KB Home Orchard Street &
Cypress Avenue Modified Project

Public Review Draft Initial Study/Mitigated Negative Declaration

Technical Appendices

September 2020







Prepared by

Kimley»Horn

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Appendix A

Air Quality Assessment



Air Quality Assessment

Orchard and Cypress Residential Project

City of El Monte, California

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LIST OF ABBREVIATED TERMS

AQMP	air quality management plan
AB	Assembly Bill
ADT	average daily traffic
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAAQS	California Ambient Air Quality Standards
CCAA	California Clean Air Act
CalEEMod	California Emissions Estimator Model
CEQA	California Environmental Quality Act
CO	carbon monoxide
cy	cubic yards
DPM	diesel particulate matter
EMGP	Vision El Monte General Plan
EMMC	El Monte Municipal Code
EPA	Environmental Protection Agency
FCAA	Federal Clean Air Act
H_2S	hydrogen sulfide
Pb	Lead
LST	local significance threshold
$\mu g/m^3$	micrograms per cubic meter
mg/m^3	milligrams per cubic meter
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_x	nitrogen oxide
O_3	Ozone
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
ROG	reactive organic gases
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SRA	source receptor area
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SF	square foot
SO_{4-2}	Sulfates
SO_2	sulfur dioxide
TAC	toxic air contaminant
VMT	Vehicle Miles Traveled
C_2H_3Cl	vinyl chloride
VOC	volatile organic compound

1 INTRODUCTION

This report documents the results of an Air Quality Assessment completed for the Orchard and Cypress Residential Project (Project). The purpose of this Air Quality Assessment is to evaluate the Project's potential construction and operational emissions and determine the Project's level of impact on the environment.

1.1 Project Location & Setting

The Project site is in the County of Los Angeles (County), in the City of El Monte (City), approximately 12 miles east of downtown Los Angeles; see **Exhibit 1: Regional Vicinity Map**. The Project site is centrally located in the City, near the downtown Main Street area, at 3630, 3640, and 3700 Cypress Avenue and 11312 Orchard Street. The Project site involves 5.69 gross-acres, comprised of four parcels (Assessor's Parcel Numbers (APN) 8568-026-002, -034, -035, and -053) north of Iris Lane, south of Orchard Street, and east of Cypress Avenue; see **Exhibit 2: Site Vicinity Map**.

Regional access to the Project site is provided via Interstate 10 (I-10), which is approximately 0.3 miles south of the Project site. Local access to the Project site is provided via two access driveways at Orchard Street and Cypress Avenue, at the site's northern and western portions.

The City of El Monte encompasses approximately 9.69 square miles in Los Angeles County's San Gabriel Valley region. The City is fully urbanized with of a mix of residential densities, although low-density residential uses predominate. The City also contains a mix of retail commercial, office, and industrial uses.

The Project site is located within the Northwest Industrial District in the central portion of the City. Historically, this District has served as a key manufacturing district and home to major defense industries. Residential neighborhoods (circa 1950s) surround these industrial uses. Specifically, Cypress Avenue, Orchard Street, and Iris Lane bound the Project site. The site is bordered by various land uses (i.e., multi- and single- family residential, commercial, and industrial uses), and vacant land. The Project site is approximately 0.25 mile north of the El Monte Downtown area. The Metrolink San Bernardino line railway is adjacent and south of the Project site.

1.2 Project Description

The Project proposes a residential community consisting of 110 three-story townhomes, at a density of 19.33 dwelling units per net acre (DU/net AC); see **Exhibit 3: Conceptual Site Plan**. The Project proposes to remove all existing on-site improvements and construct 110 townhomes in 22 buildings (approximately 200,991 square feet [SF]), with between three and six DU per building. The maximum proposed building height would be 36 feet (to roof ridge). Street dedications are required along Iris Lane and Orchard Street for 30-foot half-width streets, resulting in a Project site of 5.10 net-acres**.**

As depicted on **Exhibit 3**, the proposed Site Plan involves 22 building clusters, a majority along the Project's southwest and southeast boundaries. Seven buildings are proposed along the Project's northwest and northeast boundaries. Two main streets provide access throughout the community, with seven private streets for access to each of the buildings. Additionally, the Project proposes approximately 70,590 SF of open space, including private open space (in the form of enclosed courtyards on approximately 84 of the 110 units), "usable" common open space, "other" landscaped common open space, walkways and "community trails," and a tot lot. A total of 274 parking spaces are proposed, including 220 within two-car garages with direct access to each DU.

Project Construction and Phasing

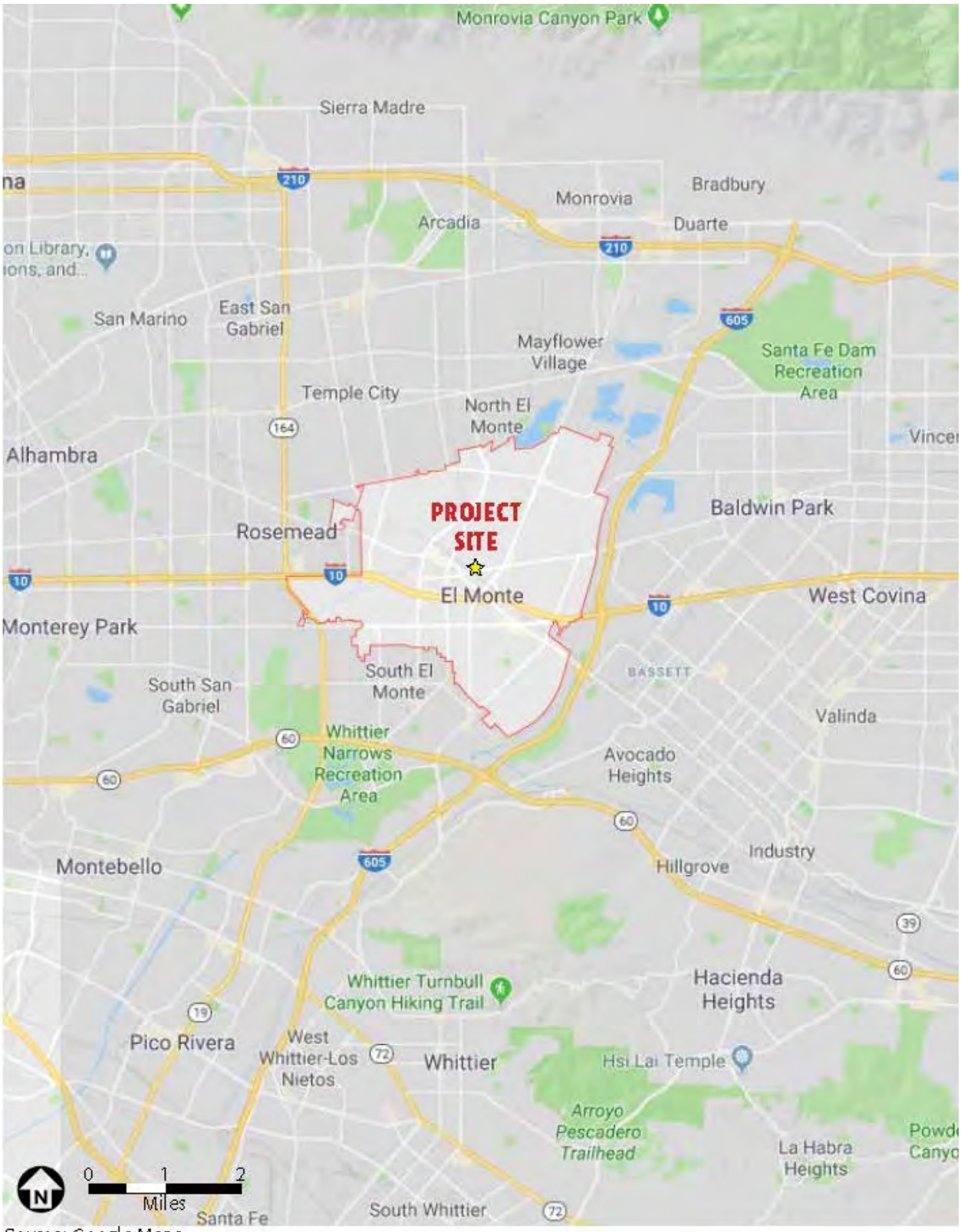
Project construction is anticipated to occur beginning in April 2021 and ending in December 2024, in the following sequence:

- Demolition,
- Site Preparation,
- Grading,
- Wet Utilities;
- Dry Utilities;
- Roadways;
- Building Construction, and
- Paving, Architectural Coating, and Landscaping.

Grading for the proposed improvements would require cut and fill to create building pads. Grading is estimated to require approximately 19,630 cubic yards (CY) of soil import. Final grading plans would be approved by the City before Grading Permit issuance. All infrastructure (i.e., storm drain, water, wastewater, dry utilities, and street improvements) would be installed during grading.

Project construction would occur beginning April 2021 and ending in December 2024. For purposes of this environmental analysis, opening year is assumed to be 2024.

Exhibit 1: Regional Vicinity Map



Source: Google Maps

Exhibit 2: Site Vicinity



Source: Near Map

Exhibit 3: Conceptual Site Plan



Source: Near Map

2 ENVIRONMENTAL SETTING

2.1 Climate and Meteorology

The California Air Resources Board (CARB) divides the State into 15 air basins that share similar meteorological and topographical features. The proposed Project is located within the 6,645-square-mile South Coast Air Basin (SCAB), which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, as well as all of Orange County. SCAB is on a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean on the southwest and high mountains forming the remainder of the perimeter.[1] SCAB's air quality is determined by natural factors such as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below.

SCAB is part of a semi-permanent high-pressure zone in the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. This usually mild weather pattern is occasionally interrupted by periods of extreme heat, winter storms, and Santa Ana winds. The annual average temperature throughout SCAB ranges from low 60 to high 80 degrees Fahrenheit with little variance. With more oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas.

Contrasting the very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all annual rainfall occurs between the months of November and April. Summer rainfall is reduced to widely scattered thundershowers near the coast, with slightly heavier activity in the east and over the mountains.

Although SCAB has a semiarid climate, the air closer to the Earth's surface is typically moist because of the presence of a shallow marine layer. Except for occasional periods when dry, continental air is brought into the SCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog are frequent and low clouds known as high fog are characteristic climatic features, especially along the coast. Annual average humidity is 70 percent at the coast and 57 percent in SCAB's eastern portions.

Wind patterns across SCAB are characterized by westerly or southwesterly on-shore winds during the day and easterly or northeasterly breezes at night. Wind speed is typically higher during the dry summer months than during the rainy winter.

Between periods of wind, air stagnation may occur in both the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During winter and fall, surface high-pressure systems over SCAB, combined with other meteorological conditions, result in very strong, downslope Santa Ana winds. These winds normally continue for a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the diffusion of pollutants by inhibiting the eastward transport of pollutants. SCAB's air quality generally ranges from fair to poor and is like air quality in most of coastal Southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions.

[1] South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993.

In addition to the characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, two distinct types of temperature inversions control the vertical depth through which air pollutants are mixed. These inversions are the marine inversion and the radiation inversion. The height of the base of the inversion at any given time is called the "mixing height." The combination of winds and inversions is a critical determinant leading to highly degraded air quality for the SCAB in the summer and generally good air quality in the winter.

2.2 Air Pollutants of Concern

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state laws. These regulated air pollutants are known as "criteria air pollutants" and are categorized into primary and secondary pollutants.

Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxide (NO_X), sulfur dioxide (SO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead are primary air pollutants. Of these, CO, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ are criteria pollutants. ROG and NO_X are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. For example, the criteria pollutant ozone (O_3) is formed by a chemical reaction between ROG and NO_X in the presence of sunlight. O_3 and nitrogen dioxide (NO_2) are the principal secondary pollutants. Sources and health effects commonly associated with criteria pollutants are summarized in **Table 1: Air Contaminants and Associated Public Health Concerns**.

Table 1: Air Contaminants and Associated Public Health Concerns

Pollutant	Major Man-Made Sources	Human Health Effects
Particulate Matter (PM_{10} and $PM_{2.5}$)	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; asthma; chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility.
Ozone (O_3)	Formed by a chemical reaction between reactive organic gases/volatile organic compounds (ROG or VOC)[1] and nitrogen oxides (NO_X) in the presence of sunlight. Motor vehicle exhaust industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
Sulfur Dioxide (SO_2)	A colorless gas formed when fuel containing sulfur is burned and when gasoline is extracted from oil. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.

Table 1: Air Contaminants and Associated Public Health Concerns (continued)		
Pollutant	**Major Man-Made Sources**	**Human Health Effects**
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone. Contributes to global warming and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Lead (Pb)	Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Due to the phase out of leaded gasoline, metals processing is the major source of lead emissions to the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.	Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ.
Notes: [1] Volatile Organic Compounds (VOCs or Reactive Organic Gases [ROG]) are hydrocarbons/organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including ROGs and VOCs. Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).		
Source: California Air Pollution Control Officers Association (CAPCOA), *Health Effects*, http://www.capcoa.org/health-effects/, accessed September 3, 2019.		

Toxic Air Contaminants

Toxic air contaminants (TACs) are airborne substances that can cause short-term (acute) or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes more than 200 compounds, including particulate emissions from diesel-fueled engines.

CARB identified diesel particulate matter (DPM) as a toxic air contaminant. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine. Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

Ambient Air Quality

CARB monitors ambient air quality at approximately 250 air monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. Existing levels of ambient air quality, historical trends, and projections near the Project site are documented by measurements made by the South Coast Air Quality Management District (SCAQMD), SCAB's air pollution regulatory agency that maintains air quality monitoring stations, which process ambient air quality measurements.

Ozone (O_3) and particulate matter (PM_{10} and $PM_{2.5}$) are pollutants of concern in the SCAB. The closest air monitoring station to the proposed Project site that monitors ambient concentrations of these pollutants is the Pico Rivera-4144 San Gabriel River Parkway Monitoring Station located approximately 4.9 miles southwest of the Project site. Local air quality data from 2016 to 2018 is provided in **Table 2: Ambient Air Quality Data**. **Table 2** lists the monitored maximum concentrations and number of exceedances of federal or state air quality standards for each year.

Table 2: Ambient Air Quality Data

Pollutant	Pico Rivera-4144 San Gabriel River Parkway Monitoring Station[1]		
	2016	2017	2018
Ozone (O_3)			
1-hour Maximum Concentration (ppm)	0.111	0.118	0.115
8-hour Maximum Concentration (ppm)	0.081	0.086	0.082
Number of Days Standard Exceeded			
CAAQS 1-hour (>0.09 ppm)	9	7	3
NAAQS 8-hour (>0.070 ppm)	6	9	5
Nitrogen Dioxide (NO_2)			
1-hour Maximum Concentration (ppm)	63.2	75.0	76.8
Number of Days Standard Exceeded			
NAAQS 1-hour (>100 ppm)	0	0	0
CAAQS 1-hour (>0.18 ppm)	0	0	0
Particulate Matter Less Than 2.5 Microns ($PM_{2.5}$)			
National 24-hour Maximum Concentration	46.5	49.5	56.3
State 24-hour Maximum Concentration	46.5	49.5	56.3
Number of Days Standard Exceeded			
NAAQS 24-hour (>35 µg/m^3)	2	1	2

Notes: NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; µg/m^3 = micrograms per cubic meter; NM = not measured
1. Measurements taken at the Pico Rivera-4144 San Gabriel River Parkway Monitoring Station, Pico Rivera, California 90660 (CARB# 70185).

Source: All pollutant measurements are from the CARB Aerometric Data Analysis and Management system database (https://www.arb.ca.gov/adam).

2.3 Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive receptors in proximity to localized sources of toxics are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

The Project site is centrally located in the City within the Northwest Industrial District. The site is bordered by various land uses (i.e., multi- and single- family residential, commercial, and industrial uses), and vacant

land. The site is bounded by a multi-family apartment complex and a vacant lot to the north, single-family residential uses to the south and east, and single-family residential uses to the west of the Cypress Avenue at Kauffman Street intersection. **Table 3: Sensitive Receptors**, lists the distances and locations of nearby sensitive receptors, which primarily include single-family residences, religious institutions, educational institutions, and recreational facilities.

Table 3: Sensitive Receptors

Receptor Type/Description	Distance and Direction from the Project Site
RESIDENTIAL	
Single-Family Residences	Adjoining to the north, east, south, and west
Multi-Family Residential Dwellings	Adjoining to the north and east
RELIGIOUS INSTITUTIONS	
El Monte First United Methodist	2,150 feet northwest
El Monte Vietnamese Seventh-day Adventist Church	2,610 feet northeast
Our Lady of Guadalupe Catholic Church	285 feet east
First Baptist Church-El Monte	940 feet south
True Jesus Church	1,840 feet southwest
Calvary Assembly of God	600 feet west
Nativity Church	1,630 feet northwest
EDUCATIONAL INSTITUTIONS	
Legore Elementary School	1,950 feet north
Columbia School	1,265 feet southwest
Nativity School	1,760 feet northwest
RECREATIONAL FACILITIES	
Lambert Park	4,260 feet northeast
Arceo Park	3,300 feet southwest
Rio Vista Park	3,730 feet northwest

Notes:
1. Distances measured in Google Earth, 2019.
2. Distance measured from the nearest Project site boundary to the area of frequent receptor exposure (e.g., at a residence, recreational activity area at a park, playground facilities at a school, etc.).

