PM10, and PM2.5.

The LST Methodology provides Look-Up Tables with different thresholds based on the location and size of the project site and distance to the nearest sensitive receptors. As detailed above in Section 7.3, the project site is located in Air Monitoring Area 17, which covers the central portion of Orange County. The Look-Up Tables provided in the LST Methodology include project site acreage sizes of 1-acre, 2-acres and 5-acres. The 1-acre project site values in the Look-Up Tables have been utilized in this analysis, since that is the nearest size available for the 0.75-acre project site. The nearest offsite sensitive receptors are the residents at the multi-family homes located as near as 100 feet (30 meters) northeast of the project site. In order to provide a conservative analysis, the 25-meter threshold has been utilized in this analysis. Table H below shows the LSTs for NO<sub>2</sub>, PM10 and PM2.5 for both construction and operational activities.



**Table H – SCAQMD Local Air Quality Thresholds of Significance**

Activity	Allowable Emissions (pounds/day) <sup>1</sup>			
	NOx	CO	PM10	PM2.5
Construction	81	485	4	3
Operation	81	485	1	1

Notes:

<sup>1</sup> The nearest offsite sensitive receptors are multi-family homes located as near as 100 feet (30 meters) northeast of the project site. In order to provide a conservative analysis, the 25-meter threshold was utilized.

Source: Calculated from SCAQMD's Mass Rate Look-up Tables for one acre in Air Monitoring Area 17, Central Orange County.

### **8.3 Toxic Air Contaminants**

According to the SCAQMD CEQA Handbook, any project that has the potential to expose the public to toxic air contaminants in excess of the following thresholds would be considered to have a significant air quality impact:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed project may have a significant impact related to toxic air contaminants (TACs), the *Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*, (Diesel Analysis) prepared by SCAQMD, August 2003, recommends that if the proposed project is anticipated to create TACs through stationary sources or regular operations of diesel trucks on the project site, then the proximity of the nearest receptors to the source of the TAC and the toxicity of the hazardous air pollutant (HAP) should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

### **8.4 Odor Impacts**

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

“A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.”

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

### **8.5 Greenhouse Gas Emissions**

The City of Santa Ana has adopted a Climate Action Plan (Santa Ana CAP) that has been prepared to assist the City in conforming to the GHG emissions reductions as mandated under AB 32. The Santa Ana CAP provides community-wide GHG emissions reduction goals of 15 percent below the baseline year 2008 by

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2020 and 30 percent below the baseline year 2008 by 2035. Since the Santa Ana CAP does not provide any quantitative GHG emissions thresholds for new development projects nor does it provide any direction on how to analyze new development projects within the City, the SCAQMD GHG emissions reduction thresholds have been utilized in this analysis.

In order to identify significance criteria under CEQA for development projects, SCAQMD initiated a Working Group, which provided detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,000 MTCO<sub>2</sub>e for all land use projects. Although the SCAQMD provided substantial evidence supporting the use of the above threshold, as of November 2017, the SCAQMD Board has not yet considered or approved the Working Group's thresholds.

It should be noted that SCAQMD's Working Group's thresholds were prepared prior to the issuance of Executive Order B-30-15 on April 29, 2015 that provided a reduction goal of 40 percent below 1990 levels by 2030. This target was codified into statute through passage of AB 197 and SB 32 in September 2016. However, to date no air district or local agency within California has provided guidance on how to address AB 197 and SB 32 with relation to land use projects. In addition, the California Supreme Court's ruling on *Cleveland National Forest Foundation v. San Diego Association of Governments* (Cleveland v. SANDAG), Filed July 13, 2017 stated:

SANDAG did not abuse its discretion in declining to adopt the 2050 goal as a measure of significance in light of the fact that the Executive Order does not specify any plan or implementation measures to achieve its goal. In its response to comments, the EIR said: "It is uncertain what role regional land use and transportation strategies can or should play in achieving the EO's 2050 emissions reduction target. A recent California Energy Commission report concludes, however, that the primary strategies to achieve this target should be major 'decarbonization' of electricity supplies and fuels, and major improvements in energy efficiency [citation]."

Although, the above court case was referencing California's GHG emission targets for the year 2050, at this time it is also unclear what role land use strategies can or should play in achieving the AB 197 and SB 32 reduction goal of 40 percent below 1990 levels by 2030. As such this analysis has relied on the SCAQMD Working Group's recommended thresholds. Therefore, the proposed project would be considered to create a significant cumulative GHG impact if the proposed project would exceed the annual threshold of 3,000 MTCO<sub>2</sub>e.

The GHG emissions analysis for both construction and operation of the proposed project can be found below in Sections 9.6 and 9.7.

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## 9.0 IMPACT ANALYSIS

### 9.1 CEQA Thresholds of Significance

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality and GHG emissions would occur if the proposed project is determined to:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

### 9.2 Air Quality Compliance

The proposed project may conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan (AQMP). The following section discusses the proposed project's consistency with the SCAQMD AQMP.

#### SCAQMD Air Quality Management Plan

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and regional plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD AQMP. Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

- (1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

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- (2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 - Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this report, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance discussed above in Section 8.1 or local thresholds of significance discussed above in Section 8.2. The ongoing operation of the proposed project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance discussed above in Section 8.1. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. Therefore, a less than significant long-term impact would occur and no mitigation would be required.

Therefore, based on the information provided above, the proposed project would be consistent with the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to insure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The AQMP is developed through use of the planning forecasts provided in the RTP/SCS and FTIP. The RTP/SCS is a major planning document for the regional transportation and land use network within Southern California. The RTP/SCS is a long-range plan that is required by federal and state requirements placed on SCAG and is updated every four years. The FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this project, the City of Santa Ana General Plan Land Use Plan defines the assumptions that are represented in AQMP.

The project site is currently designated as Urban Neighborhood (UN) and zoned Specific Development No. 84 (SD84). Within the UN general plan the existing land use designation is Industrial. Within SD84 the project site is zoned Multi-Family Residential (R-3). Since well construction activities are all allowed uses in all land use designations, including industrial and R-3, the proposed project is consistent with the current land use designations and would not require a General Plan Amendment or zone change. Therefore, the proposed project would not result in an inconsistency with the current land use designations with respect to the regional forecasts utilized by the AQMPs. As such, the proposed project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion

Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

**Level of Significance**

Less than significant impact.

### 9.3 Cumulative Net Increase in Non-Attainment Pollution

The proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard. The following section calculates the potential air emissions associated with the construction and operations of the proposed project and compares the emissions to the SCAQMD standards.

#### Construction Emissions

The proposed project would consist of construction of a new water supply well and ancillary facilities that would be constructed over two phases. The construction emissions have been analyzed for both regional and local air quality impacts.

#### Construction-Related Regional Impacts

The CalEEMod model has been utilized to calculate the construction-related regional emissions from the proposed project and the input parameters utilized in this analysis have been detailed in Section 8.1. The worst-case summer or winter daily construction-related criteria pollutant emissions from the proposed project for each phase of construction activities are shown below in Table I and the CalEEMod daily printouts are shown in Appendix A.

**Table I – Construction-Related Regional Criteria Pollutant Emissions**

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO <sub>2</sub>	PM10	PM2.5
<b>Phase 1: Well Drilling and Construction</b>						
Onsite <sup>1</sup>	5.65	55.20	33.80	0.12	2.02	1.86
Offsite <sup>2</sup>	0.04	0.02	0.30	0.00	0.11	0.03
<b>Total</b>	<b>5.69</b>	<b>55.22</b>	<b>34.10</b>	<b>0.13</b>	<b>2.13</b>	<b>1.89</b>
<b>Phase 2: Surface Facilities and Other Improvements</b>						
Onsite	2.36	25.39	14.29	0.03	1.17	1.08
Offsite	0.04	0.30	0.29	0.00	0.10	0.03
<b>Total</b>	<b>2.39</b>	<b>25.69</b>	<b>14.58</b>	<b>0.03</b>	<b>1.27</b>	<b>1.10</b>
<b>Maximum Daily Emission</b>	<b>5.69</b>	<b>55.22</b>	<b>34.10</b>	<b>0.13</b>	<b>2.13</b>	<b>1.89</b>
<b>SCQAMD Thresholds</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
Exceeds Threshold?	No	No	No	No	No	No

Notes:

<sup>1</sup> Onsite emissions from equipment not operated on public roads.

<sup>2</sup> Offsite emissions from vehicles operating on public roads.

Source: CalEEMod Version 2016.3.2.

Table I shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds during either phase of construction. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project.

#### Construction-Related Local Impacts

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.



The local air quality emissions from construction were analyzed through utilizing the methodology described in *Localized Significance Threshold Methodology* (LST Methodology), prepared by SCAQMD, revised October 2009. The LST Methodology found the primary criteria pollutant emissions of concern are NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. In order to determine if any of these pollutants require a detailed analysis of the local air quality impacts, each phase of construction was screened using the SCAQMD's Mass Rate LST Look-up Tables. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily onsite emissions of CO, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> from the proposed project could result in a significant impact to the local air quality. Table J shows the onsite emissions from the CalEEMod model for the different construction phases and the calculated localized emissions thresholds that have been detailed above in Section 9.2.

**Table J – Construction-Related Local Criteria Pollutant Emissions**

Phase	Onsite Pollutant Emissions (pounds/day)			
	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Phase 1: Well Drilling and Construction	55.20	33.80	2.02	1.86
Phase 2: Surface Facilities and Other Improvements	25.39	14.29	1.17	1.08
<b>Maximum Daily Construction Emissions</b>	<b>55.20</b>	<b>33.80</b>	<b>2.02</b>	<b>1.86</b>
<b>SCAQMD Local Construction Thresholds<sup>1</sup></b>	<b>81</b>	<b>485</b>	<b>4</b>	<b>3</b>
Exceeds Threshold?	No	No	No	No

Notes:

<sup>1</sup> The nearest offsite sensitive receptors are multi-family homes located as near as 100 feet (30 meters) northeast of the project site. In order to provide a conservative analysis, the 25-meter threshold was utilized.

Source: Calculated from SCAQMD's Mass Rate Look-up Tables for one acre in Air Monitoring Area 17, Central Orange County.

The data provided in Table J shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds during either phase of construction. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

## Operational Emissions

In general, operation of the well and facility would be passive as the well equipment would operate automatically. The normal operation of the well would generate one trip weekly for a worker to monitor the operation of the well facilities and perform maintenance as necessary. Periodic maintenance activities such as replacement of tanks and testing and maintaining equipment will require bi-weekly trips to the project site. The following section provides an analysis of potential long-term air quality impacts due to regional air quality and local air quality impacts with the on-going operations of the proposed project.

### Operations-Related Regional Criteria Pollutant Analysis

The operations-related regional criteria air quality impacts created by the proposed project have been analyzed through use of the CalEEMod model and the input parameters utilized in this analysis have been detailed in Section 8.1. The worst-case summer or winter VOC, NO<sub>x</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> daily emissions created from the proposed project's long-term operations have been calculated and are summarized below in Table K and the CalEEMod daily emissions printouts are shown in Appendix A.

**Table K – Operational Regional Criteria Pollutant Emissions**

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO <sub>2</sub>	PM10	PM2.5
Area Sources <sup>1</sup>	0.08	0.00	0.00	0.00	0.00	0.00
Energy Usage <sup>2</sup>	0.00	0.02	0.02	0.00	0.03	0.00
Mobile Sources <sup>3</sup>	0.00	0.01	0.05	0.00	0.02	0.01
<b>Total Emissions</b>	<b>0.09</b>	<b>0.03</b>	<b>0.07</b>	<b>0.00</b>	<b>0.02</b>	<b>0.01</b>
<b>SCQAMD Operational Thresholds</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
Exceeds Threshold?	No	No	No	No	No	No

Notes:

<sup>1</sup> Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.

<sup>2</sup> Energy usage consist of emissions from natural gas usage.

<sup>3</sup> Mobile sources consist of emissions from vehicles and road dust.

Source: Calculated from CalEEMod Version 2016.3.2 and CAPCOA, 1997.

The data provided in Table K below shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the proposed project.

#### Friant Ranch Case

The operations-related regional criteria air quality impacts in *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (also referred to as “*Friant Ranch*”), the California Supreme Court held that when an EIR concluded that when a project would have significant impacts to air quality impacts, an EIR should “make a reasonable effort to substantively connect a project’s air quality impacts to likely health consequences.” In order to determine compliance with this Case, the Court developed a multi-part test that includes the following:

- 1) The air quality discussion shall describe the specific health risks created from each criteria pollutant, including diesel particulate matter.

This Analysis details the specific health risks created from each criteria pollutant above in Section 4.1 and specifically in Table B. In addition, the specific health risks created from diesel particulate matter is detailed above in Section 2.2 of this analysis. As such, this analysis meets the part 1 requirements of the Friant Ranch Case.

- 2) The analysis shall identify the magnitude of the health risks created from the Project. The Ruling details how to identify the magnitude of the health risks. Specifically, on page 24 of the ruling it states “The Court of Appeal identified several ways in which the EIR could have framed the analysis so as to adequately inform the public and decision makers of possible adverse health effects. The County could have, for example, identified the Project’s impact on the days of nonattainment per year.”

The Friant Ranch Case found that an EIR’s air quality analysis must meaningfully connect the identified air quality impacts to the human health consequences of those impacts, or meaningfully explain why that analysis cannot be provided. As noted in the Brief of Amicus Curiae by the SCAQMD in the Friant Ranch case (<https://www.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf>) (Brief), SCAQMD has among the most sophisticated air quality modeling and health impact

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evaluation capability of any of the air districts in the State, and thus it is uniquely situated to express an opinion on how lead agencies should correlate air quality impacts with specific health outcomes. The SCAQMD discusses that it may be infeasible to quantify health risks caused by projects similar to the proposed Project, due to many factors. It is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence).

The Brief states that it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk, it does not necessarily mean anyone will contract cancer as a result of the Project. The Brief also cites the author of the CARB methodology, which reported that a PM<sub>2.5</sub> methodology is not suited for small projects and may yield unreliable results. Similarly, SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO<sub>x</sub> or VOC emissions from relatively small projects, due to photochemistry and regional model limitations. The Brief concludes, with respect to the Friant Ranch EIR, that although it may have been technically possible to plug the data into a methodology, the results would not have been reliable or meaningful.

On the other hand, for extremely large regional projects (unlike the proposed project), the SCAQMD states that it has been able to correlate potential health outcomes for very large emissions sources – as part of their rulemaking activity, specifically 6,620 pounds per day of NO<sub>x</sub> and 89,180 pounds per day of VOC were expected to result in approximately 20 premature deaths per year and 89,947 school absences due to ozone. As shown above in Table I, project-related construction activities would generate a maximum of 5.69 pounds per day of VOC and 55.22 pounds per day of NO<sub>x</sub>. As shown above in Table K, operation of the proposed project would generate 0.09 pounds per day of VOC and 0.03 pounds per day of NO<sub>x</sub>. The proposed project would not generate anywhere near these levels of 6,620 pounds per day of NO<sub>x</sub> or 89,190 pounds per day of VOC emissions. Therefore, the proposed project's emissions are not sufficiently high enough to use a regional modeling program to correlate health effects on a basin-wide level.

Notwithstanding, this analysis does evaluate the proposed project's localized impact to air quality for emissions of CO, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> by comparing the proposed project's onsite emissions to the SCAQMD's applicable LST thresholds. As evaluated in this analysis, the proposed project would not result in emissions that exceeded the SCAQMD's LSTs. Therefore, the proposed project would not be expected to exceed the most stringent applicable federal or state ambient air quality standards for emissions of CO, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>.

#### Operations-Related Local Air Quality Impacts

Project-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. The proposed project has been analyzed for the potential local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from on-site operations. The following analyzes the vehicular CO emissions and local impacts from on-site operations.

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### *Local CO Hotspot Impacts from Project-Generated Vehicular Trips*

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards of 20 ppm over one hour or 9 ppm over eight hours.

At the time of the 1993 Handbook, the Air Basin was designated nonattainment under the CAAQS and NAAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Air Basin and in the state have steadily declined. According to the SCAQMD Air Quality Data Tables, in 2007 Central Orange County had maximum CO concentrations of 4.0 ppm for 1 hour and 2.9 ppm for 8-hours and in 2018 Central Orange County had maximum CO concentrations of 2.3 ppm for 1-hour and 1.9 ppm for 8-hours, which represent decreases in CO concentrations of 43 percent and 34 percent, respectively between 2018 and 2007. In 2007, the Air Basin was designated in attainment for CO under both the CAAQS and NAAQS. SCAQMD conducted a CO hot spot analysis for attainment at the busiest intersections in Los Angeles<sup>1</sup> during the peak morning and afternoon periods and did not predict a violation of CO standards. Since the nearby intersections to the proposed project are much smaller with less traffic than what was analyzed by the SCAQMD and since the CO concentrations are now at least 34 percent lower than when CO was designated in attainment in 2007, no local CO Hotspot are anticipated to be created from the proposed project and no CO Hotspot modeling was performed. Therefore, a less than significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

### *Local Criteria Pollutant Impacts from Onsite Operations*

Project-related air emissions from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances may have the potential to create emissions areas that exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from onsite operations were analyzed using the SCAQMD's Mass Rate LST Look-up Tables and the methodology described in LST Methodology. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. Table L shows the onsite emissions from the CalEEMod model that includes area sources, energy usage, and vehicles operating in the immediate vicinity of the project site and the calculated emissions thresholds.

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<sup>1</sup>The four intersections analyzed by the SCAQMD were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning and LOS F in the evening peak hour.

**Table L – Operations-Related Local Criteria Pollutant Emissions**

Onsite Emission Source	Pollutant Emissions (pounds/day)			
	NOx	CO	PM10	PM2.5
Area Sources	0.00	0.00	0.00	0.00
Energy Usage	0.02	0.02	0.00	0.00
Mobile Sources	0.01	0.05	0.02	0.01
<b>Total Emissions</b>	<b>0.03</b>	<b>0.07</b>	<b>0.02</b>	<b>0.01</b>
<b>SCAQMD Local Operational Thresholds<sup>1</sup></b>	<b>81</b>	<b>485</b>	<b>1</b>	<b>1</b>
Exceeds Threshold?	No	No	No	No

Notes:

<sup>1</sup> The nearest offsite sensitive receptors are multi-family homes located as near as 100 feet (30 meters) northeast of the project site. In order to provide a conservative analysis, the 25-meter threshold was utilized.

Source: Calculated from SCAQMD's Mass Rate Look-up Tables for one acre in Air Monitoring Area 17, Central Orange County

The data provided in Table L shows that the on-going operations of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 8.2. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to onsite emissions and no mitigation would be required.

### **Level of Significance**

Less than significant impact.

### **9.4 Sensitive Receptors**

The proposed project may expose sensitive receptors to substantial pollutant concentrations. The local concentrations of criteria pollutant emissions produced in the nearby vicinity of the proposed project, which may expose sensitive receptors to substantial concentrations have been calculated above in Section 9.3 for both construction and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from toxic air contaminant emissions. The nearest offsite sensitive receptors are the residents at the multi-family homes located as near as 100 feet northeast of the project site.

### **Construction-Related Sensitive Receptor Impacts**

The proposed project would consist of construction of a new water supply well and ancillary facilities that would be constructed over two phases. Construction activities may expose sensitive receptors to substantial pollutant concentrations of localized criteria pollutant concentrations and from toxic air contaminant emissions created from onsite construction equipment, which are described below.

#### Local Criteria Pollutant Impacts from Construction

The local air quality impacts from construction of the proposed project has been analyzed above in Section 9.3 and found that the construction of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 8.2. Therefore, construction of the proposed project would create a less than significant construction-related impact to local air quality and no mitigation would be required.



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### Toxic Air Contaminants Impacts from Construction

The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of “individual cancer risk”. “Individual Cancer Risk” is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30-year exposure period for the nearby sensitive receptors (OEHHA, 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet’s usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. As of January, 2019, 25 percent or more of all contractors’ equipment fleets must be Tier 2 or higher. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project. As such, construction of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

### **Operations-Related Sensitive Receptor Impacts**

The on-going operations of the proposed project may expose sensitive receptors to substantial pollutant concentrations of local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from onsite operations. The following analyzes the vehicular CO emissions. Local criteria pollutant impacts from onsite operations, and toxic air contaminant impacts.

### Local CO Hotspot Impacts from Project-Generated Vehicle Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential impacts to sensitive receptors. The analysis provided above in Section 9.3 shows that no local CO Hotspots are anticipated to be created at any nearby intersections from the vehicle traffic generated by the proposed project. Therefore, operation of the proposed project would result in a less than significant exposure of offsite sensitive receptors to substantial pollutant concentrations.

### Local Criteria Pollutant Impacts from Onsite Operations

The local air quality impacts from the operation of the proposed project would occur from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances. The analysis provided above in Section 9.3 found that the operation of the proposed project would not exceed

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the local NO<sub>x</sub>, CO, PM<sub>10</sub> and PM<sub>2.5</sub> thresholds of significance discussed above in Section 8.2. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

#### Operations-Related Toxic Air Contaminant Impacts

Particulate matter (PM) from diesel exhaust is the predominant TAC in most areas and according to *The California Almanac of Emissions and Air Quality 2013 Edition*, prepared by CARB, about 80 percent of the outdoor TAC cancer risk is from diesel exhaust. Some chemicals in diesel exhaust, such as benzene and formaldehyde have been listed as carcinogens by State Proposition 65 and the Federal Hazardous Air Pollutants program. Due to the nominal number of diesel truck trips that are anticipated to be generated by the proposed project, a less than significant TAC impact would occur during the on-going operations of the proposed project and no mitigation would be required.

Therefore, operation of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

#### **Level of Significance**

Less than significant impact.

### ***9.5 Odor Emissions Adversely Affecting a Substantial Number of People***

The proposed project would not create objectionable odors affecting a substantial number of people. Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration. Potential odor impacts have been analyzed separately for construction and operations below.

#### **Construction-Related Odor Impacts**

Potential sources that may emit odors during construction activities include the extraction of drilling mud and from diesel exhaust associated with the operation of construction equipment. The objectionable odors that may be produced during the construction process would be temporary and would not likely be

noticeable for extended periods of time beyond the project site's boundaries. Due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

### Operations-Related Odor Impacts

In general, operation of the well and facility would be passive as the well equipment would operate automatically. The normal operation of the well would generate one trip weekly for a worker to monitor the operation of the well facilities and perform maintenance as necessary. Periodic maintenance activities such as replacement of tanks and testing and maintaining equipment will require bi-weekly trips to the project site. Potential sources that may emit odors during operational activities include the operation of diesel-powered maintenance trucks and equipment. As discussed above for the construction-related odor analysis, the objectionable odors that may be produced from diesel-powered maintenance trucks and equipment would be temporary and would not likely be noticeable for extended periods of time beyond the project site's boundaries. Therefore, due to the transitory nature and infrequency of operations-related odors, a less than significant odor impact would occur from operation of the proposed project.

### Level of Significance

Less than significant impact.

## 9.6 Generation of Greenhouse Gas Emissions

The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The proposed project would consist of development of a new water supply well and ancillary facilities. The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste disposal, water usage, and construction equipment. The project's GHG emissions have been calculated with the CalEEMod model based on the construction and operational parameters detailed above in Section 7.1. A summary of the results is shown below in Table M and the CalEEMod model run is provided in Appendix B.

**Table M – Project Related Greenhouse Gas Annual Emissions**

Category	Greenhouse Gas Emissions (Metric Tons per Year)			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
<b>Construction</b>				
Phase 1: Well Drilling and Construction	712.96	0.03	0.00	718.68
Phase 2: Surface Facilities and Other Improvements	349.80	0.11	0.00	352.48
Total Construction Emissions	1,062.76	0.34	0.00	1,071.17
<b>Amortized Construction Emissions<sup>1</sup> (30 Years)</b>	<b>35.43</b>	<b>0.01</b>	<b>0.00</b>	<b>35.71</b>
<b>Operations</b>				
Area Sources <sup>2</sup>	0.00	0.00	0.00	0.00
Energy Usage <sup>3</sup>	12.64	0.00	0.00	12.70
Mobile Sources <sup>4</sup>	0.47	0.00	0.00	0.47
Solid Waste <sup>5</sup>	0.84	0.05	0.00	2.07
Water and Wastewater <sup>6</sup>	3.43	0.03	0.00	4.24
<b>Total Operational Emissions</b>	<b>17.38</b>	<b>0.07</b>	<b>0.00</b>	<b>19.48</b>
<b>Total Annual Emission (Construction &amp; Operations)</b>	<b>52.80</b>	<b>0.09</b>	<b>0.00</b>	<b>55.18</b>
<b>SCAQMD Draft Threshold of Significance</b>				<b>3,000</b>
<b>Exceed Thresholds?</b>				<b>No</b>

Notes:

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<sup>1</sup> Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.

<sup>2</sup> Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.

<sup>3</sup> Energy usage consists of GHG emissions from electricity and natural gas usage.

<sup>4</sup> Mobile sources consist of GHG emissions from vehicles.

<sup>5</sup> Waste includes the CO<sub>2</sub> and CH<sub>4</sub> emissions created from the solid waste placed in landfills.

<sup>6</sup> Water includes GHG emissions from electricity used for transport of water and processing of wastewater.

Source: CalEEMod Version 2016.3.2.

The data provided in Table M shows that the proposed project would create 55.18 MTCO<sub>2</sub>e per year. According to the SCAQMD draft threshold of significance detailed above in Section 8.5, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations would exceed 3,000 MTCO<sub>2</sub>e per year. Therefore, a less than significant generation of greenhouse gas emissions would occur from development of the proposed project. Impacts would be less than significant.

### **Level of Significance**

Less than significant impact.

### **9.7 Greenhouse Gas Plan Consistency**

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The applicable plan for the proposed project is the *Santa Ana Climatic Action Plan*, adopted December, 2015. The Santa Ana CAP provides community-wide GHG emissions reduction goals of 15 percent below the baseline year 2008 by 2020 and 30 percent below the baseline year 2008 by 2035. The Santa Ana CAP includes numerous measures to reduce GHG emissions, however the measures are not directed toward new development projects, including the proposed project. It should be noted that the proposed project would result in the development of a new water supply in an area of the City that is showing a deficiency of water. As such, the project would reduce the energy usage associated with the transport of water to this area of the City. In addition, the proposed project would be required to meet the most current Title 24 Part 6 Building Energy Efficiency standards and the Title 24 Part 10 CalGreen standards. Therefore, the proposed project would be in compliance with the Santa Ana CAP and as detailed in Section 8.5 would be in compliance with the SCAQMD's GHG emissions thresholds. As such, the proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. Impacts would be less than significant.

### **Level of Significance**

Less than significant impact

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## **APPENDIX A**

### CalEEMod Model Daily Printouts

Washington Ave Lot Well &amp; Facility - Orange County, Summer

### Washington Ave Lot Well & Facility Orange County, Summer

## 1.0 Project Characteristics

### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	3.32	1000sqft	0.42	3,320.00	0
Other Asphalt Surfaces	14.50	1000sqft	0.33	14,500.00	0

### 1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2022

Utility Company Southern California Edison

CO2 Intensity (lb/MW/hr)	702.44	CH4 Intensity (lb/MW/hr)	0.029	N2O Intensity (lb/MW/hr)	0.006
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### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Disturbed area = 0.75 acres

Construction Phase - Construction schedule provided by applicant

Off-road Equipment - Phase 1: 1 Bore/Drill Rig; 1 Crane; 2 Off-Hwy Trucks

Off-road Equipment - Phase 2: 1 Rubber-Tired Dozer; 1 Excavator; 1 Rubber-Tired Loader; 1 Grader; 1 Compactor; 1 Tractor

Off-road Equipment - Well Operations: 1 Off-Hwy Truck

Trips and VMT -

Vehicle Trips - Saturday Trips set to 0.6 per TSF per day, which equates to 2 trips per week.

## Washington Ave Lot Well &amp; Facility - Orange County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	261.00
tblLandUse	LotAcreage	0.08	0.42
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblVehicleTrips	ST_TR	1.32	0.60
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00

**2.0 Emissions Summary**



## Washington Ave Lot Well &amp; Facility - Orange County, Summer

**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															
Area	0.0806	2.0000e-005	1.8200e-003	0.0000		1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	3.9000e-003	3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003
Energy	2.0500e-003	0.0186	0.0157	1.1000e-004		1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	22.3652	22.3652	22.3652	4.3000e-004	4.1000e-004	22.4981
Mobile	3.3100e-003	0.0139	0.0505	2.0000e-004	0.0187	1.4000e-004	0.0189	5.0000e-003	1.3000e-004	5.1400e-003	20.6301	20.6301	20.6301	8.0000e-004		20.6501
<b>Total</b>	<b>0.0859</b>	<b>0.0326</b>	<b>0.0680</b>	<b>3.1000e-004</b>	<b>0.0187</b>	<b>1.5700e-003</b>	<b>0.0203</b>	<b>5.0000e-003</b>	<b>1.5600e-003</b>	<b>6.5700e-003</b>	<b>42.9992</b>	<b>42.9992</b>	<b>42.9992</b>	<b>1.2400e-003</b>	<b>4.1000e-004</b>	<b>43.1523</b>

**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															
Area	0.0806	2.0000e-005	1.8200e-003	0.0000		1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	3.9000e-003	3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003
Energy	2.0500e-003	0.0186	0.0157	1.1000e-004		1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	22.3652	22.3652	22.3652	4.3000e-004	4.1000e-004	22.4981
Mobile	3.3100e-003	0.0139	0.0505	2.0000e-004	0.0187	1.4000e-004	0.0189	5.0000e-003	1.3000e-004	5.1400e-003	20.6301	20.6301	20.6301	8.0000e-004		20.6501
<b>Total</b>	<b>0.0859</b>	<b>0.0326</b>	<b>0.0680</b>	<b>3.1000e-004</b>	<b>0.0187</b>	<b>1.5700e-003</b>	<b>0.0203</b>	<b>5.0000e-003</b>	<b>1.5600e-003</b>	<b>6.5700e-003</b>	<b>42.9992</b>	<b>42.9992</b>	<b>42.9992</b>	<b>1.2400e-003</b>	<b>4.1000e-004</b>	<b>43.1523</b>

## Washington Ave Lot Well &amp; Facility - Orange County, Summer

	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail****Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1 Well Drilling - Construction	Trenching	1/1/2021	6/30/2021	5	129	
2	Phase 2 Surface Facilities	Building Construction	7/1/2021	6/30/2022	5	261	

**Acres of Grading (Site Preparation Phase): 0****Acres of Grading (Grading Phase): 0****Acres of Paving: 0.33****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**



## Washington Ave Lot Well &amp; Facility - Orange County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 2 Surface Facilities	Cranes	1	4.00	231	0.29
Phase 2 Surface Facilities	Excavators	1	8.00	158	0.38
Phase 2 Surface Facilities	Forklifts	2	6.00	89	0.20
Phase 2 Surface Facilities	Graders	1	8.00	187	0.41
Phase 2 Surface Facilities	Plate Compactors	1	8.00	8	0.43
Phase 2 Surface Facilities	Rubber Tired Dozers	1	8.00	247	0.40
Phase 2 Surface Facilities	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 1 Well Drilling - Construction	Bore/Drill Rigs	1	24.00	221	0.50
Phase 1 Well Drilling - Construction	Cranes	1	24.00	231	0.29
Phase 1 Well Drilling - Construction	Off-Highway Trucks	2	24.00	402	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 2 Surface Facilities	8	7.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Well Drilling - Construction	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Washington Ave Lot Well &amp; Facility - Orange County, Summer

**3.2 Phase 1 Well Drilling - Construction - 2021****Unmitigated Construction On-Site**

Category	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
lb/day																
Off-Road	5.6486	55.1965	33.7966	0.1248		2.0239	2.0239		1.8620	1.8620		12,083.5415	12,083.5415	3.9081		12,181.2430
Total	5.6486	55.1965	33.7966	0.1248		2.0239	2.0239		1.8620	1.8620		12,083.5415	12,083.5415	3.9081		12,181.2430

**Unmitigated Construction Off-Site**

Category	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
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	0.0361	0.0218	0.3037	1.0600e-003	0.1118	7.2000e-004	0.1125	0.0296	6.7000e-004	0.0303		105.2194	105.2194	2.2500e-003		105.2758
Total	0.0361	0.0218	0.3037	1.0600e-003	0.1118	7.2000e-004	0.1125	0.0296	6.7000e-004	0.0303		105.2194	105.2194	2.2500e-003		105.2758

Washington Ave Lot Well &amp; Facility - Orange County, Summer

**3.2 Phase 1 Well Drilling - Construction - 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															
Off-Road	5.6486	55.1965	33.7966	0.1248		2.0239	2.0239		1.8620	1.8620	0.0000	12,083.5415	12,083.5415	3.9081		12,181.2430
Total	5.6486	55.1965	33.7966	0.1248		2.0239	2.0239		1.8620	1.8620	0.0000	12,083.5415	12,083.5415	3.9081		12,181.2430

**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															
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	0.0361	0.0218	0.3037	1.0600e-003	0.1118	7.2000e-004	0.1125	0.0296	6.7000e-004	0.0303		105.2194	105.2194	2.2500e-003		105.2758
Total	0.0361	0.0218	0.3037	1.0600e-003	0.1118	7.2000e-004	0.1125	0.0296	6.7000e-004	0.0303		105.2194	105.2194	2.2500e-003		105.2758

Washington Ave Lot Well &amp; Facility - Orange County, Summer

**3.3 Phase 2 Surface Facilities - 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	2.3563	25.3897	14.2907	0.0291		1.1701	1.1701		1.0773	1.0773		2,806.0234	2,806.0234	0.9000		2,828.5222
<b>Total</b>	<b>2.3563</b>	<b>25.3897</b>	<b>14.2907</b>	<b>0.0291</b>		<b>1.1701</b>	<b>1.1701</b>		<b>1.0773</b>	<b>1.0773</b>		<b>2,806.0234</b>	<b>2,806.0234</b>	<b>0.9000</b>		<b>2,828.5222</b>

**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	8.0100e-003	0.2814	0.0763	7.4000e-004	0.0192	5.8000e-004	0.0198	5.5200e-003	5.6000e-004	6.0700e-003		80.6378	80.6378	6.3200e-003		80.7958
Worker	0.0253	0.0153	0.2126	7.4000e-004	0.0782	5.1000e-004	0.0788	0.0208	4.7000e-004	0.0212		73.6536	73.6536	1.5800e-003		73.6930
<b>Total</b>	<b>0.0333</b>	<b>0.2967</b>	<b>0.2889</b>	<b>1.4800e-003</b>	<b>0.0974</b>	<b>1.0900e-003</b>	<b>0.0985</b>	<b>0.0263</b>	<b>1.0300e-003</b>	<b>0.0273</b>		<b>154.2913</b>	<b>154.2913</b>	<b>7.9000e-003</b>		<b>154.4889</b>

Washington Ave Lot Well &amp; Facility - Orange County, Summer

**3.3 Phase 2 Surface Facilities - 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															
Off-Road	2.3563	25.3897	14.2907	0.0291		1.1701	1.1701		1.0773	1.0773	0.0000	2,806.023 4	2,806.023 4	0.9000		2,828.522 2
Total	2.3563	25.3897	14.2907	0.0291		1.1701	1.1701		1.0773	1.0773	0.0000	2,806.023 4	2,806.023 4	0.9000		2,828.522 2

**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															
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	8.0100e-003	0.2814	0.0763	7.4000e-004	0.0192	5.8000e-004	0.0198	5.5200e-003	5.6000e-004	6.0700e-003		80.6378	80.6378	6.3200e-003		80.7958
Worker	0.0253	0.0153	0.2126	7.4000e-004	0.0782	5.1000e-004	0.0788	0.0208	4.7000e-004	0.0212		73.6536	73.6536	1.5800e-003		73.6930
Total	0.0333	0.2967	0.2889	1.4800e-003	0.0974	1.0900e-003	0.0985	0.0263	1.0300e-003	0.0273		154.2913	154.2913	7.9000e-003		154.4889

Washington Ave Lot Well &amp; Facility - Orange County, Summer

**3.3 Phase 2 Surface Facilities - 2022****Unmitigated Construction On-Site**

Category	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
lb/day																
Off-Road	2.0162	21.4297	13.6841	0.0291		0.9621	0.9621		0.8859	0.8859		2,805.509 3	2,805.509 3	0.8998		2,828.004 0
Total	2.0162	21.4297	13.6841	0.0291		0.9621	0.9621		0.8859	0.8859		2,805.509 3	2,805.509 3	0.8998		2,828.004 0

**Unmitigated Construction Off-Site**

Category	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
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	7.5300e-003	0.2663	0.0737	7.3000e-004	0.0192	5.1000e-004	0.0197	5.5200e-003	4.9000e-004	6.0000e-003		79.8458	79.8458	6.1300e-003		79.9989
Worker	0.0239	0.0139	0.1984	7.1000e-004	0.0782	5.0000e-004	0.0787	0.0208	4.6000e-004	0.0212		70.9241	70.9241	1.4300e-003		70.9599
Total	0.0314	0.2801	0.2721	1.4400e-003	0.0974	1.0100e-003	0.0984	0.0263	9.5000e-004	0.0272		150.7699	150.7699	7.5600e-003		150.9588



Washington Ave Lot Well &amp; Facility - Orange County, Summer

**3.3 Phase 2 Surface Facilities - 2022****Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	2.0162	21.4297	13.6841	0.0291		0.9621	0.9621		0.8859	0.8859	0.0000	2,805.509 3	2,805.509 3	0.8998		2,828.004 0
Total	2.0162	21.4297	13.6841	0.0291		0.9621	0.9621		0.8859	0.8859	0.0000	2,805.509 3	2,805.509 3	0.8998		2,828.004 0

**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															
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	7.5300e-003	0.2663	0.0737	7.3000e-004	0.0192	5.1000e-004	0.0197	5.5200e-003	4.9000e-004	6.0000e-003		79.8458	79.8458	6.1300e-003		79.9989
Worker	0.0239	0.0139	0.1984	7.1000e-004	0.0782	5.0000e-004	0.0787	0.0208	4.6000e-004	0.0212		70.9241	70.9241	1.4300e-003		70.9599
Total	0.0314	0.2801	0.2721	1.4400e-003	0.0974	1.0100e-003	0.0984	0.0263	9.5000e-004	0.0272		150.7699	150.7699	7.5600e-003		150.9588

**4.0 Operational Detail - Mobile**

Washington Ave Lot Well &amp; Facility - Orange County, Summer

**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	3.3100e-003	0.0139	0.0505	2.0000e-004	0.0187	1.4000e-004	0.0189	5.0000e-003	1.3000e-004	5.1400e-003		20.6301	20.6301	8.0000e-004		20.6501
Unmitigated	3.3100e-003	0.0139	0.0505	2.0000e-004	0.0187	1.4000e-004	0.0189	5.0000e-003	1.3000e-004	5.1400e-003		20.6301	20.6301	8.0000e-004		20.6501

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
General Light Industry	0.00	1.99	0.00	1,260	1,260
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	1.99	0.00	1,260	1,260

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	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
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

**4.4 Fleet Mix**

## Washington Ave Lot Well &amp; Facility - Orange County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934
Other Asphalt Surfaces	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

**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															
NaturalGas Mitigated	2.0500e-003	0.0186	0.0157	1.1000e-004	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	22.3652	22.3652	22.3652	4.3000e-004	4.1000e-004	22.4981
NaturalGas Unmitigated	2.0500e-003	0.0186	0.0157	1.1000e-004	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	22.3652	22.3652	22.3652	4.3000e-004	4.1000e-004	22.4981

Washington Ave Lot Well &amp; Facility - Orange County, Summer

**5.2 Energy by Land Use - Natural Gas****Unmitigated**

Land Use	Natural Gas Use kBtu/yr	CO <sub>2</sub>	NO <sub>x</sub>	CO	SO <sub>2</sub>	Fugitive PM <sub>10</sub>	Exhaust PM <sub>10</sub>	PM <sub>10</sub> Total	Fugitive PM <sub>2.5</sub>	Exhaust PM <sub>2.5</sub>	PM <sub>2.5</sub> Total	Bio- CO <sub>2</sub>	NBio- CO <sub>2</sub>	Total CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
lb/day																	
General Light Industry	190.104	2.0500e-003	0.0186	0.0157	1.1000e-004	1.4200e-003	1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003		22.3652	22.3652	4.3000e-004	4.1000e-004	22.4981
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>2.0500e-003</b>	<b>0.0186</b>	<b>0.0157</b>	<b>1.1000e-004</b>	<b>1.4200e-003</b>	<b>1.4200e-003</b>	<b>1.4200e-003</b>		<b>1.4200e-003</b>	<b>1.4200e-003</b>		<b>22.3652</b>	<b>22.3652</b>	<b>4.3000e-004</b>	<b>4.1000e-004</b>	<b>22.4981</b>

**Mitigated**

Land Use	Natural Gas Use kBtu/yr	CO <sub>2</sub>	NO <sub>x</sub>	CO	SO <sub>2</sub>	Fugitive PM <sub>10</sub>	Exhaust PM <sub>10</sub>	PM <sub>10</sub> Total	Fugitive PM <sub>2.5</sub>	Exhaust PM <sub>2.5</sub>	PM <sub>2.5</sub> Total	Bio- CO <sub>2</sub>	NBio- CO <sub>2</sub>	Total CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
lb/day																	
General Light Industry	0.190104	2.0500e-003	0.0186	0.0157	1.1000e-004	1.4200e-003	1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003		22.3652	22.3652	4.3000e-004	4.1000e-004	22.4981
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>2.0500e-003</b>	<b>0.0186</b>	<b>0.0157</b>	<b>1.1000e-004</b>	<b>1.4200e-003</b>	<b>1.4200e-003</b>	<b>1.4200e-003</b>		<b>1.4200e-003</b>	<b>1.4200e-003</b>		<b>22.3652</b>	<b>22.3652</b>	<b>4.3000e-004</b>	<b>4.1000e-004</b>	<b>22.4981</b>

**6.0 Area Detail****6.1 Mitigation Measures Area**

## Washington Ave Lot Well &amp; Facility - Orange County, Summer

Category	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
lb/day																
Mitigated	0.0806	2.0000e-005	1.8200e-003	0.0000		1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005		3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003
Unmitigated	0.0806	2.0000e-005	1.8200e-003	0.0000		1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005		3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003

## 6.2 Area by SubCategory

Unmitigated

SubCategory	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
lb/day																
Architectural Coating	9.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0709					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003
<b>Total</b>	<b>0.0806</b>	<b>2.0000e-005</b>	<b>1.8200e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>3.9000e-003</b>	<b>3.9000e-003</b>	<b>1.0000e-005</b>		<b>4.1600e-003</b>

Washington Ave Lot Well &amp; Facility - Orange County, Summer

**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	9.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0709					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003
Total	0.0806	2.0000e-005	1.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003

**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
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**10.0 Stationary Equipment****Fire Pumps and Emergency Generators**



Washington Ave Lot Well & Facility - Orange County, Summer

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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Washington Ave Lot Well & Facility - Orange County, Winter

**Washington Ave Lot Well & Facility**  
Orange County, Winter

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	3.32	1000sqft	0.42	3,320.00	0
Other Asphalt Surfaces	14.50	1000sqft	0.33	14,500.00	0

**1.2 Other Project Characteristics**

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2022

Utility Company      Southern California Edison

CO2 Intensity (lb/MW/hr)	702.44	CH4 Intensity (lb/MW/hr)	0.029	N2O Intensity (lb/MW/hr)	0.006
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**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Total Disturbed area = 0.75 acres

Construction Phase - Construction schedule provided by applicant

Off-road Equipment - Phase 1: 1 Bore/Drill Rig; 1 Crane; 2 Off-Hwy Trucks

Off-road Equipment - Phase 2: 1 Rubber-Tired Dozer; 1 Excavator; 1 Rubber-Tired Loader; 1 Grader; 1 Compactor; 1 Tractor

Off-road Equipment - Well Operations: 1 Off-Hwy Truck

Trips and VMT -

Vehicle Trips - Saturday Trips set to 0.6 per TSF per day, which equates to 2 trips per week.

## Washington Ave Lot Well &amp; Facility - Orange County, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	261.00
tblLandUse	LotAcreage	0.08	0.42
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblVehicleTrips	ST_TR	1.32	0.60
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00

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**2.0 Emissions Summary**

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## Washington Ave Lot Well &amp; Facility - Orange County, Winter

**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	0.0806	2.0000e-005	1.8200e-003	0.0000		1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005		3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003
Energy	2.0500e-003	0.0186	0.0157	1.1000e-004		1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003		22.3652	22.3652	4.3000e-004	4.1000e-004	22.4981
Mobile	3.2500e-003	0.0144	0.0477	1.9000e-004	0.0187	1.4000e-004	0.0189	5.0000e-003	1.3000e-004	5.1400e-003		19.7259	19.7259	7.9000e-004		19.7457
<b>Total</b>	<b>0.0859</b>	<b>0.0330</b>	<b>0.0652</b>	<b>3.0000e-004</b>	<b>0.0187</b>	<b>1.5700e-003</b>	<b>0.0203</b>	<b>5.0000e-003</b>	<b>1.5600e-003</b>	<b>6.5700e-003</b>		<b>42.0950</b>	<b>42.0950</b>	<b>1.2300e-003</b>	<b>4.1000e-004</b>	<b>42.2479</b>

**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	0.0806	2.0000e-005	1.8200e-003	0.0000		1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005		3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003
Energy	2.0500e-003	0.0186	0.0157	1.1000e-004		1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003		22.3652	22.3652	4.3000e-004	4.1000e-004	22.4981
Mobile	3.2500e-003	0.0144	0.0477	1.9000e-004	0.0187	1.4000e-004	0.0189	5.0000e-003	1.3000e-004	5.1400e-003		19.7259	19.7259	7.9000e-004		19.7457
<b>Total</b>	<b>0.0859</b>	<b>0.0330</b>	<b>0.0652</b>	<b>3.0000e-004</b>	<b>0.0187</b>	<b>1.5700e-003</b>	<b>0.0203</b>	<b>5.0000e-003</b>	<b>1.5600e-003</b>	<b>6.5700e-003</b>		<b>42.0950</b>	<b>42.0950</b>	<b>1.2300e-003</b>	<b>4.1000e-004</b>	<b>42.2479</b>

## Washington Ave Lot Well &amp; Facility - Orange County, Winter

	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail****Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1 Well Drilling - Construction	Trenching	1/1/2021	6/30/2021	5	129	
2	Phase 2 Surface Facilities	Building Construction	7/1/2021	6/30/2022	5	261	

**Acres of Grading (Site Preparation Phase): 0****Acres of Grading (Grading Phase): 0****Acres of Paving: 0.33****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**



## Washington Ave Lot Well &amp; Facility - Orange County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 2 Surface Facilities	Cranes	1	4.00	231	0.29
Phase 2 Surface Facilities	Excavators	1	8.00	158	0.38
Phase 2 Surface Facilities	Forklifts	2	6.00	89	0.20
Phase 2 Surface Facilities	Graders	1	8.00	187	0.41
Phase 2 Surface Facilities	Plate Compactors	1	8.00	8	0.43
Phase 2 Surface Facilities	Rubber Tired Dozers	1	8.00	247	0.40
Phase 2 Surface Facilities	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 1 Well Drilling - Construction	Bore/Drill Rigs	1	24.00	221	0.50
Phase 1 Well Drilling - Construction	Cranes	1	24.00	231	0.29
Phase 1 Well Drilling - Construction	Off-Highway Trucks	2	24.00	402	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 2 Surface Facilities	8	7.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Well Drilling - Construction	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Washington Ave Lot Well &amp; Facility - Orange County, Winter

**3.2 Phase 1 Well Drilling - Construction - 2021****Unmitigated Construction On-Site**

Category	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
lb/day																
Off-Road	5.6486	55.1965	33.7966	0.1248		2.0239	2.0239		1.8620	1.8620		12,083.5415	12,083.5415	3.9081		12,181.2430
Total	5.6486	55.1965	33.7966	0.1248		2.0239	2.0239		1.8620	1.8620		12,083.5415	12,083.5415	3.9081		12,181.2430

**Unmitigated Construction Off-Site**

Category	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
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	0.0409	0.0240	0.2803	1.0000e-003	0.1118	7.2000e-004	0.1125	0.0296	6.7000e-004	0.0303		99.5832	99.5832	2.1300e-003		99.6365
Total	0.0409	0.0240	0.2803	1.0000e-003	0.1118	7.2000e-004	0.1125	0.0296	6.7000e-004	0.0303		99.5832	99.5832	2.1300e-003		99.6365

Washington Ave Lot Well &amp; Facility - Orange County, Winter

**3.2 Phase 1 Well Drilling - Construction - 2021****Mitigated Construction On-Site**

Category	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
lb/day																
Off-Road	5.6486	55.1965	33.7966	0.1248		2.0239	2.0239		1.8620	1.8620	0.0000	12,083.5415	12,083.5415	3.9081		12,181.2430
Total	5.6486	55.1965	33.7966	0.1248		2.0239	2.0239		1.8620	1.8620	0.0000	12,083.5415	12,083.5415	3.9081		12,181.2430

**Mitigated Construction Off-Site**

Category	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
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	0.0409	0.0240	0.2803	1.0000e-003	0.1118	7.2000e-004	0.1125	0.0296	6.7000e-004	0.0303		99.5832	99.5832	2.1300e-003		99.6365
Total	0.0409	0.0240	0.2803	1.0000e-003	0.1118	7.2000e-004	0.1125	0.0296	6.7000e-004	0.0303		99.5832	99.5832	2.1300e-003		99.6365

Washington Ave Lot Well &amp; Facility - Orange County, Winter

**3.3 Phase 2 Surface Facilities - 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	2.3563	25.3897	14.2907	0.0291		1.1701	1.1701		1.0773	1.0773		2,806.0234	2,806.0234	0.9000		2,828.5222
Total	2.3563	25.3897	14.2907	0.0291		1.1701	1.1701		1.0773	1.0773		2,806.0234	2,806.0234	0.9000		2,828.5222

**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	8.4000e-003	0.2808	0.0837	7.2000e-004	0.0192	6.1000e-004	0.0198	5.5200e-003	5.8000e-004	6.1000e-003		78.6567	78.6567	6.6300e-003		78.8225
Worker	0.0286	0.0168	0.1962	7.0000e-004	0.0782	5.1000e-004	0.0788	0.0208	4.7000e-004	0.0212		69.7083	69.7083	1.4900e-003		69.7456
Total	0.0370	0.2976	0.2799	1.4200e-003	0.0974	1.1200e-003	0.0985	0.0263	1.0500e-003	0.0273		148.3650	148.3650	8.1200e-003		148.5681

Washington Ave Lot Well &amp; Facility - Orange County, Winter

**3.3 Phase 2 Surface Facilities - 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															
Off-Road	2.3563	25.3897	14.2907	0.0291		1.1701	1.1701		1.0773	1.0773	0.0000	2,806.0234	2,806.0234	0.9000		2,828.5222
Total	2.3563	25.3897	14.2907	0.0291		1.1701	1.1701		1.0773	1.0773	0.0000	2,806.0234	2,806.0234	0.9000		2,828.5222

**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															
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	8.4000e-003	0.2808	0.0837	7.2000e-004	0.0192	6.1000e-004	0.0198	5.5200e-003	5.8000e-004	6.1000e-003		78.6567	78.6567	6.6300e-003		78.8225
Worker	0.0286	0.0168	0.1962	7.0000e-004	0.0782	5.1000e-004	0.0788	0.0208	4.7000e-004	0.0212		69.7083	69.7083	1.4900e-003		69.7456
Total	0.0370	0.2976	0.2799	1.4200e-003	0.0974	1.1200e-003	0.0985	0.0263	1.0500e-003	0.0273		148.3650	148.3650	8.1200e-003		148.5681

Washington Ave Lot Well &amp; Facility - Orange County, Winter

**3.3 Phase 2 Surface Facilities - 2022****Unmitigated Construction On-Site**

Category	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
lb/day																
Off-Road	2.0162	21.4297	13.6841	0.0291		0.9621	0.9621		0.8859	0.8859		2,805.509 3	2,805.509 3	0.8998		2,828.004 0
Total	2.0162	21.4297	13.6841	0.0291		0.9621	0.9621		0.8859	0.8859		2,805.509 3	2,805.509 3	0.8998		2,828.004 0

**Unmitigated Construction Off-Site**

Category	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
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	7.9000e-003	0.2655	0.0807	7.1000e-004	0.0192	5.3000e-004	0.0197	5.5200e-003	5.1000e-004	6.0200e-003		77.8768	77.8768	6.4100e-003		78.0371
Worker	0.0271	0.0152	0.1828	6.7000e-004	0.0782	5.0000e-004	0.0787	0.0208	4.6000e-004	0.0212		67.1285	67.1285	1.3500e-003		67.1624
Total	0.0350	0.2807	0.2636	1.3800e-003	0.0974	1.0300e-003	0.0984	0.0263	9.7000e-004	0.0272		145.0053	145.0053	7.7600e-003		145.1995



Washington Ave Lot Well &amp; Facility - Orange County, Winter

**3.3 Phase 2 Surface Facilities - 2022****Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	2.0162	21.4297	13.6841	0.0291		0.9621	0.9621		0.8859	0.8859	0.0000	2,805.509 3	2,805.509 3	0.8998		2,828.004 0
Total	2.0162	21.4297	13.6841	0.0291		0.9621	0.9621		0.8859	0.8859	0.0000	2,805.509 3	2,805.509 3	0.8998		2,828.004 0

**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															
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	7.9000e-003	0.2655	0.0807	7.1000e-004	0.0192	5.3000e-004	0.0197	5.5200e-003	5.1000e-004	6.0200e-003		77.8768	77.8768	6.4100e-003		78.0371
Worker	0.0271	0.0152	0.1828	6.7000e-004	0.0782	5.0000e-004	0.0787	0.0208	4.6000e-004	0.0212		67.1285	67.1285	1.3500e-003		67.1624
Total	0.0350	0.2807	0.2636	1.3800e-003	0.0974	1.0300e-003	0.0984	0.0263	9.7000e-004	0.0272		145.0053	145.0053	7.7600e-003		145.1995

**4.0 Operational Detail - Mobile**

Washington Ave Lot Well &amp; Facility - Orange County, Winter

**4.1 Mitigation Measures Mobile**

Category	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
lb/day																
Mitigated	3.2500e-003	0.0144	0.0477	1.9000e-004	0.0187	1.4000e-004	0.0189	5.0000e-003	1.3000e-004	5.1400e-003	19.7259	19.7259	19.7259	7.9000e-004		19.7457
Unmitigated	3.2500e-003	0.0144	0.0477	1.9000e-004	0.0187	1.4000e-004	0.0189	5.0000e-003	1.3000e-004	5.1400e-003	19.7259	19.7259	19.7259	7.9000e-004		19.7457

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
General Light Industry	0.00	1.99	0.00	1,260		1,260	
Other Asphalt Surfaces	0.00	0.00	0.00				
Total	0.00	1.99	0.00	1,260		1,260	

**4.3 Trip Type Information**

Land Use	Miles				Trip %				Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	6.90	59.00	28.00	13.00	13.00	92	5	3
Other Asphalt Surfaces	16.60	8.40	6.90	6.90	0.00	0.00	0.00	0.00	0	0	0

**4.4 Fleet Mix**

## Washington Ave Lot Well &amp; Facility - Orange County, Winter

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934
Other Asphalt Surfaces	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

**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															
NaturalGas Mitigated	2.0500e-003	0.0186	0.0157	1.1000e-004	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	22.3652	22.3652	22.3652	4.3000e-004	4.1000e-004	22.4981
NaturalGas Unmitigated	2.0500e-003	0.0186	0.0157	1.1000e-004	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	1.4200e-003	22.3652	22.3652	22.3652	4.3000e-004	4.1000e-004	22.4981

Washington Ave Lot Well &amp; Facility - Orange County, Winter

**5.2 Energy by Land Use - NaturalGas****Unmitigated**

Land Use	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
	kBTU/yr																
General Light Industry	190.104	2.0500e-003	0.0186	0.0157	1.1000e-004	1.4200e-003	1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003		22.3652	22.3652	4.3000e-004	4.1000e-004	22.4981
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>2.0500e-003</b>	<b>0.0186</b>	<b>0.0157</b>	<b>1.1000e-004</b>	<b>1.4200e-003</b>	<b>1.4200e-003</b>	<b>1.4200e-003</b>		<b>1.4200e-003</b>	<b>1.4200e-003</b>		<b>22.3652</b>	<b>22.3652</b>	<b>4.3000e-004</b>	<b>4.1000e-004</b>	<b>22.4981</b>

**Mitigated**

Land Use	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
	kBTU/yr																
General Light Industry	0.190104	2.0500e-003	0.0186	0.0157	1.1000e-004	1.4200e-003	1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003		22.3652	22.3652	4.3000e-004	4.1000e-004	22.4981
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>2.0500e-003</b>	<b>0.0186</b>	<b>0.0157</b>	<b>1.1000e-004</b>	<b>1.4200e-003</b>	<b>1.4200e-003</b>	<b>1.4200e-003</b>		<b>1.4200e-003</b>	<b>1.4200e-003</b>		<b>22.3652</b>	<b>22.3652</b>	<b>4.3000e-004</b>	<b>4.1000e-004</b>	<b>22.4981</b>

**6.0 Area Detail****6.1 Mitigation Measures Area**

## Washington Ave Lot Well &amp; Facility - Orange County, Winter

Category	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
lb/day																
Mitigated	0.0806	2.0000e-005	1.8200e-003	0.0000		1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005		3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003
Unmitigated	0.0806	2.0000e-005	1.8200e-003	0.0000		1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005		3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003

## 6.2 Area by SubCategory

Unmitigated

SubCategory	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
lb/day																
Architectural Coating	9.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0709					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003
<b>Total</b>	<b>0.0806</b>	<b>2.0000e-005</b>	<b>1.8200e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>3.9000e-003</b>	<b>3.9000e-003</b>	<b>1.0000e-005</b>		<b>4.1600e-003</b>

Washington Ave Lot Well &amp; Facility - Orange County, Winter

**6.2 Area by SubCategory****Mitigated**

SubCategory	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
Architectural Coating	9.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0709					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8200e-003	0.0000	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005		3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003
Total	0.0806	2.0000e-005	1.8200e-003	0.0000	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005		3.9000e-003	3.9000e-003	1.0000e-005		4.1600e-003

**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
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**10.0 Stationary Equipment****Fire Pumps and Emergency Generators**



Washington Ave Lot Well & Facility - Orange County, Winter

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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## **APPENDIX B**

### CalEEMod Model Annual Printouts

Washington Ave Lot Well & Facility - Orange County, Annual

**Washington Ave Lot Well & Facility**  
Orange County, Annual

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	3.32	1000sqft	0.42	3,320.00	0
Other Asphalt Surfaces	14.50	1000sqft	0.33	14,500.00	0

**1.2 Other Project Characteristics**

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2022

Utility Company      Southern California Edison

CO2 Intensity (lb/MW/hr)	702.44	CH4 Intensity (lb/MW/hr)	0.029	N2O Intensity (lb/MW/hr)	0.006
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**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Total Disturbed area = 0.75 acres

Construction Phase - Construction schedule provided by applicant

Off-road Equipment - Phase 1: 1 Bore/Drill Rig; 1 Crane; 2 Off-Hwy Trucks

Off-road Equipment - Phase 2: 1 Rubber-Tired Dozer; 1 Excavator; 1 Rubber-Tired Loader; 1 Grader; 1 Compactor; 1 Tractor

Off-road Equipment - Well Operations: 1 Off-Hwy Truck

Trips and VMT -

Vehicle Trips - Saturday Trips set to 0.6 per TSF per day, which equates to 2 trips per week.