3 REGULATORY SETTING

3.1 Federal

Federal Clean Air Act

Air quality is federally protected by the Federal Clean Air Act (FCAA) and its amendments. Under the FCAA, the EPA developed the primary and secondary National Ambient Air Quality Standards (NAAQS) for the criteria air pollutants including ozone, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead. Proposed projects in or near nonattainment areas could be subject to more stringent air-permitting requirements. The FCAA requires that each state prepare a State Implementation Plan (SIP) to demonstrate how it will attain the NAAQS within the federally imposed deadlines.

The U.S. Environmental Protection Agency (EPA) can withhold certain transportation funds from states that fail to comply with the FCAA's planning requirements. If a state fails to correct these planning deficiencies within two years of Federal notification, the EPA is required to develop a Federal implementation plan for the identified nonattainment area or areas. The provisions of 40 Code of Federal Regulations Parts 51 and 93 apply in all nonattainment and maintenance areas for transportation-related criteria pollutants for which the area is designated nonattainment or has a maintenance plan. The EPA has designated enforcement of air pollution control regulations to the individual states. Applicable federal standards are summarized in **Table 4: State and Federal Ambient Air Quality Standards**.

3.2 State of California

California Air Resources Board

CARB administers California's air quality policy. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in **Table 4**, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates.

The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMPs also serve as the basis for the preparation of the SIP for meeting federal clean air standards for the State of California. Like the EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events such as wildfires, volcanoes, etc. are not considered violations of a State standard, and are not used as a basis for designating areas as nonattainment. The applicable State standards are summarized in **Table 4**.

Table 4: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standards[1]	Federal Standards[2]
Ozone (O_3) [2, 5, 7]	8 Hour	0.070 ppm (137 µg/m³)	0.070 ppm
	1 Hour	0.09 ppm (180 µg/m³)	NA
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)
	1 Hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 µg/m³)	0.10 ppm[11]
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)
Sulfur Dioxide (SO_2) [8]	24 Hour	0.04 ppm (105 µg/m³)	0.14 ppm (365 µg/m³)
	1 Hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)
	Annual Arithmetic Mean	NA	0.03 ppm (80 µg/m³)
Particulate Matter (PM_{10}) [1, 3, 6]	24-Hour	50 µg/m³	150 µg/m³
	Annual Arithmetic Mean	20 µg/m³	NA
Fine Particulate Matter ($PM_{2.5}$) [3, 4, 6, 9]	24-Hour	NA	35 µg/m³
	Annual Arithmetic Mean	12 µg/m³	12 µg/m³
Sulfates (SO_{4-2})	24 Hour	25 µg/m³	NA
Lead (Pb) [10, 11]	30-Day Average	1.5 µg/m³	NA
	Calendar Quarter	NA	1.5 µg/m³
	Rolling 3-Month Average	NA	0.15 µg/m³
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (0.15 µg/m³)	NA
Vinyl Chloride (C_2H_3Cl) [10]	24 Hour	0.01 ppm (26 µg/m³)	NA

Notes:

ppm = parts per million; µg/m³ = micrograms per cubic meter; mg/m³ = milligrams per cubic meter; – = no information available.

1 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. Measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe carbon monoxide standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.

2 National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m3. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m³.

3 Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard. NAAQS are set by the EPA at levels determined to be protective of public health with an adequate margin of safety.

4 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. EPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.

5 The national 1-hour ozone standard was revoked by the EPA on June 15, 2005.

6 In June 2002, CARB established new annual standards for $PM_{2.5}$ and PM_{10}.

7 The 8-hour California ozone standard was approved by the CARB on April 28, 2005 and became effective on May 17, 2006.

8 On June 2, 2010, the EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO_2 NAAQS however must continue to be used until one year following EPA initial designations of the new 1-hour SO_2 NAAQS.

9 In December 2012, EPA strengthened the annual $PM_{2.5}$ NAAQS from 15.0 to 12.0 µg/m³. In December 2014, the EPA issued final area designations for the 2012 primary annual $PM_{2.5}$ NAAQS. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

10 CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure below which there are no adverse health effects determined.

11 National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.

Source: South Coast Air Quality Management District, *Air Quality Management Plan*, 2016; California Air Resources Board, *Ambient Air Quality Standards*, May 6, 2016.

3.3 Regional

South Coast Air Quality Management District

The SCAQMD is the air pollution control agency for Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino Counties. The agency's primary responsibility is ensuring that federal and state ambient air quality standards are attained and maintained in SCAB. The SCAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, and many other activities. All projects are subject to SCAQMD rules and regulations in effect at the time of construction.

The SCAQMD is also the lead agency in charge of developing the AQMP, with input from the Southern California Association of Governments (SCAG) and CARB. The AQMP is a comprehensive plan that includes control strategies for stationary and area sources, as well as for on-road and off-road mobile sources. SCAG has the primary responsibility for providing future growth projections and the development and implementation of transportation control measures. CARB, in coordination with federal agencies, provides the control element for mobile sources.

The 2016 AQMP was adopted by the SCAQMD Governing Board on March 3, 2017. The purpose of the AQMP is to set forth a comprehensive and integrated program that would lead the SCAB into compliance with the federal 24-hour $PM_{2.5}$ air quality standard, and to update the SCAQMD's commitments towards meeting the federal 8-hour ozone standards. The AQMP incorporates the latest scientific and technological information and planning assumptions, including the 2016 *Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS) and updated emission inventory methodologies for various source categories.

The SCAQMD has published the *CEQA Air Quality Handbook* (approved by the SCAQMD Governing Board in 1993 and augmented with guidance for Local Significance Thresholds [LST] in 2008). The SCAQMD guidance helps local government agencies and consultants develop environmental documents required by California Environmental Quality Act (CEQA) and identifies thresholds of significance for criteria pollutants for both construction and operation (see discussion of thresholds below). With the help of the *CEQA Air Quality Handbook* and associated guidance, local land use planners and consultants can analyze and document how existing and proposed projects affect air quality, in order to meet the CEQA review process requirements. The SCAQMD periodically provides supplemental guidance and updates to the handbook on their website.

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. Under federal law, SCAG is designated as a Metropolitan Planning Organization and under state law as a Regional Transportation Planning Agency and a Council of Governments.

The state and national attainment status designations for SCAB are summarized in **Table 5: South Coast Air Basin Attainment Status**. SCAB is currently designated as a nonattainment area concerning the state ozone, PM_{10}, and $PM_{2.5}$ standards, as well as the national 8-hour ozone and $PM_{2.5}$ standards. The SCAB is designated as attainment or unclassified for the remaining state and federal standards.

Table 5: South Coast Air Basin Attainment Status		
Pollutant	**Federal**	**State**
Ozone (O_3) (1 Hour Standard)	Non-Attainment (Extreme)	Non-Attainment
Ozone (O_3) (8 Hour Standard)	Non-Attainment (Extreme)	Non-Attainment
Particulate Matter ($PM_{2.5}$) (24 Hour Standard)	Non-Attainment (Serious)	--
Particulate Matter ($PM_{2.5}$) (Annual Standard)	Non-Attainment (Moderate)	Non-Attainment
Particulate Matter (PM_{10}) (24 Hour Standard)	Attainment (Maintenance)	Non-Attainment
Particulate Matter (PM_{10}) (Annual Standard)	--	Non-Attainment
Carbon Monoxide (CO) (1 Hour Standard)	Attainment (Maintenance)	Attainment
Carbon Monoxide (CO) (8 Hour Standard)	Attainment (Maintenance)	Attainment
Nitrogen Dioxide (NO_2) (1 Hour Standard)	Unclassifiable/Attainment	Attainment
Nitrogen Dioxide (NO_2) (Annual Standard)	Attainment (Maintenance)	Attainment
Sulfur Dioxide (SO_2) (1 Hour Standard)	Unclassifiable/Attainment	Attainment
Sulfur Dioxide (SO_2) (24 Hour Standard)	--	Attainment
Lead (Pb) (30 Day Standard)	Unclassifiable/Attainment	--
Lead (Pb) (3 Month Standard)	--	Attainment
Sulfates (SO_{4-2}) (24 Hour Standard)	--	Attainment
Hydrogen Sulfide (H_2S) (1 Hour Standard)	--	Unclassified
Source: South Coast Air Quality Management District, *Air Quality Management Plan*, 2016; U.S. EPA, *Nonattainment Areas for Criteria Pollutants (Green Book)*, August 31, 2019.		

Following are the SCAQMD rules that are required for the Project's construction activities:

- **Rule 401 (Visible Emissions)** – A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any 1 hour that is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.

- **Rule 402 (Nuisance)** – This rule prohibits the 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 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. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

- **Rule 403 (Fugitive Dust)** – This rule requires fugitive dust sources to implement best available control measures for all sources, and all forms of visible particulate matter are prohibited from crossing any property line. This rule is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. PM_{10} suppression Best Available Control Measures (BACMs) are summarized below.

  a) Portions of a construction site to remain inactive longer than a period of three months will be seeded and watered until grass cover is grown or otherwise stabilized.

  b) All on-site roads will be paved as soon as feasible or watered periodically or chemically stabilized.

  c) All material transported off-site will be either sufficiently watered or securely covered to prevent excessive amounts of dust.

  d) The area disturbed by clearing, grading, earthmoving, or excavation operations will be minimized at all times.

  e) Where vehicles leave a construction site and enter adjacent public streets, the streets will be swept daily or washed down at the end of the work day to remove soil tracked onto the paved surface.

- **Rule 431.2** (**Sulfur Content of Liquid Fuels)** – This rule limits the sulfur content in diesel and other liquid fuels for the purpose of both reducing the formation of sulfur oxides and particulates during combustion and to enable the use of add-on control devices for diesel fueled internal combustion engines.

- **Rule 445 (Wood Burning)** – This rule prohibits permanently installed wood burning devices into any new development. A wood burning device means any fireplace, wood burning heater, or pellet-fueled wood heater, or any similarly enclosed, permanently installed, indoor or outdoor device burning any solid fuel for aesthetic or space-heating purposes, which has a heat input of less than one million British thermal units per hour.

- **Rule 1113 (Architectural Coatings)** – This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce ROG emissions from the use of these coatings, primarily by placing limits on the ROG content of various coating categories.

3.4 Local

City of El Monte General Plan

The Public Health and Safety Element of the *Vision El Monte General Plan* (EMGP) (June 2011) contains an Air Quality section intended to help improve air quality throughout the City. The following air quality goals and polices from the Public Health and Safety Element apply to the proposed Project.

Goal PHS-3: Clean and healthful air through the implementation of responsive land use practices, enhancement to the natural landscape, pollution reduction strategies, and cooperation with regional agencies.

Policy PHS-3.1 Land Use. As a condition for siting or expanding operations in El Monte, require air pollution emitters to evaluate and fully mitigate the impacts of their operations on schools, homes, medical facilities, child care centers, and other sensitive receptors.

Policy PHS-3.2 Sensitive Receptors. As a condition for siting or expanding operations in El Monte, require air pollution emitters to evaluate and fully mitigate the impacts of their operations on schools, homes, medical facilities, child care centers, and other sensitive receptors.

Policy PHS-3.4 Transportation. Encourage alternative modes of travel to work and school by maximizing transit service, purchasing alternative fuel vehicles, completing all sidewalks, and creating a network of multiuse trails and bicycle paths.

Policy PHS-3.5 Regional Coordination. Work cooperatively with cities through the San Gabriel Valley Council of Governments to address interjurisdictional and regional issues of air quality, including mobile and stationary sources of air pollution.

Goal HW-12: Land use patterns reduce driving, enhance air quality, and improve respiratory health.

Policy HW-12.1 Walking, Cycling, and Transit Use. Promote land use patterns that reduce driving rates and promote walking, cycling and transit use.

Policy HW-12.2 Truck Routes. Discourage locating truck routes on primarily residential streets.

Policy HW-12.5 Air Pollution Mitigation. Use landscaping, ventilation systems, double paned windows, or other mitigation measures to achieve healthy indoor air quality and noise levels in sensitive land uses.

Policy HW-12.9 Air Quality Policies. Support policies that reduce emissions of pollutants from stationary and mobile sources such as industrial facilities, motor vehicles and trains.

4 SIGNIFICANCE CRITERIA AND METHODOLOGY

4.1 Air Quality Thresholds

State CEQA Guidelines Appendix G

Based upon the criteria derived from State CEQA Guidelines Appendix G, a project normally would have a significant effect on the environment if it would:

- 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, or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

South Coast Air Quality Management District

Mass Emissions Thresholds. The SCAQMD significance criteria may be relied upon to make the above determinations. According to the SCAQMD, an air quality impact is considered significant if a proposed project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The SCAQMD has established thresholds of significance for air quality during project construction and operations, as shown in **Table 6: South Coast Air Quality Management District Emissions Thresholds**.

Table 6: South Coast Air Quality Management District Emissions Thresholds

Criteria Air Pollutants and Precursors (Regional)	Construction-Related	Operational-Related
	Average Daily Emissions (pounds/day)	Average Daily Emission (pounds/day)
Reactive Organic Gases (ROG)	75	55
Carbon Monoxide (CO)	550	550
Nitrogen Oxides (NO_X)	100	55
Sulfur Oxides (SO_X)	150	150
Coarse Particulates (PM_{10})	150	150
Fine Particulates ($PM_{2.5}$)	55	55

Source: South Coast Air Quality Management District, *South Coast AQMD Air Quality Significance Thresholds,* April 2019.

Localized Carbon Monoxide**.** In addition to the daily thresholds listed above, a proposed project would be subject to the ambient air quality standards. These are addressed through an analysis of localized CO impacts. The significance of localized impacts depends on whether ambient CO levels near the Project site are above state and federal CO standards (the more stringent California standards are 20 ppm for 1-hour and 9 ppm for 8-hour). The Basin has been designated as attainment under the 1-hour and 8-hour standards.

Localized Significance Thresholds (LSTs)**.** In addition to the CO hotspot analysis, the SCAQMD developed LSTs for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at new development sites (off-site mobile source emissions are not included in the LST analysis). LSTs represent the maximum emissions that can be

generated at a project site without expecting to cause or substantially contribute to an exceedance of the most stringent national or state ambient air quality standards. LSTs are based on the ambient concentrations of that pollutant within the Project source receptor area (SRA), as demarcated by the SCAQMD, and the distance to the nearest sensitive receptor. LST analysis for construction is applicable for all projects that disturb 5 acres or less on a single day. The City of El Monte is located within SCAQMD SRA 9 (East San Gabriel Valley). **Table 7: Local Significance Thresholds (Construction/Operations)**, shows the LSTs for a 1-acre, 2-acre, and 5-acre project site in SRA 9 with sensitive receptors located within 25 meters of the Project site.

Table 7: Local Significance Thresholds (Construction/Operations)

Project Size	Nitrogen Oxide (NO_x) – lbs/day	Carbon Monoxide (CO) – lbs/day	Coarse Particulates (PM_{10}) – lbs/day	Fine Particulates ($PM_{2.5}$) – lbs/day
1 Acre	89/89	623/623	5/2	3/1
2 Acres	128/128	953/953	7/2	5/2
5 Acres	203/203	1,733/1,733	14/4	7/2

Source: South Coast Air Quality Management District, *Localized Significance Threshold Methodology,* July 2008.

4.2 Methodology

This air quality impact analysis considers construction and operational impacts associated with the proposed Project. Construction equipment, trucks, worker vehicles, and ground-disturbing activities associated with proposed Project construction would generate emissions of criteria air pollutants and precursors. Air quality impacts were assessed according to CARB and SCAQMD recommended methodologies. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model version 2016.3.2 (CalEEMod). CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects.

5 POTENTIAL IMPACTS AND MITIGATION

5.1 Air Quality Analysis

Threshold 5.1 Would the Project conflict with or obstruct implementation of the applicable air quality plan?

As part of its enforcement responsibilities, the EPA requires that each state with nonattainment areas prepare and submit a SIP that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the CCAA requires an air quality attainment plan to be prepared for areas designated as nonattainment regarding the federal and state ambient air quality standards. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

The Project site is located within SCAB, which is under SCAQMD's jurisdiction. The SCAQMD is required, pursuant to the FCAA, to reduce emissions of criteria pollutants for which SCAB is in non-attainment. To reduce such emissions, the SCAQMD drafted the 2016 AQMP. The 2016 AQMP establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving state (California) and national air quality standards. The 2016 AQMP is a regional and multi-agency effort including the SCAQMD, the CARB, the SCAG, and the EPA. The AQMP's pollutant control strategies are based on the latest scientific and technical information and planning assumptions, including SCAG's 2016 RTP/SCS, updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. SCAG's latest growth forecasts were defined in consultation with local governments and with reference to local general plans. The Project is subject to the SCAQMD's AQMP.

Criteria for determining consistency with the AQMP are defined by the following indicators:

- **Consistency Criterion No. 1**: A proposed project would not result in an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay the timely attainment of the AQMP's air quality standards or the interim emissions reductions.
- **Consistency Criterion No. 2**: A proposed project would not exceed the AQMP's assumptions or increments based on the years of the project build-out phase.

Consistency Criterion No. 1 refers to the CAAQS and NAAQS. As shown in **Table 8** and **Table 9** below, the Project construction and operational emissions would be below SCAQMD's thresholds. As the Project would not generate localized construction or regional construction or operational emissions that would exceed SCAQMD thresholds of significance, the Project would not violate any air quality standards. Thus, no impact is expected, and the Project would be consistent with the first criterion.

Consistency Criterion No. 2 refers to SCAG's growth forecasts and associated assumptions included in the AQMP. The future air quality levels projected in the AQMP are based on SCAG's growth projections, which are based, in part, on the general plans of cities located within the SCAG region. Therefore, projects that are consistent with the applicable assumptions used in the development of the AQMP would not

jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's recommended daily emissions thresholds.