## Washington Ave Lot Well &amp; Facility - Orange County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	261.00
tblLandUse	LotAcreage	0.08	0.42
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblVehicleTrips	ST_TR	1.32	0.60
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00

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**2.0 Emissions Summary**

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## Washington Ave Lot Well &amp; Facility - Orange County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	1.9578	1.9578
2	4-1-2021	6-30-2021	1.9793	1.9793
3	7-1-2021	9-30-2021	0.9225	0.9225
4	10-1-2021	12-31-2021	0.9227	0.9227
5	1-1-2022	3-31-2022	0.7638	0.7638
6	4-1-2022	6-30-2022	0.7721	0.7721
		Highest	1.9793	1.9793

**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	0.0147	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004
Energy	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	12.6414	12.6414	4.4000e-004	1.4000e-004	12.6954
Mobile	8.0000e-005	3.8000e-004	1.2600e-003	1.0000e-005	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4708	0.4708	2.0000e-005	0.0000	0.4713
Waste						0.0000	0.0000		0.0000	0.0000	0.8363	0.0000	0.8363	0.0494	0.0000	2.0720
Water						0.0000	0.0000		0.0000	0.0000	0.2436	3.1852	3.4288	0.0252	6.2000e-004	4.2416
<b>Total</b>	<b>0.0152</b>	<b>3.7800e-003</b>	<b>4.3500e-003</b>	<b>3.0000e-005</b>	<b>4.8000e-004</b>	<b>2.6000e-004</b>	<b>7.4000e-004</b>	<b>1.3000e-004</b>	<b>2.6000e-004</b>	<b>3.9000e-004</b>	<b>1.0799</b>	<b>16.2979</b>	<b>17.3778</b>	<b>0.0750</b>	<b>7.6000e-004</b>	<b>19.4807</b>

## Washington Ave Lot Well &amp; Facility - Orange County, Annual

**2.2 Overall Operational****Mitigated Operational**

Category	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
	tons/yr										MT/yr					
Area	0.0147	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004
Energy	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005	2.6000e-004	2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	12.6414	12.6414	4.4000e-004	1.4000e-004	12.6954
Mobile	8.0000e-005	3.8000e-004	1.2600e-003	1.0000e-005	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4708	0.4708	2.0000e-005	0.0000	0.4713
Waste						0.0000	0.0000		0.0000	0.0000	0.8363	0.0000	0.8363	0.0494	0.0000	2.0720
Water						0.0000	0.0000		0.0000	0.0000	0.2436	3.1852	3.4288	0.0252	6.2000e-004	4.2416
<b>Total</b>	<b>0.0152</b>	<b>3.7800e-003</b>	<b>4.3500e-003</b>	<b>3.0000e-005</b>	<b>4.8000e-004</b>	<b>2.6000e-004</b>	<b>7.4000e-004</b>	<b>1.3000e-004</b>	<b>2.6000e-004</b>	<b>3.9000e-004</b>	<b>1.0799</b>	<b>16.2979</b>	<b>17.3778</b>	<b>0.0750</b>	<b>7.6000e-004</b>	<b>19.4807</b>

	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail****Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1 Well Drilling - Construction	Trenching	1/1/2021	6/30/2021	5	129	
2	Phase 2 Surface Facilities	Building Construction	7/1/2021	6/30/2022	5	261	



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**Acres of Grading (Site Preparation Phase): 0****Acres of Grading (Grading Phase): 0****Acres of Paving: 0.33****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 2 Surface Facilities	Cranes	1	4.00	231	0.29
Phase 2 Surface Facilities	Excavators	1	8.00	158	0.38
Phase 2 Surface Facilities	Forklifts	2	6.00	89	0.20
Phase 2 Surface Facilities	Graders	1	8.00	187	0.41
Phase 2 Surface Facilities	Plate Compactors	1	8.00	8	0.43
Phase 2 Surface Facilities	Rubber Tired Dozers	1	8.00	247	0.40
Phase 2 Surface Facilities	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 1 Well Drilling - Construction	Bore/Drill Rigs	1	24.00	221	0.50
Phase 1 Well Drilling - Construction	Cranes	1	24.00	231	0.29
Phase 1 Well Drilling - Construction	Off-Highway Trucks	2	24.00	402	0.38

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 2 Surface Facilities	8	7.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Well Drilling - Construction	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

## Washington Ave Lot Well &amp; Facility - Orange County, Annual

**3.2 Phase 1 Well Drilling - Construction - 2021****Unmitigated Construction On-Site**

Category	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
tons/yr											MT/yr					
Off-Road	0.3643	3.5602	2.1799	8.0500e-003		0.1305	0.1305		0.1201	0.1201	0.0000	707.0493	707.0493	0.2287	0.0000	712.7661
<b>Total</b>	<b>0.3643</b>	<b>3.5602</b>	<b>2.1799</b>	<b>8.0500e-003</b>		<b>0.1305</b>	<b>0.1305</b>		<b>0.1201</b>	<b>0.1201</b>	<b>0.0000</b>	<b>707.0493</b>	<b>707.0493</b>	<b>0.2287</b>	<b>0.0000</b>	<b>712.7661</b>

**Unmitigated Construction Off-Site**

Category	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
tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3600e-003	1.5900e-003	0.0185	7.0000e-005	7.0800e-003	5.0000e-005	7.1300e-003	1.8800e-003	4.0000e-005	1.9200e-003	0.0000	5.9159	5.9159	1.3000e-004	0.0000	5.9190
<b>Total</b>	<b>2.3600e-003</b>	<b>1.5900e-003</b>	<b>0.0185</b>	<b>7.0000e-005</b>	<b>7.0800e-003</b>	<b>5.0000e-005</b>	<b>7.1300e-003</b>	<b>1.8800e-003</b>	<b>4.0000e-005</b>	<b>1.9200e-003</b>	<b>0.0000</b>	<b>5.9159</b>	<b>5.9159</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>5.9190</b>

## Washington Ave Lot Well &amp; Facility - Orange County, Annual

**3.2 Phase 1 Well Drilling - Construction - 2021****Mitigated Construction On-Site**

Category	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
tons/yr											MT/yr					
Off-Road	0.3643	3.5602	2.1799	8.0500e-003		0.1305	0.1305		0.1201	0.1201	0.0000	707.0485	707.0485	0.2287	0.0000	712.7653
<b>Total</b>	<b>0.3643</b>	<b>3.5602</b>	<b>2.1799</b>	<b>8.0500e-003</b>		<b>0.1305</b>	<b>0.1305</b>		<b>0.1201</b>	<b>0.1201</b>	<b>0.0000</b>	<b>707.0485</b>	<b>707.0485</b>	<b>0.2287</b>	<b>0.0000</b>	<b>712.7653</b>

**Mitigated Construction Off-Site**

Category	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
tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3600e-003	1.5900e-003	0.0185	7.0000e-005	7.0800e-003	5.0000e-005	7.1300e-003	1.8800e-003	4.0000e-005	1.9200e-003	0.0000	5.9159	5.9159	1.3000e-004	0.0000	5.9190
<b>Total</b>	<b>2.3600e-003</b>	<b>1.5900e-003</b>	<b>0.0185</b>	<b>7.0000e-005</b>	<b>7.0800e-003</b>	<b>5.0000e-005</b>	<b>7.1300e-003</b>	<b>1.8800e-003</b>	<b>4.0000e-005</b>	<b>1.9200e-003</b>	<b>0.0000</b>	<b>5.9159</b>	<b>5.9159</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>5.9190</b>

## Washington Ave Lot Well &amp; Facility - Orange County, Annual

**3.3 Phase 2 Surface Facilities - 2021****Unmitigated Construction On-Site**

Category	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
tons/yr											MT/yr					
Off-Road	0.1555	1.6757	0.9432	1.9200e-003		0.0772	0.0772		0.0711	0.0711	0.0000	168.0084	168.0084	0.0539	0.0000	169.3555
<b>Total</b>	<b>0.1555</b>	<b>1.6757</b>	<b>0.9432</b>	<b>1.9200e-003</b>		<b>0.0772</b>	<b>0.0772</b>		<b>0.0711</b>	<b>0.0711</b>	<b>0.0000</b>	<b>168.0084</b>	<b>168.0084</b>	<b>0.0539</b>	<b>0.0000</b>	<b>169.3555</b>

**Unmitigated Construction Off-Site**

Category	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
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	5.4000e-004	0.0189	5.2900e-003	5.0000e-005	1.2500e-003	4.0000e-005	1.2900e-003	3.6000e-004	4.0000e-005	4.0000e-004	0.0000	4.7783	4.7783	3.9000e-004	0.0000	4.7880
Worker	1.6900e-003	1.1400e-003	0.0133	5.0000e-005	5.0700e-003	3.0000e-005	5.1100e-003	1.3500e-003	3.0000e-005	1.3800e-003	0.0000	4.2374	4.2374	9.0000e-005	0.0000	4.2397
<b>Total</b>	<b>2.2300e-003</b>	<b>0.0200</b>	<b>0.0186</b>	<b>1.0000e-004</b>	<b>6.3200e-003</b>	<b>7.0000e-005</b>	<b>6.4000e-003</b>	<b>1.7100e-003</b>	<b>7.0000e-005</b>	<b>1.7800e-003</b>	<b>0.0000</b>	<b>9.0157</b>	<b>9.0157</b>	<b>4.8000e-004</b>	<b>0.0000</b>	<b>9.0277</b>

## Washington Ave Lot Well &amp; Facility - Orange County, Annual

**3.3 Phase 2 Surface Facilities - 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	0.1555	1.6757	0.9432	1.9200e-003		0.0772	0.0772		0.0711	0.0711	0.0000	168.0082	168.0082	0.0539	0.0000	169.3553
Total	0.1555	1.6757	0.9432	1.9200e-003		0.0772	0.0772		0.0711	0.0711	0.0000	168.0082	168.0082	0.0539	0.0000	169.3553

**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	5.4000e-004	0.0189	5.2900e-003	5.0000e-005	1.2500e-003	4.0000e-005	1.2900e-003	3.6000e-004	4.0000e-005	4.0000e-004	0.0000	4.7783	4.7783	3.9000e-004	0.0000	4.7880
Worker	1.6900e-003	1.1400e-003	0.0133	5.0000e-005	5.0700e-003	3.0000e-005	5.1100e-003	1.3500e-003	3.0000e-005	1.3800e-003	0.0000	4.2374	4.2374	9.0000e-005	0.0000	4.2397
Total	2.2300e-003	0.0200	0.0186	1.0000e-004	6.3200e-003	7.0000e-005	6.4000e-003	1.7100e-003	7.0000e-005	1.7800e-003	0.0000	9.0157	9.0157	4.8000e-004	0.0000	9.0277

## Washington Ave Lot Well &amp; Facility - Orange County, Annual

**3.3 Phase 2 Surface Facilities - 2022****Unmitigated Construction On-Site**

Category	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
tons/yr											MT/yr					
Off-Road	0.1301	1.3822	0.8826	1.8800e-003		0.0621	0.0621		0.0571	0.0571	0.0000	164.1599	164.1599	0.0527	0.0000	165.4762
<b>Total</b>	<b>0.1301</b>	<b>1.3822</b>	<b>0.8826</b>	<b>1.8800e-003</b>		<b>0.0621</b>	<b>0.0621</b>		<b>0.0571</b>	<b>0.0571</b>	<b>0.0000</b>	<b>164.1599</b>	<b>164.1599</b>	<b>0.0527</b>	<b>0.0000</b>	<b>165.4762</b>

**Unmitigated Construction Off-Site**

Category	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
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	5.0000e-004	0.0174	4.9900e-003	5.0000e-005	1.2200e-003	3.0000e-005	1.2500e-003	3.5000e-004	3.0000e-005	3.8000e-004	0.0000	4.6237	4.6237	3.7000e-004	0.0000	4.6328
Worker	1.5700e-003	1.0100e-003	0.0121	4.0000e-005	4.9600e-003	3.0000e-005	4.9900e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	3.9878	3.9878	8.0000e-005	0.0000	3.9898
<b>Total</b>	<b>2.0700e-003</b>	<b>0.0184</b>	<b>0.0171</b>	<b>9.0000e-005</b>	<b>6.1800e-003</b>	<b>6.0000e-005</b>	<b>6.2400e-003</b>	<b>1.6700e-003</b>	<b>6.0000e-005</b>	<b>1.7300e-003</b>	<b>0.0000</b>	<b>8.6115</b>	<b>8.6115</b>	<b>4.5000e-004</b>	<b>0.0000</b>	<b>8.6226</b>

## Washington Ave Lot Well &amp; Facility - Orange County, Annual

**3.3 Phase 2 Surface Facilities - 2022****Mitigated Construction On-Site**

Category	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
tons/yr										MT/yr						
Off-Road	0.1301	1.3822	0.8826	1.8800e-003		0.0621	0.0621		0.0571	0.0571	0.0000	164.1597	164.1597	0.0527	0.0000	165.4760
<b>Total</b>	<b>0.1301</b>	<b>1.3822</b>	<b>0.8826</b>	<b>1.8800e-003</b>		<b>0.0621</b>	<b>0.0621</b>		<b>0.0571</b>	<b>0.0571</b>	<b>0.0000</b>	<b>164.1597</b>	<b>164.1597</b>	<b>0.0527</b>	<b>0.0000</b>	<b>165.4760</b>

**Mitigated Construction Off-Site**

Category	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
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	5.0000e-004	0.0174	4.9900e-003	5.0000e-005	1.2200e-003	3.0000e-005	1.2500e-003	3.5000e-004	3.0000e-005	3.8000e-004	0.0000	4.6237	4.6237	3.7000e-004	0.0000	4.6328
Worker	1.5700e-003	1.0100e-003	0.0121	4.0000e-005	4.9600e-003	3.0000e-005	4.9900e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	3.9878	3.9878	8.0000e-005	0.0000	3.9898
<b>Total</b>	<b>2.0700e-003</b>	<b>0.0184</b>	<b>0.0171</b>	<b>9.0000e-005</b>	<b>6.1800e-003</b>	<b>6.0000e-005</b>	<b>6.2400e-003</b>	<b>1.6700e-003</b>	<b>6.0000e-005</b>	<b>1.7300e-003</b>	<b>0.0000</b>	<b>8.6115</b>	<b>8.6115</b>	<b>4.5000e-004</b>	<b>0.0000</b>	<b>8.6226</b>

**4.0 Operational Detail - Mobile**



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**4.1 Mitigation Measures Mobile**

Category	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
	tons/yr										MT/yr					
Mitigated	8.0000e-005	3.8000e-004	1.2600e-003	1.0000e-005	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4708	0.4708	2.0000e-005	0.0000	0.4713
Unmitigated	8.0000e-005	3.8000e-004	1.2600e-003	1.0000e-005	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4708	0.4708	2.0000e-005	0.0000	0.4713

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
General Light Industry	0.00	1.99	0.00	1,260	1,260
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	1.99	0.00	1,260	1,260

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	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
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

**4.4 Fleet Mix**

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934
Other Asphalt Surfaces	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Category	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
tons/yr																
MT/yr																
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	8.9386	8.9386	3.7000e-004	8.0000e-005	8.9706
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	8.9386	8.9386	3.7000e-004	8.0000e-005	8.9706
Natural Gas Mitigated	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	3.7028	3.7028	7.0000e-005	7.0000e-005	3.7248
Natural Gas Unmitigated	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	3.7028	3.7028	7.0000e-005	7.0000e-005	3.7248

## Washington Ave Lot Well &amp; Facility - Orange County, Annual

**5.2 Energy by Land Use - Natural Gas****Unmitigated**

Land Use	Natural Gas Use kBtu/yr	ROG	NOx	CO	SO <sub>2</sub>	Fugitive PM <sub>10</sub>	Exhaust PM <sub>10</sub>	PM <sub>10</sub> Total	Fugitive PM <sub>2.5</sub>	Exhaust PM <sub>2.5</sub>	PM <sub>2.5</sub> Total	Bio- CO <sub>2</sub>	NBio- CO <sub>2</sub>	Total CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
tons/yr																	
General Light Industry	69388	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	3.7028	3.7028	7.0000e-005	7.0000e-005	3.7248
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>3.7000e-004</b>	<b>3.4000e-003</b>	<b>2.8600e-003</b>	<b>2.0000e-005</b>		<b>2.6000e-004</b>	<b>2.6000e-004</b>		<b>2.6000e-004</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>3.7028</b>	<b>3.7028</b>	<b>7.0000e-005</b>	<b>7.0000e-005</b>	<b>3.7248</b>

**Mitigated**

Land Use	Natural Gas Use kBtu/yr	ROG	NOx	CO	SO <sub>2</sub>	Fugitive PM <sub>10</sub>	Exhaust PM <sub>10</sub>	PM <sub>10</sub> Total	Fugitive PM <sub>2.5</sub>	Exhaust PM <sub>2.5</sub>	PM <sub>2.5</sub> Total	Bio- CO <sub>2</sub>	NBio- CO <sub>2</sub>	Total CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
tons/yr																	
General Light Industry	69388	3.7000e-004	3.4000e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	3.7028	3.7028	7.0000e-005	7.0000e-005	3.7248
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>3.7000e-004</b>	<b>3.4000e-003</b>	<b>2.8600e-003</b>	<b>2.0000e-005</b>		<b>2.6000e-004</b>	<b>2.6000e-004</b>		<b>2.6000e-004</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>3.7028</b>	<b>3.7028</b>	<b>7.0000e-005</b>	<b>7.0000e-005</b>	<b>3.7248</b>

Washington Ave Lot Well &amp; Facility - Orange County, Annual

**5.3 Energy by Land Use - Electricity****Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	28054	8.9386	3.7000e- 004	8.0000e- 005	8.9706
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>8.9386</b>	<b>3.7000e- 004</b>	<b>8.0000e- 005</b>	<b>8.9706</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	28054	8.9386	3.7000e- 004	8.0000e- 005	8.9706
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>8.9386</b>	<b>3.7000e- 004</b>	<b>8.0000e- 005</b>	<b>8.9706</b>

**6.0 Area Detail****6.1 Mitigation Measures Area**

## Washington Ave Lot Well &amp; Facility - Orange County, Annual

Category	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
	tons/yr										MT/yr					
Mitigated	0.0147	0.0000	2.3000e-004	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004
Unmitigated	0.0147	0.0000	2.3000e-004	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004

## 6.2 Area by SubCategory

Unmitigated

SubCategory	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
	tons/yr										MT/yr					
Architectural Coating	1.7400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0129					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004
<b>Total</b>	<b>0.0147</b>	<b>0.0000</b>	<b>2.3000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>4.4000e-004</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>4.7000e-004</b>

## Washington Ave Lot Well &amp; Facility - Orange County, Annual

**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	1.7400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0129					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004
<b>Total</b>	<b>0.0147</b>	<b>0.0000</b>	<b>2.3000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>4.4000e-004</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>4.7000e-004</b>

**7.0 Water Detail****7.1 Mitigation Measures Water**

## Washington Ave Lot Well &amp; Facility - Orange County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.4288	0.0252	6.2000e-004	4.2416
Unmitigated	3.4288	0.0252	6.2000e-004	4.2416

## 7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.76775 / 0	3.4288	0.0252	6.2000e-004	4.2416
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>3.4288</b>	<b>0.0252</b>	<b>6.2000e-004</b>	<b>4.2416</b>



Washington Ave Lot Well &amp; Facility - Orange County, Annual

**7.2 Water by Land Use****Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.767750	3.4288	0.0252	6.2000e-004	4.2416
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>3.4288</b>	<b>0.0252</b>	<b>6.2000e-004</b>	<b>4.2416</b>

**8.0 Waste Detail****8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.8363	0.0494	0.0000	2.0720
Unmitigated	0.8363	0.0494	0.0000	2.0720

Washington Ave Lot Well & Facility - Orange County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	4.12	0.8363	0.0494	0.0000	2.0720
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.8363	0.0494	0.0000	2.0720

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	4.12	0.8363	0.0494	0.0000	2.0720
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.8363	0.0494	0.0000	2.0720

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 B**

### **CULTURAL RESOURCES**

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December 16, 2020

Rudy Rosas, P.E.  
Principal Civil Engineer  
The City of Santa Ana Public Works Agency  
215 S. Center St.  
Santa Ana, CA 92704  
Via email: [rrosas@santa-ana.org](mailto:rrosas@santa-ana.org)

**RE:** The City of Santa Ana Washington Avenue Well Project, Orange County, California,  
Cultural Resources Letter Report – Negative Findings

Dear Mr. Rosas,

This letter report provides the results of the cultural resource Phase I Archaeological Investigation for the City of Santa Ana Washington Avenue Well Project (Project). The California Historical Resources Information System record search, Native American Heritage Commission Sacred Land File search, and archaeological survey were conducted by Tetra Tech, Inc. (Tetra Tech) on behalf of the City of Santa Ana (City) to determine the presence or absence of cultural resources within the Project Area of Potential Impact (API). The Project requires compliance with the California Environmental Quality Act (CEQA).

## **PROJECT LOCATION**

The Project is located in a mixed-use developed area at the northwest corner of East Washington Avenue and Penn Way, Santa Ana, California (See Enclosure 1). The Project is undeveloped with East Washington Avenue adjacent to the south, Penn Way adjacent northeast, and Pacific Plumbing of Southern California to the west. The Project site is owned by the City of Santa Ana.

**Legal Location:** United States Geological Survey 7.5-minute series Orange quadrangle, Township 5 South, Range 9 West, in the northern portion of Section 7.

## **PROJECT DESCRIPTION**

The proposed Project would consist of a new water supply and associated facilities located in a vacant lot. Approximately 140 feet of new pipeline will be needed to connect the new well to the existing water supply pipeline under Penn Way. The Project will also include several new above-ground buildings and other improvements:

- One (1) well building, approximately 810 square feet;
- One (1) chemical building approximately 510 square feet;
- Four (4) material storage bins, with concrete block walls on three sides, an overhead cover, and an open front, each about 15 feet wide by 24 feet deep and covering a total of approximately 2,000 square feet;

**Tetra Tech, Inc.**

17885 Von Karman Avenue, Suite 500, Irvine, CA 92614  
Tel 916.852.8300 Fax 916.852.0307 [tetratech.com](http://tetratech.com)

- New pavement area, covering approximately 11,600 square feet of area;
- Miscellaneous on-site concrete ramps and pads, totaling approximately 500 square feet;
- A perimeter block wall, 8-foot tall and extending approximately 650 linear feet, with two access drives employing rolling gates (one each on East Washington Avenue and Penn Way);
- Regulation sidewalk outside of the perimeter block wall adjacent to East Washington Avenue, approximately 2,400 square feet; and
- Landscaping with drought-tolerant plants will be placed along the Penn Way and East Washington Avenue sides of the property between the block wall and sidewalk.

It is the City's goal to install this new well in order to address the low pressures identified in the water system analysis. The new well will be drilled to a depth of approximately 1,300 feet below ground surface and be installed with a minimum 18-inch diameter casing. This will be very similar to the City's other existing wells that pump to the water distribution system. The pumping capacity is expected to range from 2,500 to 3,000 gallons per minute. The water produced from the new well will be disinfected using sodium hypochlorite before it is discharged into the City's existing water distribution system.

## **AREA OF POTENTIAL IMPACT**

For the purposes of this study, archaeological horizontal API is considered the 0.75-acre Project site. The vertical API is estimated to range from 0 to 8 feet in depth for the building and pipeline construction, and 1300 feet for the well site construction.

## **REGULATORY COMPLIANCE**

The permitting assessment for critical issues analysis assumes that the Project will be located entirely on City land and will not require federal financial assistance or interconnection with a federally managed transmission system, which would require more comprehensive permitting and formal environmental review under the National Environmental Policy Act. The state and local laws, ordinances, and regulations are provided below.

### **California Environmental Quality Act**

CEQA (Section 21084.1) requires a lead agency determine whether a project could have a significant effect on historical resources and tribal cultural resources (Public Resource Code [PRC] Section 21074 [a][1][A]-[B]). Under the CEQA (Section 15064.5), a historic resource (e.g. buildings, structures, or archaeological resources) is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR) or a local register or landmark, identified as significant in a historical resource survey (meeting the requirements of Section 5024.1(g) of the PRC), or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (Section 15064.5[a][3]). Under the California Code of Regulations (CCR), Title 14, Chapter 11.5, properties listed on or formally determined to be eligible for listing in the National Register of Historic Places (NRHP) are automatically eligible for listing in the CRHR. A resource is generally considered to be historically significant under CEQA if it meets the criteria for listing in the CRHR (see PRC Section 5024.1, Title 14 CCR, Section 5024.1).



### **California Health and Safety Code, Sections 7052 and 7050.5**

Section 7052 of the California Health and Safety Code states that it is a felony to disturb Native American burials. Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If determined to be Native American, the coroner must contact the California Native American Heritage Commission (NAHC).

### **California Native American Historical, Cultural, and Sacred Sites Act**

The California Native American Historical, Cultural, and Sacred Sites Act (the Act) applies to both state and private lands. The Act requires that upon discovery of human remains, construction or excavation activity cease and that the county coroner be notified. If the remains are Native American, the coroner must notify the NAHC. The NAHC will then identify and notify a most likely descendant (MLD). The Act stipulates the procedures the MLD may follow for treating or disposing of the remains and associated grave goods.

### **California Public Resource Code, Sections 5097 and 5097.5**

PRC Section 5097 specifies the procedures to be followed in the event of an unexpected discovery of human remains on non-federal land. The disposition of Native American remains falls within the jurisdiction of the NAHC. Section 5097.5 of the PRC states:

“No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.”

As used in this section, “public lands” means lands owned by, or under the jurisdiction of the state or any city, county, district, authority, public corporation, or any agency thereof.

### **Assembly Bill 52**

Under CEQA, Assembly Bill 52 (AB52) requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. Consultations must include discussing the type of environmental review necessary, the significance of tribal cultural resources, and the significance of the project’s impacts on the tribal cultural resources, and alternatives and mitigation measures recommended by the tribe. That consultation must take place prior to the determination of whether a negative declaration, mitigated negative declaration, or environmental impact report is required for a project.

### **California State Senate Bill 18**

California State Senate Bill 18 (SB18), signed into law in September 2004 and implemented March 1, 2005, requires cities and counties to notify and consult with California-recognized Native American Tribes about proposed local land use planning decisions for the purpose of protecting Traditional Tribal Cultural Places. The Governor’s Office of Planning and Research was mandated to amend its General Plan

Guidelines to include the stipulations of SB18 and to add guidance for consulting with California Native American Tribes.

## RECORD SEARCH RESULTS

A record search of the cultural resources site and project file collection at the South Central Coastal Information Center (SCCIC), California State University, Fullerton, of the California Historical Resources Information System, was conducted on November 11, 2020 (see Enclosure 2, SCCIC Record Search Results). As part of this records search, the SCCIC database of survey reports and overviews was consulted, as well as documented cultural resources, cultural landscapes, and ethnic resources. Additionally, the search included a review of the following publications and lists: California Office of Historic Preservation Historic Properties Directory, NRHP, Office of Historic Preservation Archaeological Determinations of Eligibility, California Inventory of Historical Resources/CRHR, California Points of Historical Interest, and California Historical Landmarks. A literature search of ethnographic information, historical literature, historical maps and plats, and local historic resource inventories was also conducted. The records search focused specifically on the proposed area of potential effect (APE) and a 1-mile buffer centered on the APE.

The SCCIC results indicate no previously conducted cultural resource surveys are within the Project Area. Twenty previously conducted studies were identified within 1 mile of the Project Area. These surveys were conducted between 1978 and 2017. These previous investigations consist of archaeological and architectural surveys and reporting. The Project Area has not been previously surveyed for archaeological resources.

No previously recorded cultural resources were identified within the Project Area or within a half of mile of the Project Area.

The records search results for previously conducted surveys within the APE are in Table 1 and are provided on the attached data sheet and illustrated on the attached Figure.

**Table 1. Cultural Resource Studies Conducted within and within 1 mile of the APE.**

Report No.	Year	Author(s) or Affiliation	Title	Survey Type	Resources Identified
OR-00332	1978	Van Horn, David M.	<i>Surveyed the Logan Area of Santa Ana, California</i>	Archaeological survey	--
OR-00508	1979	Caltrans	<i>Department of Transportation Archaeological Survey Report for Category 4b and 5 Projects: Ramp Metering, By-pass Lane, Auxiliary Acceleration Lane and Sound Walls in the City of Santa Ana Northbound Route 5 Between Route 55 and Route 22 Interchanges</i>	Archaeological survey	--
OR-00814	1982	Caltrans	<i>Department of Transportation Archaeological Survey Report for the Route I-5 Santa Ana Transportation Corridor, Route 405 in Orange County to Route 605 in Los Angeles County Pm 21.30/44.38; 0.00/6.85</i>	Archaeological survey	--
OR-02024	1999	Padon, Beth	<i>Cultural Resource Assessment for Grand Avenue Widening Project City of Santa Ana, Orange County</i>	Literature search, desktop study	Over 10, see attached data sheet

Report No.	Year	Author(s) or Affiliation	Title	Survey Type	Resources Identified
OR-02451	2002	Huard-Spencer, Christine	<i>Draft Environmental Impact Report for the Proposed Grand Avenue Widening Sch No. 1998051068 Technical Appendices</i>	Literature search, desktop study	--
OR-02452	2002	Huard-Spencer, Christine	<i>Draft Focused Environmental Impact Report for the Proposed Grand Avenue Widening Sch No. 1998051068</i>	Literature search, desktop study	--
OR-02466	2002	Duke, Curt	<i>Cultural Resource Assessment Cingular Wireless Facility No. Sc 055-02 Orange County, California</i>	Cultural resource assessment	--
OR-02502	2002	Padon, Beth and Teresa Grimes	<i>Cultural Resources Assessment for One Broadway Plaza Project, City of Santa Ana, Orange County</i>	Cultural resource assessment	--
OR-02507	1978	Huey, Gene and Lois Webb	<i>Phase I Archaeological Survey - Buffalo On- Ramp, City of Santa Ana</i>	Archaeological survey	--
OR-03303	2000	Slawson, Dana N.	<i>Historical Resources Assessment, Quonset Hunt, 625 North Poinsettia Street, Santa Ana, California</i>	Historic resource assessment	--
OR-03373	2006	SWCA Environmental Consultants, Inc.	<i>Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and II</i>	Cultural resource monitoring	--
OR-03597	2008	LSA Associates, Inc.	<i>Cultural Resources Assessment- 601 and 611-613 East Santa Ana Blvd., Santa Ana, CA</i>	Cultural resource assessment	30-161037, 30-179882
OR-03837	2004	MBA Associates	<i>A Historic Resource Evaluation Report for the Santa Ana Art Wall Project Located in an Unsectioned Portion of T.5S R.9W City of Santa Ana, California</i>	Architectural survey	30-176801, 30-176802
OR-03926	2010	Michael Brandman Associates	<i>Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate LA33824-D (St. Joseph School), 730 North Garfield Street, Santa Ana, Orange County, California</i>	Literature search, desktop study, site visit	30-160930, 30-160931, 30-160934
OR-04195	2011	Federal Transit Authority	<i>Section 106 Consultation for the Santa Ana and Garden Grove Fixed Guideway Corridor Project, Orange County, CA</i>	Desktop study	Over 10, see attached data sheet
OR-04229	2012	AECOM	<i>Archaeological Survey Report the I-5 (SR-55 to SR57) HOV Lanes Improvement Project County of Orange, California</i>	Archaeological survey	Over 10, see attached data sheet
OR-04292	2012 0122	AECOM	<i>Historic Property Survey Report, improvements to Interstate 5 (I-5) between State Route 55 and State Route 57</i>	Architectural survey	Over 10, see attached data sheet
OR-04312	2014	Rincon Consultants	<i>Cultural Resources Study for the Depot at Santiago Project, Santa Ana, Orange County, California</i>	Cultural resource assessment	Over 10, see attached data sheet
OR-04429	2014		<i>Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate LA02024A (CM024 Water Tower) 1405 North French Street, Santa Ana, Orange County, California</i>	Literature search, desktop study, site visit	Over 10, see attached data sheet
OR-04601	2017	Rincon Consultants, Inc.	<i>Aqua Housing Development Cultural Resources Assessment</i>	Cultural resource assessment	30-177659

## **Review of Historic Aerial Photography, U.S. Geologic Survey Topographical Maps, General Land Office Map, and Patents for Township 5 South and Range 9 West, Section 7**

Review of the historic aerials indicates that a building was within the Project Area from 1946 to 1963. By 1972, the building was no longer extant, and the Project Area was paved and used as a parking or storage lot into the 1980s. The Project Area appears in its current configuration by 1995 as a graded vacant lot. Historic maps illustrate a railroad adjacent (west) of the Project Area in the 1940s and 1960s, but historic aerials indicate the railroad is no longer extant by the 1970s. No General Land Office Plat maps or patents were available for the Project Area.

**Table 2. Historic Aerial Photography, Historic U.S. Geologic Survey Maps of Township 5 South and Range 9 West, northern portion of Section 7**

Map Name/Scale or Historic Aerial	Date	Author	Potential Resource
Aerial Photography	1946, 1952, 1963	Netronline	A building is within the Project Area and a road is to the west, the railroad line (illustrated on historic maps) no longer appears extant. The surrounding area is developed with residential and commercial buildings, and orchards. No changes in 1952 or 1963.
Aerial Photography	1972, 1980	Netronline	The building is no longer extant by the 1972, and the Project Area appears as a paved lot. The surrounding area is developed with residential and commercial buildings. No changes in 1980.
Aerial Photography	1995	Netronline	The Project Area appears in its current configuration and is a graded vacant lot, Pena Road is under development to the east, a building with a paved parking area is adjacent to the west. The surrounding area is developed with residential and commercial buildings.
USGS, 1:62,500 Anaheim	1942, 1962	USGS, Geological Survey	Railroad line illustrated adjacent (west) of the Project Area. No buildings or features are illustrated in the Project Area.
USGS, 1:31, Orange, California	1934, revised 1946	USGS, Geological Survey	Railroad line illustrated adjacent (west) of the Project Area. No buildings or features are illustrated in the Project Area.
USGS 1:24,000, Orange, California	1949	USGS, Geological Survey	Sothorn Pacific railroad line illustrated adjacent (west) to Project Area. No other buildings or features illustrated in the Project Area. The surrounding area is developed with major roads, residential, and commercial.
USGS 1:24,000, Orange, California	1964	USGS, Geological Survey	No changes.

USGS – U.S. Geological Survey

## **Native American Heritage Commission Sacred Lands Files Search**

The California NAHC was contacted on September 25, 2020 to request a Sacred Lands File search. The NAHC responded on September 25, 2020 that no Native American sacred lands were identified by its database as within or near the Project Area (Enclosure 3). The NAHC recommends conducting outreach to the listed tribes or individuals as they may have knowledge of cultural resources within or near the Project Area. The lead state agency is responsible for government to government tribal consultation under AB52. The NAHC list includes the following tribes:

- Gabrieleño Band of Mission Indians-Kizh Nation
- Gabrieliño/Tongva San Gabriel Band of Mission Indians
- Gabrieliño/Tongva Nation

- Gabrieliño/Tongva Indians of California Tribal Council
- Gabrieliño/Tongva Tribe
- Juaneno Band of Mission Indians Acjachemen Nation – Belardes
- Pala Band of Mission Indians
- Santa Rosa Band of Cahuilla Indians
- Soboba Band of Luiseno Indians

## **ENVIRONMENTAL AND ARCHAEOLOGICAL BACKGROUND**

The Project is within the city limits of Santa Ana at an elevation of approximately 42 meters above mean sea level. The Project is within a densely populated urban area surrounded by residential, commercial, and industrial use. No vegetation is present at the Project site or surrounding area. Prior to historic development, vegetation communities in the surrounding region consisted of riparian and wetland vegetation types and coastal sage scrub and chaparral. Subsurface deposits of the Project site consist of young alluvial fan deposits (Holocene and Late Pleistocene). The predominant soil series of the Project site soils consist of Mocho loam and imported gravels.

The SCCIC results indicate no previously recorded NRHP or CRHR eligible cultural resources are within the Project or within 0.5 mile of the Project. The NAHC Sacred Lands File results were also negative.

The prehistory of the Southern California region has been summarized within four major horizons or cultural periods: Horizon 1 - Early Period (12,000 to 7,500 years before present [BP]), Horizon II - Millingstone Horizon (7,500 to 4,000 BP), Horizon III - Intermediate Cultures (3,000 to 1,000 BP), and Horizon IV - Late Prehistoric (1,000 BP to European historic contact). At the time of historic contact, the modern-day region of Orange County was home to the Gabrieliño (Tongva) people. European settlement began in 1771, when Spanish missionaries began to settle along the California coast and adjacent inland areas. Following the Mexican-American War and secularization of the nearby missions in 1834, the region was transferred to private landowners (ranchos) who established a primary economy of cattle ranching. The Project is within the Rancho Santiago de Santa Ana. After the fall of the rancho system, European settlers such as Jacob Ross, Sr., purchased substantial land holdings in the area. The economy included large-scale farming and fruit orchards and ranching. In the late 1860s, William Spurgeon purchased just under 100 acres of land that would become Santa Ana.

Santa Ana was founded in 1869 by William Spurgeon (City of Santa Ana 1982b). The original town, laid out by Mr. Spurgeon, consisted of 24 blocks. The town served as a shopping center and post office for surrounding agricultural areas. In 1878 the Southern Pacific Railroad arrived, and the Santa Fe Railroad followed in 1886. This encouraged development of the City. In 1889 the Orange County seat was located in Santa Ana and this further stimulated the development of businesses, stores, financial institutions and hotels serving the metropolitan population. Citrus and walnut farms were still plentiful and buying and selling land became the number one enterprise. Many of the structures in downtown and the surrounding bungalow homes were built in the early 1900s and 1920s. Today the City is developed with urban uses and limited vacant land.

The town's water supply also began with Mr. Spurgeon. In 1869, his artesian well and small water tower supplied the residents' water. Today, from the U.S. Interstate 5 Freeway, a high Santa Ana water tower can be seen. It holds very little water and today is mainly a landmark. Now 30 percent of the City's water

supply is stored underground; since 1928 the other 70 percent is a blend of California Aqueduct water and Colorado River water supplied by the Metropolitan Water District of Southern California (MWD).

To tap into water sources from outside the area, the City joined with 12 other Southern California cities to form and be an original member agency of the MWD on February 27, 1931. MWD, as a regional wholesaler, supplies imported water to Southern California from the Colorado River and from the State Water Project from Northern California.

## **ARCHAEOLOGICAL SURVEY METHODS AND RESULTS**

A Phase I pedestrian survey of the Project APE was conducted in coordination with City staff, Luis Solis, to identify any potential cultural resources within the API on December 12, 2020. Tetra Tech archaeologist, Gena Granger, M.A., conducted the survey by walking 5-10 meter transects running north and south within the APE; photos and notes were taken to document the results of the survey (Enclosure 4). During the survey, ground visibility was 100 percent as the API lacks vegetation and has been previously disturbed and graded. The surface soils appear to be disturbed alluvial sandy loam, fill, and road gravel. Very sparse modern refuse (glass bottle fragments and plastic) was observed within the disturbed soils. A modern, open-shallow north to south trending cement channel is along the western edge of the API.

## **SUMMARY AND RECOMMENDATIONS**

A total of approximately 0.75 acres were surveyed and no cultural resources were identified. Based on the urban setting and previous ground disturbance associated with development, SCCIC records search results (including historic maps and aerial photographs), previous survey coverage of the Project, density of archaeological sites within 0.5 mile of the Project, and this Phase I archaeological survey results, the API is assessed as having a low to moderate sensitivity for cultural resources within undisturbed subsurface deposits. The surficial deposits within the Project have been subjected to previous ground disturbance due to past development and the disturbance depth is estimated at approximately 2 feet below ground surface. If construction ground disturbance depths range within native soils (below 2 feet), there would be a potential to impact previously unrecorded subsurface cultural resources. The following recommendations are provided.

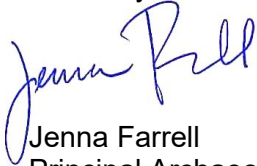
- **Native American Consultation:** It is recommended Native American consultation occur under the lead CEQA agency's tribal consultation responsibilities under California SB18 or AB52, as appropriate.
- **Worker Environmental Awareness Training:** Prior to any proposed construction ground disturbing activities within the Project Area, Project personnel (e.g. contractors, construction workers) will be briefed by a qualified archaeologist (retained on-call by applicant) about the potential and procedures for an inadvertent discovery of prehistoric and historic archaeological resources. In addition, the training will include established procedures for temporarily halting or redirecting work in the event of a discovery, identification and evaluation procedures for finds, and a discussion on the importance of, and the legal basis for, the protection of archaeological resources. Personnel will be given a training brochure/handout regarding identification of cultural resources, protocols for inadvertent discoveries, and contact procedures in the event of a discovery.
- **Inadvertent Discovery of Archaeological Resources:** If the construction staff or others observe previously unidentified archaeological resources during ground disturbing activities, they will halt work within a 100-foot radius of the find(s), delineate the area of the find with flagging tape or rope



(may also include dirt spoils from the find area), and immediately notify a qualified archaeologist (retained on-call by applicant). Construction will halt within the flagged or roped-off area. The archaeologist will assess the resource as soon as possible and determine appropriate next steps. Such finds will be formally recorded and evaluated. The resource will be protected from further disturbance or looting pending evaluation.

California state law requires all project excavation activities to halt if human remains are encountered and the County Coroner must be notified. Any discovery of human remains on the Project Site would be treated in accordance with PRC Section 5097.98 and Section 7050.5 of the State Health and Safety Code. Pursuant to State Health and Safety Code Section 7050.5, if human remains and/or cultural items defined by the Health and Safety Code Section 7050.5, are inadvertently discovered during Project activities, all work within a 100-foot radius of the find or an area reasonably suspected to overlie adjacent remains (whichever is larger) will cease, the find will be flagged and protected for avoidance, and the Orange County Coroner (714) 647-7400 will be contacted immediately. The remains must be securely protected, and Project personnel must ensure confidentiality of the find on a need-to-know basis and ensure that the remains are treated with dignity, not touched, moved, photographed, discussed on social media sources (e.g., Facebook, Instagram, Twitter), or further disturbed. If the remains are found to be Native American as defined by Health and Safety Code Section 7050.5, the coroner will contact the NAHC by telephone within 24 hours. The NAHC shall immediately notify the person it believes to be the MLD as stipulated by California PRC Section 5097.98. The MLD(s), with the permission of the landowner and/or authorized representative, shall inspect the site of the discovered remains and recommend treatment regarding the remains and any associated grave goods. The MLD shall complete their inspection and make their recommendations within 48 hours of notification by the NAHC. Construction will not proceed within the 100-foot area (or protected area) around the discovery until the appropriate approvals are obtained. Work may be delayed in the vicinity of the human remains up to 30 days.

Sincerely,



Jenna Farrell  
Principal Archaeologist, Tetra Tech, Inc.

Enclosures:

- Enclosure 1. Project Maps
- Enclosure 2. SCCIC Results
- Enclosure 3. NAHC Results
- Enclosure 4. Phase I Surveyed Area Project Photographs



# **Enclosure 1**

## **Project Maps**

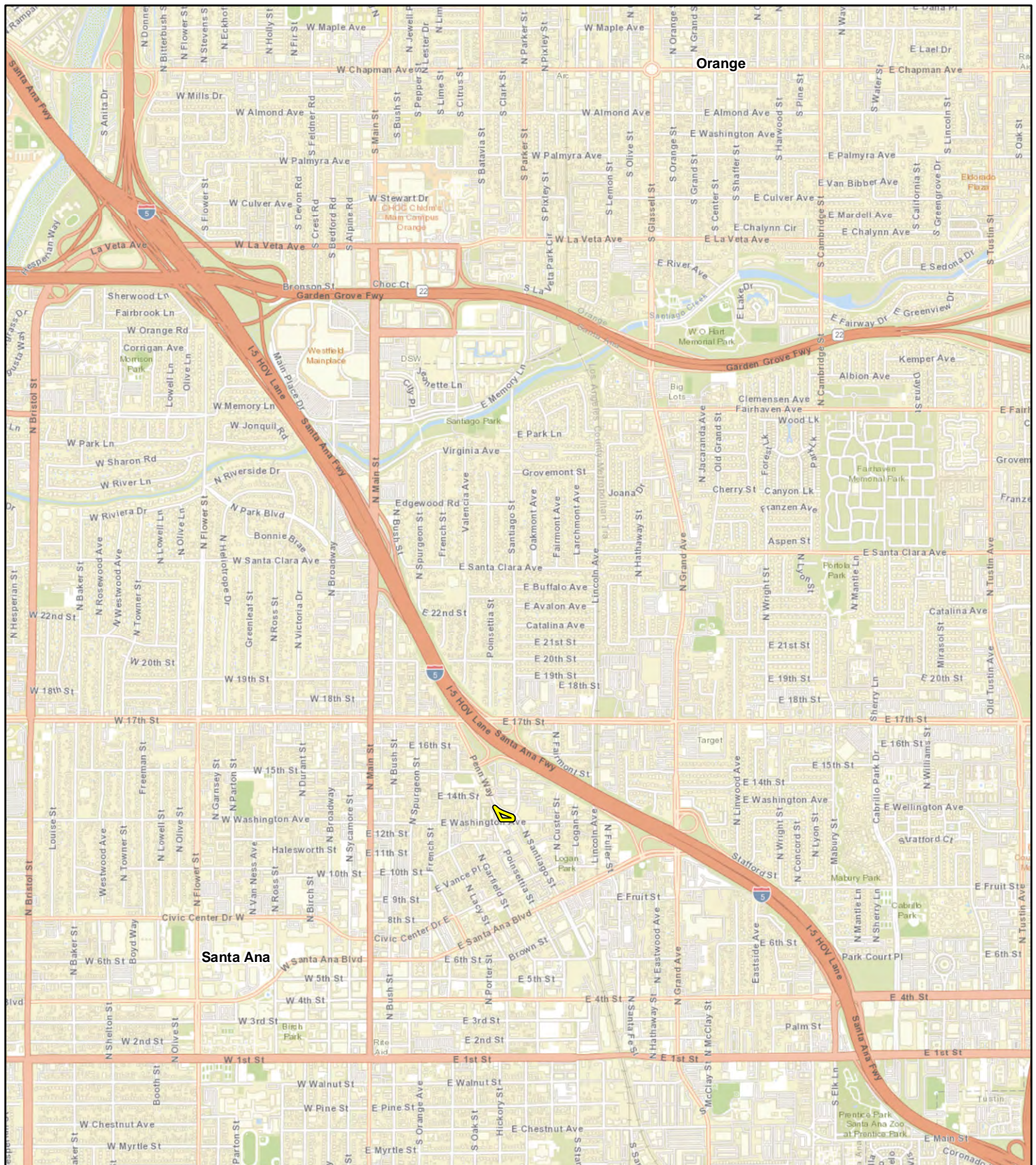
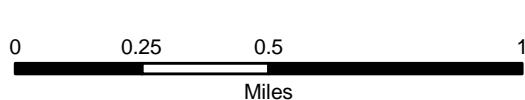


Figure 1: Project Vicinity  
Washington Avenue Lot Well and Facility  
City of Santa Ana, California

1:24,000



#### Legend



Project Area of Potential Impacts and  
Phase I Archaeological Surveyed Area

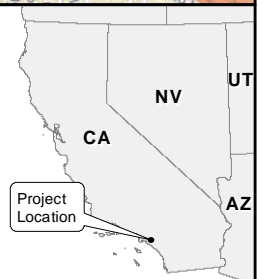






Figure 2: Project Location - Aerial Imagery  
Washington Avenue Lot Well and Facility  
City of Santa Ana, California

1:800

0 25 50 100  
Feet



#### Legend



Project Area of Potential Impacts and  
Phase I Archaeological Surveyed Area





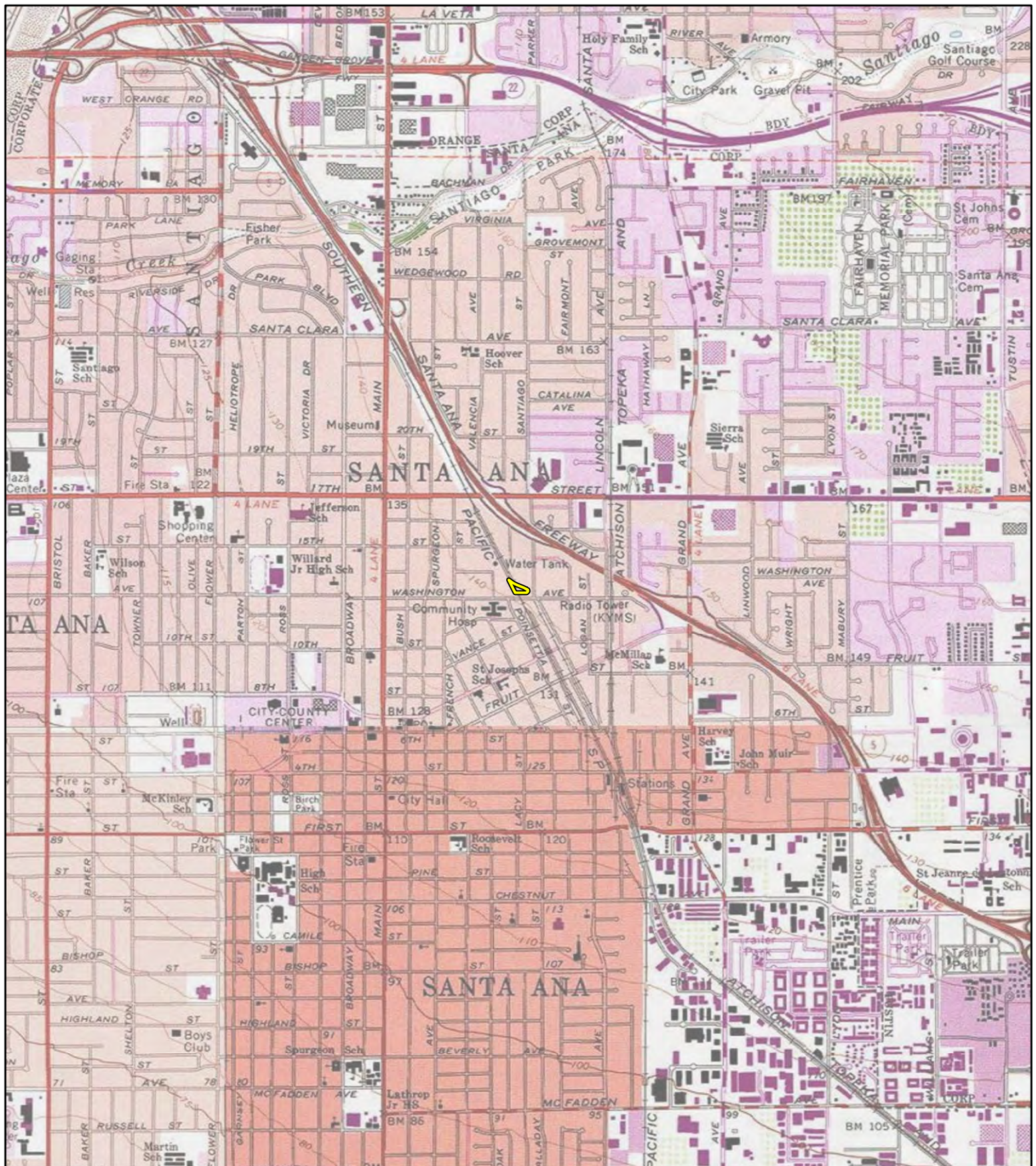
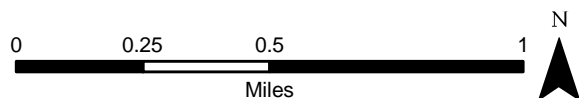


Figure 3: Project Location - Topographic Map  
Washington Avenue Lot Well and Facility  
City of Santa Ana, California

1:24,000



#### Legend

- Project Area of Potential Impacts and Phase I Archaeological Surveyed Area

USGS 7.5 Quad: Orange, CA (1977)



# **Enclosure 2**

## **SCCIC Results**



## South Central Coastal Information Center

California State University, Fullerton  
Department of Anthropology MH-426  
800 North State College Boulevard  
Fullerton, CA 92834-6846  
657.278.5395 / FAX 657.278.5542

[sccic@fullerton.edu](mailto:sccic@fullerton.edu)

*California Historical Resources Information System*  
*Orange, Los Angeles, and Ventura Counties*

11/16/2020

Records Search File No.: 21775.7929

Jenna Farrell  
Tetra Tech, Inc.  
2969 Prospect Park Dr. Ste. 100  
Rancho Cordova, CA 95670

Re: Record Search Results for the Washington Avenue Well Project

The South Central Coastal Information Center received your records search request for the project area(s) referenced above, located on the Orange and Tustin, CA USGS 7.5' quadrangle(s). Due to the COVID-19 emergency, we have temporarily implemented new records search protocols. With the exception of some reports that have not yet been scanned, we are operationally digital for Los Angeles, Orange, and Ventura Counties. See attached document for your reference on what data is available in this format. The following reflects the results of the records search for the project area and a ½-mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☐ custom GIS maps ☒ shape files ☐ hand drawn maps

Resources within project areas: 0	None
Archaeological resources within ½-mile radius: 0	None
Reports within project areas: 0	None
Reports within ½-mile radius: 20	SEE ATTACHED LIST

**Resource Database Printout (list):**

☐ enclosed ☐ not requested ☒ nothing listed

**Resource Database Printout (details):**

☐ enclosed ☐ not requested ☒ nothing listed

**Resource Digital Database (spreadsheet):**

☐ enclosed ☒ not requested ☐ nothing listed

**Report Database Printout (list):**

☒ enclosed ☐ not requested ☐ nothing listed

**Report Database Printout (details):**

☒ enclosed ☐ not requested ☐ nothing listed

**Report Digital Database (spreadsheet):**

☐ enclosed ☒ not requested ☐ nothing listed

**Resource Record Copies:**

☐ enclosed ☐ not requested ☒ nothing listed

**Report Copies:**

☒ enclosed ☐ not requested ☐ nothing listed

**OHP Built Environment Resources Directory (BERD) 2019:**

☒ available online; please go to

[https://ohp.parks.ca.gov/?page\\_id=30338](https://ohp.parks.ca.gov/?page_id=30338)

**Archaeo Determinations of Eligibility 2012:**

☐ enclosed ☐ not requested ☒ nothing listed

**Los Angeles Historic-Cultural Monuments**

**Historical Maps:**

**Ethnographic Information:**

**Historical Literature:**

**GLO and/or Rancho Plat Maps:**

**Caltrans Bridge Survey:**

<http://www.dot.ca.gov/hq/structur/strmaint/historic.htm>

**Shipwreck Inventory:**

[http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks\\_Database.asp](http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp)

**Soil Survey Maps: (see below)**

<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

☐ enclosed ☐ not requested ☒ nothing listed

☐ enclosed ☒ not requested ☐ nothing listed

☒ not available at SCCIC

☒ not available at SCCIC

☒ not available at SCCIC

☒ not available at SCCIC; please go to

☒ not available at SCCIC; please go to

☒ not available at SCCIC; please go to

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System,

**Isabela Kott**

Digitally signed by Isabela Kott  
Date: 2020.11.16 19:11:50 -08'00'

Isabela Kott  
GIS Technician/Staff Researcher



Enclosures:

(X) Emergency Protocols for LA, Orange, and Ventura County BULK Processing Standards – 2 pages

(X) GIS Shapefiles – 20 shapes

(X) Report Database Printout (list) – 4 pages

(X) Report Database Printout (details) – 25 pages

(X) Report Copies – (all – scanned only) 857 pages

Reports highlighted in orange have NOT been scanned and are unavailable at this time.

## Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
OR-00332		1978	Van Horn, David M.	Surveyed the Logan Area of Santa Ana, California	Archaeological Associates, Ltd.	
OR-00508		1979	Huey, Gene	Department of Transportation Archaeological Survey Report for Category 4b and 5 Projects: Ramp Metering, By-pass Lane, Auxiliary Acceleration Lane and Sound Walls in the City of Santa Ana Northbound Route 5 Between Route 55 and Route 22 Interchanges	Caltrans	
OR-00814		1982	Romani, John F.	ARCHAEOLOGICAL SURVEY REPORT for the Route I-5 Santa Ana Transportation Corridor, Route 405 in Orange County to Route 605 in Los Angeles County Pm 21.30/44.38; 0.00/6.85	Caltrans	
OR-02024		1999	Padon, Beth	Cultural Resource Assessment for Grand Avenue Widening Project City of Santa Ana, Orange County	Discovery Works, Inc.	30-176575, 30-176576, 30-176577, 30-176578, 30-176579, 30-176580, 30-176581, 30-176582, 30-176583, 30-176584, 30-176585, 30-176586, 30-176587, 30-176588, 30-176589, 30-177013, 30-177014, 30-177015, 30-177016, 30-177017, 30-177018, 30-177019, 30-177020, 30-177021
OR-02451		2002	Huard-Spencer, Christine	Draft Environmental Impact Report for the Proposed Grand Avenue Widening Sch No. 1998051068 Technical Appendices	P&D Consultants, Inc.	
OR-02452		2002	Huard-Spencer, Christine	Draft Focused Environmental Impact Report for the Proposed Grand Avenue Widening Sch No. 1998051068	P&D Consultatns, Inc.	
OR-02466		2002	Duke, Curt	Cultrual Resource Assessment Cingular Wireless Facility No. Sc 055-02 Orange County, California	LSA Associates, Inc.	
OR-02502		2002	Padon, Beth and Teresa Grimes	Cultural Resources Assessment for One Broadway Plaza Project, City of Santa Ana, Orange County	Discovery Works, Inc.	
OR-02507		1978	Huey, Gene and Lois Webb	Phase I Archaeological Survey - Buffalo On-Ramp, City of Santa Ana	Caltrans District 7	
OR-03303		2000	Slawson, Dana N.	Historical Resources Assessment, Quonset Hunt, 625 North Pointsettia Street, Santa Ana, California	Greenwood and Associates	30-176809

## Report List

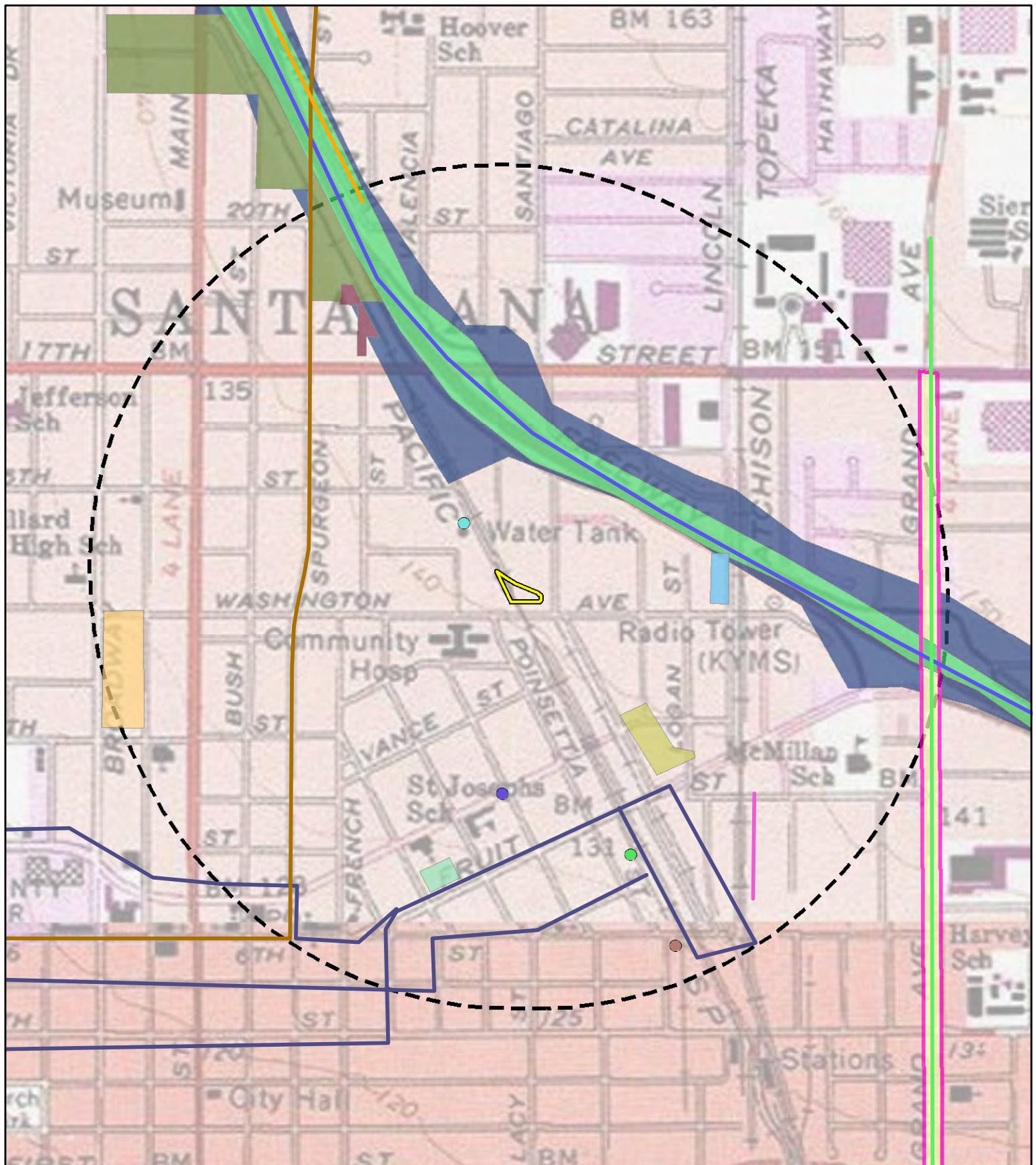
Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
OR-03373		2006	Arrington, Cindy and Nancy Sikes	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and II	SWCA Environmental Consultants, Inc.	
OR-03597		2008	Casey Tibbet and Bill Bell	Cultural Resources Assessment- 601 and 611-613 East Santa Ana Blvd., Santa Ana, CA	LSA Associates, Inc.	30-161037, 30-179882
OR-03837		2004	Taniguchi, Christeen and Dice, Michael	A Historic Resource Evaluation Report for the Santa Ana Art Wall Project Located in an Unsectioned Portion of T.5S R.9W City of Santa Ana, California	MBA Associates	30-176801, 30-176802
OR-03926	Cellular -	2010	Bonner, Wayne	Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate LA33824-D (St. Joseph School), 730 North Garfield Street, Santa Ana, Orange County, California	Michael Brandman Associates	30-160930, 30-160931, 30-160934
OR-04195		2011	Rogers, Leslie	Section 106 Consultation for the Santa Ana and Garden Grove Fixed Guideway Corridor Project, Orange County, CA	Federal Transit Authority	30-001030, 30-001031, 30-001374, 30-001375, 30-001377, 30-001378, 30-001379, 30-001589, 30-160798, 30-160801, 30-160803, 30-160819, 30-160824, 30-160830, 30-160891, 30-161037, 30-161847, 30-176651, 30-176653, 30-176657, 30-176658, 30-176659, 30-176809, 30-176912, 30-176913, 30-176914, 30-176915, 30-176916, 30-176917, 30-176918, 30-176992, 30-176993, 30-176994, 30-176995, 30-177027, 30-177028, 30-177029, 30-177030, 30-177031, 30-177032, 30-177033, 30-177034, 30-179882

## Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
OR-04229		2012	Wallace, James and Dietler, Sara	Archaeological Survey Report the I-5 (SR-55 to SR57) HOV Lanes Improvement Project County of Orange, California	AECOM	30-001598, 30-160811, 30-160814, 30-160816, 30-160817, 30-160818, 30-160819, 30-160824, 30-160830, 30-160836, 30-160838, 30-160842, 30-160843, 30-160845, 30-160847, 30-160851, 30-160852, 30-160916, 30-160930, 30-160931, 30-160934, 30-160943, 30-160949, 30-161037, 30-161827, 30-176576, 30-176577, 30-176578, 30-176579, 30-176580, 30-176581, 30-176582, 30-176583, 30-176584, 30-176585, 30-176589, 30-176663, 30-176664, 30-176801, 30-176802, 30-176809, 30-177013, 30-177014, 30-177015, 30-177016, 30-177017, 30-177018, 30-177019, 30-177020, 30-177036, 30-179882
OR-04292		2012	Meiser, M.K., Wallace, James, and Deitler, Sara	Historic Property Survey Report, improvements to Interstate 5 (I-5) between State Route 55 and State Route 57	AECOM	30-001598, 30-160811, 30-160814, 30-160816, 30-160817, 30-160818, 30-160819, 30-160824, 30-160830, 30-160836, 30-160838, 30-160842, 30-160843, 30-160845, 30-160847, 30-160851, 30-160852, 30-160916, 30-160930, 30-160931, 30-160934, 30-160949, 30-161037, 30-161827, 30-176576, 30-176577, 30-176578, 30-176579, 30-176580, 30-176581, 30-176582, 30-176583, 30-176584, 30-176585, 30-176587, 30-176588, 30-176589, 30-176663, 30-176664, 30-176802, 30-176809, 30-177013, 30-177014, 30-177015, 30-177016, 30-177017, 30-177018, 30-177019, 30-177020, 30-177036, 30-179882
OR-04312		2012	Hass, Hannah, Hunt, Kevin, and Ramirez, Robert	Cultural Resources Study for the Depot at Santiago Project, Santa Ana, Orange County, California	Rincon Consultants	30-160790, 30-161703, 30-176801, 30-176809, 30-177501, 30-179882
OR-04429		2014	Bonner, Diane, Wills, Carrie, and Crawford, Kathleen	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate LA02024A (CM024 Water Tower) 1405 North French Street, Santa Ana, Orange County, California	EAS	30-160930, 30-160931, 30-160934, 30-161153, 30-176801, 30-176802

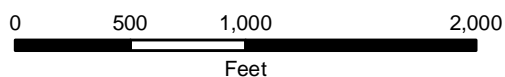
## Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
OR-04429A		2014	Bonner, Wayne H. and Kathleen A. Crawford	Direct APE Historic Architectural Assessment for T-Mobile West, LLC Candidate LA02024A (CM024 Water Tower) 1405 North French Street, Santa Ana, Orange County, California	Environmental Assessment Specialists, Inc.	
OR-04601		2017	Zamudio-Gurrola, S., S. Carmack, C. Duran, and H. Haas	Aqua Housing Development Cultural Resources Assessment	Rincon Consultants, Inc.	30-177659



Previous Surveys  
Washington Avenue Lot Well and Facility  
City of Santa Ana, California

1:10,000



Area of Potential Effects	OR-00508	OR-00332	OR-02507
Research Area	OR-02024	OR-00814	OR-03597
OR-02466	OR-03373	OR-02451	OR-04292
OR-03303	OR-03837	OR-02452	OR-04312
OR-03926	OR-04195	OR-02502	OR-04601
OR-04429	OR-04229		

USGS 7.5 Quad: Orange, CA (1977)

# **Enclosure 3**

## **NAHC Results**





## NATIVE AMERICAN HERITAGE COMMISSION

September 25, 2020

Jenna Farrell  
Tetra Tech, Inc.