Concerning Consistency Criterion No. 2, the AQMP contains air pollutant reduction strategies based on SCAG's latest growth forecasts, and SCAG's growth forecasts were defined in consultation with local governments and with reference to local general plans. Therefore, it is reasonable to conclude that if a project is consistent with the applicable general plan land use designation, and if the general plan was adopted prior to the applicable AQMP, then the increase in vehicle miles traveled (VMT) and/or population generated by said project would be consistent with the AQMP's assumed VMT and population growth.

The 5.69-acre Project site is designated Industrial/Business Park and Medium Density Residential in the EMGP. The Industrial/Business Park designation is intended primarily for the Northwest Industrial District.[2] Allowable land uses include a mix of sustainable manufacturing, processing, office, warehousing, and distribution uses. Supporting and limited retail uses are also allowed. The Medium Density Residential land use designation allows for attached and detached single-family homes, attached products with four or fewer units, and planned developments.[3]

The City of El Monte Zoning Map depicts the City's zones and indicates the Project site is zoned M-2 General Manufacturing and R-3 Medium-Density Multiple-Family.[4] Regulations governing the M-2 Zone are included in El Monte Municipal Code (EMMC) Chapter 17.60. EMMC Section 17.60.010 outlines the uses permitted in the M-2 Zone, which include any use permitted in the M-1 Zone, among others. Regulations governing the R-3 Zone are included in EMMC Chapter 17.40. The R-3 Zone allows for any use permitted in the R-2 Zone, group dwellings, multiple-family dwellings and apartment houses, among others. The maximum density of development allowed in the R-2 Zone shall not be more than 1 DU/3,111 SF of net lot area, provided the lot width is 250 feet or greater.

The Project proposes a residential community consisting of 110 three-story townhomes, which is not a permitted use in the M-2 and R-3 zones, and/or the Industrial/Business Park and Medium Density Multi-Family designations. Therefore, the Project proposes both a General Plan Amendment and Zone Change to change the EMGP land use designation from Industrial/Business Park and Medium Density Residential to High Residential and the zoning from General Manufacturing (M-2) and Medium Density Multiple-Family (R-3) to High-Density Multiple-Family Zone (R-4). The EMGP allows for a maximum density of 25 DU/AC for the R-4 Zone. The Project proposes to develop a residential community on the approximately 5.70-gross AC Project site consisting of 110 townhomes, at a density of 19.33 DU/gross acre, and does not exceed the allowed maximum of 25 DU/AC.

Further, assuming 110 DU and 4.11 persons per household,[5] the Project's forecast population growth is approximately 452 persons. The Project's forecast population growth would nominally increase the City's existing population (approximately 117,204 persons[6]) by less than one percent (approximately 0.39%), and the City's existing population (117,204 persons) is already below SCAG's 2020 population forecasts

[2] City of El Monte, *Vision El Monte General Plan 2011,* June 2011.
[3] Ibid.
[4] City of El Monte, *City of El Monte Zoning Map,* March 2019.
[5] California Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2019 with 2010 Census Benchmark*, May 2019.
[6] Ibid.

for the City of El Monte (120,000 persons). As such, following the City's approval of the requested General Plan Amendment and Zone Change, the Project would not conflict with or exceed SCAG's regional growth forecasts for the City of El Monte. It is also noted that the Project's construction and operational air emissions would not exceed the SCAQMD regional thresholds, and localized emissions during construction and operations would be below SCAQMD LST thresholds; see the impact discussions for Thresholds 5.2 and 5.3 below. As such, the Project would be consistent with the second criterion and a less than significant impact would occur in this regard.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold 5.2 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?

Construction Emissions

Project construction activities would generate short-term emissions of criteria air pollutants. The criteria pollutants of primary concern within the Project area include ozone-precursor pollutants (i.e., ROG and NO_X) and PM_{10} and $PM_{2.5}$. Construction-generated emissions are short term and temporary, lasting only while construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the SCAQMD's thresholds of significance.

Construction results in the temporary generation of emissions resulting from site grading, road paving, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities, as well as weather conditions and the appropriate application of water.

The duration of construction activities associated with the proposed Project are estimated to last approximately 45 months. The Project's construction-related emissions were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. Project demolition, site preparation, and grading are anticipated to begin in Spring of 2021. Building construction was estimated to begin in the Summer of 2021 and last until Fall 2024. Paving and Architectural Coating were modeled to be completed by December 2024. See **Appendix A: Air Quality Data** for additional information regarding the construction assumptions used in this analysis.

The Project's predicted maximum daily construction-related emissions are summarized in **Table 8: Construction-Related Emissions**. As shown in **Table 8**, all criteria pollutant emissions would remain below their respective thresholds with implementation of required SCAQMD Rule 403. The project would also be required to comply with SCAQMD Rules 402 and 1113, which prohibit nuisances and limit VOC content in paints, respectively, and would further reduce specific construction-related emissions. SCAQMD Rules 402, 403, and 1113 are described in described in the *Regulatory Setting – Regional* section above. As shown in **Table 8**, all criteria pollutant emissions would remain below their respective thresholds and would not worsen ambient air quality, create additional violations of federal and state standards, or delay SCAB's goal for meeting attainment standards. Impacts would be less than significant in this regard.

Table 8: Construction-Related Emissions

Construction Year	Emissions (pounds per day)[1,2]					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_x)	Carbon Monoxide (CO)	Sulfur Dioxide (SO_2)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
2021	5.57	70.41	43.18	0.15	8.93	5.61
2022	2.15	17.35	20.05	0.04	1.86	1.05
2023	1.98	15.74	19.64	0.04	1.75	0.95
2024	34.97	14.77	19.34	0.04	1.66	0.86
SCAQMD Threshold	*75*	*100*	*550*	*150*	*55*	*150*
Exceed SCAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:
1. Emissions were calculated using the California Emissions Estimator Model version 2016.3.2 (CalEEMod), as recommended by the SCAQMD. Worst-case seasonal maximum daily emissions are reported.
2. SCAQMD Rule 403 Fugitive Dust applied for construction emissions. The Rule 403 reduction/credits include the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; replace ground cover of area disturbed; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied. No mitigation was applied to construction equipment. Refer to Appendix A for Model Data Outputs.

Source: CalEEMod version 2016.3.2. Refer to Appendix A for model outputs.

Operational Emissions

The Project's operational emissions would be associated with motor vehicle use and area sources. Area sources include natural gas for space and water heating, gasoline-powered landscaping and maintenance equipment, consumer products (such as household cleaners). Mobile sources emissions are generated from vehicle operations associated with Project operations. Typically, area sources are small sources that contribute very little emissions individually, but when combined may generate substantial amounts of pollutants. Area specific defaults in CalEEMod were used to calculate area source emissions. The estimated net increase in emissions from Project operations were calculated using CalEEmod and are summarized in **Table 9: Operational Emissions**.

Area Source Emissions

Area source emissions would be generated due to consumer products, architectural coating, hearths, and landscaping that were previously not present on the site. As shown in **Table 9**, the Project's unmitigated area source emissions would not exceed SCAQMD thresholds for either the winter or summer seasons. Therefore, mitigation measures are not required, and a less than significant impact is anticipated.

Energy Source Emissions

Energy source emissions would be generated due to the Project's electricity and natural gas usage. The Project's primary uses of electricity and natural gas would be for space heating and cooling, water heating, ventilation, lighting, appliances, and electronics. As shown in **Table 9**, the Project's unmitigated energy source emissions would not exceed SCAQMD thresholds for criteria pollutants. As such, the Project would not violate any air quality standards or contribute substantially to an existing or projected air quality violation. Therefore, the Project's operational air quality impacts would be less than significant.

Table 9: Operational Emissions

Source	Emissions (pounds per day)[1]					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_X)	Carbon Monoxide (CO)	Sulfur Dioxide (SO_2)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Existing Emissions						
Area Source Emissions	3.56	0.00	0.02	0.00	0.00	0.00
Energy Emissions	0.05	0.44	0.37	0.00	0.04	0.04
Mobile Emissions	1.30	6.42	18.98	0.06	4.52	1.25
Total Emissions	**4.91**	**6.86**	**19.37**	**0.06**	**4.56**	**1.29**
Proposed Emissions						
Area Source Emissions	2.83	1.66	9.74	0.01	0.18	0.18
Energy Emissions	0.05	0.48	0.20	0.00	0.04	0.04
Mobile Emissions	1.38	5.99	18.84	0.07	6.45	1.76
Total Emissions	**4.26**	**8.13**	**28.78**	**0.08**	**6.67**	**1.98**
Net Emissions	***-0.65***	***1.27***	***9.41***	***0.02***	***2.11***	***0.69***
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:
1. Emissions were calculated using the California Emissions Estimator Model version 2016.3.2 (CalEEMod), as recommended by the SCAQMD. Worst-case unmitigated maximum daily emissions are reported.

Source: CalEEMod version 2016.3.2. Refer to Appendix A for model outputs.

Mobile Source

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern. NO_X and ROG react with sunlight to form O_3, known as photochemical smog. Additionally, wind currents readily transport PM_{10} and $PM_{2.5}$. However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Project-generated vehicle emissions have been estimated using CalEEMod, as recommended by the SCAQMD. According to *the Orchard and Cypress Residential Project Trip Generation Comparison Analysis 19-0057* (Trip Generation Analysis) prepared by Ganddini Group, Inc. (July 19, 2019), the proposed Project would generate 880 daily trips (354 net daily trips).[7] Thus, the Project would result in a net increase in daily trips and mobile emissions. However, as shown in **Table 9**, mobile source emissions would not exceed SCAQMD thresholds for criteria pollutants. Therefore, the Project's air quality impacts associated with mobile source emissions would be less than significant.

Total Operational Emissions

As shown in **Table 9,** emission calculations generated from CalEEMod demonstrate that Project operations would not exceed the SCAQMD thresholds for any criteria air pollutants and would result in a net decrease in ROG emissions. Therefore, impacts associated with Project operations would be less than significant. It should also be noted that the Project is a higher density residential infill development with various

[7] According to the Trip Generation Analysis, the existing industrial park generates 526 daily trips. Therefore, the Project's net trip increase was calculated as follows:

- 880 daily trips (proposed Project) – 526 daily trips (existing industrial park) = 354 net daily trips.

features that create a walkable space with 70,590 SF of open space, including private open space, "usable" common open space, "other" landscaped common open space, walkways and "community trails," and a tot lot. These project features would help reduce VMT consistent with EMGP Policies PHS-3.4 (encouraging multiuse trails and alternative modes of travel) and HW-12.1 (promote walking, cycling and transit use) which would further reduce mobile source emissions below what is shown in **Table 9.**

Cumulative Short-Term Emissions

SCAB is designated nonattainment for O_3, PM_{10}, and $PM_{2.5}$ for State standards and nonattainment for O_3 and $PM_{2.5}$ for Federal standards. As discussed above, the Project's construction-related emissions by themselves would not exceed the SCAQMD significance thresholds for criteria pollutants.

Since these thresholds indicate whether individual Project emissions have the potential to affect cumulative regional air quality, it can be expected that the Project-related construction emissions would not be cumulatively considerable. The SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the AQMP pursuant to the federal Clean Air Act mandates. The analysis assumed fugitive dust controls would be utilized during construction, including frequent water applications. SCAQMD rules, mandates, and compliance with adopted AQMP emissions control measures would also be imposed on construction projects throughout SCAB, which would include related cumulative projects. As concluded above, the Project's construction-related impacts would be less than significant. Compliance with SCAQMD rules and regulations would further minimize the proposed Project's construction-related emissions. Therefore, Project-related construction emissions, in combination with those from other projects in the area, would not substantially deteriorate the local air quality. The Project's construction-related emissions would not result in a cumulatively considerable contribution to significant cumulative air quality impacts.

Cumulative Long-Term Impacts

The SCAQMD has not established separate significance thresholds for cumulative operational emissions. The nature of air emissions is largely a cumulative impact. As a result, no single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, individual project emissions contribute to existing cumulatively significant adverse air quality impacts. The SCAQMD developed the operational thresholds of significance based on the level above which individual project emissions would result in a cumulatively considerable contribution to SCAB's existing air quality conditions. Therefore, a project that exceeds the SCAQMD operational thresholds would also be a cumulatively considerable contribution to a significant cumulative impact.

As shown in **Table 9**, the Project's operational emissions would not exceed SCAQMD thresholds. As a result, the Project's operational emissions would not result in a cumulatively considerable contribution to significant cumulative air quality impacts. Additionally, adherence to SCAQMD rules and regulations would alleviate potential impacts related to cumulative conditions on a project-by-project basis. Project operations would not contribute a cumulatively considerable net increase of any nonattainment criteria pollutant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold 5.3 Would the Project expose sensitive receptors to substantial pollutant concentrations?

Localized Construction Significance Analysis

The nearest sensitive receptors to the Project site are the multi-family residential dwellings located approximately 20 feet (6.1 meters) to the north of the Project site along Cypress Avenue. To identify impacts to sensitive receptors, the SCAQMD recommends addressing LSTs for construction. LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with Project-specific emissions.

Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment, **Table 10: Equipment-Specific Grading Rates**, is used to determine the maximum daily disturbed acreage for comparison to LSTs. The appropriate SRA for the localized significance thresholds is East San Gabriel Valley (SRA 9), since this area includes the Project site. LSTs apply to CO, NO_2, PM_{10}, and $PM_{2.5}$. The SCAQMD produced look-up tables for projects that disturb areas less than or equal to 5.0 acres. Project construction is anticipated to disturb a maximum of 3.5 acres in a single day.

Table 10: Equipment-Specific Grading Rates

Construction Phase	Equipment Type	Equipment Quantity	Acres Graded per 8-Hour Day	Operating Hours per Day	Acres Graded per Day
Site Preparation	Rubber Tired Dozers	3	0.5	8	1.5
	Tractors/Loaders/Backhoes	4	0.5	8	2.0
				Total Acres Graded per Day	**3.5**

Source: CalEEMod version 2016.3.2. Refer to Appendix A for model outputs.

The SCAQMD's methodology states that "off-site mobile emissions from the project should not be included in the emissions compared to LSTs." Therefore, for purposes of the construction LST analysis, only emissions included in the CalEEMod "on-site" emissions outputs were considered. The nearest sensitive receptors to the Project site are the multi-family residential dwellings located approximately 20 feet (6.1 meters) to the north of the Project site along Cypress Avenue. LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. Therefore, as recommended by the SCAQMD, LSTs for receptors located at 25 meters were utilized in this analysis for receptors closer than 25 meters. **Table 11: Localized Significance of Construction Emissions**, presents the results of localized emissions during Project construction.

Table 11 shows that the emissions of these pollutants on the peak day of Project construction would not result in significant concentrations of pollutants at nearby sensitive receptors. Therefore, the Project would result in a less than significant impact concerning LSTs during construction activities.

Table 11: Localized Significance of Construction Emissions				
Construction Activity	**Emissions (pounds per day)[1,2]**			
	Nitrogen Oxide (NO_x)	**Carbon Monoxide (CO)**	**Coarse Particulate Matter (PM_{10})**	**Fine Particulate Matter ($PM_{2.5}$)**
Demolition (2021)	31.44	21.57	3.49	1.73
Site Preparation (2021)	40.50	21.15	8.74	5.56
Grading (2021)	24.74	15.86	3.59	2.31
Building Construction (2021)	17.43	16.58	0.96	0.90
Building Construction (2022)	15.62	16.36	0.81	0.76
Building Construction (2023)	14.38	16.24	0.70	0.66
Building Construction (2024)	13.44	16.17	0.61	0.58
Paving (2024)	9.52	14.63	0.47	0.43
Architectural Coating (2024)	1.22	1.81	0.06	0.06
Maximum Daily Emissions	*40.50*	*21.57*	*8.74*	*5.56*
SCAQMD Localized Screening Threshold (adjusted for 3.5 acre at 25 meters)	166	1,567	11	7
Maximum Daily Emissions Exceed SCAQMD Threshold?	**No**	**No**	**No**	**No**

Notes:
1. Emissions were calculated using the California Emissions Estimator Model version 2016.3.2 (CalEEMod), as recommended by the SCAQMD. Worst-case seasonal maximum daily emissions are reported.
2. SCAQMD Rule 403 Fugitive Dust applied for construction emissions. The Rule 403 reduction/credits include the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; replace ground cover of area disturbed; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied. No mitigation was applied to construction equipment. Refer to Appendix A for Model Data Outputs.

Source: CalEEMod version 2016.3.2. Refer to Appendix A for model outputs.

Localized Operational Significance Analysis

LSTs for receptors located at 25 meters for SRA 9 were utilized in this analysis. As the Project site is 5.69 acres, the 5-acre threshold was conservatively used for the Project. The on-site operational emissions are compared to the LST thresholds in **Table 12: Localized Significance of Operational Emissions**. **Table 12** shows that the maximum daily emissions of these pollutants during Project operations would not result in significant concentrations of pollutants at nearby sensitive receptors. Therefore, the Project would result in a less than significant impact concerning LSTs during operational activities.

Table 12: Localized Significance of Operational Emissions				
Activity	**Emissions (pounds per day)[1]**			
	Nitrogen Oxides (NO_X)	**Carbon Monoxide (CO)**	**Coarse Particulate Matter (PM_{10})**	**Fine Particulate Matter ($PM_{2.5}$)**
On-Site Emissions (Area Sources)	1.66	9.74	0.18	0.18
SCAQMD Localized Screening Threshold (5 acres at 25 meters)	*203*	*2,022*	*4*	*2*
Exceed SCAQMD Threshold?	**No**	**No**	**No**	**No**

Notes:
1. Emissions were calculated using the California Emissions Estimator Model version 2016.3.2 (CalEEMod), as recommended by the SCAQMD. Worst-case seasonal maximum daily emissions are reported.