Via Email to: [jenna.farrell@tetrattech.com](mailto:jenna.farrell@tetrattech.com)

CHAIRPERSON  
**Laura Miranda**  
Luiseño

VICE CHAIRPERSON  
**Reginald Pagaling**  
Chumash

SECRETARY  
**Merri Lopez-Keifer**  
Luiseño

PARLIAMENTARIAN  
**Russell Attebery**  
Karuk

COMMISSIONER  
**Marshall McKay**  
Wintun

COMMISSIONER  
**William Mungary**  
Paiute/White Mountain  
Apache

COMMISSIONER  
**Julie Tumamait-Stenslie**  
Chumash

COMMISSIONER  
[Vacant]

COMMISSIONER  
[Vacant]

EXECUTIVE SECRETARY  
**Christina Snider**  
Pomo

**NAHC HEADQUARTERS**  
1550 Harbor Boulevard  
Suite 100  
West Sacramento,  
California 95691  
(916) 373-3710  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)  
[NAHC.ca.gov](http://NAHC.ca.gov)

### Re: Washington Avenue Well Project, Orange County

Dear Ms. Farrell:

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 negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. 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: [Andrew.Green@nahc.ca.gov](mailto:Andrew.Green@nahc.ca.gov).

Sincerely,

Andrew Green  
Cultural Resources Analyst

Attachment

**Native American Heritage Commission  
Native American Contact List  
Orange County  
9/25/2020**

**Gabrieleno Band of Mission  
Indians - Kizh Nation**

Andrew Salas, Chairperson  
P.O. Box 393  
Covina, CA, 91723  
Phone: (626) 926 - 4131  
admin@gabrielenoindians.org

Gabrieleno

**Juaneno Band of Mission  
Indians Acjachemen Nation -  
Belardes**

Joyce Perry, Tribal Manager  
4955 Paseo Segovia  
Irvine, CA, 92603  
Phone: (949) 293 - 8522  
kaamalam@gmail.com

Juaneno

**Gabrieleno/Tongva San Gabriel  
Band of Mission Indians**

Anthony Morales, Chairperson  
P.O. Box 693  
San Gabriel, CA, 91778  
Phone: (626) 483 - 3564  
Fax: (626) 286-1262  
GTTribalcouncil@aol.com

Gabrieleno

**Pala Band of Mission Indians**

Shasta Gaughen, Tribal Historic  
Preservation Officer  
PMB 50, 35008 Pala Temecula  
Rd.  
Pala, CA, 92059  
Phone: (760) 891 - 3515  
Fax: (760) 742-3189  
sgaughen@palatribe.com

Cupeno  
Luiseno

**Gabrielino /Tongva Nation**

Sandonne Goad, Chairperson  
106 1/2 Judge John Aiso St.,  
#231  
Los Angeles, CA, 90012  
Phone: (951) 807 - 0479  
sgoad@gabrielino-tongva.com

Gabrielino

**Santa Rosa Band of Cahuilla  
Indians**

Lovina Redner, Tribal Chair  
P.O. Box 391820  
Anza, CA, 92539  
Phone: (951) 659 - 2700  
Fax: (951) 659-2228  
Isaul@santarosacahuilla-nsn.gov

Cahuilla

**Gabrielino Tongva Indians of  
California Tribal Council**

Robert Dorame, Chairperson  
P.O. Box 490  
Bellflower, CA, 90707  
Phone: (562) 761 - 6417  
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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 Washington Avenue Well Project, Orange County.

**Enclosure 4**

**Phase I Surveyed Area Project Photographs**

## Enclosure 4. Phase I Surveyed Area Project Photographs



Figure 1. Overview of the Project site and Phase I archaeological surveyed area, view west, December 12, 2020.



Figure 2. Overview of the Project site and Phase I archaeological surveyed area, note: concrete drainage channel (right edge of photo), view south, December 12, 2020.

## **APPENDIX C**

### **NOISE**

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**NOISE IMPACT ANALYSIS**

**WASHINGTON AVENUE LOT WELL & FACILITY**

**PROJECT**

**CITY OF SANTA ANA**

---

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Project No. 20056

December 21, 2020



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## ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Santa Ana
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
EPA	Environmental Protection Agency
Hz	Hertz
Ldn	Day-night average noise level
Leq	Equivalent sound level
Lmax	Maximum noise level
ONAC	Federal Office of Noise Abatement and Control
OSHA	Occupational Safety and Health Administration
PPV	Peak particle velocity
RMS	Root mean square
SEL	Single Event Level or Sound Exposure Level
STC	Sound Transmission Class
UMTA	Federal Urban Mass Transit Administration
VdB	Vibration velocity level in decibels

---

## 1.0 INTRODUCTION

### ***1.1 Purpose of Analysis and Study Objectives***

This Noise Impact Analysis has been prepared to determine the noise impacts associated with the proposed Washington Avenue Lot Well and Facility project (proposed project). The following is provided in this report:

- A description of the study area and the proposed project;
- Information regarding the fundamentals of noise;
- Information regarding the fundamentals of vibration;
- A description of the local noise guidelines and standards;
- An evaluation of the current noise environment;
- An analysis of the potential short-term construction-related noise impacts from the proposed project; and
- An analysis of long-term operations-related noise impacts from the proposed project.

### ***1.2 Site Location and Study Area***

The project site is located in the southern portion of the City of Santa Ana (City) at the northwest corner of Penn Way and Washington Avenue. The disturbed surface area for construction of the Washington Avenue Well facility and associated pipeline is expected to be approximately 0.75 acres in size. The project site is currently vacant land and is bounded by Penn Way and industrial uses to the north, Penn Way and industrial uses to the east, Washington Avenue, industrial uses and residential uses to the south, and commercial and residential uses to the west. The project study area is shown in Figure 1.

### ***Sensitive Receptors in Project Vicinity***

The nearest sensitive receptors to the project site are residential apartments located as near as 100 feet west of the project site. Additionally, there are residential homes located as near as 145 feet south of the project site. The nearest school to the project site is Davis Elementary School that is located as near as 400 feet northwest of the project site.

### ***1.3 Proposed Project Description***

The proposed project consists of development of a potable water well, well building, and chemical building. Approximately 140 feet of new pipeline will be needed to connect the new well to the existing water supply pipeline under Penn Way. The proposed project will also include several new above-ground buildings and other improvements:

- One (1) Well building, approximately 810 square feet;
- One (1) Chemical building approximately 510 square feet;
- Four (4) Material Storage bins, with concrete block walls on three sides, an overhead cover, and an open front, each about 15 feet wide by 24 feet deep and covering a total of approximately 2,000 square feet;

- 
- New pavement area, covering approximately 11,600 square feet of area;
  - Miscellaneous on-site concrete ramps and pads, totaling approximately 500 square feet;
  - A perimeter block wall, 8-foot tall and extending approximately 650 linear feet, with two access drives employing rolling gates (one each on East Washington Avenue and Penn Way;
  - Regulation sidewalk outside of the perimeter block wall adjacent to East Washington Avenue, approximately 2,400 square feet; and
  - Landscaping with drought-tolerant plants will be placed along the Penn Way and East Washington Avenue sides of the property between the block wall and sidewalk.

The new well will be drilled to a depth of approximately 1,300 feet below ground surface and be installed with minimum of an 18-inch diameter casing. The pumping capacity is expected to range from 2,500 to 3,000 gallons per minute (gpm). The water produced from the new well will be disinfected using sodium hypochlorite (NaOCl) before it is discharged into the City's existing water distribution system.

The project will be constructed in two phases. Phase 1 will include well drilling and construction of the well (installation of the well screen and casing, filter media, bentonite seal, backfill, and the surface completion). Phase 2 will include construction of the surface facilities other improvements. The anticipated schedule for these phases is expected to be roughly as follows:

Phase 1: January 2021 through June 2021.

Phase 2: July 2021 through June 2022

Activities associated with Phase 1 well drilling will be continuous (i.e. 24-hours per day for as many days as needed to reach the completion depth) and well construction will be performed on weekdays only, during regular work hours. Phase 2 construction activities will be conducted on weekdays only, during regular work hours.

The disturbed surface area for construction of the Washington Avenue Well facility and associated pipeline is expected to be approximately 0.75 acres in size. All construction activities will be staged (equipment and materials) on the project site. Phase 1 equipment on-site will include a drill rig, support vehicles (including a mobile crane), and delivery trucks for well casing, well screen, filter media, bentonite, concrete, and other materials. Phase 2 will involve the most on-site equipment and space for storing materials. Heavy equipment on-site for this phase is expected to include, at a minimum, one or more of the following pieces: a bulldozer, an excavator, a wheel loader, a grader, a soil compactor, and a front loader tractor. The proposed project site plan is shown in Figure 2.

## **1.4 Executive Summary**

### **Standard Noise Regulatory Conditions**

The proposed project will be required to comply with the following regulatory conditions from the City and State of California (State).

### **City of Santa Ana Municipal Code**

The following lists the City of Santa Ana Municipal Code regulations that are applicable to the proposed project.

---

### Section 18-312(a) Exterior Noise Standards

Section 18-312(a) of the City's Municipal Code limits noise created on the project site at any residential property line to 55 dBA between 7 a.m. and 10 p.m. and to 50 dBA between 10 p.m. and 7 a.m.. Compliance with this regulation will reduce the onsite operational-related noise impacts to the nearby sensitive receptors.

### Section 18-314(a) Construction Noise

Section 18-314(e) of the City's Municipal Code exempts construction noise that occurs between 7:00 a.m. and 8:00 p.m. from the City's noise standards. Compliance with this regulation will reduce the construction-related noise impacts to the nearby sensitive receptors.

### **State of California Rules**

The following lists the State of California rules that are applicable to all industrial projects in the State.

#### California Vehicle Code Section 27200-27207 – On-Road Vehicle Noise

California Vehicle Code Section 27200-27207 provides noise limits for vehicles operated in California. For vehicles over 10,000 pounds noise is limited to 88 dB for vehicles manufactured before 1973, 86 dB for vehicles manufactured before 1975, 83 dB for vehicles manufactured before 1988, and 80 dB for vehicles manufactured after 1987. All measurements are based at 50 feet from the vehicle.

#### California Vehicle Section 38365-38380 – Off-Road Vehicle Noise

California Vehicle Code Section 38365-38380 provides noise limits for off-highway motor vehicles operated in California. 92 dBA for vehicles manufactured before 1973, 88 dBA for vehicles manufactured before 1975, 86 dBA for vehicles manufactured before 1986, and 82 dBA for vehicles manufactured after December 31, 1985. All measurements are based at 50 feet from the vehicle.

### **Summary of Analysis Results**

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines noise checklist questions.

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

Potentially significant impact. Implementation of Mitigation Measure 1 would reduce the impact to less than significant levels.

Generation of excessive groundborne vibration or groundborne noise levels?

Less than significant impact.

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

No impact.



---

### **1.5 Mitigation Measures for the Proposed Project**

This analysis found that through adherence to the noise and vibration regulations detailed in Section 1.4 above and through implementation of the following mitigation all noise and vibration impacts would be reduced to less than significant levels.

#### **Mitigation Measure 1:**

Prior to the start of Phase 1 well drilling and construction activities, the contractor for the proposed project shall perform one of the following actions to reduce the construction-related noise impacts:

- Construct a temporary 8-foot high wall along the west and south property lines. The temporary wall shall be constructed with minimum 5/8-inch plywood or oriented strand board (OSB) and shall be maintained until completion of the grading phase; or
- Construct the proposed 8-foot high cmu wall on the west and south property lines that is detailed in the project description and proposed site plan.

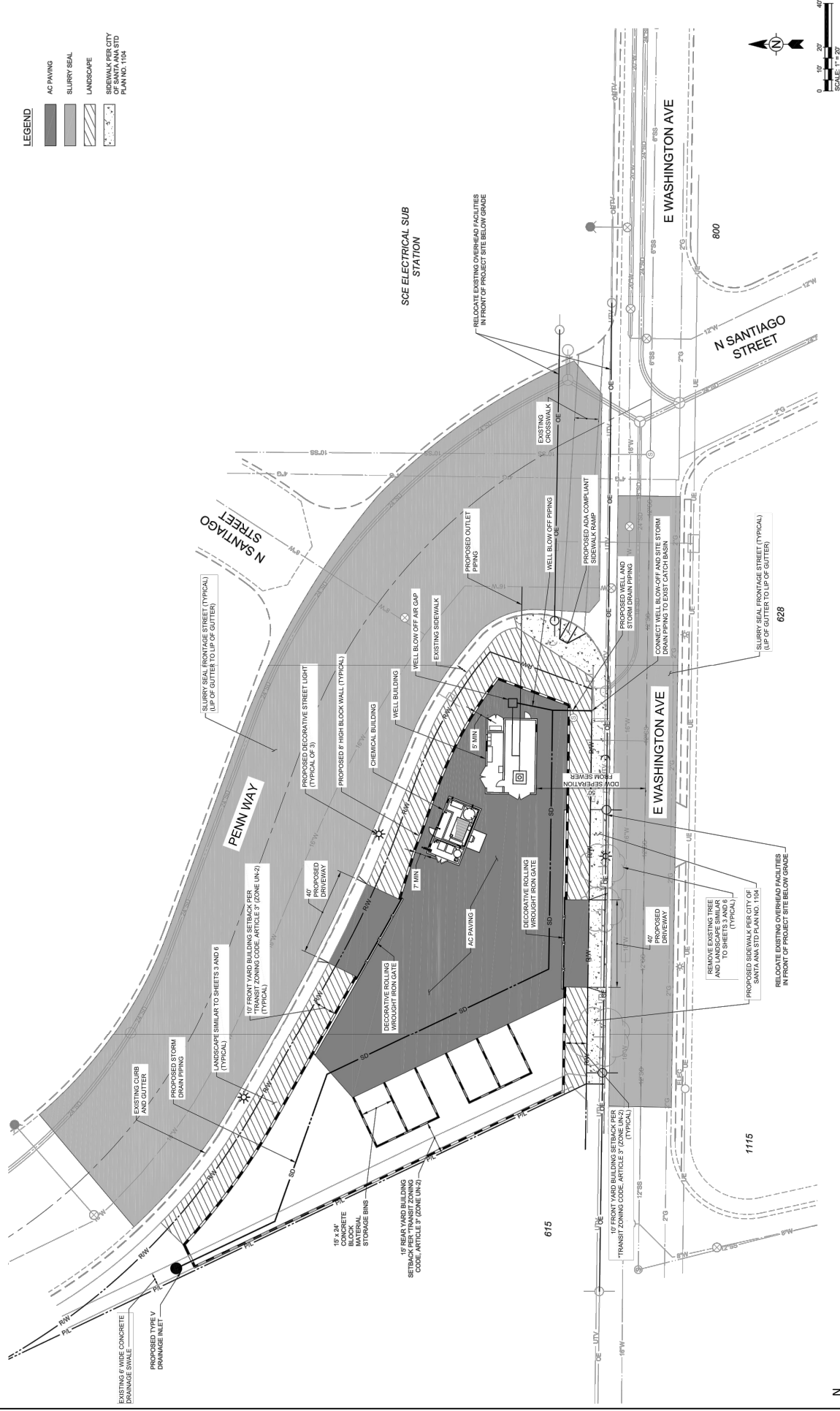


SOURCE: Petra Tech.

Figure 2  
Project Location Map



- LEGEND**
- AC PAVING
  - SLURRY SEAL
  - LANDSCAPE
  - SIDEWALK PER CITY OF SANTA ANA STD PLAN NO. 1104



SOURCE: Petra Tech.

**VISTA**  
ENVIRONMENTAL

Figure 2  
Proposed Site Plan

---

## 2.0 NOISE FUNDAMENTALS

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

### 2.1 Noise Descriptors

Noise Equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The peak traffic hour Leq is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Level (Ldn) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the Ldn, except that it has another addition of 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these time periods because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason the sound appears louder in the evening and nighttime hours and is weighted accordingly. The City of Santa Ana relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

### 2.2 Tone Noise

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown that humans are more perceptible to changes in noise levels of a pure tone. For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to “stand out” against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contiguous one-third octave bands by:

- 5 dB for center frequencies of 500 hertz (Hz) and above
- 8 dB for center frequencies between 160 and 400 Hz
- 15 dB for center frequencies of 125 Hz or less

### 2.3 Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound

---

from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

## **2.4 Ground Absorption**

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis.

---

## 3.0 GROUND-BORNE VIBRATION FUNDAMENTALS

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

### 3.1 *Vibration Descriptors*

There are several different methods that are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Due to the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as ( $L_v$ ) and is based on the rms velocity amplitude. A commonly used abbreviation is “VdB”, which in this text, is when  $L_v$  is based on the reference quantity of 1 micro inch per second.

### 3.2 *Vibration Perception*

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration.

### 3.3 *Vibration Propagation*

The propagation of ground-borne vibration is not as simple to model as airborne noise. This is due to the fact that noise in the air travels through a relatively uniform median, while ground-borne vibrations travel through the earth which may contain significant geological differences. There are three main types of vibration propagation; surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground’s surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a “push-pull” fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or “side-to-side and perpendicular to the direction of propagation.”

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

---

## 4.0 REGULATORY SETTING

The project site is located in the City of Santa Ana. Noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

### 4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA). Transit noise is regulated by the federal Urban Mass Transit Administration (UMTA), while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Although the proposed project is not under the jurisdiction of the FTA, the FTA is the only agency that has defined what constitutes a significant noise impact from implementing a project. The FTA recommends developing construction noise criteria on a project-specific basis that utilizes local noise ordinances if possible. However, local noise ordinances usually relates to nuisance and hours of allowed activity and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the noise impacts of a construction project. Project construction noise criteria should take into account the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land uses. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings for a detailed construction noise assessment are provided below in Table A.

**Table A – FTA Construction Noise Criteria**

Land Use	Day (dBA Leq <sub>(8-hour)</sub> )	Night (dBA Leq <sub>(8-hour)</sub> )	30-day Average (dBA Ldn)
Residential	80	70	75
Commercial	85	85	80 <sup>(1)</sup>
Industrial	90	90	85 <sup>(1)</sup>

Notes:

<sup>(1)</sup> Use a 24-hour Leq<sub>(24 hour)</sub> instead of Ldn<sub>(30 day)</sub>.

Source: Federal Transit Administration, 2018.



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Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation sources, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

## **4.2 State Regulations**

### **Noise Standards**

#### California Department of Health Services Office of Noise Control

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regulatory tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix,” which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

#### California Noise Insulation Standards

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

#### Government Code Section 65302

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

#### California Vehicle Code Section 27200-27207 – On-Road Vehicle Noise

California Vehicle Code Section 27200-27207 provides noise limits for vehicles operated in California. For vehicles over 10,000 pounds noise is limited to 88 dB for vehicles manufactured before 1973, 86 dB for vehicles manufactured before 1975, 83 dB for vehicles manufactured before 1988, and 80 dB for vehicles manufactured after 1987. All measurements are based at 50 feet from the vehicle.

#### California Vehicle Section 38365-38380 – Off-Road Vehicle Noise

California Vehicle Code Section 38365-38380 provides noise limits for off-highway motor vehicles operated in California. 92 dBA for vehicles manufactured before 1973, 88 dBA for vehicles manufactured before 1975, 86 dBA for vehicles manufactured before 1986, and 82 dBA for vehicles manufactured after December 31, 1985. All measurements are based at 50 feet from the vehicle.

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## Vibration Standards

Title 14 of the California Administrative Code Section 15000 requires that all state and local agencies implement the California Environmental Quality Act (CEQA) Guidelines, which requires the analysis of exposure of persons to excessive groundborne vibration. However, no statute has been adopted by the state that quantifies the level at which excessive groundborne vibration occurs.

Caltrans issued the *Transportation- and Construction-Induced Vibration Guidance Manual* in 2004. The manual provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. However, this manual is also used as a reference point by many lead agencies and CEQA practitioners throughout California, as it provides numeric thresholds for vibration impacts. Thresholds are established for continuous (construction-related) and transient (transportation-related) sources of vibration, which found that the human response becomes distinctly perceptible at 0.25 inch per second PPV for transient sources and 0.04 inch per second PPV for continuous sources.

### 4.3 Local Regulations

The City of Santa Ana General Plan and Municipal Code establishes the following applicable policies related to noise and vibration.

#### City of Santa Ana General Plan Noise Element

Definition of undesirable or unhealthful noise levels must precede the goal of minimizing noise problems. The City of Santa Ana adopts the following standards and guidelines for noise levels for land uses:

**Table B – City of Santa Ana Interior and Exterior Noise Standards**

Categories	Land Use Categories	Noise Standard (dBA)	
		Interior <sup>(1)</sup>	Exterior <sup>(2)</sup>
Residential	Single-family, duplex, multi-family	45 <sup>(3)</sup>	65
	Hospital, school classroom/playgrounds	45	65
Institutional	Church, library	45	--
Open Space	Parks	--	65

Notes:

<sup>(1)</sup> Interior areas (to include but are not limited to: bedrooms, bathrooms, kitchens, living rooms, dining rooms, closets, corridors/hallways, private offices, and conference rooms.

<sup>(2)</sup> Exterior areas shall mean: private yards of single-family homes, park picnic areas, school playgrounds, common areas, private open space, such as atriums on balconies, shall be excluded from exterior areas provided sufficient common area is included within the project.

<sup>(3)</sup> Interior noise level requirements contemplate a closed window condition. Mechanical ventilation system or other means of natural ventilation shall be provided per Chapter 12, Section 1305 of the Uniform Building Code.

Source: City of Santa Ana General Plan Noise Element, 2010.

#### Goal 1 Prevent significant increases in noise levels in the community and minimize the adverse effects of currently-existing noise sources.

##### Policies:

- Require consideration of noise generation potential and susceptibility to noise impacts in the siting, design, and construction of new developments.

- Require mitigating site and building design features, traffic circulation alternatives, insulation, and other noise prevention measures of those new developments which generate high noise levels.
- Sound insulate and/or buffer sensitive land uses such as housing from adverse noise impacts in noise-prone areas.
- Minimize noise generation in residential neighborhoods through control or elimination of truck traffic and through-traffic from these areas.

### City of Santa Ana Municipal Code

The City of Santa Ana Municipal Code establishes the following applicable standards related to noise.

#### Sec. 18-312 Exterior noise standards

(a) The following noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

**Table C – City of Santa Ana Exterior Noise Standards**

Noise Zone <sup>1</sup>	Noise Level	Time Period
1	55 dB(A)	7 a.m. – 10 p.m.
	50 dB(A)	10 p.m. – 7 a.m.

Notes:

<sup>1</sup> Section 18-311 states: “The entire City of Santa Ana is hereby designated as “Noise Zone 1.”

Source: City of Santa Ana Municipal Code, Section 18-312.

In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

(b) It is unlawful for any person at any location within the City of Santa Ana to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, either incorporated or unincorporated, to exceed:

- (1) The noise standard for a cumulative period of more than thirty (30) minute in any hour; or
- (2) The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or
- (3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or
- (4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one minute in any hour; or
- (5) The noise standard plus twenty (20) dB(A) for any period of time.

(c) In the event the ambient noise level exceeds any of the first four (4) noise limit categories set forth in subsection (b) of this section, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

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#### Sec. 18-313 Interior noise standards

- (a) The following interior noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

**Table D – City of Santa Ana Interior Noise Standards**

Noise Zone <sup>1</sup>	Noise Level	Time Period
1	55 dB(A)	7 a.m. – 10 p.m.
	45 dB(A)	10 p.m. – 7 a.m.

Notes:

<sup>1</sup> Section 18-311 states: "The entire City of Santa Ana is hereby designated as "Noise Zone 1."

Source: City of Santa Ana Municipal Code, Section 18-313.

In the even the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

- (b) It is unlawful for any person at any location within the City of Santa Ana to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, either incorporated or unincorporated, to exceed:

- (1) The noise standard for a cumulative period of more than five (5) minutes in any hour; or
- (2) The interior noise standard plus five (5) dB(A) for a cumulative period of more than one minute in any hour; or
- (3) The interior noise standard plus ten (10) dB(A) for any period of time.

- (c) In the event the ambient noise level exceeds any of the first two (2) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

#### Sec. 18-314 Special provisions

The following activities shall be exempted from the provisions of this article:

- (e) Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

#### Sec. 18-315 Schools, hospitals and churches; special provisions

It shall be unlawful for any person to create any noise which causes the noise level at any school, hospital or church while the same is in use to exceed the noise limits as specified in Section 18-312 prescribed for the assigned noise zone in which the school, hospital or church is located, or which noise level unreasonably interferes with the use of such institutions or which unreasonably disturbs or annoys patients in the hospital, provided conspicuous signs are displayed in three (3) separate locations within one-tenth ( 1/10) of a mile of the institution indicating the presence of a school, church or hospital.

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## 5.0 EXISTING NOISE CONDITIONS

To determine the existing noise levels, noise measurements have been taken in the vicinity of the project site. The field survey noted that noise within the proposed project area is generally characterized by vehicle traffic on Washington Avenue that is located adjacent to the south side of the project site and Penn Way that is located adjacent to the northeast side of the project site. There is also noise in the project vicinity from the nearby industrial uses and Interstate 5 that is as near as 800 feet northeast of the project site. The following describes the measurement procedures, measurement locations, noise measurement results, and the modeling of the existing noise environment.

### 5.1 Noise Measurement Equipment

The noise measurements were taken using two Extech Model 407780 Type 2 integrating sound level meters programmed in “slow” mode to record the sound pressure level at 3-second intervals for approximately 24 hours in “A” weighted form. In addition, the  $L_{eq}$  averaged over the entire measuring time and  $L_{max}$  were recorded. The sound level meters and microphones were mounted approximately five feet above the ground and were equipped with a windscreen. The sound level meters were calibrated before and after the monitoring using an Extech calibrator, Model 407766. The noise level measurement equipment meets American National Standards Institute specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

### Noise Measurement Locations

The noise monitoring locations were selected in order to obtain noise measurements of the current noise levels in the vicinity of the nearest homes to the west and south of the project site. Descriptions of the noise monitoring sites are provided below in Table E and are shown in Figure 3. Appendix A includes a photo index of the study area and noise level measurement locations.

### Noise Measurement Timing and Climate

The noise measurements were recorded between 9:40 a.m. on Thursday, August 13, 2020 and 9:46 a.m. on Friday, August 14, 2020. When the noise measurements were started the sky was partly cloudy, the temperature was 79 degrees Fahrenheit, the humidity was 54 percent, barometric pressure was 29.72 inches of mercury, and there was no wind. At the conclusion of the noise measurements, the sky was clear, the temperature was 87 degrees Fahrenheit, the humidity was 56 percent, barometric pressure was 29.72 inches of mercury, and there was no wind.

### 5.2 Noise Measurement Results

The results of the noise level measurements are presented in Table E. The measured sound pressure levels in dBA have been used to calculate the minimum and maximum  $L_{eq}$  averaged over 1-hour intervals. Table E also shows the  $L_{eq}$ ,  $L_{max}$ , and CNEL, based on the entire measurement time. The noise monitoring data printouts are included in Appendix B. Figure 4 shows a graph of the 24-hour noise measurements.