Source: CalEEMod version 2016.3.2. Refer to Appendix A for model outputs.

The proposed Project would not involve the use, storage, or processing of carcinogenic or non-carcinogenic toxic air contaminants, and no significant toxic airborne emissions would result from operation of the proposed Project. Construction activities are subject to the regulations and laws relating to toxic air pollutants at the regional, State, and federal level that would protect sensitive receptors from substantial concentrations of these emissions. Therefore, impacts associated with the release of toxic air contaminants would be less than significant.

Criteria Pollutant Health Impacts

On December 24, 2018, the California Supreme Court issued an opinion identifying the need to provide sufficient information connecting a project's air emissions to health impacts or explain why such information could not be ascertained (Sierra Club v. County of Fresno [Friant Ranch, L.P.] [2018] Cal.5th, Case No. S219783). The SCAQMD has set its CEQA significance thresholds based on the FCAA, which defines a major stationary source (in extreme ozone nonattainment areas such as the South Coast Air Basin) as emitting 10 tons per year. The thresholds correlate with the trigger levels for the federal New Source Review (NSR) Program and SCAQMD Rule 1303 for new or modified sources. The NSR Program[8] was created by the FCAA to ensure that stationary sources of air pollution are constructed or modified in a manner that is consistent with attainment of health-based federal ambient air quality standards. The federal ambient air quality standards establish the levels of air quality necessary, with an adequate margin of safety, to protect the public health. Therefore, projects that do not exceed the SCAQMD's mass emissions thresholds would not violate any air quality standards or contribute substantially to an existing or projected air quality violation and no criteria pollutant health impacts.

NO_X and ROG are precursor emissions that form ozone in the atmosphere in the presence of sunlight where the pollutants undergo complex chemical reactions. It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources. Breathing ground-level ozone can result health effects that include: reduced lung function, inflammation of airways, throat irritation, pain, burning, or discomfort in the chest when taking a deep breath, chest tightness, wheezing, or shortness of breath. In addition to these effects, evidence from observational studies strongly indicates that higher daily ozone concentrations are associated with increased asthma attacks, increased hospital admissions, increased daily mortality, and other markers of morbidity. The consistency and coherence of the evidence for effects upon asthmatics suggests that ozone can make asthma symptoms worse and can increase sensitivity to asthma triggers.

According the SCAQMD's 2016 AQMP, ozone, NO_X, and ROG have been decreasing in the Basin since 1975 and are projected to continue to decrease in the future. Although vehicle miles traveled in the Basin continue to increase, NO_X and ROG levels are decreasing because of the mandated controls on motor vehicles and the replacement of older polluting vehicles with lower-emitting vehicles. NO_X emissions from electric utilities have also decreased due to the use of cleaner fuels and renewable energy. The 2016 AQMP demonstrates how the SCAQMD's control strategy to meet the 8-hour ozone standard in 2023 would lead to sufficient NO_X emission reductions to attain the 1-hour ozone standard by 2022. In addition, since NO_X emissions also lead to the formation of $PM_{2.5}$, the NO_X reductions needed to meet the ozone standards will likewise lead to improvement of $PM_{2.5}$ levels and attainment of $PM_{2.5}$ standards.

[8] Code of Federal Regulation (CFR) [i.e., PSD (40 CFR 52.21, 40 CFR 51.166, 40 CFR 51.165 (b)), Non-attainment NSR (40 CFR 52.24, 40 CFR 51.165, 40 CFR part 51, Appendix S).

The SCAQMD's air quality modeling demonstrates that NO_X reductions prove to be much more effective in reducing ozone levels and will also lead to significant improvement in $PM_{2.5}$ concentrations. NO_X-emitting stationary sources regulated by the SCAQMD include Regional Clean Air Incentives Market (RECLAIM) facilities (e.g., refineries, power plants, etc.), natural gas combustion equipment (e.g., boilers, heaters, engines, burners, flares) and other combustion sources that burn wood or propane. The 2016 AQMP identifies robust NO_X reductions from new regulations on RECLAIM facilities, non-refinery flares, commercial cooking, and residential and commercial appliances. Such combustion sources are already heavily regulated with the lowest NO_X emissions levels achievable but there are opportunities to require and accelerate replacement with cleaner zero-emission alternatives, such as residential and commercial furnaces, pool heaters, and backup power equipment. The AQMD plans to achieve such replacements through a combination of regulations and incentives. Technology-forcing regulations can drive development and commercialization of clean technologies, with future year requirements for new or existing equipment. Incentives can then accelerate deployment and enhance public acceptability of new technologies.

The 2016 AQMD also emphasizes that beginning in 2012, continued implementation of previously adopted regulations will lead to NO_X emission reductions of 68 percent by 2023 and 80 percent by 2031. With the addition of 2016 AQMP proposed regulatory measures, a 30 percent reduction of NO_X from stationary sources is expected in the 15-year period between 2008 and 2023. This is in addition to significant NO_X reductions from stationary sources achieved in the decades prior to 2008.

As previously discussed, Project emissions would be less than significant and would not exceed SCAQMD thresholds (refer to **Table 8** and **Table 9**). Localized effects of on-site Project emissions on nearby receptors were also found to be less than significant (refer to **Table 11** and **Table 12**). The LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable NAAQS or CAAQS. The LSTs were developed by the SCAQMD based on the ambient concentrations of that pollutant for each SRA and distance to the nearest sensitive receptor. The ambient air quality standards establish the levels of air quality necessary, with an adequate margin of safety, to protect public health, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. As shown above, Project-related emissions would not exceed the regional thresholds or the LSTs, and therefore would not exceed the ambient air quality standards or cause an increase in the frequency or severity of existing violations of air quality standards. Therefore, sensitive receptors would not be exposed to criteria pollutant levels in excess of the health-based ambient air quality standards.

Carbon Monoxide Hotspots

An analysis of CO "hot spots" is needed to determine whether the change in the level of service of an intersection resulting from the proposed Project would have the potential to result in exceedances of the CAAQS or NAAQS. It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when vehicles are idling at intersections. Vehicle emissions standards have become increasingly stringent in the last 20 years. Currently, the CO standard in California is a maximum of 3.4 grams per mile for passenger cars (requirements for certain vehicles are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations have steadily declined.

Accordingly, with the steadily decreasing CO emissions from vehicles, even very busy intersections do not result in exceedances of the CO standard. The 2016 AQMP is the most recent version that addresses CO concentrations. As part of the SCAQMD *CO Hotspot Analysis*, the Wilshire Boulevard/Veteran Avenue intersection, one of the most congested intersections in Southern California with approximately 100,000 average daily trips (ADT), was modeled for CO concentrations. This modeling effort identified a CO concentration high of 4.6 ppm, which is well below the 35-ppm Federal standard. The proposed Project would not produce the volume of traffic required to generate a CO hot spot in the context of SCAQMD's *CO Hotspot Analysis*. As the CO hotspots were not experienced at the Wilshire Boulevard/Veteran Avenue intersection even as it accommodates 100,000 ADT, it can be reasonably inferred that CO hotspots would not be experienced at any Project area intersections from 880 daily trips attributable to the Project (354 net daily trips). Therefore, impacts would be less than significant.

Construction-Related Diesel Particulate Matter

Project construction would generate DPM emissions from the use of off-road diesel equipment required. The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer.

The use of diesel-powered construction equipment would be temporary and episodic. The duration of exposure would be short and exhaust from construction equipment would dissipate rapidly. Current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 30, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. The closest sensitive receptors to the Project site are located approximately 10 feet from the property boundary, and further from the major Project construction areas.

California Office of Environmental Health Hazard Assessment has not identified short-term health effects from DPM. Construction is temporary and would be transient throughout the site (i.e., move from location to location) and would not generate emissions in a fixed location for extended periods of time. Construction activities would be subject to and would comply with California regulations limiting the idling of heavy-duty construction equipment to no more than five minutes to further reduce nearby sensitive receptors' exposure to temporary and variable DPM emissions. Additionally, it should be noted that the proposed Project would replace an existing industrial park which currently uses diesel vehicles (TAC sources) that idle on-site. With Project implementation TAC emissions from the existing industrial park would no longer occur. For these reasons, DPM generated by Project construction activities, in and of itself, would not expose sensitive receptors to substantial amounts of air toxics and the Project would result in a less than significant impact.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold 5.4 Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Construction

Odors that could be generated by construction activities are required to follow SCAQMD Rule 402 to prevent odor nuisances on sensitive land uses. SCAQMD Rule 402, Nuisance, 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 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.*

During construction, emissions from construction equipment, such as diesel exhaust, and volatile organic compounds from architectural coatings and paving activities may generate odors. However, these odors would be temporary, are not expected to affect a substantial number of people and would disperse rapidly. Therefore, impacts related to odors associated with the Project's construction-related activities would be less than significant.

Operational

The SCAQMD *CEQA Air Quality Handbook* identifies certain land uses as sources of odors. These land uses include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Project proposes development of residential uses, which would not involve the types of uses that would emit objectionable odors affecting substantial numbers of people. The proposed Project would not include any of the land uses that have been identified by the SCAQMD as odor sources. Therefore, the proposed Project would not create objectionable odors.

Mitigation Measures: No mitigation is required.

Level of Significance: No impact.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

The cumulative setting for air quality includes the City of El Monte and SCAB. SCAB is designated as a nonattainment area for state standards of ozone, PM_{10}, and $PM_{2.5}$. SCAB is designated as a nonattainment area for federal standards of ozone and $PM_{2.5,}$ attainment and serious maintenance for federal PM_{10} standards, and is designated as unclassified or attainment for all other pollutants. Cumulative growth in population and vehicle use could inhibit efforts to improve regional air quality and attain the ambient air quality standards.

Cumulative Impacts and Mitigation Measures

The SCAQMD's approach to assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with requirements of the FCAA and CCAA. As discussed

above, the proposed Project would be consistent with the AQMP, which is intended to bring SCAB into attainment for all criteria pollutants. Since the Project's estimated construction and operational emissions would not exceed the applicable SCAQMD daily significance thresholds that are designed to assist the region in attaining both NAAQS and CAAQS, cumulative impacts would be less than significant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

6 REFERENCES

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Appendix A

Air Quality Modeling Data

Appendix B

HRA Modeling Results



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** Lakes Environmental Software Inc.
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**
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**************************************
** AERMOD Control Pathway
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   AVERTIME 1 24 ANNUAL
   URBANOPT 9818605
   POLLUTID PM_10
   RUNORNOT RUN
   ERRORFIL "Orchard & Cypress 2.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
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SO STARTING
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** Source ID - Type - X Coord. - Y Coord. **
** ----------------------------------------------------------------------
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** DESCRSRC UPRR & Metrolink
** PREFIX
** Length of Side = 2.00
** Configuration = Adjacent
** Emission Rate = 0.002
** Vertical Dimension = 10.50
** SZINIT = 4.88
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LOCATION	L0000404	VOLUME	404861.332	3770828.785	88.66
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LOCATION	L0000406	VOLUME	404864.390	3770826.206	88.65
LOCATION	L0000407	VOLUME	404865.919	3770824.917	88.65
LOCATION	L0000408	VOLUME	404867.448	3770823.628	88.65
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LOCATION	L0000410	VOLUME	404870.506	3770821.049	88.66
LOCATION	L0000411	VOLUME	404872.035	3770819.760	88.67
LOCATION	L0000412	VOLUME	404873.564	3770818.471	88.67
LOCATION	L0000413	VOLUME	404875.093	3770817.181	88.67
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LOCATION	L0000415	VOLUME	404878.151	3770814.603	88.64
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LOCATION	L0000417	VOLUME	404881.209	3770812.024	88.61
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LOCATION	L0000420	VOLUME	404885.796	3770808.157	88.58
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LOCATION	L0000422	VOLUME	404888.854	3770805.578	88.58
LOCATION	L0000423	VOLUME	404890.383	3770804.289	88.59
LOCATION	L0000424	VOLUME	404891.912	3770803.000	88.61
LOCATION	L0000425	VOLUME	404893.441	3770801.710	88.62
LOCATION	L0000426	VOLUME	404894.970	3770800.421	88.65
LOCATION	L0000427	VOLUME	404896.499	3770799.132	88.67

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LOCATION L0000433     VOLUME   404905.673 3770791.396 88.78
LOCATION L0000434     VOLUME   404907.202 3770790.107 88.79
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LOCATION L0000475     VOLUME   404969.891 3770737.248 84.19
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LOCATION L0000521     VOLUME   405040.286 3770678.015 88.02
LOCATION L0000522     VOLUME   405041.824 3770676.737 87.97
LOCATION L0000523     VOLUME   405043.362 3770675.458 87.92
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LOCATION	L0000543	VOLUME	405074.117	3770649.882	88.30
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LOCATION	L0000563	VOLUME	405104.872	3770624.306	88.62
LOCATION	L0000564	VOLUME	405106.410	3770623.028	88.52
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LOCATION	L0000566	VOLUME	405109.485	3770620.470	88.35
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LOCATION	L0000571	VOLUME	405117.174	3770614.076	88.05

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LOCATION L0000615     VOLUME   405184.835 3770557.809 88.82
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LOCATION L0000618     VOLUME   405189.449 3770553.973 88.71
LOCATION L0000619     VOLUME   405190.986 3770552.694 88.70
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LOCATION	L0000631	VOLUME	405209.440	3770537.349	89.37
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LOCATION	L0000633	VOLUME	405212.515	3770534.791	89.47
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LOCATION	L0000635	VOLUME	405215.591	3770532.234	89.56
LOCATION	L0000636	VOLUME	405217.128	3770530.955	89.51
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LOCATION	L0000640	VOLUME	405223.279	3770525.840	89.28
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LOCATION	L0000643	VOLUME	405227.893	3770522.003	89.14
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LOCATION	L0000645	VOLUME	405230.968	3770519.446	89.04
LOCATION	L0000646	VOLUME	405232.506	3770518.167	89.00
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LOCATION	L0000662	VOLUME	405257.110	3770497.706	89.42
LOCATION	L0000663	VOLUME	405258.648	3770496.428	89.32
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LOCATION	L0000667	VOLUME	405264.799	3770491.312	89.02

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LOCATION L0000701     VOLUME   405317.018 3770447.757 87.94
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LOCATION L0000709     VOLUME   405329.272 3770437.469 89.69
LOCATION L0000710     VOLUME   405330.804 3770436.183 89.66
LOCATION L0000711     VOLUME   405332.336 3770434.897 89.56
LOCATION L0000712     VOLUME   405333.868 3770433.611 89.48
LOCATION L0000713     VOLUME   405335.399 3770432.325 89.41
LOCATION L0000714     VOLUME   405336.931 3770431.039 89.35
LOCATION L0000715     VOLUME   405338.463 3770429.753 89.30
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   SRCGROUP ALL
SO FINISHED
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** AERMOD Receptor Pathway
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RE STARTING
   INCLUDED "Orchard & Cypress 2.rou"
RE FINISHED
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** AERMOD Meteorology Pathway
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   PROFFILE PICO_V9_ADJU\PICO_v9.PFL
   SURFDATA 3166 2010
   UAIRDATA 3190 2010
   SITEDATA 99999 2010
   PROFBASE 58.0 METERS
ME FINISHED
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** AERMOD Output Pathway
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   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
   RECTABLE 24 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "Orchard & Cypress 2.AD\01H1GALL.PLT" 31
   PLOTFILE 24 ALL 1ST "Orchard & Cypress 2.AD\24H1GALL.PLT" 32
   PLOTFILE ANNUAL ALL "Orchard & Cypress 2.AD\AN00GALL.PLT" 33
   SUMMFILE "Orchard & Cypress 2.sum"
OU FINISHED
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** Project Parameters
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** PROJCTN  CoordinateSystemUTM
** DESCPTN  UTM: Universal Transverse Mercator
** DATUM    World Geodetic System 1984
** DTMRGN   Global Definition
** UNITS    m
** ZONE     11
** ZONEINX  0
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** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 1/13/2020
** File: C:\Lakes\AERMOD View\Orchard & Cypress Residential\Orchard & Cypress 2.ADI
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** AERMOD Control Pathway
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   AVERTIME 1 24 ANNUAL
   URBANOPT 9818605
   POLLUTID PM_10
   RUNORNOT RUN
   ERRORFIL "Orchard & Cypress 2.err"
CO FINISHED
**
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** AERMOD Source Pathway
**************************************
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SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = UPRR
** DESCRSRC UPRR & Metrolink
** PREFIX
** Length of Side = 2.00
** Configuration = Adjacent
** Emission Rate = 0.002
** Vertical Dimension = 10.50
** SZINIT = 4.88
** Nodes = 6
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** 404553.893, 3771089.206, 89.27, 4.50, 0.93
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** 405812.045, 3770032.159, 89.88, 4.50, 0.93
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   LOCATION L0000003     VOLUME   404234.975 3771329.127 88.50
   LOCATION L0000004     VOLUME   404236.573 3771327.925 88.53
   LOCATION L0000005     VOLUME   404238.171 3771326.722 88.60
   LOCATION L0000006     VOLUME   404239.770 3771325.520 88.68
   LOCATION L0000007     VOLUME   404241.368 3771324.318 88.74
   LOCATION L0000008     VOLUME   404242.966 3771323.115 88.81
   LOCATION L0000009     VOLUME   404244.564 3771321.913 88.87
   LOCATION L0000010     VOLUME   404246.163 3771320.711 88.93
   LOCATION L0000011     VOLUME   404247.761 3771319.508 88.99
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   LOCATION L0000021     VOLUME   404263.743 3771307.485 89.08
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   LOCATION L0000025     VOLUME   404270.136 3771302.675 88.94
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   LOCATION L0000028     VOLUME   404274.931 3771299.068 88.93
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   LOCATION L0000033     VOLUME   404282.922 3771293.057 89.06
   LOCATION L0000034     VOLUME   404284.520 3771291.854 89.11
   LOCATION L0000035     VOLUME   404286.119 3771290.652 89.17
   LOCATION L0000036     VOLUME   404287.717 3771289.450 89.23
   LOCATION L0000037     VOLUME   404289.315 3771288.247 89.24
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LOCATION	L0000055	VOLUME	404318.083	3771266.605	89.21
LOCATION	L0000056	VOLUME	404319.681	3771265.403	89.22
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LOCATION	L0000176	VOLUME	404511.470	3771121.121	89.37
LOCATION	L0000177	VOLUME	404513.068	3771119.919	89.36
LOCATION	L0000178	VOLUME	404514.666	3771118.716	89.36
LOCATION	L0000179	VOLUME	404516.265	3771117.514	89.36
LOCATION	L0000180	VOLUME	404517.863	3771116.312	89.36
LOCATION	L0000181	VOLUME	404519.461	3771115.109	89.35
LOCATION	L0000182	VOLUME	404521.059	3771113.907	89.34
LOCATION	L0000183	VOLUME	404522.658	3771112.705	89.34
LOCATION	L0000184	VOLUME	404524.256	3771111.502	89.33
LOCATION	L0000185	VOLUME	404525.854	3771110.300	89.32
LOCATION	L0000186	VOLUME	404527.452	3771109.097	89.32
LOCATION	L0000187	VOLUME	404529.050	3771107.895	89.31