**Table E – Existing (Ambient) Noise Level Measurements**

Site No.	Site Description	Average (dBA L <sub>eq</sub> )	Maximum (dBA L <sub>max</sub> )	(dBA L <sub>eq</sub> 1-hour/Time)		Average (dBA CNEL)
				Minimum	Maximum	
1	Located west of the project site on an equipment rack in the northern portion of the yard of Pacific Plumbing, approximately 20 feet west of the apartments.	54.5	79.8	48.6 2:21 a.m.	58.4 6:35 a.m.	60.5
2	Located south of the project site on a tree that was near the north property line of the home at 1113 Poinsettia Street, approximately 30 feet east of the Poinsettia Street centerline.	60.1	86.5	48.1 2:15 a.m.	66.8 9:14 p.m.	64.0

Source: Noise measurements were taken with two Extech Model 407780 Type 2 sound level meters between Thursday, August 13 and Friday, August 14, 2020.

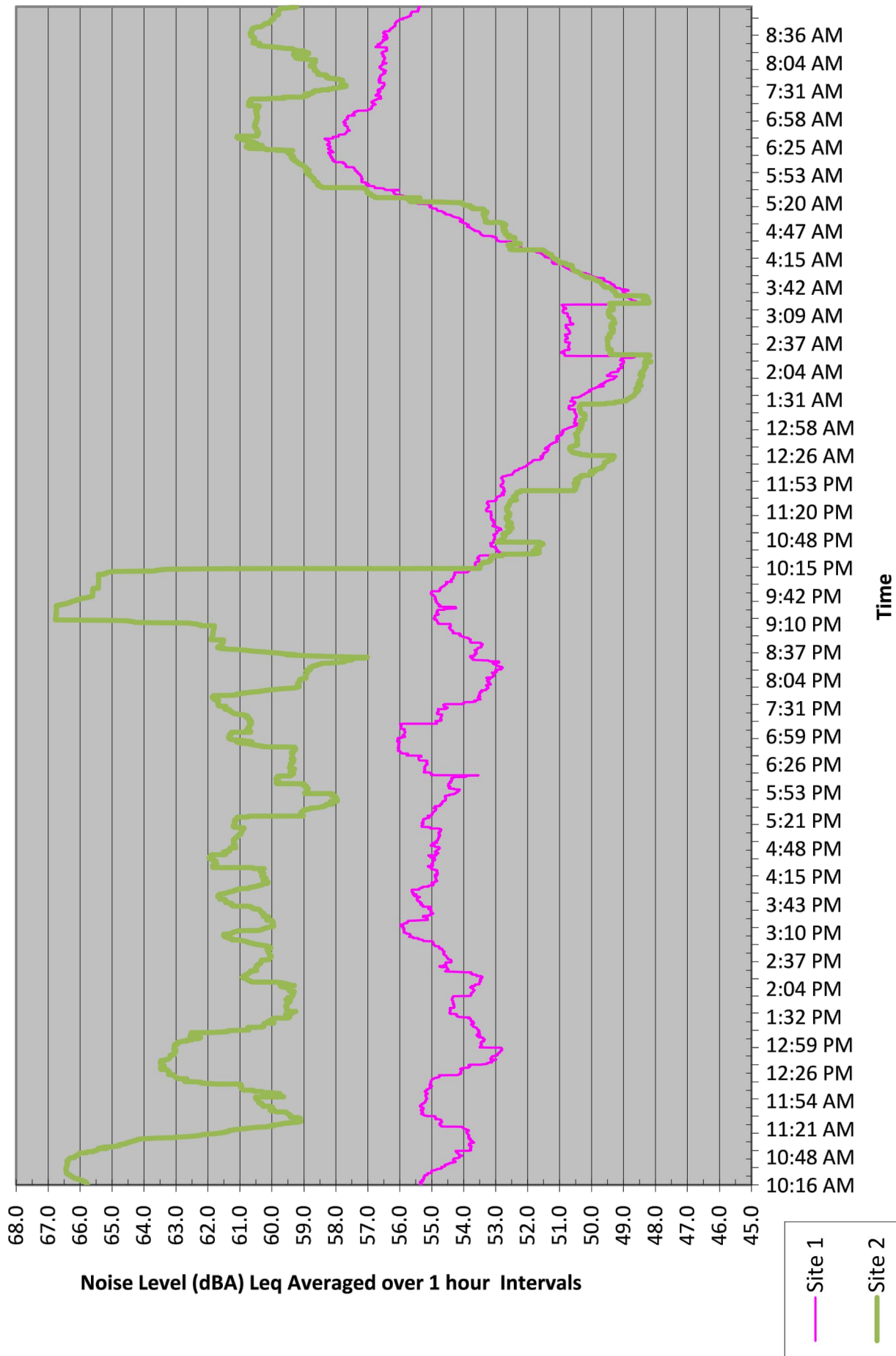




SOURCE: Petra Tech.

Figure 2  
Field Noise Monitoring Locations





SOURCE: Eitech Model 7780 Type 2 Sound Level Meters.



Figure 2  
Field Noise Measurements Graph

## 6.0 MODELING PARAMETERS AND ASSUMPTIONS

### 6.1 SoundPlan Model

Since the proposed project would require the simultaneous use of multiple pieces of construction equipment, the SoundPlan Version 8.2 noise modeling software was used. The SoundPlan Model allows for the input of stationary noise sources with associated frequency spectrums, sound barriers, terrain contour lines, building placement, and specific ground coverage zones may be incorporated as well. The site plan and aerial photos were used to determine the placement of the existing structures in the project vicinity. The default temperature of 20 degrees Celsius (68 degrees Fahrenheit) and default humidity of 50 percent, which can vary the propagation of noise, were used in the analysis and represent reasonable assumptions, since they are near the averages experienced in the project vicinity.

### Monitor Well Construction Assumptions

The SoundPlan model was utilized to analyze the noise impacts from each phase of construction activities for the proposed project. The various equipment noise levels and acoustical use factors were obtained from the FHWA's Roadway Construction Noise Model (RCNM). The reference noise levels and operating times of each piece of equipment utilized during each phase of construction activities are shown in Table F.

**Table F – Proposed Construction Equipment Inventory and Reference Noise Levels**

Equipment	Height of Noise Source (feet)	Acoustical Use Factor <sup>1</sup> (percent)	Noise Level <sup>1</sup> (dBA Leq)	Operating Time <sup>2</sup>
<b>Phase 1 – Well Drilling and Construction</b>				
Drill Rig	12	20	79	24 hours
Mobile Crane	12	16	81	24 hours
Support Truck	4	40	75	24 hours
Support Truck	4	40	75	24 hours
<b>Phase 2 – Surface Facilities</b>				
Dozer	11	40	76	7 a.m.-5 p.m.
Excavator	9	40	81	7 a.m.-5 p.m.
Loader	11	40	79	7 a.m.-5 p.m.
Grader	7	40	85	7 a.m.-5 p.m.
Soil Compactor	3	20	83	7 a.m.-5 p.m.
Front Loader Tractor	7	40	84	7 a.m.-5 p.m.

Notes:

<sup>3</sup> Obtained from FHWA Roadway Construction Noise Model, 2006.

<sup>2</sup> Operating times provided by project applicant.

### 6.2 Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight

damage at the highest levels. Table G gives approximate vibration levels for particular construction activities. The data in Table G provides a reasonable estimate for a wide range of soil conditions.

**Table G – Vibration Source Levels for Construction Equipment**

Equipment		Peak Particle Velocity (inches/second)	Approximate Vibration Level (L <sub>v</sub> ) at 25 feet
Pile driver (impact)	Upper range	1.518	112
	typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drill		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Federal Transit Administration, September 2018.

The construction-related vibration impacts have been calculated through the vibration levels shown above in Table G and through typical vibration propagation rates. The equipment assumptions were based on the equipment lists provided above in Table F.

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## 7.0 IMPACT ANALYSIS

### 7.1 CEQA Thresholds of Significance

Consistent with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

### 7.2 Generation of Noise Levels in Excess of Standards

The proposed project would consist of construction of a new water supply well and ancillary facilities that would be constructed over two phases. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed project and compares the noise levels to the City standards.

#### Construction-Related Noise

The proposed project would consist of the development of a new water supply well and ancillary facilities that include a well building a chemical building, and four material storage bins. The proposed project would also include construction of new pavement area, miscellaneous on-site concrete ramps and pads, and a new sidewalk adjacent to Washington Avenue. The proposed project would include installation of approximately 140 feet of new pipeline that will run from the new well to the existing water supply line in Penn Way. Construction activities would be completed in two phases. Phase 1 would include well drilling that will be continuous (i.e. 24-hours per day for as many days as needed to reach the completion depth) and well construction will be performed on weekdays only, during regular work hours. Phase 2 will include construction of the surface facilities other improvements. Phase 2 construction activities will be conducted on weekdays only, during regular work hours.

Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptors to the project site are residential apartments located as near as 100 feet west of the project site. Additionally, there are residential homes located as near as 145 feet south of the project site.

Section 18-314(e) of the City's Municipal Code exempts construction noise that occurs between 7:00 a.m. and 8:00 p.m. from the City's noise standards. Construction activities are not exempt from the Municipal Code at any time on Sundays or federal holidays. Since, the Municipal Code does not provide any limits to the noise levels that may be created from construction activities that occur during the allowable times for construction, the FTA construction noise thresholds shown above in Table A have been utilized that limit noise impacts to 80 dBA Leq during the daytime.

For construction activities that occur outside of the exempt times, construction noise is limited to the noise standards provided in Section 18-312(a) of the Municipal Code that limits noise levels to 55 dBA between 7:00 a.m. and 10:00 p.m. and 50 dBA between 10:00 p.m. and 7:00 a.m. at the exterior of any residential home and Section 18-313(a) of the Municipal Code limits noise levels to 55 dBA between 7:00 a.m. and 10:00 p.m. and 45 dBA between 10:00 p.m. and 7:00 a.m. at the interior of any residential home. The two phases of construction have been analyzed separately below.

#### Phase 1: Well Drilling and Construction

Phase 1 construction activities would include well drilling and construction of the well. The proposed well would be drilled by using flooded reverse circulation rotary drilling method. To reduce the risk of a borehole collapse during the drilling and well construction phase, a 24-hour operation of activities will be required. Since, some construction activities would occur outside of the times when construction noise is exempt as detailed in Section 18-314(e) of the Municipal Code, Phase 1 construction activities would be required to adhere to both the daytime and nighttime exterior noise standards detailed in Section 18-312(a) of the Municipal Code and the daytime and nighttime interior noise standards detailed in Section 18-313(a) of the Municipal Code. As such both the exterior and interior noise levels at the nearby homes have been analyzed separately below.

#### *Exterior Noise Impacts at Nearby Homes*

The exterior noise levels created during Phase 1 well drilling and construction is shown in Table H and Figure 5, which are based on the ground level receiver locations in the SoundPlan model at the analyzed homes. The SoundPlan printouts are provided in Appendix D.

**Table H – Phase 1 Well Drilling and Construction Exterior Noise Levels Prior to Mitigation**

Receiver <sup>1</sup>	Description	Daytime Construction Noise Levels (dBA Leq)			Nighttime Construction Noise Levels (dBA Leq)		
		Noise Level	Daytime Standard <sup>2</sup>	Exceed Standard?	Noise Level	Nighttime Standard <sup>3</sup>	Exceed Standard?
1	Apartments to West – North Building	58.3	55	Yes	58.3	50	Yes
2	Apartments to West – East Building	44.7	55	No	44.7	50	No
3	Apartments to West – South Building	44.2	55	No	44.2	50	No
4	Single-Family home to south	62.9	55	Yes	62.9	50	Yes

Notes:

<sup>1</sup> Receiver locations shown in Figure 5.

<sup>2</sup> The Daytime (7:00 a.m. to 10:00 p.m.) standard is 55 dBA for the nearby residential as detailed in Section 18-312(a) of the Municipal Code.

<sup>3</sup> The Nighttime (10:00 p.m. to 7:00 a.m.) standard is 50 dBA as detailed in Section 18-312(a) of the Municipal Code.

Source: SoundPlan Version 8.2.

Table H shows that the Phase 1 well drilling and construction activities would create exterior noise levels as high as 58.3 dBA Leq at the apartments to the west (north building) of the well site and as high as 62.9 dBA Leq at the single-family home to the south. Table H shows that both of these locations would exceed both the daytime noise standard of 55 dBA and the nighttime noise standard of 50 dBA as detailed in Section 18-312(a) of the Municipal Code. This would be considered a significant impact.

Mitigation Measure 1 has been provided that would require the City's contractor to construct an 8-foot high sound wall on the west and south sides of the project site, prior to the start of Phase 1 well drilling and construction activities. The sound wall may either be the proposed 8 foot high cmu wall that is detailed in the project description, or it may be a temporary sound wall constructed with minimum 5/8 inch plywood or OSB.

The SoundPlan model was re-run with implementation of the proposed sound wall in Mitigation Measure 1 and the calculated mitigated noise levels at the nearby homes is shown in Table I and Figure 6. The mitigated Phase 1 well construction SoundPlan printouts are provided in Appendix D.

**Table I – Mitigated Phase 1 Well Drilling and Construction Exterior Noise Levels**

Receiver <sup>1</sup>	Description	Daytime Construction Noise Levels (dBA Leq)			Nighttime Construction Noise Levels (dBA Leq)		
		Noise Level	Daytime Standard <sup>2</sup>	Exceed Standard?	Noise Level	Nighttime Standard <sup>3</sup>	Exceed Standard?
1	Apartments to West – North Building	44.1	55	No	44.1	50	No
2	Apartments to West – East Building	39.7	55	No	39.7	50	No
3	Apartments to West – South Building	41.3	55	No	41.3	50	No
4	Single-Family home to south	45.7	55	No	45.7	50	No

Notes:

<sup>1</sup> Receiver locations shown in Figure 6.

<sup>2</sup> The Daytime (7:00 a.m. to 10:00 p.m.) standard is 55 dBA for the nearby residential as detailed in Section 18-312(a) of the Municipal Code.

<sup>3</sup> The Nighttime (10:00 p.m. to 7:00 a.m.) standard is 50 dBA as detailed in Section 18-312(a) of the Municipal Code.

Source: SoundPlan Version 8.2 (see Appendix D)

Table I shows that with implementation of Mitigation Measure 1, the noise levels from all phase of construction at the exterior of the nearby homes to the west and south would be below both the daytime noise standard of 55 dBA and the nighttime noise standard of 50 dBA as detailed in Section 18-312(a) of the Municipal Code. Therefore, with implementation of Mitigation Measure 1, Phase 1 construction noise impacts would be less than significant at the exterior of the nearby homes.

#### *Interior Noise Impacts at Nearby Homes*

The noise levels created during Phase 1 well drilling and construction is shown in Table J for the interior noise levels. Since a typical home with windows closed provided 25 dB of exterior to interior noise reduction or attenuation, the interior noise levels were calculated by subtracting 25 dB from the noise levels calculated by SoundPlan at the facades of the nearby homes. The SoundPlan printouts are provided in Appendix D.

**Table J – Phase 1 Well Drilling and Construction Interior Noise Levels**

Receiver <sup>1</sup>	Description	Floor	Daytime Construction Noise Levels (dBA Leq)			Nighttime Construction Noise Levels (dBA Leq)		
			Noise Level <sup>2</sup>	Daytime Standard <sup>3</sup>	Exceed Standard?	Noise Level <sup>2</sup>	Nighttime Standard <sup>4</sup>	Exceed Standard?
1	Apartments to West – North Building	1 <sup>st</sup>	38.3	55	No	38.3	45	No
		2 <sup>nd</sup>	38.6	55	No	38.6	45	No
		3 <sup>rd</sup>	38.6	55	No	38.6	45	No
2	Apartments to West – East Building	1 <sup>st</sup>	24.7	55	No	24.7	45	No
		2 <sup>nd</sup>	27.5	55	No	27.5	45	No
		3 <sup>rd</sup>	34.1	55	No	34.1	45	No
3	Apartments to West – South Building	1 <sup>st</sup>	24.2	55	No	24.2	45	No
		2 <sup>nd</sup>	27.4	55	No	27.4	45	No
		3 <sup>rd</sup>	32.6	55	No	32.6	45	No
4	Single-Family home to south	1 <sup>st</sup>	42.9	55	No	42.9	45	No
		2 <sup>nd</sup>	43.0	55	No	43.0	45	No

Notes:

<sup>1</sup> Receiver locations shown in Figure 6.

<sup>2</sup> The interior noise level calculated based on a exterior to interior noise reduction rate of 25 dB.

<sup>3</sup> The Daytime (7:00 a.m. to 10:00 p.m.) standard is 55 dBA for the nearby residential as detailed in Section 18-313(a) of the Municipal Code.

<sup>4</sup> The Nighttime (10:00 p.m. to 7:00 a.m.) standard is 45 dBA as detailed in Section 18-313(a) of the Municipal Code.

Source: SoundPlan Version 8.2.

Table J shows that the Phase 1 well drilling and construction activities would create interior noise levels as high as 38.6 dBA Leq at the apartments to the west (north building) of the well site and as high as 42.9 dBA Leq at the single-family home to the south. Table H shows that all analyzed locations would be within both the daytime noise standard of 55 dBA and the nighttime noise standard of 45 dBA as detailed in Section 18-313(a) of the Municipal Code. Therefore, Phase 1 construction noise impacts would be less than significant at the interior of the nearby homes.

#### Phase 2: Surface Facilities and Other Improvements

Phase 2 will include construction of the surface facilities other improvements. Construction activities for Phase 3 will be limited to during the allowable construction times detailed in Section 18-314(e) of the City's Municipal Code that exempts construction noise that occurs between 7:00 a.m. and 8:00 p.m. from the City's noise standards. Since, the Municipal Code does not provide any limits to the noise levels that may be created from construction activities that occur during the allowable times for construction, the FTA construction noise thresholds shown above in Table A have been utilized that limit noise impacts to 80 dBA Leq during the daytime at the exterior of the nearby homes.

The noise levels created during Phase 2 construction activities is shown in Table K and Figure 7, which are based on the ground level receiver locations in the SoundPlan model at the analyzed homes. The SoundPlan printouts are provided in Appendix D.



**Table K – Phase 2 Surface Facilities and Other Improvements Exterior Noise Levels**

Receiver <sup>1</sup>	Description	Construction Noise Level <sup>2</sup> (dBA Leq)	Noise Standard <sup>3</sup> (dBA Leq)	Exceed Standard?
1	Apartments to West – North Building	69.5	80	No
2	Apartments to West – East Building	60.2	80	No
3	Apartments to West – South Building	52.6	80	No
4	Single-Family home to south	71.9	80	No

Notes:

<sup>1</sup> Receiver locations shown in Figure 7.

<sup>2</sup> The calculated construction noise level is based on implementation of Project Design Feature 1 (Installation of Sound Wall) prior to utility clearance activities.

<sup>3</sup> All construction activities during Phase 1 would adhere to the limitation in construction hours provided in Section 13-280(a) of the Municipal Code. The 80 dBA threshold was obtained from the FTA construction noise criteria provided above in Table A.

Source: SoundPlan Version 8.2.

Table K shows that Phase 2 construction activities would create noise levels as high as 71.9 dBA Leq at the exterior of the single-family home that is located south of the project site. Table K shows that none of the Receivers would exceed the FTA's daytime construction noise standard of 80 dBA Leq. Through adherence to the limitations of allowable construction times provided in Section 18-314(e) of the City's Municipal Code, noise impacts from Phase 2 construction activities would be less than significant.

### **Operational-Related Noise**

In general, operation of the well and facility would be passive as the well equipment would operate automatically. The normal operation of the well would generate one trip weekly for a worker to monitor the operation of the well facilities and perform maintenance as necessary. Periodic maintenance activities such as replacement of tanks and testing and maintaining equipment will require bi-weekly trips to the project site. Since operational noise impacts would be limited to bi-weekly vehicle trips to and from the project site, the operational activities would create nominal noise impacts. Impacts would be less than significant.

### **Level of Significance Before Mitigation**

Potentially significant impact.

### **Mitigation Measures**

#### **Mitigation Measure 1:**

Prior to the start of Phase 1 well drilling and construction activities, the contractor for the proposed project shall perform one of the following actions to reduce the construction-related noise impacts:

- Construct a temporary 8-foot high wall along the west and south property lines. The temporary wall shall be constructed with minimum 5/8-inch plywood or oriented strand board (OSB) and shall be maintained until completion of the grading phase; or
- Construct the proposed 8-foot high cmu wall on the west and south property lines that is detailed in the project description and proposed site plan.

### **Level of Significance After Mitigation**

Less than significant impact.

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### **7.3 Generation of Excessive Groundborne Vibration**

The proposed project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the proposed project.

#### **Construction-Related Vibration Impacts**

The proposed project would consist of construction of a new water supply well and ancillary facilities that would be constructed over two phases. Vibration impacts from construction activities associated with the proposed project would typically be created from the operation of heavy off-road equipment. The nearest offsite sensitive receptors are the residents at the multi-family homes located as near as 100 feet northeast of the project site.

Since neither the City's Municipal Code nor the General Plan provides a quantifiable vibration threshold level, Caltrans guidance that is detailed above in Section 4.2 has been utilized, which defines the threshold of perception from transient sources at 0.25 inch per second PPV.

The primary source of vibration during construction would be from the operation of a vibratory roller. From Table G above a vibratory roller would create a vibration level of 0.21 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest offsite sensitive receptor (multi-family homes 100 feet to the east) would be 0.046 inch per second PPV. The vibration level at the nearest offsite sensitive receptor would be within the 0.25 inch per second PPV threshold detailed above. Therefore, a less than significant vibration impact is anticipated from construction of the proposed project.

#### **Operations-Related Vibration Impacts**

In general, operation of the well and facility would be passive as the well equipment would operate automatically. The normal operation of the well would generate one trip weekly for a worker to monitor the operation of the well facilities and perform maintenance as necessary. Periodic maintenance activities such as replacement of tanks and testing and maintaining equipment will require bi-weekly trips to the project site. The on-going operation of the proposed project would not include the operation of any known vibration sources. Therefore, a less than significant vibration impact is anticipated from operation of the proposed project.

#### **Level of Significance**

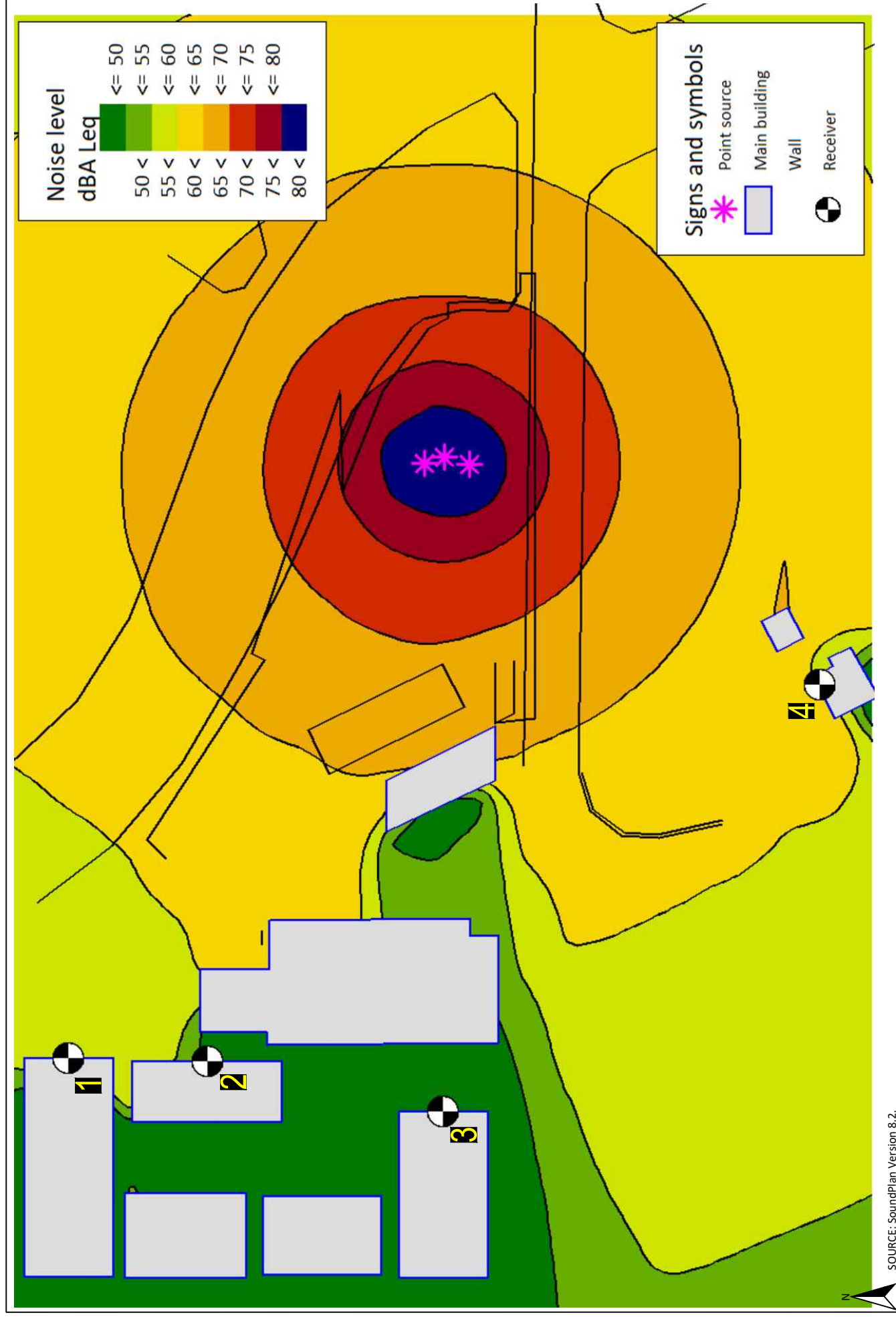
Less than significant impact.

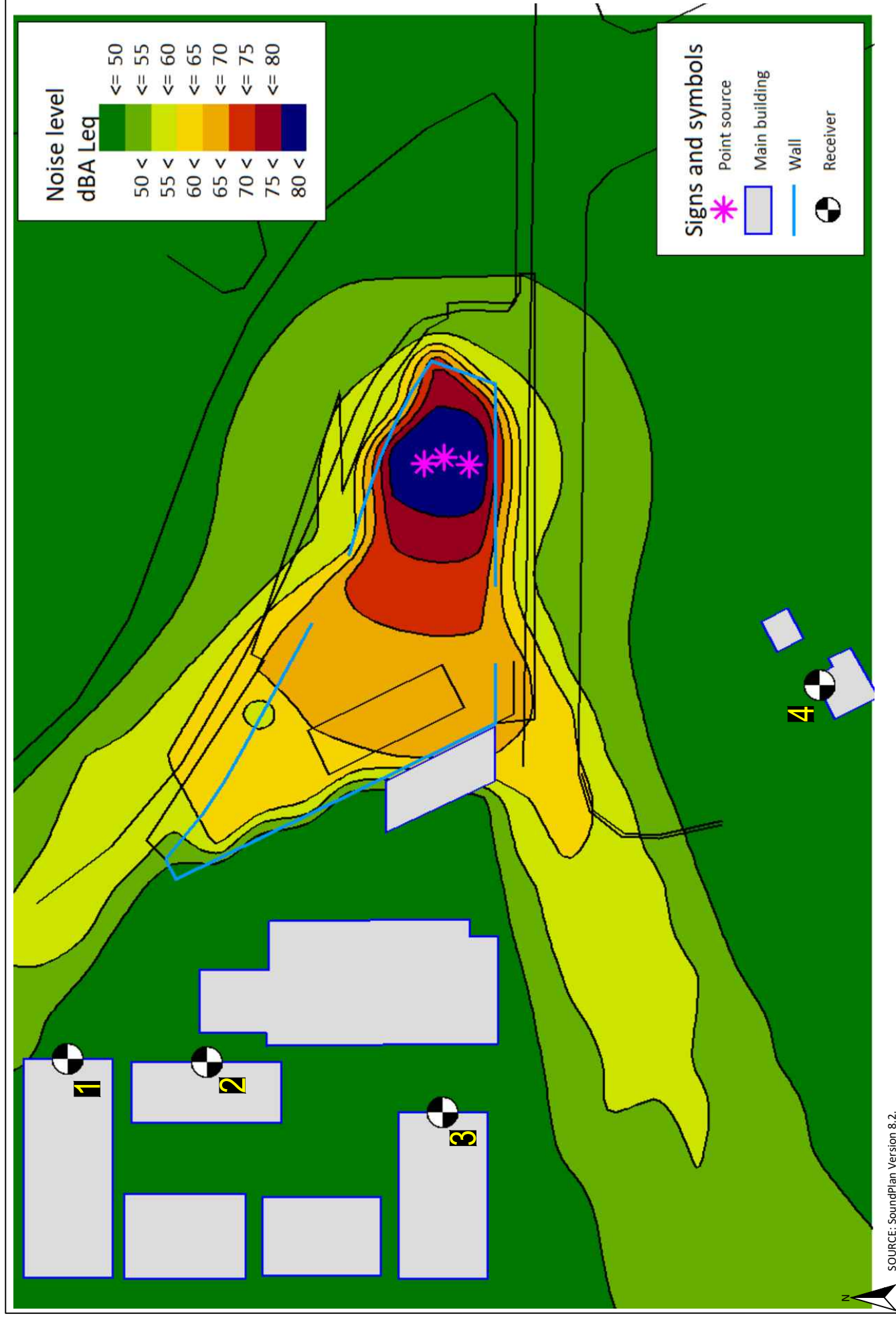
### **7.4 Aircraft Noise**

The proposed project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is John Wayne Airport that is located as near as five miles south of the project site. The project site is located outside of the 60 dBA CNEL noise contours of this airport. In addition, the proposed project consists of the development of a well and facility that would generally be passive as the well equipment would operate automatically, that would not introduce new sensitive receptors to the project site. No aircraft noise impacts would occur.

#### **Level of Significance**

No impact.