LOCATION	L0000188	VOLUME	404530.649	3771106.693	89.31
LOCATION	L0000189	VOLUME	404532.247	3771105.490	89.31
LOCATION	L0000190	VOLUME	404533.845	3771104.288	89.30
LOCATION	L0000191	VOLUME	404535.443	3771103.086	89.30
LOCATION	L0000192	VOLUME	404537.042	3771101.883	89.30
LOCATION	L0000193	VOLUME	404538.640	3771100.681	89.30
LOCATION	L0000194	VOLUME	404540.238	3771099.479	89.30
LOCATION	L0000195	VOLUME	404541.836	3771098.276	89.30
LOCATION	L0000196	VOLUME	404543.435	3771097.074	89.30
LOCATION	L0000197	VOLUME	404545.033	3771095.872	89.31
LOCATION	L0000198	VOLUME	404546.631	3771094.669	89.31
LOCATION	L0000199	VOLUME	404548.229	3771093.467	89.32
LOCATION	L0000200	VOLUME	404549.828	3771092.265	89.32
LOCATION	L0000201	VOLUME	404551.426	3771091.062	89.31
LOCATION	L0000202	VOLUME	404553.024	3771089.860	89.30
LOCATION	L0000203	VOLUME	404554.589	3771088.616	89.29
LOCATION	L0000204	VOLUME	404556.114	3771087.322	89.28
LOCATION	L0000205	VOLUME	404557.639	3771086.028	89.27
LOCATION	L0000206	VOLUME	404559.164	3771084.734	89.27
LOCATION	L0000207	VOLUME	404560.689	3771083.440	89.26
LOCATION	L0000208	VOLUME	404562.214	3771082.146	89.25
LOCATION	L0000209	VOLUME	404563.739	3771080.852	89.25
LOCATION	L0000210	VOLUME	404565.264	3771079.558	89.24
LOCATION	L0000211	VOLUME	404566.788	3771078.264	89.24
LOCATION	L0000212	VOLUME	404568.313	3771076.970	89.22
LOCATION	L0000213	VOLUME	404569.838	3771075.675	89.18
LOCATION	L0000214	VOLUME	404571.363	3771074.381	89.15
LOCATION	L0000215	VOLUME	404572.888	3771073.087	89.13
LOCATION	L0000216	VOLUME	404574.413	3771071.793	89.11
LOCATION	L0000217	VOLUME	404575.938	3771070.499	89.10
LOCATION	L0000218	VOLUME	404577.463	3771069.205	89.10
LOCATION	L0000219	VOLUME	404578.988	3771067.911	89.10
LOCATION	L0000220	VOLUME	404580.513	3771066.617	89.11
LOCATION	L0000221	VOLUME	404582.038	3771065.323	89.12
LOCATION	L0000222	VOLUME	404583.563	3771064.029	89.14
LOCATION	L0000223	VOLUME	404585.088	3771062.735	89.17
LOCATION	L0000224	VOLUME	404586.613	3771061.441	89.20
LOCATION	L0000225	VOLUME	404588.138	3771060.147	89.23
LOCATION	L0000226	VOLUME	404589.663	3771058.853	89.26
LOCATION	L0000227	VOLUME	404591.188	3771057.559	89.31
LOCATION	L0000228	VOLUME	404592.713	3771056.265	89.35
LOCATION	L0000229	VOLUME	404594.238	3771054.971	89.33
LOCATION	L0000230	VOLUME	404595.763	3771053.677	89.30
LOCATION	L0000231	VOLUME	404597.288	3771052.383	89.27
LOCATION	L0000232	VOLUME	404598.813	3771051.089	89.24
LOCATION	L0000233	VOLUME	404600.338	3771049.795	89.21
LOCATION	L0000234	VOLUME	404601.863	3771048.501	89.18
LOCATION	L0000235	VOLUME	404603.387	3771047.207	89.16

LOCATION	L0000236	VOLUME	404604.912	3771045.913	89.13
LOCATION	L0000237	VOLUME	404606.437	3771044.619	89.10
LOCATION	L0000238	VOLUME	404607.962	3771043.325	89.08
LOCATION	L0000239	VOLUME	404609.487	3771042.031	89.05
LOCATION	L0000240	VOLUME	404611.012	3771040.737	89.03
LOCATION	L0000241	VOLUME	404612.537	3771039.443	89.01
LOCATION	L0000242	VOLUME	404614.062	3771038.149	88.98
LOCATION	L0000243	VOLUME	404615.587	3771036.855	88.96
LOCATION	L0000244	VOLUME	404617.112	3771035.561	88.94
LOCATION	L0000245	VOLUME	404618.637	3771034.267	88.92
LOCATION	L0000246	VOLUME	404620.162	3771032.973	88.90
LOCATION	L0000247	VOLUME	404621.687	3771031.679	88.87
LOCATION	L0000248	VOLUME	404623.212	3771030.385	88.84
LOCATION	L0000249	VOLUME	404624.737	3771029.091	88.81
LOCATION	L0000250	VOLUME	404626.262	3771027.797	88.79
LOCATION	L0000251	VOLUME	404627.787	3771026.503	88.76
LOCATION	L0000252	VOLUME	404629.312	3771025.209	88.74
LOCATION	L0000253	VOLUME	404630.837	3771023.914	88.72
LOCATION	L0000254	VOLUME	404632.362	3771022.620	88.70
LOCATION	L0000255	VOLUME	404633.887	3771021.326	88.68
LOCATION	L0000256	VOLUME	404635.412	3771020.032	88.67
LOCATION	L0000257	VOLUME	404636.937	3771018.738	88.65
LOCATION	L0000258	VOLUME	404638.462	3771017.444	88.64
LOCATION	L0000259	VOLUME	404639.987	3771016.150	88.64
LOCATION	L0000260	VOLUME	404641.511	3771014.856	88.63
LOCATION	L0000261	VOLUME	404643.036	3771013.562	88.63
LOCATION	L0000262	VOLUME	404644.561	3771012.268	88.65
LOCATION	L0000263	VOLUME	404646.086	3771010.974	88.69
LOCATION	L0000264	VOLUME	404647.611	3771009.680	88.74
LOCATION	L0000265	VOLUME	404649.136	3771008.386	88.78
LOCATION	L0000266	VOLUME	404650.661	3771007.092	88.83
LOCATION	L0000267	VOLUME	404652.186	3771005.798	88.87
LOCATION	L0000268	VOLUME	404653.711	3771004.504	88.92
LOCATION	L0000269	VOLUME	404655.236	3771003.210	88.97
LOCATION	L0000270	VOLUME	404656.761	3771001.916	89.01
LOCATION	L0000271	VOLUME	404658.286	3771000.622	89.06
LOCATION	L0000272	VOLUME	404659.811	3770999.328	89.08
LOCATION	L0000273	VOLUME	404661.336	3770998.034	89.04
LOCATION	L0000274	VOLUME	404662.861	3770996.740	88.99
LOCATION	L0000275	VOLUME	404664.386	3770995.446	88.94
LOCATION	L0000276	VOLUME	404665.911	3770994.152	88.88
LOCATION	L0000277	VOLUME	404667.436	3770992.858	88.83
LOCATION	L0000278	VOLUME	404668.961	3770991.564	88.77
LOCATION	L0000279	VOLUME	404670.486	3770990.270	88.69
LOCATION	L0000280	VOLUME	404672.011	3770988.976	88.63
LOCATION	L0000281	VOLUME	404673.536	3770987.682	88.57
LOCATION	L0000282	VOLUME	404675.061	3770986.388	88.52
LOCATION	L0000283	VOLUME	404676.586	3770985.094	88.49

LOCATION	L0000284	VOLUME	404678.110	3770983.800	88.46
LOCATION	L0000285	VOLUME	404679.635	3770982.506	88.44
LOCATION	L0000286	VOLUME	404681.160	3770981.212	88.44
LOCATION	L0000287	VOLUME	404682.685	3770979.918	88.44
LOCATION	L0000288	VOLUME	404684.210	3770978.624	88.45
LOCATION	L0000289	VOLUME	404685.735	3770977.330	88.48
LOCATION	L0000290	VOLUME	404687.260	3770976.036	88.51
LOCATION	L0000291	VOLUME	404688.785	3770974.742	88.56
LOCATION	L0000292	VOLUME	404690.310	3770973.448	88.61
LOCATION	L0000293	VOLUME	404691.835	3770972.154	88.67
LOCATION	L0000294	VOLUME	404693.360	3770970.859	88.75
LOCATION	L0000295	VOLUME	404694.885	3770969.565	88.81
LOCATION	L0000296	VOLUME	404696.410	3770968.271	88.78
LOCATION	L0000297	VOLUME	404697.935	3770966.977	88.70
LOCATION	L0000298	VOLUME	404699.460	3770965.683	88.63
LOCATION	L0000299	VOLUME	404700.985	3770964.389	88.57
LOCATION	L0000300	VOLUME	404702.510	3770963.095	88.52
LOCATION	L0000301	VOLUME	404704.035	3770961.801	88.49
LOCATION	L0000302	VOLUME	404705.560	3770960.507	88.46
LOCATION	L0000303	VOLUME	404707.085	3770959.213	88.44
LOCATION	L0000304	VOLUME	404708.610	3770957.919	88.43
LOCATION	L0000305	VOLUME	404710.135	3770956.625	88.43
LOCATION	L0000306	VOLUME	404711.660	3770955.331	88.45
LOCATION	L0000307	VOLUME	404713.185	3770954.037	88.47
LOCATION	L0000308	VOLUME	404714.709	3770952.743	88.50
LOCATION	L0000309	VOLUME	404716.234	3770951.449	88.55
LOCATION	L0000310	VOLUME	404717.759	3770950.155	88.60
LOCATION	L0000311	VOLUME	404719.284	3770948.861	88.66
LOCATION	L0000312	VOLUME	404720.809	3770947.567	88.72
LOCATION	L0000313	VOLUME	404722.334	3770946.273	88.75
LOCATION	L0000314	VOLUME	404723.859	3770944.979	88.79
LOCATION	L0000315	VOLUME	404725.384	3770943.685	88.82
LOCATION	L0000316	VOLUME	404726.909	3770942.391	88.84
LOCATION	L0000317	VOLUME	404728.434	3770941.097	88.87
LOCATION	L0000318	VOLUME	404729.959	3770939.803	88.89
LOCATION	L0000319	VOLUME	404731.484	3770938.509	88.91
LOCATION	L0000320	VOLUME	404733.009	3770937.215	88.92
LOCATION	L0000321	VOLUME	404734.534	3770935.921	88.89
LOCATION	L0000322	VOLUME	404736.059	3770934.627	88.85
LOCATION	L0000323	VOLUME	404737.584	3770933.333	88.81
LOCATION	L0000324	VOLUME	404739.109	3770932.039	88.78
LOCATION	L0000325	VOLUME	404740.634	3770930.745	88.74
LOCATION	L0000326	VOLUME	404742.159	3770929.451	88.71
LOCATION	L0000327	VOLUME	404743.684	3770928.157	88.68
LOCATION	L0000328	VOLUME	404745.209	3770926.863	88.64
LOCATION	L0000329	VOLUME	404746.734	3770925.569	88.63
LOCATION	L0000330	VOLUME	404748.259	3770924.275	88.62
LOCATION	L0000331	VOLUME	404749.784	3770922.981	88.62

LOCATION	L0000332	VOLUME	404751.309	3770921.687	88.63
LOCATION	L0000333	VOLUME	404752.833	3770920.393	88.63
LOCATION	L0000334	VOLUME	404754.358	3770919.098	88.65
LOCATION	L0000335	VOLUME	404755.883	3770917.804	88.66
LOCATION	L0000336	VOLUME	404757.408	3770916.510	88.68
LOCATION	L0000337	VOLUME	404758.933	3770915.216	88.71
LOCATION	L0000338	VOLUME	404760.458	3770913.922	88.74
LOCATION	L0000339	VOLUME	404761.983	3770912.628	88.78
LOCATION	L0000340	VOLUME	404763.508	3770911.334	88.82
LOCATION	L0000341	VOLUME	404765.033	3770910.040	88.86
LOCATION	L0000342	VOLUME	404766.558	3770908.746	88.91
LOCATION	L0000343	VOLUME	404768.083	3770907.452	88.96
LOCATION	L0000344	VOLUME	404769.608	3770906.158	89.02
LOCATION	L0000345	VOLUME	404771.133	3770904.864	89.03
LOCATION	L0000346	VOLUME	404772.658	3770903.570	88.99
LOCATION	L0000347	VOLUME	404774.183	3770902.276	88.95
LOCATION	L0000348	VOLUME	404775.708	3770900.983	88.92
LOCATION	L0000349	VOLUME	404777.237	3770899.693	88.89
LOCATION	L0000350	VOLUME	404778.766	3770898.404	88.87
LOCATION	L0000351	VOLUME	404780.295	3770897.115	88.84
LOCATION	L0000352	VOLUME	404781.824	3770895.826	88.83
LOCATION	L0000353	VOLUME	404783.353	3770894.536	88.81
LOCATION	L0000354	VOLUME	404784.882	3770893.247	88.80
LOCATION	L0000355	VOLUME	404786.411	3770891.958	88.80
LOCATION	L0000356	VOLUME	404787.940	3770890.669	88.80
LOCATION	L0000357	VOLUME	404789.469	3770889.379	88.80
LOCATION	L0000358	VOLUME	404790.998	3770888.090	88.80
LOCATION	L0000359	VOLUME	404792.527	3770886.801	88.81
LOCATION	L0000360	VOLUME	404794.056	3770885.512	88.82
LOCATION	L0000361	VOLUME	404795.585	3770884.222	88.84
LOCATION	L0000362	VOLUME	404797.114	3770882.933	88.85
LOCATION	L0000363	VOLUME	404798.643	3770881.644	88.85
LOCATION	L0000364	VOLUME	404800.172	3770880.355	88.84
LOCATION	L0000365	VOLUME	404801.701	3770879.065	88.84
LOCATION	L0000366	VOLUME	404803.230	3770877.776	88.84
LOCATION	L0000367	VOLUME	404804.759	3770876.487	88.84
LOCATION	L0000368	VOLUME	404806.288	3770875.198	88.84
LOCATION	L0000369	VOLUME	404807.817	3770873.908	88.83
LOCATION	L0000370	VOLUME	404809.346	3770872.619	88.82
LOCATION	L0000371	VOLUME	404810.875	3770871.330	88.81
LOCATION	L0000372	VOLUME	404812.404	3770870.041	88.81
LOCATION	L0000373	VOLUME	404813.933	3770868.751	88.81
LOCATION	L0000374	VOLUME	404815.462	3770867.462	88.81
LOCATION	L0000375	VOLUME	404816.991	3770866.173	88.82
LOCATION	L0000376	VOLUME	404818.520	3770864.884	88.82
LOCATION	L0000377	VOLUME	404820.049	3770863.594	88.83
LOCATION	L0000378	VOLUME	404821.578	3770862.305	88.84
LOCATION	L0000379	VOLUME	404823.107	3770861.016	88.84

LOCATION	L0000380	VOLUME	404824.636	3770859.727	88.84
LOCATION	L0000381	VOLUME	404826.165	3770858.437	88.84
LOCATION	L0000382	VOLUME	404827.694	3770857.148	88.84
LOCATION	L0000383	VOLUME	404829.223	3770855.859	88.84
LOCATION	L0000384	VOLUME	404830.752	3770854.570	88.84
LOCATION	L0000385	VOLUME	404832.281	3770853.280	88.84
LOCATION	L0000386	VOLUME	404833.810	3770851.991	88.84
LOCATION	L0000387	VOLUME	404835.339	3770850.702	88.84
LOCATION	L0000388	VOLUME	404836.868	3770849.413	88.84
LOCATION	L0000389	VOLUME	404838.397	3770848.123	88.84
LOCATION	L0000390	VOLUME	404839.926	3770846.834	88.84
LOCATION	L0000391	VOLUME	404841.455	3770845.545	88.84
LOCATION	L0000392	VOLUME	404842.984	3770844.256	88.84
LOCATION	L0000393	VOLUME	404844.513	3770842.966	88.83
LOCATION	L0000394	VOLUME	404846.042	3770841.677	88.82
LOCATION	L0000395	VOLUME	404847.571	3770840.388	88.80
LOCATION	L0000396	VOLUME	404849.100	3770839.099	88.77
LOCATION	L0000397	VOLUME	404850.629	3770837.809	88.75
LOCATION	L0000398	VOLUME	404852.158	3770836.520	88.73
LOCATION	L0000399	VOLUME	404853.687	3770835.231	88.72
LOCATION	L0000400	VOLUME	404855.216	3770833.942	88.70
LOCATION	L0000401	VOLUME	404856.745	3770832.652	88.69
LOCATION	L0000402	VOLUME	404858.274	3770831.363	88.68
LOCATION	L0000403	VOLUME	404859.803	3770830.074	88.67
LOCATION	L0000404	VOLUME	404861.332	3770828.785	88.66
LOCATION	L0000405	VOLUME	404862.861	3770827.495	88.66
LOCATION	L0000406	VOLUME	404864.390	3770826.206	88.65
LOCATION	L0000407	VOLUME	404865.919	3770824.917	88.65
LOCATION	L0000408	VOLUME	404867.448	3770823.628	88.65
LOCATION	L0000409	VOLUME	404868.977	3770822.338	88.66
LOCATION	L0000410	VOLUME	404870.506	3770821.049	88.66
LOCATION	L0000411	VOLUME	404872.035	3770819.760	88.67
LOCATION	L0000412	VOLUME	404873.564	3770818.471	88.67
LOCATION	L0000413	VOLUME	404875.093	3770817.181	88.67
LOCATION	L0000414	VOLUME	404876.622	3770815.892	88.66
LOCATION	L0000415	VOLUME	404878.151	3770814.603	88.64
LOCATION	L0000416	VOLUME	404879.680	3770813.314	88.63
LOCATION	L0000417	VOLUME	404881.209	3770812.024	88.61
LOCATION	L0000418	VOLUME	404882.738	3770810.735	88.60
LOCATION	L0000419	VOLUME	404884.267	3770809.446	88.59
LOCATION	L0000420	VOLUME	404885.796	3770808.157	88.58
LOCATION	L0000421	VOLUME	404887.325	3770806.867	88.58
LOCATION	L0000422	VOLUME	404888.854	3770805.578	88.58
LOCATION	L0000423	VOLUME	404890.383	3770804.289	88.59
LOCATION	L0000424	VOLUME	404891.912	3770803.000	88.61
LOCATION	L0000425	VOLUME	404893.441	3770801.710	88.62
LOCATION	L0000426	VOLUME	404894.970	3770800.421	88.65
LOCATION	L0000427	VOLUME	404896.499	3770799.132	88.67

LOCATION	L0000428	VOLUME	404898.028	3770797.843	88.70
LOCATION	L0000429	VOLUME	404899.557	3770796.553	88.72
LOCATION	L0000430	VOLUME	404901.086	3770795.264	88.74
LOCATION	L0000431	VOLUME	404902.615	3770793.975	88.75
LOCATION	L0000432	VOLUME	404904.144	3770792.686	88.77
LOCATION	L0000433	VOLUME	404905.673	3770791.396	88.78
LOCATION	L0000434	VOLUME	404907.202	3770790.107	88.79
LOCATION	L0000435	VOLUME	404908.731	3770788.818	88.80
LOCATION	L0000436	VOLUME	404910.260	3770787.529	88.81
LOCATION	L0000437	VOLUME	404911.789	3770786.239	88.81
LOCATION	L0000438	VOLUME	404913.318	3770784.950	88.82
LOCATION	L0000439	VOLUME	404914.847	3770783.661	88.82
LOCATION	L0000440	VOLUME	404916.376	3770782.372	88.83
LOCATION	L0000441	VOLUME	404917.905	3770781.082	88.72
LOCATION	L0000442	VOLUME	404919.434	3770779.793	88.41
LOCATION	L0000443	VOLUME	404920.963	3770778.504	88.10
LOCATION	L0000444	VOLUME	404922.492	3770777.215	87.78
LOCATION	L0000445	VOLUME	404924.021	3770775.925	87.45
LOCATION	L0000446	VOLUME	404925.550	3770774.636	87.11
LOCATION	L0000447	VOLUME	404927.079	3770773.347	86.77
LOCATION	L0000448	VOLUME	404928.608	3770772.058	86.43
LOCATION	L0000449	VOLUME	404930.137	3770770.768	86.10
LOCATION	L0000450	VOLUME	404931.666	3770769.479	85.76
LOCATION	L0000451	VOLUME	404933.195	3770768.190	85.42
LOCATION	L0000452	VOLUME	404934.724	3770766.901	85.09
LOCATION	L0000453	VOLUME	404936.253	3770765.611	84.75
LOCATION	L0000454	VOLUME	404937.782	3770764.322	84.42
LOCATION	L0000455	VOLUME	404939.311	3770763.033	84.09
LOCATION	L0000456	VOLUME	404940.840	3770761.744	83.76
LOCATION	L0000457	VOLUME	404942.369	3770760.454	83.43
LOCATION	L0000458	VOLUME	404943.898	3770759.165	83.10
LOCATION	L0000459	VOLUME	404945.427	3770757.876	82.77
LOCATION	L0000460	VOLUME	404946.956	3770756.587	82.44
LOCATION	L0000461	VOLUME	404948.485	3770755.297	82.12
LOCATION	L0000462	VOLUME	404950.014	3770754.008	81.84
LOCATION	L0000463	VOLUME	404951.543	3770752.719	81.58
LOCATION	L0000464	VOLUME	404953.072	3770751.430	81.32
LOCATION	L0000465	VOLUME	404954.601	3770750.140	81.16
LOCATION	L0000466	VOLUME	404956.130	3770748.851	81.47
LOCATION	L0000467	VOLUME	404957.659	3770747.562	81.77
LOCATION	L0000468	VOLUME	404959.188	3770746.273	82.08
LOCATION	L0000469	VOLUME	404960.717	3770744.983	82.38
LOCATION	L0000470	VOLUME	404962.246	3770743.694	82.68
LOCATION	L0000471	VOLUME	404963.775	3770742.405	82.99
LOCATION	L0000472	VOLUME	404965.304	3770741.116	83.29
LOCATION	L0000473	VOLUME	404966.833	3770739.826	83.59
LOCATION	L0000474	VOLUME	404968.362	3770738.537	83.89
LOCATION	L0000475	VOLUME	404969.891	3770737.248	84.19

LOCATION	L0000476	VOLUME	404971.420	3770735.959	84.49
LOCATION	L0000477	VOLUME	404972.949	3770734.669	84.79
LOCATION	L0000478	VOLUME	404974.478	3770733.380	85.10
LOCATION	L0000479	VOLUME	404976.007	3770732.091	85.42
LOCATION	L0000480	VOLUME	404977.536	3770730.802	85.73
LOCATION	L0000481	VOLUME	404979.065	3770729.512	86.05
LOCATION	L0000482	VOLUME	404980.594	3770728.223	86.36
LOCATION	L0000483	VOLUME	404982.123	3770726.934	86.67
LOCATION	L0000484	VOLUME	404983.652	3770725.645	86.97
LOCATION	L0000485	VOLUME	404985.181	3770724.355	87.28
LOCATION	L0000486	VOLUME	404986.710	3770723.066	87.57
LOCATION	L0000487	VOLUME	404988.239	3770721.777	87.87
LOCATION	L0000488	VOLUME	404989.768	3770720.488	88.16
LOCATION	L0000489	VOLUME	404991.297	3770719.198	88.45
LOCATION	L0000490	VOLUME	404992.826	3770717.909	88.46
LOCATION	L0000491	VOLUME	404994.355	3770716.620	88.46
LOCATION	L0000492	VOLUME	404995.884	3770715.331	88.47
LOCATION	L0000493	VOLUME	404997.413	3770714.041	88.48
LOCATION	L0000494	VOLUME	404998.942	3770712.752	88.48
LOCATION	L0000495	VOLUME	405000.471	3770711.463	88.44
LOCATION	L0000496	VOLUME	405002.000	3770710.174	88.38
LOCATION	L0000497	VOLUME	405003.529	3770708.884	88.33
LOCATION	L0000498	VOLUME	405005.058	3770707.595	88.29
LOCATION	L0000499	VOLUME	405006.587	3770706.306	88.25
LOCATION	L0000500	VOLUME	405008.116	3770705.017	88.23
LOCATION	L0000501	VOLUME	405009.645	3770703.727	88.22
LOCATION	L0000502	VOLUME	405011.174	3770702.438	88.21
LOCATION	L0000503	VOLUME	405012.703	3770701.149	88.22
LOCATION	L0000504	VOLUME	405014.232	3770699.860	88.24
LOCATION	L0000505	VOLUME	405015.761	3770698.570	88.26
LOCATION	L0000506	VOLUME	405017.290	3770697.281	88.30
LOCATION	L0000507	VOLUME	405018.819	3770695.992	88.34
LOCATION	L0000508	VOLUME	405020.348	3770694.703	88.40
LOCATION	L0000509	VOLUME	405021.877	3770693.413	88.46
LOCATION	L0000510	VOLUME	405023.406	3770692.124	88.54
LOCATION	L0000511	VOLUME	405024.935	3770690.835	88.62
LOCATION	L0000512	VOLUME	405026.464	3770689.546	88.63
LOCATION	L0000513	VOLUME	405027.993	3770688.256	88.64
LOCATION	L0000514	VOLUME	405029.522	3770686.967	88.56
LOCATION	L0000515	VOLUME	405031.060	3770685.688	88.47
LOCATION	L0000516	VOLUME	405032.597	3770684.409	88.38
LOCATION	L0000517	VOLUME	405034.135	3770683.131	88.30
LOCATION	L0000518	VOLUME	405035.673	3770681.852	88.22
LOCATION	L0000519	VOLUME	405037.211	3770680.573	88.15
LOCATION	L0000520	VOLUME	405038.748	3770679.294	88.09
LOCATION	L0000521	VOLUME	405040.286	3770678.015	88.02
LOCATION	L0000522	VOLUME	405041.824	3770676.737	87.97
LOCATION	L0000523	VOLUME	405043.362	3770675.458	87.92

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LOCATION L0000524     VOLUME   405044.899 3770674.179 87.87
LOCATION L0000525     VOLUME   405046.437 3770672.900 87.83
LOCATION L0000526     VOLUME   405047.975 3770671.622 87.80
LOCATION L0000527     VOLUME   405049.513 3770670.343 87.77
LOCATION L0000528     VOLUME   405051.050 3770669.064 87.76
LOCATION L0000529     VOLUME   405052.588 3770667.785 87.78
LOCATION L0000530     VOLUME   405054.126 3770666.506 87.81
LOCATION L0000531     VOLUME   405055.664 3770665.228 87.85
LOCATION L0000532     VOLUME   405057.201 3770663.949 87.88
LOCATION L0000533     VOLUME   405058.739 3770662.670 87.92
LOCATION L0000534     VOLUME   405060.277 3770661.391 87.97
LOCATION L0000535     VOLUME   405061.815 3770660.112 88.02
LOCATION L0000536     VOLUME   405063.352 3770658.834 88.07
LOCATION L0000537     VOLUME   405064.890 3770657.555 88.13
LOCATION L0000538     VOLUME   405066.428 3770656.276 88.18
LOCATION L0000539     VOLUME   405067.966 3770654.997 88.21
LOCATION L0000540     VOLUME   405069.504 3770653.719 88.24
LOCATION L0000541     VOLUME   405071.041 3770652.440 88.27
LOCATION L0000542     VOLUME   405072.579 3770651.161 88.29
LOCATION L0000543     VOLUME   405074.117 3770649.882 88.30
LOCATION L0000544     VOLUME   405075.655 3770648.603 88.32
LOCATION L0000545     VOLUME   405077.192 3770647.325 88.28
LOCATION L0000546     VOLUME   405078.730 3770646.046 88.26
LOCATION L0000547     VOLUME   405080.268 3770644.767 88.24
LOCATION L0000548     VOLUME   405081.806 3770643.488 88.23
LOCATION L0000549     VOLUME   405083.343 3770642.209 88.22
LOCATION L0000550     VOLUME   405084.881 3770640.931 88.23
LOCATION L0000551     VOLUME   405086.419 3770639.652 88.24
LOCATION L0000552     VOLUME   405087.957 3770638.373 88.26
LOCATION L0000553     VOLUME   405089.494 3770637.094 88.29
LOCATION L0000554     VOLUME   405091.032 3770635.815 88.33
LOCATION L0000555     VOLUME   405092.570 3770634.537 88.37
LOCATION L0000556     VOLUME   405094.108 3770633.258 88.43
LOCATION L0000557     VOLUME   405095.645 3770631.979 88.49
LOCATION L0000558     VOLUME   405097.183 3770630.700 88.56
LOCATION L0000559     VOLUME   405098.721 3770629.422 88.63
LOCATION L0000560     VOLUME   405100.259 3770628.143 88.72
LOCATION L0000561     VOLUME   405101.796 3770626.864 88.76
LOCATION L0000562     VOLUME   405103.334 3770625.585 88.72
LOCATION L0000563     VOLUME   405104.872 3770624.306 88.62
LOCATION L0000564     VOLUME   405106.410 3770623.028 88.52
LOCATION L0000565     VOLUME   405107.947 3770621.749 88.43
LOCATION L0000566     VOLUME   405109.485 3770620.470 88.35
LOCATION L0000567     VOLUME   405111.023 3770619.191 88.27
LOCATION L0000568     VOLUME   405112.561 3770617.912 88.21
LOCATION L0000569     VOLUME   405114.099 3770616.634 88.15
LOCATION L0000570     VOLUME   405115.636 3770615.355 88.09
LOCATION L0000571     VOLUME   405117.174 3770614.076 88.05
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LOCATION	L0000573	VOLUME	405120.250	3770611.518	87.98
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LOCATION	L0000575	VOLUME	405123.325	3770608.961	87.94
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LOCATION	L0000577	VOLUME	405126.401	3770606.403	87.93
LOCATION	L0000578	VOLUME	405127.938	3770605.125	87.98
LOCATION	L0000579	VOLUME	405129.476	3770603.846	88.04
LOCATION	L0000580	VOLUME	405131.014	3770602.567	88.10
LOCATION	L0000581	VOLUME	405132.552	3770601.288	88.16
LOCATION	L0000582	VOLUME	405134.089	3770600.009	88.22
LOCATION	L0000583	VOLUME	405135.627	3770598.731	88.28
LOCATION	L0000584	VOLUME	405137.165	3770597.452	88.33
LOCATION	L0000585	VOLUME	405138.703	3770596.173	88.39
LOCATION	L0000586	VOLUME	405140.240	3770594.894	88.45
LOCATION	L0000587	VOLUME	405141.778	3770593.615	88.47
LOCATION	L0000588	VOLUME	405143.316	3770592.337	88.48
LOCATION	L0000589	VOLUME	405144.854	3770591.058	88.48
LOCATION	L0000590	VOLUME	405146.391	3770589.779	88.48
LOCATION	L0000591	VOLUME	405147.929	3770588.500	88.48
LOCATION	L0000592	VOLUME	405149.467	3770587.222	88.48
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LOCATION	L0000596	VOLUME	405155.618	3770582.106	88.38
LOCATION	L0000597	VOLUME	405157.156	3770580.828	88.36
LOCATION	L0000598	VOLUME	405158.693	3770579.549	88.36
LOCATION	L0000599	VOLUME	405160.231	3770578.270	88.36
LOCATION	L0000600	VOLUME	405161.769	3770576.991	88.38
LOCATION	L0000601	VOLUME	405163.307	3770575.712	88.41
LOCATION	L0000602	VOLUME	405164.845	3770574.434	88.45
LOCATION	L0000603	VOLUME	405166.382	3770573.155	88.50
LOCATION	L0000604	VOLUME	405167.920	3770571.876	88.56
LOCATION	L0000605	VOLUME	405169.458	3770570.597	88.64
LOCATION	L0000606	VOLUME	405170.996	3770569.318	88.72
LOCATION	L0000607	VOLUME	405172.533	3770568.040	88.82
LOCATION	L0000608	VOLUME	405174.071	3770566.761	88.93
LOCATION	L0000609	VOLUME	405175.609	3770565.482	89.05
LOCATION	L0000610	VOLUME	405177.147	3770564.203	89.19
LOCATION	L0000611	VOLUME	405178.684	3770562.925	89.18
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LOCATION	L0000613	VOLUME	405181.760	3770560.367	88.97
LOCATION	L0000614	VOLUME	405183.298	3770559.088	88.89
LOCATION	L0000615	VOLUME	405184.835	3770557.809	88.82
LOCATION	L0000616	VOLUME	405186.373	3770556.531	88.77
LOCATION	L0000617	VOLUME	405187.911	3770555.252	88.73
LOCATION	L0000618	VOLUME	405189.449	3770553.973	88.71
LOCATION	L0000619	VOLUME	405190.986	3770552.694	88.70