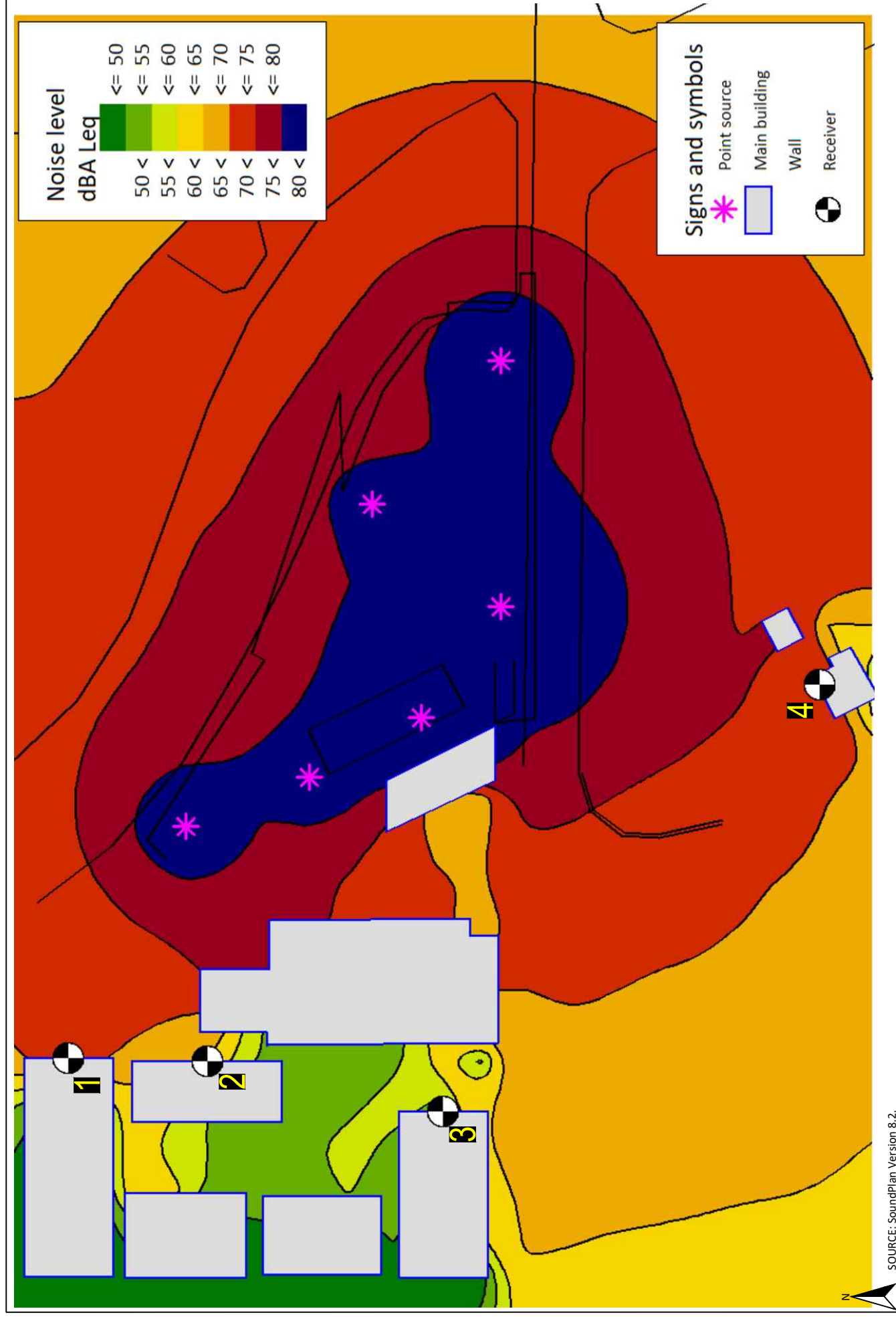


Figure 7  
Phase 2 Surface Facilities & Other Improvements Noise Contours



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## 8.0 REFERENCES

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Vista Environmental, *Air Quality and Greenhouse Gas Emissions Impact Analysis Washington Avenue Lot Well & Facility Project*, November 5, 2020.

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## **APPENDIX A**

### Field Noise Measurements Photo Index





Noise Measurement Site 1 - looking north



Noise Measurement Site 1 - looking northeast



Noise Measurement Site 1 - looking east



Noise Measurement Site 1 - looking southeast



Noise Measurement Site 1 - looking south



Noise Measurement Site 1 - looking southwest



Noise Measurement Site 1 - looking west



Noise Measurement Site 1 - looking northwest





Noise Measurement Site 2 - looking north



Noise Measurement Site 2 - looking northeast



Noise Measurement Site 2 - looking east



Noise Measurement Site 2 - looking southeast



Noise Measurement Site 2 - looking south



Noise Measurement Site 2 - looking southwest



Noise Measurement Site 2 - looking west



Noise Measurement Site 2 - looking northwest



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## **APPENDIX B**

### Field Noise Measurements Printouts

### Site A - West of Project Site Near Apartments

Date Time=08/13/20 9:40:00 AM  
 Sampling Time=3 Weighting=A  
 Record Num= 29400 Weighting=Slow CNEL(24hr)= 60.5  
 Leq 54.5 SEL Value=104.2 Ldn(24hr)= 60.3  
 MAX 79.8 Min Leq1hr = 48.6 2:21 AM  
 MIN 41.4 Max Leq1hr = 58.4 6:35 AM

### Site A - West of Project Site Near Apartments

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
54.5	9:40:00		54.5	54.5
75.5	9:40:03		75.5	75.5
73.5	9:40:06		73.5	73.5
66.5	9:40:09		66.5	66.5
67	9:40:12		67	67
65.2	9:40:15		65.2	65.2
62.9	9:40:18		62.9	62.9
68.3	9:40:21		68.3	68.3
57.3	9:40:24		57.3	57.3
52.5	9:40:27		52.5	52.5
51.7	9:40:30		51.7	51.7
53.2	9:40:33		53.2	53.2
54.5	9:40:36		54.5	54.5
59.6	9:40:39		59.6	59.6
74.6	9:40:42		74.6	74.6
59.2	9:40:45		59.2	59.2
63.7	9:40:48		63.7	63.7
62.6	9:40:51		62.6	62.6
55.3	9:40:54		55.3	55.3
58.7	9:40:57		58.7	58.7
76.6	9:41:00		76.6	76.6
60.9	9:41:03		60.9	60.9
68.3	9:41:06		68.3	68.3
73.5	9:41:09		73.5	73.5
59	9:41:12		59	59
50.5	9:41:15		50.5	50.5
49.7	9:41:18		49.7	49.7
49.8	9:41:21		49.8	49.8
51.6	9:41:24		51.6	51.6
51.4	9:41:27		51.4	51.4
50.2	9:41:30		50.2	50.2
51.7	9:41:33		51.7	51.7
57.4	9:41:36		57.4	57.4
56.1	9:41:39		56.1	56.1
55.7	9:41:42		55.7	55.7
57.1	9:41:45		57.1	57.1
55.4	9:41:48		55.4	55.4
54.9	9:41:51		54.9	54.9
50.7	9:41:54		50.7	50.7
50.7	9:41:57		50.7	50.7
52.8	9:42:00		52.8	52.8
53.3	9:42:03		53.3	53.3
53.2	9:42:06		53.2	53.2
63.2	9:42:09		63.2	63.2
54.2	9:42:12		54.2	54.2
53	9:42:15		53	53
53.4	9:42:18		53.4	53.4
53.7	9:42:21		53.7	53.7
53	9:42:24		53	53
52.7	9:42:27		52.7	52.7
52.5	9:42:30		52.5	52.5
53.3	9:42:33		53.3	53.3
54.2	9:42:36		54.2	54.2
56.4	9:42:39		56.4	56.4
61	9:42:42		61	61
60.1	9:42:45		60.1	60.1
56.6	9:42:48		56.6	56.6
56.2	9:42:51		56.2	56.2
54.2	9:42:54		54.2	54.2
56.1	9:42:57		56.1	56.1
58.9	9:43:00		58.9	58.9
57.4	9:43:03		57.4	57.4
58.3	9:43:06		58.3	58.3
58.6	9:43:09		58.6	58.6
58.5	9:43:12		58.5	58.5
58	9:43:15		58	58
57.2	9:43:18		57.2	57.2
56.8	9:43:21		56.8	56.8
55	9:43:24		55	55
54.8	9:43:27		54.8	54.8
55.5	9:43:30		55.5	55.5
55.6	9:43:33		55.6	55.6
54.4	9:43:36		54.4	54.4
54.6	9:43:39		54.6	54.6
55.6	9:43:42		55.6	55.6
54.5	9:43:45		54.5	54.5
53.2	9:43:48		53.2	53.2

### Site B - South of Project Near Home

Date Time=08/13/20 9:46:00 AM  
 Sampling Time=3 Freq Weighting=A  
 Record Num= 29400 Weighting=Slow CNEL(24hr)= 64.0  
 Leq 60.1 SEL Value=109.5 Ldn(24hr)= 62.9  
 MAX 86.5 Min Leq1hr = 48.1 2:15 AM  
 MIN 45.9 Max Leq1hr = 66.8 9:14 PM

### Site B - South of Project Near Home

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
58.6	9:46:00		58.6	58.6
64.8	9:46:03		64.8	64.8
65.2	9:46:06		65.2	65.2
56.4	9:46:09		56.4	56.4
60.5	9:46:12		60.5	60.5
61.6	9:46:15		61.6	61.6
70.4	9:46:18		70.4	70.4
67.7	9:46:21		67.7	67.7
62.9	9:46:24		62.9	62.9
64.9	9:46:27		64.9	64.9
66.1	9:46:30		66.1	66.1
65.6	9:46:33		65.6	65.6
64	9:46:36		64	64
59.6	9:46:39		59.6	59.6
72.7	9:46:42		72.7	72.7
61.9	9:46:45		61.9	61.9
65.3	9:46:48		65.3	65.3
65.4	9:46:51		65.4	65.4
62	9:46:54		62	62
60.6	9:46:57		60.6	60.6
63.6	9:47:00		63.6	63.6
60.1	9:47:03		60.1	60.1
67.2	9:47:06		67.2	67.2
61.7	9:47:09		61.7	61.7
61.7	9:47:12		61.7	61.7
68	9:47:15		68	68
59.9	9:47:18		59.9	59.9
61.4	9:47:21		61.4	61.4
61.5	9:47:24		61.5	61.5
56.2	9:47:27		56.2	56.2
55.9	9:47:30		55.9	55.9
57.2	9:47:33		57.2	57.2
57.3	9:47:36		57.3	57.3
56.1	9:47:39		56.1	56.1
55.5	9:47:42		55.5	55.5
55.3	9:47:45		55.3	55.3
55.4	9:47:48		55.4	55.4
55.7	9:47:51		55.7	55.7
59.6	9:47:54		59.6	59.6
66.6	9:47:57		66.6	66.6
55.8	9:48:00		55.8	55.8
54.4	9:48:03		54.4	54.4
56.2	9:48:06		56.2	56.2
54.5	9:48:09		54.5	54.5
56.9	9:48:12		56.9	56.9
56.3	9:48:15		56.3	56.3
57.4	9:48:18		57.4	57.4
59.8	9:48:21		59.8	59.8
61.4	9:48:24		61.4	61.4
64.7	9:48:27		64.7	64.7
58	9:48:30		58	58
68.5	9:48:33		68.5	68.5
57.8	9:48:36		57.8	57.8
54.2	9:48:39		54.2	54.2
56.8	9:48:42		56.8	56.8
62	9:48:45		62	62
65.4	9:48:48		65.4	65.4
72	9:48:51		72	72
59.2	9:48:54		59.2	59.2
63.6	9:48:57		63.6	63.6
62.8	9:49:00		62.8	62.8
67.9	9:49:03		67.9	67.9
61.3	9:49:06		61.3	61.3
62.3	9:49:09		62.3	62.3
65.4	9:49:12		65.4	65.4
62	9:49:15		62	62
57.1	9:49:18		57.1	57.1
54.8	9:49:21		54.8	54.8
55.9	9:49:24		55.9	55.9
56.9	9:49:27		56.9	56.9
55.6	9:49:30		55.6	55.6
57	9:49:33		57	57
58	9:49:36		58	58
57.2	9:49:39		57.2	57.2
59.7	9:49:42		59.7	59.7
55.9	9:49:45		55.9	55.9
55.7	9:49:48		55.7	55.7

Site A - West of Project Site Near Apartments				Site B - South of Project Near Home			
SPL	Time	Leq (1 hour Avg.)	Ldn CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn CNEL
56.4	9:43:51		56.4	58.6	9:49:51		58.6
57.2	9:43:54		57.2	55.6	9:49:54		55.6
56.1	9:43:57		56.1	55.5	9:49:57		55.5
56.9	9:44:00		56.9	56.6	9:50:00		56.6
57.7	9:44:03		57.7	56.1	9:50:03		56.1
59.6	9:44:06		59.6	56.4	9:50:06		56.4
55.8	9:44:09		55.8	55.2	9:50:09		55.2
58.4	9:44:12		58.4	55	9:50:12		55
60.1	9:44:15		60.1	55.5	9:50:15		55.5
61.4	9:44:18		61.4	55	9:50:18		55
60	9:44:21		60	55.8	9:50:21		55.8
54.5	9:44:24		54.5	55.6	9:50:24		55.6
54.6	9:44:27		54.6	55.4	9:50:27		55.4
54.9	9:44:30		54.9	55.2	9:50:30		55.2
53	9:44:33		53	55	9:50:33		55
52.6	9:44:36		52.6	55.2	9:50:36		55.2
55	9:44:39		55	55	9:50:39		55
55.4	9:44:42		55.4	58	9:50:42		58
53.6	9:44:45		53.6	64.7	9:50:45		64.7
55.5	9:44:48		55.5	60.4	9:50:48		60.4
57.4	9:44:51		57.4	56.3	9:50:51		56.3
64.6	9:44:54		64.6	56.6	9:50:54		56.6
67.8	9:44:57		67.8	55.5	9:50:57		55.5
62	9:45:00		62	55.6	9:51:00		55.6
57.1	9:45:03		57.1	54.7	9:51:03		54.7
54.7	9:45:06		54.7	55	9:51:06		55
51.9	9:45:09		51.9	54.8	9:51:09		54.8
55.6	9:45:12		55.6	57.2	9:51:12		57.2
53.9	9:45:15		53.9	58.9	9:51:15		58.9
55.4	9:45:18		55.4	54.1	9:51:18		54.1
54.3	9:45:21		54.3	54.4	9:51:21		54.4
60.8	9:45:24		60.8	54.8	9:51:24		54.8
65.9	9:45:27		65.9	54.5	9:51:27		54.5
61.5	9:45:30		61.5	54.9	9:51:30		54.9
55.9	9:45:33		55.9	54.4	9:51:33		54.4
53.9	9:45:36		53.9	53.6	9:51:36		53.6
52.4	9:45:39		52.4	54	9:51:39		54
50.3	9:45:42		50.3	54	9:51:42		54
50.8	9:45:45		50.8	54.8	9:51:45		54.8
51.7	9:45:48		51.7	55.1	9:51:48		55.1
51.7	9:45:51		51.7	56.3	9:51:51		56.3
52.1	9:45:54		52.1	54.8	9:51:54		54.8
53.2	9:45:57		53.2	54.7	9:51:57		54.7
57.7	9:46:00		57.7	54.6	9:52:00		54.6
54.2	9:46:03		54.2	54.4	9:52:03		54.4
53.5	9:46:06		53.5	54.1	9:52:06		54.1
56.8	9:46:09		56.8	54.5	9:52:09		54.5
55	9:46:12		55	55.4	9:52:12		55.4
53.1	9:46:15		53.1	58	9:52:15		58
54.3	9:46:18		54.3	55.7	9:52:18		55.7
54.5	9:46:21		54.5	54.3	9:52:21		54.3
51.8	9:46:24		51.8	55.8	9:52:24		55.8
51.6	9:46:27		51.6	55.6	9:52:27		55.6
52.9	9:46:30		52.9	54.8	9:52:30		54.8
52	9:46:33		52	54.2	9:52:33		54.2
56.8	9:46:36		56.8	54.2	9:52:36		54.2
53.6	9:46:39		53.6	54.3	9:52:39		54.3
55	9:46:42		55	54.4	9:52:42		54.4
50.6	9:46:45		50.6	64.8	9:52:45		64.8
48.9	9:46:48		48.9	59.7	9:52:48		59.7
48.9	9:46:51		48.9	56.8	9:52:51		56.8
49.8	9:46:54		49.8	56.5	9:52:54		56.5
55.6	9:46:57		55.6	59.4	9:52:57		59.4
60.9	9:47:00		60.9	58.4	9:53:00		58.4
57.6	9:47:03		57.6	56.8	9:53:03		56.8
53.4	9:47:06		53.4	55	9:53:06		55
50.3	9:47:09		50.3	54.3	9:53:09		54.3
49	9:47:12		49	54.9	9:53:12		54.9
49.3	9:47:15		49.3	54.9	9:53:15		54.9
51.1	9:47:18		51.1	54.7	9:53:18		54.7
57.6	9:47:21		57.6	54.9	9:53:21		54.9
58.6	9:47:24		58.6	55.9	9:53:24		55.9
60.3	9:47:27		60.3	53.9	9:53:27		53.9
58.7	9:47:30		58.7	55.2	9:53:30		55.2
58.5	9:47:33		58.5	54.2	9:53:33		54.2
54.2	9:47:36		54.2	54.7	9:53:36		54.7
50.4	9:47:39		50.4	54.6	9:53:39		54.6
49.3	9:47:42		49.3	54.8	9:53:42		54.8
49.4	9:47:45		49.4	54.2	9:53:45		54.2
50	9:47:48		50	56.1	9:53:48		56.1
48.8	9:47:51		48.8	60.7	9:53:51		60.7
49.6	9:47:54		49.6	57.6	9:53:54		57.6
50.4	9:47:57		50.4	54.8	9:53:57		54.8
50.8	9:48:00		50.8	54.8	9:54:00		54.8
56.2	9:48:03		56.2	54.4	9:54:03		54.4
56.6	9:48:06		56.6	53.7	9:54:06		53.7
51.5	9:48:09		51.5	54	9:54:09		54
49.5	9:48:12		49.5	53.4	9:54:12		53.4
48.3	9:48:15		48.3	54.3	9:54:15		54.3

Site A - West of Project Site Near Apartments				Site B - South of Project Near Home			
SPL	Time	Leq (1 hour Avg.)	Ldn CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn CNEL
48.4	9:48:18		48.4	48.4	61.2	9:54:18	61.2
49.7	9:48:21		49.7	49.7	65.3	9:54:21	65.3
54.4	9:48:24		54.4	54.4	55.6	9:54:24	55.6
55.3	9:48:27		55.3	55.3	63.5	9:54:27	63.5
56.9	9:48:30		56.9	56.9	55.6	9:54:30	55.6
56.4	9:48:33		56.4	56.4	59.7	9:54:33	59.7
52.4	9:48:36		52.4	52.4	54.6	9:54:36	54.6
50.2	9:48:39		50.2	50.2	58.5	9:54:39	58.5
53.3	9:48:42		53.3	53.3	56.2	9:54:42	56.2
55.7	9:48:45		55.7	55.7	54.9	9:54:45	54.9
51.8	9:48:48		51.8	51.8	55.5	9:54:48	55.5
50.6	9:48:51		50.6	50.6	55.1	9:54:51	55.1
48.6	9:48:54		48.6	48.6	55	9:54:54	55
48.7	9:48:57		48.7	48.7	55.6	9:54:57	55.6
49.6	9:49:00		49.6	49.6	54.6	9:55:00	54.6
53.3	9:49:03		53.3	53.3	54.2	9:55:03	54.2
55.7	9:49:06		55.7	55.7	54.1	9:55:06	54.1
56.2	9:49:09		56.2	56.2	54.5	9:55:09	54.5
53.8	9:49:12		53.8	53.8	54.8	9:55:12	54.8
53.3	9:49:15		53.3	53.3	54.1	9:55:15	54.1
54.6	9:49:18		54.6	54.6	54.4	9:55:18	54.4
54.9	9:49:21		54.9	54.9	55.3	9:55:21	55.3
55.3	9:49:24		55.3	55.3	54.5	9:55:24	54.5
55.7	9:49:27		55.7	55.7	55.5	9:55:27	55.5
55	9:49:30		55	55	54.5	9:55:30	54.5
50.2	9:49:33		50.2	50.2	54	9:55:33	54
49.9	9:49:36		49.9	49.9	55.2	9:55:36	55.2
50.7	9:49:39		50.7	50.7	53.7	9:55:39	53.7
51.6	9:49:42		51.6	51.6	53.4	9:55:42	53.4
52.4	9:49:45		52.4	52.4	54	9:55:45	54
54.1	9:49:48		54.1	54.1	53.6	9:55:48	53.6
53.1	9:49:51		53.1	53.1	54.2	9:55:51	54.2
53.4	9:49:54		53.4	53.4	54.3	9:55:54	54.3
50.5	9:49:57		50.5	50.5	55	9:55:57	55
51.5	9:50:00		51.5	51.5	56.9	9:56:00	56.9
55.3	9:50:03		55.3	55.3	54.6	9:56:03	54.6
56.8	9:50:06		56.8	56.8	55.3	9:56:06	55.3
55.7	9:50:09		55.7	55.7	54	9:56:09	54
57.9	9:50:12		57.9	57.9	54.7	9:56:12	54.7
57	9:50:15		57	57	54.2	9:56:15	54.2
53.2	9:50:18		53.2	53.2	53.8	9:56:18	53.8
53.5	9:50:21		53.5	53.5	53.7	9:56:21	53.7
56.7	9:50:24		56.7	56.7	53.9	9:56:24	53.9
60.4	9:50:27		60.4	60.4	55.4	9:56:27	55.4
62.6	9:50:30		62.6	62.6	57.8	9:56:30	57.8
61.7	9:50:33		61.7	61.7	55	9:56:33	55
55.3	9:50:36		55.3	55.3	55.8	9:56:36	55.8
56.8	9:50:39		56.8	56.8	59.3	9:56:39	59.3
59.3	9:50:42		59.3	59.3	62.7	9:56:42	62.7
62.2	9:50:45		62.2	62.2	57.3	9:56:45	57.3
54.9	9:50:48		54.9	54.9	63.3	9:56:48	63.3
51.9	9:50:51		51.9	51.9	55.8	9:56:51	55.8
51.4	9:50:54		51.4	51.4	54.2	9:56:54	54.2
51	9:50:57		51	51	54.2	9:56:57	54.2
53.7	9:51:00		53.7	53.7	54.8	9:57:00	54.8
54.1	9:51:03		54.1	54.1	55.5	9:57:03	55.5
54.8	9:51:06		54.8	54.8	55.2	9:57:06	55.2
52.8	9:51:09		52.8	52.8	54.4	9:57:09	54.4
51	9:51:12		51	51	54.5	9:57:12	54.5
50.8	9:51:15		50.8	50.8	54.8	9:57:15	54.8
51.1	9:51:18		51.1	51.1	55.6	9:57:18	55.6
50.8	9:51:21		50.8	50.8	55	9:57:21	55
52.7	9:51:24		52.7	52.7	56	9:57:24	56
52.3	9:51:27		52.3	52.3	56.2	9:57:27	56.2
53.2	9:51:30		53.2	53.2	54.7	9:57:30	54.7
52.9	9:51:33		52.9	52.9	54.7	9:57:33	54.7
50.8	9:51:36		50.8	50.8	54.7	9:57:36	54.7
51.5	9:51:39		51.5	51.5	54.9	9:57:39	54.9
49.1	9:51:42		49.1	49.1	55.2	9:57:42	55.2
49.7	9:51:45		49.7	49.7	54.9	9:57:45	54.9
54.4	9:51:48		54.4	54.4	55.4	9:57:48	55.4
55.6	9:51:51		55.6	55.6	55.7	9:57:51	55.7
55.6	9:51:54		55.6	55.6	56.2	9:57:54	56.2
54	9:51:57		54	54	56.4	9:57:57	56.4
52.8	9:52:00		52.8	52.8	54.7	9:58:00	54.7
51.2	9:52:03		51.2	51.2	54.4	9:58:03	54.4
49.8	9:52:06		49.8	49.8	54.4	9:58:06	54.4
56.4	9:52:09		56.4	56.4	54.9	9:58:09	54.9
51.5	9:52:12		51.5	51.5	54.4	9:58:12	54.4
54.3	9:52:15		54.3	54.3	55.1	9:58:15	55.1
54.5	9:52:18		54.5	54.5	55	9:58:18	55
58	9:52:21		58	58	55	9:58:21	55
60.3	9:52:24		60.3	60.3	55.4	9:58:24	55.4
53.4	9:52:27		53.4	53.4	55.1	9:58:27	55.1
55.1	9:52:30		55.1	55.1	55.6	9:58:30	55.6
57.3	9:52:33		57.3	57.3	56	9:58:33	56
58.5	9:52:36		58.5	58.5	56.5	9:58:36	56.5
56.4	9:52:39		56.4	56.4	56.2	9:58:39	56.2
54.4	9:52:42		54.4	54.4	55.5	9:58:42	55.5

Site A - West of Project Site Near Apartments				Site B - South of Project Near Home			
SPL	Time	Leq (1 hour Avg.)	Ldn CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn CNEL
52.8	9:52:45		52.8 52.8	55.3	9:58:45		55.3 55.3
54.2	9:52:48		54.2 54.2	55.3	9:58:48		55.3 55.3
57.5	9:52:51		57.5 57.5	56.3	9:58:51		56.3 56.3
62.8	9:52:54		62.8 62.8	58.8	9:58:54		58.8 58.8
60.3	9:52:57		60.3 60.3	60.9	9:58:57		60.9 60.9
57	9:53:00		57 57	56.3	9:59:00		56.3 56.3
53.6	9:53:03		53.6 53.6	55.4	9:59:03		55.4 55.4
53.4	9:53:06		53.4 53.4	55.4	9:59:06		55.4 55.4
55.4	9:53:09		55.4 55.4	55.4	9:59:09		55.4 55.4
54.8	9:53:12		54.8 54.8	54.5	9:59:12		54.5 54.5
54.9	9:53:15		54.9 54.9	54.6	9:59:15		54.6 54.6
53.2	9:53:18		53.2 53.2	55.1	9:59:18		55.1 55.1
52.8	9:53:21		52.8 52.8	54.8	9:59:21		54.8 54.8
52.5	9:53:24		52.5 52.5	54.8	9:59:24		54.8 54.8
52.4	9:53:27		52.4 52.4	55.2	9:59:27		55.2 55.2
51.1	9:53:30		51.1 51.1	56	9:59:30		56 56
51.3	9:53:33		51.3 51.3	55.8	9:59:33		55.8 55.8
51.8	9:53:36		51.8 51.8	54.5	9:59:36		54.5 54.5
54	9:53:39		54 54	54.9	9:59:39		54.9 54.9
56.5	9:53:42		56.5 56.5	54.9	9:59:42		54.9 54.9
55.5	9:53:45		55.5 55.5	55.3	9:59:45		55.3 55.3
54.6	9:53:48		54.6 54.6	55.5	9:59:48		55.5 55.5
51.6	9:53:51		51.6 51.6	55.8	9:59:51		55.8 55.8
50.9	9:53:54		50.9 50.9	55.1	9:59:54		55.1 55.1
48.8	9:53:57		48.8 48.8	58.2	9:59:57		58.2 58.2
48.3	9:54:00		48.3 48.3	61.2	10:00:00		61.2 61.2
48.1	9:54:03		48.1 48.1	56.9	10:00:03		56.9 56.9
48	9:54:06		48 48	56.8	10:00:06		56.8 56.8
48.3	9:54:09		48.3 48.3	55.6	10:00:09		55.6 55.6
48.1	9:54:12		48.1 48.1	56.4	10:00:12		56.4 56.4
48	9:54:15		48 48	55.2	10:00:15		55.2 55.2
47.8	9:54:18		47.8 47.8	55.3	10:00:18		55.3 55.3
48.3	9:54:21		48.3 48.3	55.2	10:00:21		55.2 55.2
49.6	9:54:24		49.6 49.6	55.6	10:00:24		55.6 55.6
50.5	9:54:27		50.5 50.5	58.2	10:00:27		58.2 58.2
56.4	9:54:30		56.4 56.4	57.4	10:00:30		57.4 57.4
59.3	9:54:33		59.3 59.3	59.6	10:00:33		59.6 59.6
59.3	9:54:36		59.3 59.3	55.8	10:00:36		55.8 55.8
53.3	9:54:39		53.3 53.3	55.8	10:00:39		55.8 55.8
49.5	9:54:42		49.5 49.5	55.7	10:00:42		55.7 55.7
48.1	9:54:45		48.1 48.1	56.6	10:00:45		56.6 56.6
48.1	9:54:48		48.1 48.1	57.9	10:00:48		57.9 57.9
48.4	9:54:51		48.4 48.4	56.3	10:00:51		56.3 56.3
48.8	9:54:54		48.8 48.8	55.7	10:00:54		55.7 55.7
49.5	9:54:57		49.5 49.5	58.3	10:00:57		58.3 58.3
50.4	9:55:00		50.4 50.4	56	10:01:00		56 56
54.6	9:55:03		54.6 54.6	58	10:01:03		58 58
55.5	9:55:06		55.5 55.5	62	10:01:06		62 62
52.2	9:55:09		52.2 52.2	60.3	10:01:09		60.3 60.3
52.5	9:55:12		52.5 52.5	56.3	10:01:12		56.3 56.3
53.4	9:55:15		53.4 53.4	55.5	10:01:15		55.5 55.5
53.9	9:55:18		53.9 53.9	55.4	10:01:18		55.4 55.4
51	9:55:21		51 51	55.6	10:01:21		55.6 55.6
50.4	9:55:24		50.4 50.4	55.5	10:01:24		55.5 55.5
51	9:55:27		51 51	55.4	10:01:27		55.4 55.4
52.3	9:55:30		52.3 52.3	55.7	10:01:30		55.7 55.7
57.7	9:55:33		57.7 57.7	55.7	10:01:33		55.7 55.7
57.4	9:55:36		57.4 57.4	58.7	10:01:36		58.7 58.7
53.6	9:55:39		53.6 53.6	63.7	10:01:39		63.7 63.7
52.7	9:55:42		52.7 52.7	56.3	10:01:42		56.3 56.3
54.3	9:55:45		54.3 54.3	56.1	10:01:45		56.1 56.1
56.8	9:55:48		56.8 56.8	55.9	10:01:48		55.9 55.9
58.2	9:55:51		58.2 58.2	57.7	10:01:51		57.7 57.7
52.3	9:55:54		52.3 52.3	57.8	10:01:54		57.8 57.8
51.4	9:55:57		51.4 51.4	56.9	10:01:57		56.9 56.9
51.5	9:56:00		51.5 51.5	55.6	10:02:00		55.6 55.6
55.9	9:56:03		55.9 55.9	55.4	10:02:03		55.4 55.4
61.7	9:56:06		61.7 61.7	54.8	10:02:06		54.8 54.8
58.2	9:56:09		58.2 58.2	57.1	10:02:09		57.1 57.1
54.3	9:56:12		54.3 54.3	55.3	10:02:12		55.3 55.3
53.2	9:56:15		53.2 53.2	55.9	10:02:15		55.9 55.9
51.4	9:56:18		51.4 51.4	57	10:02:18		57 57
49.2	9:56:21		49.2 49.2	55.7	10:02:21		55.7 55.7
49.6	9:56:24		49.6 49.6	57.5	10:02:24		57.5 57.5
50.2	9:56:27		50.2 50.2	60.5	10:02:27		60.5 60.5
54.2	9:56:30		54.2 54.2	56.2	10:02:30		56.2 56.2
57.4	9:56:33		57.4 57.4	55.4	10:02:33		55.4 55.4
55.4	9:56:36		55.4 55.4	54.6	10:02:36		54.6 54.6
53.9	9:56:39		53.9 53.9	55.9	10:02:39		55.9 55.9
50	9:56:42		50 50	55.6	10:02:42		55.6 55.6
50.9	9:56:45		50.9 50.9	55.8	10:02:45		55.8 55.8
52.4	9:56:48		52.4 52.4	56.7	10:02:48		56.7 56.7
52	9:56:51		52 52	56.3	10:02:51		56.3 56.3
51.8	9:56:54		51.8 51.8	55.8	10:02:54		55.8 55.8
53.8	9:56:57		53.8 53.8	58.7	10:02:57		58.7 58.7
56.4	9:57:00		56.4 56.4	58.5	10:03:00		58.5 58.5
54.8	9:57:03		54.8 54.8	57.2	10:03:03		57.2 57.2
50.8	9:57:06		50.8 50.8	56.9	10:03:06		56.9 56.9
50.9	9:57:09		50.9 50.9	56	10:03:09		56 56