LOCATION	L0000620	VOLUME	405192.524	3770551.415	88.71
LOCATION	L0000621	VOLUME	405194.062	3770550.137	88.73
LOCATION	L0000622	VOLUME	405195.600	3770548.858	88.77
LOCATION	L0000623	VOLUME	405197.137	3770547.579	88.82
LOCATION	L0000624	VOLUME	405198.675	3770546.300	88.89
LOCATION	L0000625	VOLUME	405200.213	3770545.021	88.97
LOCATION	L0000626	VOLUME	405201.751	3770543.743	89.06
LOCATION	L0000627	VOLUME	405203.288	3770542.464	89.16
LOCATION	L0000628	VOLUME	405204.826	3770541.185	89.21
LOCATION	L0000629	VOLUME	405206.364	3770539.906	89.26
LOCATION	L0000630	VOLUME	405207.902	3770538.628	89.31
LOCATION	L0000631	VOLUME	405209.440	3770537.349	89.37
LOCATION	L0000632	VOLUME	405210.977	3770536.070	89.42
LOCATION	L0000633	VOLUME	405212.515	3770534.791	89.47
LOCATION	L0000634	VOLUME	405214.053	3770533.512	89.52
LOCATION	L0000635	VOLUME	405215.591	3770532.234	89.56
LOCATION	L0000636	VOLUME	405217.128	3770530.955	89.51
LOCATION	L0000637	VOLUME	405218.666	3770529.676	89.45
LOCATION	L0000638	VOLUME	405220.204	3770528.397	89.39
LOCATION	L0000639	VOLUME	405221.742	3770527.118	89.34
LOCATION	L0000640	VOLUME	405223.279	3770525.840	89.28
LOCATION	L0000641	VOLUME	405224.817	3770524.561	89.23
LOCATION	L0000642	VOLUME	405226.355	3770523.282	89.18
LOCATION	L0000643	VOLUME	405227.893	3770522.003	89.14
LOCATION	L0000644	VOLUME	405229.430	3770520.725	89.08
LOCATION	L0000645	VOLUME	405230.968	3770519.446	89.04
LOCATION	L0000646	VOLUME	405232.506	3770518.167	89.00
LOCATION	L0000647	VOLUME	405234.044	3770516.888	88.97
LOCATION	L0000648	VOLUME	405235.581	3770515.609	88.96
LOCATION	L0000649	VOLUME	405237.119	3770514.331	88.96
LOCATION	L0000650	VOLUME	405238.657	3770513.052	88.97
LOCATION	L0000651	VOLUME	405240.195	3770511.773	88.99
LOCATION	L0000652	VOLUME	405241.732	3770510.494	89.03
LOCATION	L0000653	VOLUME	405243.270	3770509.215	89.07
LOCATION	L0000654	VOLUME	405244.808	3770507.937	89.13
LOCATION	L0000655	VOLUME	405246.346	3770506.658	89.20
LOCATION	L0000656	VOLUME	405247.883	3770505.379	89.29
LOCATION	L0000657	VOLUME	405249.421	3770504.100	89.38
LOCATION	L0000658	VOLUME	405250.959	3770502.821	89.49
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LOCATION	L0000661	VOLUME	405255.572	3770498.985	89.53
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LOCATION	L0000664	VOLUME	405260.186	3770495.149	89.23
LOCATION	L0000665	VOLUME	405261.723	3770493.870	89.15
LOCATION	L0000666	VOLUME	405263.261	3770492.591	89.08
LOCATION	L0000667	VOLUME	405264.799	3770491.312	89.02

LOCATION	L0000668	VOLUME	405266.337	3770490.034	88.97
LOCATION	L0000669	VOLUME	405267.874	3770488.755	88.93
LOCATION	L0000670	VOLUME	405269.412	3770487.476	88.90
LOCATION	L0000671	VOLUME	405270.950	3770486.197	88.88
LOCATION	L0000672	VOLUME	405272.488	3770484.918	88.87
LOCATION	L0000673	VOLUME	405274.025	3770483.640	88.87
LOCATION	L0000674	VOLUME	405275.563	3770482.361	88.88
LOCATION	L0000675	VOLUME	405277.101	3770481.082	88.90
LOCATION	L0000676	VOLUME	405278.639	3770479.803	88.93
LOCATION	L0000677	VOLUME	405280.176	3770478.524	88.81
LOCATION	L0000678	VOLUME	405281.714	3770477.246	88.59
LOCATION	L0000679	VOLUME	405283.252	3770475.967	88.34
LOCATION	L0000680	VOLUME	405284.790	3770474.688	88.07
LOCATION	L0000681	VOLUME	405286.327	3770473.409	87.77
LOCATION	L0000682	VOLUME	405287.865	3770472.131	87.45
LOCATION	L0000683	VOLUME	405289.403	3770470.852	87.10
LOCATION	L0000684	VOLUME	405290.941	3770469.573	86.74
LOCATION	L0000685	VOLUME	405292.478	3770468.294	86.43
LOCATION	L0000686	VOLUME	405294.016	3770467.015	86.16
LOCATION	L0000687	VOLUME	405295.554	3770465.737	85.93
LOCATION	L0000688	VOLUME	405297.092	3770464.458	85.75
LOCATION	L0000689	VOLUME	405298.629	3770463.179	85.61
LOCATION	L0000690	VOLUME	405300.167	3770461.900	85.52
LOCATION	L0000691	VOLUME	405301.701	3770460.616	85.47
LOCATION	L0000692	VOLUME	405303.233	3770459.330	85.46
LOCATION	L0000693	VOLUME	405304.764	3770458.044	85.52
LOCATION	L0000694	VOLUME	405306.296	3770456.758	85.85
LOCATION	L0000695	VOLUME	405307.828	3770455.472	86.18
LOCATION	L0000696	VOLUME	405309.360	3770454.186	86.49
LOCATION	L0000697	VOLUME	405310.891	3770452.901	86.80
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LOCATION	L0000699	VOLUME	405313.955	3770450.329	87.39
LOCATION	L0000700	VOLUME	405315.487	3770449.043	87.67
LOCATION	L0000701	VOLUME	405317.018	3770447.757	87.94
LOCATION	L0000702	VOLUME	405318.550	3770446.471	88.21
LOCATION	L0000703	VOLUME	405320.082	3770445.185	88.46
LOCATION	L0000704	VOLUME	405321.614	3770443.899	88.71
LOCATION	L0000705	VOLUME	405323.145	3770442.613	88.95
LOCATION	L0000706	VOLUME	405324.677	3770441.327	89.18
LOCATION	L0000707	VOLUME	405326.209	3770440.041	89.40
LOCATION	L0000708	VOLUME	405327.741	3770438.755	89.62
LOCATION	L0000709	VOLUME	405329.272	3770437.469	89.69
LOCATION	L0000710	VOLUME	405330.804	3770436.183	89.66
LOCATION	L0000711	VOLUME	405332.336	3770434.897	89.56
LOCATION	L0000712	VOLUME	405333.868	3770433.611	89.48
LOCATION	L0000713	VOLUME	405335.399	3770432.325	89.41
LOCATION	L0000714	VOLUME	405336.931	3770431.039	89.35
LOCATION	L0000715	VOLUME	405338.463	3770429.753	89.30

LOCATION	L0000716	VOLUME	405339.995	3770428.467	89.27
LOCATION	L0000717	VOLUME	405341.526	3770427.181	89.25
LOCATION	L0000718	VOLUME	405343.058	3770425.895	89.23
LOCATION	L0000719	VOLUME	405344.590	3770424.609	89.24
LOCATION	L0000720	VOLUME	405346.122	3770423.323	89.25
LOCATION	L0000721	VOLUME	405347.653	3770422.037	89.27
LOCATION	L0000722	VOLUME	405349.185	3770420.751	89.31
LOCATION	L0000723	VOLUME	405350.717	3770419.465	89.36
LOCATION	L0000724	VOLUME	405352.249	3770418.179	89.42
LOCATION	L0000725	VOLUME	405353.780	3770416.893	89.50
LOCATION	L0000726	VOLUME	405355.312	3770415.607	89.58
LOCATION	L0000727	VOLUME	405356.844	3770414.321	89.59
LOCATION	L0000728	VOLUME	405358.376	3770413.035	89.58
LOCATION	L0000729	VOLUME	405359.907	3770411.749	89.57
LOCATION	L0000730	VOLUME	405361.439	3770410.463	89.55
LOCATION	L0000731	VOLUME	405362.971	3770409.177	89.53
LOCATION	L0000732	VOLUME	405364.503	3770407.891	89.50
LOCATION	L0000733	VOLUME	405366.034	3770406.605	89.42
LOCATION	L0000734	VOLUME	405367.566	3770405.319	89.32
LOCATION	L0000735	VOLUME	405369.098	3770404.033	89.23
LOCATION	L0000736	VOLUME	405370.630	3770402.747	89.14
LOCATION	L0000737	VOLUME	405372.161	3770401.461	89.06
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LOCATION	L0000739	VOLUME	405375.225	3770398.890	88.92
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LOCATION	L0000741	VOLUME	405378.288	3770396.318	88.82
LOCATION	L0000742	VOLUME	405379.820	3770395.032	88.77
LOCATION	L0000743	VOLUME	405381.352	3770393.746	88.75
LOCATION	L0000744	VOLUME	405382.884	3770392.460	88.76
LOCATION	L0000745	VOLUME	405384.415	3770391.174	88.77
LOCATION	L0000746	VOLUME	405385.947	3770389.888	88.80
LOCATION	L0000747	VOLUME	405387.479	3770388.602	88.83
LOCATION	L0000748	VOLUME	405389.011	3770387.316	88.87
LOCATION	L0000749	VOLUME	405390.542	3770386.030	88.91
LOCATION	L0000750	VOLUME	405392.074	3770384.744	88.96
LOCATION	L0000751	VOLUME	405393.606	3770383.458	89.02
LOCATION	L0000752	VOLUME	405395.138	3770382.172	89.09
LOCATION	L0000753	VOLUME	405396.669	3770380.886	89.16
LOCATION	L0000754	VOLUME	405398.201	3770379.600	89.24
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LOCATION	L0000756	VOLUME	405401.265	3770377.028	89.41
LOCATION	L0000757	VOLUME	405402.796	3770375.742	89.48
LOCATION	L0000758	VOLUME	405404.328	3770374.456	89.48
LOCATION	L0000759	VOLUME	405405.860	3770373.170	89.48
LOCATION	L0000760	VOLUME	405407.392	3770371.884	89.39
LOCATION	L0000761	VOLUME	405408.923	3770370.598	89.30
LOCATION	L0000762	VOLUME	405410.455	3770369.312	89.21
LOCATION	L0000763	VOLUME	405411.987	3770368.026	89.14

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LOCATION L0000764     VOLUME   405413.519 3770366.740 89.08
LOCATION L0000765     VOLUME   405415.050 3770365.454 89.04
LOCATION L0000766     VOLUME   405416.582 3770364.168 89.01
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LOCATION L0000770     VOLUME   405422.709 3770359.024 89.01
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LOCATION L0000781     VOLUME   405439.558 3770344.879 89.04
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LOCATION	L0000903	VOLUME	405626.432	3770187.989	89.72
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LOCATION	L0000907	VOLUME	405632.559	3770182.845	91.10

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LOCATION	L0000913	VOLUME	405641.750	3770175.130	92.53
LOCATION	L0000914	VOLUME	405643.282	3770173.844	92.59
LOCATION	L0000915	VOLUME	405644.813	3770172.558	92.59
LOCATION	L0000916	VOLUME	405646.345	3770171.272	92.55
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LOCATION	L0000918	VOLUME	405649.409	3770168.700	92.31
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LOCATION L0000963     VOLUME   405718.337 3770110.831 90.68
LOCATION L0000964     VOLUME   405719.869 3770109.545 90.83
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SRCPARAM L0000966     0.000001953      4.50      0.93      4.88
SRCPARAM L0000967     0.000001953      4.50      0.93      4.88
SRCPARAM L0000968     0.000001953      4.50      0.93      4.88
SRCPARAM L0000969     0.000001953      4.50      0.93      4.88
SRCPARAM L0000970     0.000001953      4.50      0.93      4.88
SRCPARAM L0000971     0.000001953      4.50      0.93      4.88
SRCPARAM L0000972     0.000001953      4.50      0.93      4.88
SRCPARAM L0000973     0.000001953      4.50      0.93      4.88
SRCPARAM L0000974     0.000001953      4.50      0.93      4.88
SRCPARAM L0000975     0.000001953      4.50      0.93      4.88
SRCPARAM L0000976     0.000001953      4.50      0.93      4.88
SRCPARAM L0000977     0.000001953      4.50      0.93      4.88
SRCPARAM L0000978     0.000001953      4.50      0.93      4.88
SRCPARAM L0000979     0.000001953      4.50      0.93      4.88
SRCPARAM L0000980     0.000001953      4.50      0.93      4.88
SRCPARAM L0000981     0.000001953      4.50      0.93      4.88
SRCPARAM L0000982     0.000001953      4.50      0.93      4.88
SRCPARAM L0000983     0.000001953      4.50      0.93      4.88
SRCPARAM L0000984     0.000001953      4.50      0.93      4.88
```

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   SRCPARAM L0000985     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000986     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000987     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000988     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000989     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000990     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000991     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000992     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000993     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000994     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000995     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000996     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000997     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000998     0.000001953      4.50      0.93      4.88
   SRCPARAM L0000999     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001000     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001001     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001002     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001003     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001004     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001005     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001006     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001007     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001008     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001009     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001010     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001011     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001012     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001013     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001014     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001015     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001016     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001017     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001018     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001019     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001020     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001021     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001022     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001023     0.000001953      4.50      0.93      4.88
   SRCPARAM L0001024     0.000001953      4.50      0.93      4.88
** ------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
************************************
** AERMOD Receptor Pathway
************************************
```

```
**
**
RE STARTING
   INCLUDED "Orchard & Cypress 2.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE PICO_V9_ADJU\PICO_v9.SFC
   PROFFILE PICO_V9_ADJU\PICO_v9.PFL
   SURFDATA 3166 2010
   UAIRDATA 3190 2010
   SITEDATA 99999 2010
   PROFBASE 58.0 METERS
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
   RECTABLE 24 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "Orchard & Cypress 2.AD\01H1GALL.PLT" 31
   PLOTFILE 24 ALL 1ST "Orchard & Cypress 2.AD\24H1GALL.PLT" 32
   PLOTFILE ANNUAL ALL "Orchard & Cypress 2.AD\AN00GALL.PLT" 33
   SUMMFILE "Orchard & Cypress 2.sum"
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of            0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***
```

```
   ********   WARNING MESSAGES   ********
 ME W186    2131       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
     0.50
 ME W187    2131       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


 *********************************
 *** SETUP Finishes Successfully ***
 *********************************

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
                       ***        15:56:17

                                  PAGE   1
 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*

                                          ***     MODEL SETUP OPTIONS SUMMARY
 ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

 **Model Is Setup For Calculation of Average CONCentration Values.

   --  DEPOSITION LOGIC  --
 **NO GAS DEPOSITION Data Provided.
 **NO PARTICLE DEPOSITION Data Provided.
 **Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
 **Model Uses NO WET DEPLETION.  WETDPLT  =  F

 **Model Uses URBAN Dispersion Algorithm for the SBL for  1024 Source(s),
   for Total of    1 Urban Area(s):
   Urban Population =   9818605.0 ;  Urban Roughness Length =  1.000 m

 **Model Allows User-Specified Options:
         1. Stack-tip Downwash.
         2. Allow FLAT/ELEV Terrain Option by Source,
            with      0 FLAT and   1024 ELEV Source(s).
         3. Use Calms Processing Routine.
         4. Use Missing Data Processing Routine.
         5. No Exponential Decay.
         6. Urban Roughness Length of 1.0 Meter Used.

 **Other Options Specified:
         ADJ_U*   - Use ADJ_U* option for SBL in AERMET
```

```
 **Model Assumes No FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM_10

 **Model Calculates  2 Short Term Average(s) of:   1-HR  24-HR
     and Calculates ANNUAL Averages

 **This Run Includes:   1024 Source(s);       1 Source Group(s); and      91
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:   1024 VOLUME source(s)
                 and:      0 AREA type source(s)
                 and:      0 LINE source(s)
                 and:      0 RLINE/RLINEXT source(s)
                 and:      0 OPENPIT source(s)
                 and:      0 BUOYANT LINE source(s) with      0 line(s)


 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  16216

 **Output Options Selected:
          Model Outputs Tables of ANNUAL Averages by Receptor
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing Hours
                                                                 b for Both Calm and
Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    58.00 ;  Decay
Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                                ;
Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.9 MB of RAM.
```

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: Orchard & Cypress 2.err

**File for Summary of Results: Orchard & Cypress 2.sum

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20
*** AERMET - VERSION 16216 *** *** 15:56:17

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE BY	EMISSION RATE SCALAR VARY
L0000001	0	0.19530E-05	404231.8	3771331.5	88.5	4.50	0.93	4.88	YES	
L0000002	0	0.19530E-05	404233.4	3771330.3	88.5	4.50	0.93	4.88	YES	
L0000003	0	0.19530E-05	404235.0	3771329.1	88.5	4.50	0.93	4.88	YES	
L0000004	0	0.19530E-05	404236.6	3771327.9	88.5	4.50	0.93	4.88	YES	
L0000005	0	0.19530E-05	404238.2	3771326.7	88.6	4.50	0.93	4.88	YES	
L0000006	0	0.19530E-05	404239.8	3771325.5	88.7	4.50	0.93	4.88	YES	
L0000007	0	0.19530E-05	404241.4	3771324.3	88.7	4.50	0.93	4.88	YES	
L0000008	0	0.19530E-05	404243.0	3771323.1	88.8	4.50	0.93	4.88	YES	
L0000009	0	0.19530E-05	404244.6	3771321.9	88.9	4.50	0.93	4.88	YES	
L0000010	0	0.19530E-05	404246.2	3771320.7	88.9	4.50	0.93			