Site A - West of Project Site Near Apartments				Site B - South of Project Near Home			
SPL	Time	Leq (1 hour Avg.)	Ldn CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn CNEL
49.2	9:57:12		49.2	49.2	10:03:12		56.9
49.1	9:57:15		49.1	49.1	10:03:15		55.9
52.3	9:57:18		52.3	52.3	10:03:18		55.3
51.5	9:57:21		51.5	51.5	10:03:21		55.7
50.8	9:57:24		50.8	50.8	10:03:24		56
49.5	9:57:27		49.5	49.5	10:03:27		55.8
51.3	9:57:30		51.3	51.3	10:03:30		56.9
53.4	9:57:33		53.4	53.4	10:03:33		59.2
60	9:57:36		60	60	10:03:36		57.6
54.4	9:57:39		54.4	54.4	10:03:39		57
51.9	9:57:42		51.9	51.9	10:03:42		57.3
50.2	9:57:45		50.2	50.2	10:03:45		57
59.1	9:57:48		59.1	59.1	10:03:48		56.5
55.4	9:57:51		55.4	55.4	10:03:51		57
55.9	9:57:54		55.9	55.9	10:03:54		57.2
55	9:57:57		55	55	10:03:57		57.2
58.2	9:58:00		58.2	58.2	10:04:00		57.1
62.1	9:58:03		62.1	62.1	10:04:03		57
65	9:58:06		65	65	10:04:06		56
59.2	9:58:09		59.2	59.2	10:04:09		56.7
54.9	9:58:12		54.9	54.9	10:04:12		56.5
51.9	9:58:15		51.9	51.9	10:04:15		57.3
53.1	9:58:18		53.1	53.1	10:04:18		57.9
57.8	9:58:21		57.8	57.8	10:04:21		56.5
59.2	9:58:24		59.2	59.2	10:04:24		57
58.5	9:58:27		58.5	58.5	10:04:27		57.2
56.4	9:58:30		56.4	56.4	10:04:30		56.7
53.7	9:58:33		53.7	53.7	10:04:33		57.2
56.4	9:58:36		56.4	56.4	10:04:36		57.1
58.4	9:58:39		58.4	58.4	10:04:39		57.5
54.7	9:58:42		54.7	54.7	10:04:42		57.1
52.5	9:58:45		52.5	52.5	10:04:45		57.6
50.8	9:58:48		50.8	50.8	10:04:48		58
51.2	9:58:51		51.2	51.2	10:04:51		57
51.9	9:58:54		51.9	51.9	10:04:54		57.6
52.9	9:58:57		52.9	52.9	10:04:57		58.2
57.1	9:59:00		57.1	57.1	10:05:00		58.1
57.7	9:59:03		57.7	57.7	10:05:03		56.7
59.6	9:59:06		59.6	59.6	10:05:06		57.8
57.3	9:59:09		57.3	57.3	10:05:09		58.1
58.4	9:59:12		58.4	58.4	10:05:12		57.9
55.6	9:59:15		55.6	55.6	10:05:15		59
53.8	9:59:18		53.8	53.8	10:05:18		59.2
53.4	9:59:21		53.4	53.4	10:05:21		58.8
54.2	9:59:24		54.2	54.2	10:05:24		58.1
55.3	9:59:27		55.3	55.3	10:05:27		58.8
53.9	9:59:30		53.9	53.9	10:05:30		59.2
52	9:59:33		52	52	10:05:33		58.9
51.5	9:59:36		51.5	51.5	10:05:36		59.3
52.7	9:59:39		52.7	52.7	10:05:39		58.4
56	9:59:42		56	56	10:05:42		59.4
58.8	9:59:45		58.8	58.8	10:05:45		58.9
57.5	9:59:48		57.5	57.5	10:05:48		59.3
57.4	9:59:51		57.4	57.4	10:05:51		58.8
57.3	9:59:54		57.3	57.3	10:05:54		58.7
53.7	9:59:57		53.7	53.7	10:05:57		58.3
52.6	10:00:00		52.6	52.6	10:06:00		58.5
51.9	10:00:03		51.9	51.9	10:06:03		57.8
51.8	10:00:06		51.8	51.8	10:06:06		57.8
53.4	10:00:09		53.4	53.4	10:06:09		60.4
55.3	10:00:12		55.3	55.3	10:06:12		58.5
58.9	10:00:15		58.9	58.9	10:06:15		57.3
60	10:00:18		60	60	10:06:18		58
64.7	10:00:21		64.7	64.7	10:06:21		58.7
65	10:00:24		65	65	10:06:24		59
57.8	10:00:27		57.8	57.8	10:06:27		57.8
54	10:00:30		54	54	10:06:30		60.4
53.8	10:00:33		53.8	53.8	10:06:33		61.3
54.1	10:00:36		54.1	54.1	10:06:36		60.8
57.4	10:00:39		57.4	57.4	10:06:39		60.8
58.2	10:00:42		58.2	58.2	10:06:42		59.6
57.5	10:00:45		57.5	57.5	10:06:45		58.4
56.5	10:00:48		56.5	56.5	10:06:48		59.3
55.9	10:00:51		55.9	55.9	10:06:51		57.7
51.4	10:00:54		51.4	51.4	10:06:54		57.3
50.4	10:00:57		50.4	50.4	10:06:57		57.8
50.7	10:01:00		50.7	50.7	10:07:00		60.8
51.1	10:01:03		51.1	51.1	10:07:03		60.3
50.3	10:01:06		50.3	50.3	10:07:06		60
49.5	10:01:09		49.5	49.5	10:07:09		58.4
49.7	10:01:12		49.7	49.7	10:07:12		62.8
49.4	10:01:15		49.4	49.4	10:07:15		61.1
50.3	10:01:18		50.3	50.3	10:07:18		65.2
50.4	10:01:21		50.4	50.4	10:07:21		59.1
50.4	10:01:24		50.4	50.4	10:07:24		59.6
51.5	10:01:27		51.5	51.5	10:07:27		61.2
50.9	10:01:30		50.9	50.9	10:07:30		60
50.6	10:01:33		50.6	50.6	10:07:33		60.3
50.5	10:01:36		50.5	50.5	10:07:36		57.8

Site A - West of Project Site Near Apartments				Site B - South of Project Near Home				
SPL	Time	Leq (1 hour Avg.)	Ldn CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn CNEL	
49.7	10:01:39		49.7	49.7	59	10:07:39	59	59
49.6	10:01:42		49.6	49.6	62.3	10:07:42	62.3	62.3
49.2	10:01:45		49.2	49.2	58.7	10:07:45	58.7	58.7
52.3	10:01:48		52.3	52.3	59	10:07:48	59	59
54.3	10:01:51		54.3	54.3	59.1	10:07:51	59.1	59.1
54.5	10:01:54		54.5	54.5	57.9	10:07:54	57.9	57.9
58.5	10:01:57		58.5	58.5	60.8	10:07:57	60.8	60.8
59.7	10:02:00		59.7	59.7	61.1	10:08:00	61.1	61.1
51.4	10:02:03		51.4	51.4	59.1	10:08:03	59.1	59.1
49.3	10:02:06		49.3	49.3	62	10:08:06	62	62
49.8	10:02:09		49.8	49.8	59.1	10:08:09	59.1	59.1
49.9	10:02:12		49.9	49.9	57.1	10:08:12	57.1	57.1
50.9	10:02:15		50.9	50.9	57.6	10:08:15	57.6	57.6
50.6	10:02:18		50.6	50.6	60.4	10:08:18	60.4	60.4
50.9	10:02:21		50.9	50.9	59.4	10:08:21	59.4	59.4
52.1	10:02:24		52.1	52.1	57.3	10:08:24	57.3	57.3
52.5	10:02:27		52.5	52.5	57.6	10:08:27	57.6	57.6
51.8	10:02:30		51.8	51.8	56.6	10:08:30	56.6	56.6
54.2	10:02:33		54.2	54.2	56.4	10:08:33	56.4	56.4
55.8	10:02:36		55.8	55.8	59.4	10:08:36	59.4	59.4
54.2	10:02:39		54.2	54.2	59.6	10:08:39	59.6	59.6
50.9	10:02:42		50.9	50.9	58.9	10:08:42	58.9	58.9
50.6	10:02:45		50.6	50.6	56.9	10:08:45	56.9	56.9
50.1	10:02:48		50.1	50.1	58.2	10:08:48	58.2	58.2
52.2	10:02:51		52.2	52.2	57.3	10:08:51	57.3	57.3
57.8	10:02:54		57.8	57.8	57.2	10:08:54	57.2	57.2
55.8	10:02:57		55.8	55.8	56.7	10:08:57	56.7	56.7
55.4	10:03:00		55.4	55.4	55.9	10:09:00	55.9	55.9
51.1	10:03:03		51.1	51.1	56.7	10:09:03	56.7	56.7
51.1	10:03:06		51.1	51.1	56.8	10:09:06	56.8	56.8
50.9	10:03:09		50.9	50.9	58.5	10:09:09	58.5	58.5
50.9	10:03:12		50.9	50.9	56.1	10:09:12	56.1	56.1
52.2	10:03:15		52.2	52.2	55.4	10:09:15	55.4	55.4
57.3	10:03:18		57.3	57.3	55.3	10:09:18	55.3	55.3
55.3	10:03:21		55.3	55.3	55.7	10:09:21	55.7	55.7
65.1	10:03:24		65.1	65.1	55.3	10:09:24	55.3	55.3
59.4	10:03:27		59.4	59.4	55.7	10:09:27	55.7	55.7
59.4	10:03:30		59.4	59.4	55.6	10:09:30	55.6	55.6
60.1	10:03:33		60.1	60.1	60.2	10:09:33	60.2	60.2
60.3	10:03:36		60.3	60.3	59.2	10:09:36	59.2	59.2
59.4	10:03:39		59.4	59.4	57.4	10:09:39	57.4	57.4
59.2	10:03:42		59.2	59.2	56.7	10:09:42	56.7	56.7
59.3	10:03:45		59.3	59.3	57.9	10:09:45	57.9	57.9
58.9	10:03:48		58.9	58.9	62.9	10:09:48	62.9	62.9
58.9	10:03:51		58.9	58.9	57.9	10:09:51	57.9	57.9
59.2	10:03:54		59.2	59.2	57.2	10:09:54	57.2	57.2
59.8	10:03:57		59.8	59.8	58.5	10:09:57	58.5	58.5
58.5	10:04:00		58.5	58.5	57.3	10:10:00	57.3	57.3
57.4	10:04:03		57.4	57.4	57.8	10:10:03	57.8	57.8
56.7	10:04:06		56.7	56.7	57.9	10:10:06	57.9	57.9
56.8	10:04:09		56.8	56.8	56.5	10:10:09	56.5	56.5
56.1	10:04:12		56.1	56.1	57.4	10:10:12	57.4	57.4
56.6	10:04:15		56.6	56.6	59.1	10:10:15	59.1	59.1
56.8	10:04:18		56.8	56.8	58.3	10:10:18	58.3	58.3
56.3	10:04:21		56.3	56.3	58.4	10:10:21	58.4	58.4
56.2	10:04:24		56.2	56.2	58.8	10:10:24	58.8	58.8
55.7	10:04:27		55.7	55.7	57.8	10:10:27	57.8	57.8
55.4	10:04:30		55.4	55.4	58.5	10:10:30	58.5	58.5
55.5	10:04:33		55.5	55.5	59.6	10:10:33	59.6	59.6
55.8	10:04:36		55.8	55.8	59	10:10:36	59	59
55.6	10:04:39		55.6	55.6	59	10:10:39	59	59
55.9	10:04:42		55.9	55.9	59.3	10:10:42	59.3	59.3
55.9	10:04:45		55.9	55.9	60.2	10:10:45	60.2	60.2
55.7	10:04:48		55.7	55.7	58.1	10:10:48	58.1	58.1
55.4	10:04:51		55.4	55.4	58.9	10:10:51	58.9	58.9
57.6	10:04:54		57.6	57.6	57.8	10:10:54	57.8	57.8
56.5	10:04:57		56.5	56.5	58	10:10:57	58	58
56.1	10:05:00		56.1	56.1	60.3	10:11:00	60.3	60.3
55.2	10:05:03		55.2	55.2	60.8	10:11:03	60.8	60.8
55.7	10:05:06		55.7	55.7	57.5	10:11:06	57.5	57.5
54.8	10:05:09		54.8	54.8	57.8	10:11:09	57.8	57.8
55.5	10:05:12		55.5	55.5	58.3	10:11:12	58.3	58.3
59.6	10:05:15		59.6	59.6	58	10:11:15	58	58
59.5	10:05:18		59.5	59.5	57.2	10:11:18	57.2	57.2
61.9	10:05:21		61.9	61.9	56.5	10:11:21	56.5	56.5
65.6	10:05:24		65.6	65.6	56.6	10:11:24	56.6	56.6
60.3	10:05:27		60.3	60.3	57.7	10:11:27	57.7	57.7
55.6	10:05:30		55.6	55.6	58.1	10:11:30	58.1	58.1
54.9	10:05:33		54.9	54.9	61.2	10:11:33	61.2	61.2
54.3	10:05:36		54.3	54.3	65.5	10:11:36	65.5	65.5
54.1	10:05:39		54.1	54.1	58.1	10:11:39	58.1	58.1
54	10:05:42		54	54	60.1	10:11:42	60.1	60.1
54.2	10:05:45		54.2	54.2	57.9	10:11:45	57.9	57.9
54.5	10:05:48		54.5	54.5	58.2	10:11:48	58.2	58.2
54.3	10:05:51		54.3	54.3	57.9	10:11:51	57.9	57.9
54.8	10:05:54		54.8	54.8	62	10:11:54	62	62
56	10:05:57		56	56	61.9	10:11:57	61.9	61.9
59.1	10:06:00		59.1	59.1	60.3	10:12:00	60.3	60.3
58.6	10:06:03		58.6	58.6	60.3	10:12:03	60.3	60.3
53.6	10:06:06		53.6	53.6	63	10:12:06	63	63
53.6	10:06:09		53.6	53.6	59.7	10:12:09	59.7	59.7
54.9	10:06:12		54.9	54.9	58.4	10:12:12	58.4	58.4
59.8	10:06:15		59.8	59.8	58.5	10:12:15	58.5	58.5
51.9	10:06:18		51.9	51.9	63.4	10:12:18	63.4	63.4
57.7	10:06:21		57.7	57.7	67.7	10:12:21	67.7	67.7

Site A - West of Project Site Near Apartments				Site B - South of Project Near Home			
SPL	Time	Leq (1 hour Avg.)	Ldn CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn CNEL
52	10:06:24		52	52	10:12:24		52.9
51.5	10:06:27		51.5	51.5	10:12:27		51.5
49.3	10:06:30		49.3	49.3	10:12:30		49.6
50.5	10:06:33		50.5	50.5	10:12:33		50.9
53.5	10:06:36		53.5	53.5	10:12:36		52.8
59.5	10:06:39		59.5	59.5	10:12:39		52.8
57.8	10:06:42		57.8	57.8	10:12:42		60.4
54.4	10:06:45		54.4	54.4	10:12:45		59.2
53.6	10:06:48		53.6	53.6	10:12:48		59.2
53.8	10:06:51		53.8	53.8	10:12:51		58.1
56.8	10:06:54		56.8	56.8	10:12:54		58.1
50.8	10:06:57		50.8	50.8	10:12:57		57.7
51.7	10:07:00		51.7	51.7	10:13:00		57.6
51.8	10:07:03		51.8	51.8	10:13:03		58.2
54.7	10:07:06		54.7	54.7	10:13:06		57.7
56.1	10:07:09		56.1	56.1	10:13:09		57.6
52.7	10:07:12		52.7	52.7	10:13:12		57.7
50.5	10:07:15		50.5	50.5	10:13:15		60
50.2	10:07:18		50.2	50.2	10:13:18		57.7
49.9	10:07:21		49.9	49.9	10:13:21		57.8
50.4	10:07:24		50.4	50.4	10:13:24		59.4
50.3	10:07:27		50.3	50.3	10:13:27		59.5
51.8	10:07:30		51.8	51.8	10:13:30		58.2
53.8	10:07:33		53.8	53.8	10:13:33		58
54.8	10:07:36		54.8	54.8	10:13:36		58.5
58.2	10:07:39		58.2	57.8	10:13:39		57.8
62.7	10:07:42		62.7	58.2	10:13:42		58.2
64.7	10:07:45		64.7	58.7	10:13:45		58.7
61.8	10:07:48		61.8	59.5	10:13:48		59.5
58.4	10:07:51		58.4	60.4	10:13:51		60.4
56.9	10:07:54		56.9	62	10:13:54		62
56.9	10:07:57		56.9	63.9	10:13:57		63.9
55.3	10:08:00		55.3	62.2	10:14:00		62.2
55.6	10:08:03		55.6	65.3	10:14:03		65.3
57.1	10:08:06		57.1	66.9	10:14:06		66.9
54.7	10:08:09		54.7	65.6	10:14:09		65.6
52.2	10:08:12		52.2	66.6	10:14:12		66.6
51.4	10:08:15		51.4	62.4	10:14:15		62.4
51.6	10:08:18		51.6	61.7	10:14:18		61.7
55.3	10:08:21		55.3	61.3	10:14:21		61.3
56	10:08:24		56	66.1	10:14:24		66.1
56.3	10:08:27		56.3	66.4	10:14:27		66.4
56.1	10:08:30		56.1	69.9	10:14:30		69.9
54.1	10:08:33		54.1	69.3	10:14:33		69.3
53.4	10:08:36		53.4	61.8	10:14:36		61.8
53.2	10:08:39		53.2	60.9	10:14:39		60.9
51.5	10:08:42		51.5	61.2	10:14:42		61.2
54.9	10:08:45		54.9	62.1	10:14:45		62.1
52.5	10:08:48		52.5	62.1	10:14:48		62.1
49.8	10:08:51		49.8	60.7	10:14:51		60.7
52.1	10:08:54		52.1	62.4	10:14:54		62.4
55.5	10:08:57		55.5	61.4	10:14:57		61.4
55.7	10:09:00		55.7	62.4	10:15:00		62.4
53.8	10:09:03		53.8	61.9	10:15:03		61.9
51.2	10:09:06		51.2	61.3	10:15:06		61.3
51.6	10:09:09		51.6	61.2	10:15:09		61.2
52	10:09:12		52	61.9	10:15:12		61.9
51.4	10:09:15		51.4	60.9	10:15:15		60.9
50.7	10:09:18		50.7	62.4	10:15:18		62.4
51	10:09:21		51	68.4	10:15:21		68.4
53.9	10:09:24		53.9	66.6	10:15:24		66.6
57.5	10:09:27		57.5	64.7	10:15:27		64.7
58.2	10:09:30		58.2	58	10:15:30		58
54.2	10:09:33		54.2	57.4	10:15:33		57.4
50.9	10:09:36		50.9	58.9	10:15:36		58.9
50.1	10:09:39		50.1	59.7	10:15:39		59.7
50.6	10:09:42		50.6	61	10:15:42		61
51.2	10:09:45		51.2	60.9	10:15:45		60.9
52.9	10:09:48		52.9	61.3	10:15:48		61.3
53.5	10:09:51		53.5	59.7	10:15:51		59.7
51.7	10:09:54		51.7	60	10:15:54		60
54.5	10:09:57		54.5	60.4	10:15:57		60.4
56.2	10:10:00	57.2	56.2	60.6	10:16:00	65.8	60.6
57.7	10:10:03	57.2	57.7	59.9	10:16:03	65.8	59.9
58.8	10:10:06	57.0	58.8	60.2	10:16:06	65.8	60.2
56.1	10:10:09	56.8	56.1	60.3	10:16:09	65.8	60.3
57.5	10:10:12	56.8	57.5	61.2	10:16:12	65.8	61.2
62.2	10:10:15	56.8	62.2	59.7	10:16:15	65.8	59.7
62.4	10:10:18	56.7	62.4	60	10:16:18	65.8	60
55.7	10:10:21	56.7	55.7	60.7	10:16:21	65.8	60.7
51.8	10:10:24	56.7	51.8	60.1	10:16:24	65.8	60.1
54.6	10:10:27	56.7	54.6	60.6	10:16:27	65.8	60.6
55.8	10:10:30	56.7	55.8	59.1	10:16:30	65.8	59.1
56.9	10:10:33	56.7	56.9	59.2	10:16:33	65.8	59.2
57.4	10:10:36	56.7	57.4	60.7	10:16:36	65.8	60.7
62.9	10:10:39	56.7	62.9	61	10:16:39	65.8	61
62.4	10:10:42	56.7	62.4	65.4	10:16:42	65.8	65.4
60.8	10:10:45	56.4	60.8	58.8	10:16:45	65.8	58.8
58.6	10:10:48	56.4	58.6	60.2	10:16:48	65.8	60.2
58.6	10:10:51	56.4	58.6	59.3	10:16:51	65.8	59.3
57.9	10:10:54	56.4	57.9	62.8	10:16:54	65.8	62.8
57.7	10:10:57	56.4	57.7	68.3	10:16:57	65.8	68.3
56.4	10:11:00	56.4	56.4	69.7	10:17:00	65.8	69.7
55.8	10:11:03	56.0	55.8	67.4	10:17:03	65.8	67.4
56.3	10:11:06	56.0	56.3	63.1	10:17:06	65.8	63.1
55.6	10:11:09	55.9	55.6	61.9	10:17:09	65.8	61.9
54.4	10:11:12	55.7	54.4	67.1	10:17:12	65.8	67.1
53.7	10:11:15	55.7	53.7	60.4	10:17:15	65.8	60.4
51.9	10:11:18	55.7	51.9	57.7	10:17:18	65.8	57.7
53.9	10:11:21	55.7	53.9	57.8	10:17:21	65.8	57.8
55.6	10:11:24	55.7	55.6	59	10:17:24	65.8	59
55.4	10:11:27	55.7	55.4	81.4	10:17:27	65.8	81.4
55.2	10:11:30	55.7	55.2	66.2	10:17:30	65.8	66.2

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## **APPENDIX C**

### SoundPlan Model Phase 1 Construction Noise Calculations - Unmitigated

Washington Ave Lot Well & Facility  
Assessed receiver levels  
Construction Phase 1 - Well Drilling & Construction

2

Receiver	Fl	Dir	X m	Y m	Z m	Ldn dB(A)	Leq,d dB(A)	Leq,e dB(A)	Leq,n dB(A)
1 - 605 Washington Ave N	G	E	35.5	122.0	2.40	65.0	58.3	58.3	58.3
	F2				4.80	65.2	58.6	58.6	58.6
	F3				7.20	65.3	58.6	58.6	58.6
2 - 605 Washington Ave E	G	E	35.1	99.8	2.40	51.4	44.7	44.7	44.7
	F2				4.80	54.2	47.5	47.5	47.5
	F3				7.20	60.8	54.1	54.1	54.1
3 - 605 Washington Ave S	G	E	27.1	61.8	2.40	50.9	44.2	44.2	44.2
	F2				4.80	54.0	47.4	47.4	47.4
	F3				7.20	59.3	52.6	52.6	52.6
4 - 1113 Poinsettia St	G	NW	95.6	1.4	2.40	69.5	62.9	62.9	62.9
	F2				4.80	69.7	63.0	63.0	63.0

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# Washington Ave Lot Well & Facility Octave spectra of the sources in dB(A) - Construction Phase 1 - Well Drilling & Construction Unmitigated

3

Name	Source type	X	Y	Z	L'w	Lw	KI	KT	Time histogram	Emission spectrum	31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz
		m	m	m	dB(A)	dB(A)	dB	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Support Truck1	Point	130.75	57.80	1.22	109.4	109.4	0.0	0.0	40% 24 hr	Truck >7,5 t - on grit <30km/h		91.0	95.0	99.0	102.0	105.0	103.0	98.0	93.0	
Drill Rig	Point	131.93	61.81	3.66	113.5	113.5	0.0	0.0	20% 24 hr	Drill Rig (Challenger) - Vista	64.0	86.1	90.8	99.0	107.1	110.0	107.3	99.3	88.6	73.9
Support Truck2	Point	123.71	61.81	1.22	109.4	109.4	0.0	0.0	40% 24 hr	Truck >7,5 t - on grit <30km/h		91.0	95.0	99.0	102.0	105.0	103.0	98.0	93.0	
Crane	Point	131.00	64.97	3.66	114.8	114.8	0.0	0.0	16% 24 hr	C4.43 Wheeled mobile crane		98.8	104.9	107.3	104.7	109.0	109.2	101.9	93.9	

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## **APPENDIX D**

### SoundPlan Model Phase 1 Construction Noise Calculations - Mitigated



Washington Ave Lot Well & Facility  
Assessed receiver levels  
Construction Phase 1 - Well Drilling & Construction  
Mitigated

2

Receiver	Fl	Dir	X	Y	Z	Ldn	Leq,d	Leq,e	Leq,n
			m	m	m	dB(A)	dB(A)	dB(A)	dB(A)
1 - 605 Washington Ave N	G	E	35.5	122.0	2.40	50.8	44.1	44.1	44.1
	F2				4.80	51.0	44.3	44.3	44.3
	F3				7.20	51.2	44.5	44.5	44.5
2 - 605 Washington Ave E	G	E	35.1	99.8	2.40	46.4	39.7	39.7	39.7
	F2				4.80	47.7	41.0	41.0	41.0
	F3				7.20	47.7	41.0	41.0	41.0
3 - 605 Washington Ave S	G	E	27.1	61.8	2.40	47.9	41.3	41.3	41.3
	F2				4.80	48.0	41.3	41.3	41.3
	F3				7.20	48.0	41.3	41.3	41.3
4 - 1113 Poinsettia St	G	NW	95.6	1.4	2.40	52.4	45.7	45.7	45.7
	F2				4.80	52.5	45.8	45.8	45.8

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# Washington Ave Lot Well & Facility

## Octave spectra of the sources in dB(A) - Construction Phase 1 - Well Drilling & Construction Mitigated

3

Name	Source type	X m	Y m	Z m	L'w dB(A)	Lw dB(A)	KI dB	KT dB	Time histogram	Emission spectrum	31.5Hz dB(A)	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	16kHz dB(A)
Support Truck1	Point	130.75	57.80	1.22	109.4	109.4	0.0	0.0	40% 24 hr	Truck >7.5 t - on grit <30km/h		91.0	95.0	99.0	102.0	105.0	103.0	98.0	93.0	
Support Truck2	Point	123.71	61.81	1.22	109.4	109.4	0.0	0.0	40% 24 hr	Truck >7.5 t - on grit <30km/h		91.0	95.0	99.0	102.0	105.0	103.0	98.0	93.0	
Crane	Point	131.00	64.97	3.66	114.8	114.8	0.0	0.0	16% 24 hr	C4.43 Wheeled mobile crane		98.8	104.9	107.3	104.7	109.0	109.2	101.9	93.9	
Drill Rig	Point	131.93	61.81	3.66	113.5	113.5	0.0	0.0	20% 24 hr	Drill Rig (Challenger) - Vista	64.0	86.1	90.8	99.0	107.1	110.0	107.3	99.3	88.6	73.9

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## **APPENDIX E**

### SoundPlan Model Phase 2 Construction Noise Calculations

**Washington Ave Lot Well & Facility**  
**Assessed receiver levels**  
**Construction Phase 2 - Surface Facilities and Other**  
**Improvements**

**2**

Receiver	Fl	Dir	X	Y	Z	Ldn	Leq,d	Leq,e	Leq,n	
			m	m	m	dB(A)	dB(A)	dB(A)	dB(A)	
1 - 605 Washington Ave N	G F2 F3	E	35.54	121.97	2.40 4.80 7.20	66.5 66.6 66.7	69.5 69.6 69.7			
2 - 605 Washington Ave E	G F2 F3	E	35.10	99.79	2.40 4.80 7.20	57.1 58.1 60.8	60.2 61.1 63.8			
3 - 605 Washington Ave S	G F2 F3	E	27.11	61.84	2.40 4.80 7.20	49.6 51.8 55.2	52.6 54.8 58.2			
4 - 1113 Poinsettia St	G F2	NW	95.61	1.42	2.40 4.80	68.8 69.0	71.9 72.0			

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### Washington Ave Lot Well & Facility

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## Octave spectra of the sources in dB(A) - Construction Phase 2 - Surface Facilities and Other Improvements

Name	Source type	X	Y	Z	L'w	Lw	KI	KT	Time histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
		m	m	m	dB(A)	dB(A)	dB	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Dozer	Point	124.48	73.39	3.35	110.1	110.1	0.0	0.0	40% 7am to 5 pm	C2.10 Dozer	92.8	103.9	102.4	99.8	104.0	101.2	99.0	92.9
Excavator	Point	147.46	52.68	2.74	116.8	116.8	0.0	0.0	40% 7am to 5 pm	C1.12 Tracked excavator	87.2	99.3	108.8	110.2	111.4	110.6	105.4	95.3
Front Loader Tractor	Point	72.71	103.32	2.13	114.4	114.4	0.0	0.0	40% 7am to 5 pm	Tractor, working cycle	96.0	100.0	104.0	107.0	110.0	108.0	103.0	98.0
Grader	Point	107.89	52.63	2.13	122.1	122.1	0.0	0.0	40% 7am to 5 pm	C6.31 Grader *)	97.4	106.5	109.9	111.3	119.6	114.8	110.5	99.5
Loader	Point	80.65	83.46	3.35	111.1	111.1	0.0	0.0	40% 7am to 5 pm	C2.10 Dozer	93.8	104.9	103.4	100.8	105.0	102.2	100.0	93.9
Soil Compactor	Point	90.15	65.45	0.91	118.9	118.9	0.0	0.0	20% 7 am to 5 pm	C2.42 Hydraulic vibratory compactor (tra	96.0	101.1	104.5	110.9	113.2	114.4	110.1	103.1

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