4.88 YES							
L0000011	0	0.19530E-05	404247.8	3771319.5	89.0	4.50	0.93
4.88 YES							
L0000012	0	0.19530E-05	404249.4	3771318.3	89.0	4.50	0.93
4.88 YES							
L0000013	0	0.19530E-05	404251.0	3771317.1	89.1	4.50	0.93
4.88 YES							
L0000014	0	0.19530E-05	404252.6	3771315.9	89.1	4.50	0.93
4.88 YES							
L0000015	0	0.19530E-05	404254.2	3771314.7	89.2	4.50	0.93
4.88 YES							
L0000016	0	0.19530E-05	404255.8	3771313.5	89.2	4.50	0.93
4.88 YES							
L0000017	0	0.19530E-05	404257.3	3771312.3	89.3	4.50	0.93
4.88 YES							
L0000018	0	0.19530E-05	404258.9	3771311.1	89.2	4.50	0.93
4.88 YES							
L0000019	0	0.19530E-05	404260.5	3771309.9	89.2	4.50	0.93
4.88 YES							
L0000020	0	0.19530E-05	404262.1	3771308.7	89.1	4.50	0.93
4.88 YES							
L0000021	0	0.19530E-05	404263.7	3771307.5	89.1	4.50	0.93
4.88 YES							
L0000022	0	0.19530E-05	404265.3	3771306.3	89.0	4.50	0.93
4.88 YES							
L0000023	0	0.19530E-05	404266.9	3771305.1	89.0	4.50	0.93
4.88 YES							
L0000024	0	0.19530E-05	404268.5	3771303.9	89.0	4.50	0.93
4.88 YES							
L0000025	0	0.19530E-05	404270.1	3771302.7	88.9	4.50	0.93
4.88 YES							
L0000026	0	0.19530E-05	404271.7	3771301.5	88.9	4.50	0.93
4.88 YES							
L0000027	0	0.19530E-05	404273.3	3771300.3	88.9	4.50	0.93
4.88 YES							
L0000028	0	0.19530E-05	404274.9	3771299.1	88.9	4.50	0.93
4.88 YES							
L0000029	0	0.19530E-05	404276.5	3771297.9	88.9	4.50	0.93
4.88 YES							
L0000030	0	0.19530E-05	404278.1	3771296.7	89.0	4.50	0.93
4.88 YES							
L0000031	0	0.19530E-05	404279.7	3771295.5	89.0	4.50	0.93
4.88 YES							
L0000032	0	0.19530E-05	404281.3	3771294.3	89.0	4.50	0.93
4.88 YES							
L0000033	0	0.19530E-05	404282.9	3771293.1	89.1	4.50	0.93
4.88 YES							
L0000034	0	0.19530E-05	404284.5	3771291.9	89.1	4.50	0.93

4.88 YES
L0000035 0 0.19530E-05 404286.1 3771290.7 89.2 4.50 0.93
4.88 YES
L0000036 0 0.19530E-05 404287.7 3771289.4 89.2 4.50 0.93
4.88 YES
L0000037 0 0.19530E-05 404289.3 3771288.2 89.2 4.50 0.93
4.88 YES
L0000038 0 0.19530E-05 404290.9 3771287.0 89.2 4.50 0.93
4.88 YES
L0000039 0 0.19530E-05 404292.5 3771285.8 89.2 4.50 0.93
4.88 YES
L0000040 0 0.19530E-05 404294.1 3771284.6 89.2 4.50 0.93
4.88 YES

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE BY	EMISSION RATE SCALAR VARY
L0000041	0	0.19530E-05	404295.7	3771283.4	89.2	4.50	0.93	4.88	YES	
L0000042	0	0.19530E-05	404297.3	3771282.2	89.2	4.50	0.93	4.88	YES	
L0000043	0	0.19530E-05	404298.9	3771281.0	89.2	4.50	0.93	4.88	YES	
L0000044	0	0.19530E-05	404300.5	3771279.8	89.2	4.50	0.93	4.88	YES	
L0000045	0	0.19530E-05	404302.1	3771278.6	89.2	4.50	0.93	4.88	YES	
L0000046	0	0.19530E-05	404303.7	3771277.4	89.2	4.50	0.93	4.88	YES	
L0000047	0	0.19530E-05	404305.3	3771276.2	89.2	4.50	0.93	4.88	YES	
L0000048	0	0.19530E-05	404306.9	3771275.0	89.2	4.50	0.93			

4.88 YES							
L0000049	0	0.19530E-05	404308.5	3771273.8	89.2	4.50	0.93
4.88 YES							
L0000050	0	0.19530E-05	404310.1	3771272.6	89.2	4.50	0.93
4.88 YES							
L0000051	0	0.19530E-05	404311.7	3771271.4	89.2	4.50	0.93
4.88 YES							
L0000052	0	0.19530E-05	404313.3	3771270.2	89.2	4.50	0.93
4.88 YES							
L0000053	0	0.19530E-05	404314.9	3771269.0	89.2	4.50	0.93
4.88 YES							
L0000054	0	0.19530E-05	404316.5	3771267.8	89.2	4.50	0.93
4.88 YES							
L0000055	0	0.19530E-05	404318.1	3771266.6	89.2	4.50	0.93
4.88 YES							
L0000056	0	0.19530E-05	404319.7	3771265.4	89.2	4.50	0.93
4.88 YES							
L0000057	0	0.19530E-05	404321.3	3771264.2	89.2	4.50	0.93
4.88 YES							
L0000058	0	0.19530E-05	404322.9	3771263.0	89.2	4.50	0.93
4.88 YES							
L0000059	0	0.19530E-05	404324.5	3771261.8	89.3	4.50	0.93
4.88 YES							
L0000060	0	0.19530E-05	404326.1	3771260.6	89.3	4.50	0.93
4.88 YES							
L0000061	0	0.19530E-05	404327.7	3771259.4	89.3	4.50	0.93
4.88 YES							
L0000062	0	0.19530E-05	404329.3	3771258.2	89.3	4.50	0.93
4.88 YES							
L0000063	0	0.19530E-05	404330.9	3771257.0	89.3	4.50	0.93
4.88 YES							
L0000064	0	0.19530E-05	404332.5	3771255.8	89.3	4.50	0.93
4.88 YES							
L0000065	0	0.19530E-05	404334.1	3771254.6	89.4	4.50	0.93
4.88 YES							
L0000066	0	0.19530E-05	404335.7	3771253.4	89.4	4.50	0.93
4.88 YES							
L0000067	0	0.19530E-05	404337.3	3771252.2	89.4	4.50	0.93
4.88 YES							
L0000068	0	0.19530E-05	404338.9	3771251.0	89.4	4.50	0.93
4.88 YES							
L0000069	0	0.19530E-05	404340.5	3771249.8	89.4	4.50	0.93
4.88 YES							
L0000070	0	0.19530E-05	404342.1	3771248.6	89.4	4.50	0.93
4.88 YES							
L0000071	0	0.19530E-05	404343.7	3771247.4	89.4	4.50	0.93
4.88 YES							
L0000072	0	0.19530E-05	404345.3	3771246.2	89.3	4.50	0.93

```
4.88     YES
 L0000073         0   0.19530E-05  404346.9 3771245.0    89.3     4.50     0.93
4.88     YES
 L0000074         0   0.19530E-05  404348.5 3771243.8    89.3     4.50     0.93
4.88     YES
 L0000075         0   0.19530E-05  404350.0 3771242.6    89.3     4.50     0.93
4.88     YES
 L0000076         0   0.19530E-05  404351.6 3771241.4    89.3     4.50     0.93
4.88     YES
 L0000077         0   0.19530E-05  404353.2 3771240.2    89.3     4.50     0.93
4.88     YES
 L0000078         0   0.19530E-05  404354.8 3771239.0    89.3     4.50     0.93
4.88     YES
 L0000079         0   0.19530E-05  404356.4 3771237.7    89.2     4.50     0.93
4.88     YES
 L0000080         0   0.19530E-05  404358.0 3771236.5    89.2     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
                      ***        15:56:17

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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - -

 L0000081         0   0.19530E-05  404359.6 3771235.3    89.2     4.50     0.93
4.88     YES
 L0000082         0   0.19530E-05  404361.2 3771234.1    89.2     4.50     0.93
4.88     YES
 L0000083         0   0.19530E-05  404362.8 3771232.9    89.2     4.50     0.93
4.88     YES
 L0000084         0   0.19530E-05  404364.4 3771231.7    89.3     4.50     0.93
4.88     YES
 L0000085         0   0.19530E-05  404366.0 3771230.5    89.3     4.50     0.93
4.88     YES
 L0000086         0   0.19530E-05  404367.6 3771229.3    89.3     4.50     0.93
```

4.88 YES							
L0000087	0	0.19530E-05	404369.2	3771228.1	89.3	4.50	0.93
4.88 YES							
L0000088	0	0.19530E-05	404370.8	3771226.9	89.3	4.50	0.93
4.88 YES							
L0000089	0	0.19530E-05	404372.4	3771225.7	89.4	4.50	0.93
4.88 YES							
L0000090	0	0.19530E-05	404374.0	3771224.5	89.4	4.50	0.93
4.88 YES							
L0000091	0	0.19530E-05	404375.6	3771223.3	89.4	4.50	0.93
4.88 YES							
L0000092	0	0.19530E-05	404377.2	3771222.1	89.4	4.50	0.93
4.88 YES							
L0000093	0	0.19530E-05	404378.8	3771220.9	89.5	4.50	0.93
4.88 YES							
L0000094	0	0.19530E-05	404380.4	3771219.7	89.5	4.50	0.93
4.88 YES							
L0000095	0	0.19530E-05	404382.0	3771218.5	89.5	4.50	0.93
4.88 YES							
L0000096	0	0.19530E-05	404383.6	3771217.3	89.5	4.50	0.93
4.88 YES							
L0000097	0	0.19530E-05	404385.2	3771216.1	89.5	4.50	0.93
4.88 YES							
L0000098	0	0.19530E-05	404386.8	3771214.9	89.5	4.50	0.93
4.88 YES							
L0000099	0	0.19530E-05	404388.4	3771213.7	89.5	4.50	0.93
4.88 YES							
L0000100	0	0.19530E-05	404390.0	3771212.5	89.5	4.50	0.93
4.88 YES							
L0000101	0	0.19530E-05	404391.6	3771211.3	89.5	4.50	0.93
4.88 YES							
L0000102	0	0.19530E-05	404393.2	3771210.1	89.5	4.50	0.93
4.88 YES							
L0000103	0	0.19530E-05	404394.8	3771208.9	89.5	4.50	0.93
4.88 YES							
L0000104	0	0.19530E-05	404396.4	3771207.7	89.4	4.50	0.93
4.88 YES							
L0000105	0	0.19530E-05	404398.0	3771206.5	89.4	4.50	0.93
4.88 YES							
L0000106	0	0.19530E-05	404399.6	3771205.3	89.4	4.50	0.93
4.88 YES							
L0000107	0	0.19530E-05	404401.2	3771204.1	89.4	4.50	0.93
4.88 YES							
L0000108	0	0.19530E-05	404402.8	3771202.9	89.4	4.50	0.93
4.88 YES							
L0000109	0	0.19530E-05	404404.4	3771201.7	89.5	4.50	0.93
4.88 YES							
L0000110	0	0.19530E-05	404406.0	3771200.5	89.5	4.50	0.93

4.88 YES
L0000111 0 0.19530E-05 404407.6 3771199.3 89.5 4.50 0.93
4.88 YES
L0000112 0 0.19530E-05 404409.2 3771198.1 89.5 4.50 0.93
4.88 YES
L0000113 0 0.19530E-05 404410.8 3771196.9 89.6 4.50 0.93
4.88 YES
L0000114 0 0.19530E-05 404412.4 3771195.7 89.6 4.50 0.93
4.88 YES
L0000115 0 0.19530E-05 404414.0 3771194.5 89.6 4.50 0.93
4.88 YES
L0000116 0 0.19530E-05 404415.6 3771193.3 89.7 4.50 0.93
4.88 YES
L0000117 0 0.19530E-05 404417.2 3771192.1 89.7 4.50 0.93
4.88 YES
L0000118 0 0.19530E-05 404418.8 3771190.9 89.7 4.50 0.93
4.88 YES
L0000119 0 0.19530E-05 404420.4 3771189.7 89.7 4.50 0.93
4.88 YES
L0000120 0 0.19530E-05 404422.0 3771188.5 89.7 4.50 0.93
4.88 YES

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000121	0	0.19530E-05	404423.6	3771187.2	89.7	4.50	0.93	4.88	YES	
L0000122	0	0.19530E-05	404425.2	3771186.0	89.7	4.50	0.93	4.88	YES	
L0000123	0	0.19530E-05	404426.8	3771184.8	89.6	4.50	0.93	4.88	YES	
L0000124	0	0.19530E-05	404428.4	3771183.6	89.6	4.50	0.93			

4.88 YES							
L0000125	0	0.19530E-05	404430.0	3771182.4	89.5	4.50	0.93
4.88 YES							
L0000126	0	0.19530E-05	404431.6	3771181.2	89.5	4.50	0.93
4.88 YES							
L0000127	0	0.19530E-05	404433.2	3771180.0	89.5	4.50	0.93
4.88 YES							
L0000128	0	0.19530E-05	404434.8	3771178.8	89.5	4.50	0.93
4.88 YES							
L0000129	0	0.19530E-05	404436.4	3771177.6	89.4	4.50	0.93
4.88 YES							
L0000130	0	0.19530E-05	404438.0	3771176.4	89.4	4.50	0.93
4.88 YES							
L0000131	0	0.19530E-05	404439.5	3771175.2	89.4	4.50	0.93
4.88 YES							
L0000132	0	0.19530E-05	404441.1	3771174.0	89.4	4.50	0.93
4.88 YES							
L0000133	0	0.19530E-05	404442.7	3771172.8	89.4	4.50	0.93
4.88 YES							
L0000134	0	0.19530E-05	404444.3	3771171.6	89.4	4.50	0.93
4.88 YES							
L0000135	0	0.19530E-05	404445.9	3771170.4	89.4	4.50	0.93
4.88 YES							
L0000136	0	0.19530E-05	404447.5	3771169.2	89.4	4.50	0.93
4.88 YES							
L0000137	0	0.19530E-05	404449.1	3771168.0	89.3	4.50	0.93
4.88 YES							
L0000138	0	0.19530E-05	404450.7	3771166.8	89.3	4.50	0.93
4.88 YES							
L0000139	0	0.19530E-05	404452.3	3771165.6	89.3	4.50	0.93
4.88 YES							
L0000140	0	0.19530E-05	404453.9	3771164.4	89.3	4.50	0.93
4.88 YES							
L0000141	0	0.19530E-05	404455.5	3771163.2	89.3	4.50	0.93
4.88 YES							
L0000142	0	0.19530E-05	404457.1	3771162.0	89.3	4.50	0.93
4.88 YES							
L0000143	0	0.19530E-05	404458.7	3771160.8	89.3	4.50	0.93
4.88 YES							
L0000144	0	0.19530E-05	404460.3	3771159.6	89.4	4.50	0.93
4.88 YES							
L0000145	0	0.19530E-05	404461.9	3771158.4	89.4	4.50	0.93
4.88 YES							
L0000146	0	0.19530E-05	404463.5	3771157.2	89.4	4.50	0.93
4.88 YES							
L0000147	0	0.19530E-05	404465.1	3771156.0	89.4	4.50	0.93
4.88 YES							
L0000148	0	0.19530E-05	404466.7	3771154.8	89.4	4.50	0.93

4.88 YES
L0000149 0 0.19530E-05 404468.3 3771153.6 89.3 4.50 0.93
4.88 YES
L0000150 0 0.19530E-05 404469.9 3771152.4 89.3 4.50 0.93
4.88 YES
L0000151 0 0.19530E-05 404471.5 3771151.2 89.3 4.50 0.93
4.88 YES
L0000152 0 0.19530E-05 404473.1 3771150.0 89.3 4.50 0.93
4.88 YES
L0000153 0 0.19530E-05 404474.7 3771148.8 89.3 4.50 0.93
4.88 YES
L0000154 0 0.19530E-05 404476.3 3771147.6 89.3 4.50 0.93
4.88 YES
L0000155 0 0.19530E-05 404477.9 3771146.4 89.3 4.50 0.93
4.88 YES
L0000156 0 0.19530E-05 404479.5 3771145.2 89.3 4.50 0.93
4.88 YES
L0000157 0 0.19530E-05 404481.1 3771144.0 89.3 4.50 0.93
4.88 YES
L0000158 0 0.19530E-05 404482.7 3771142.8 89.2 4.50 0.93
4.88 YES
L0000159 0 0.19530E-05 404484.3 3771141.6 89.2 4.50 0.93
4.88 YES
L0000160 0 0.19530E-05 404485.9 3771140.4 89.2 4.50 0.93
4.88 YES

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000161	0	0.19530E-05	404487.5	3771139.2	89.2	4.50	0.93	4.88	YES	
L0000162	0	0.19530E-05	404489.1	3771138.0	89.2	4.50	0.93			

4.88 YES							
L0000163	0	0.19530E-05	404490.7	3771136.8	89.2	4.50	0.93
4.88 YES							
L0000164	0	0.19530E-05	404492.3	3771135.5	89.3	4.50	0.93
4.88 YES							
L0000165	0	0.19530E-05	404493.9	3771134.3	89.3	4.50	0.93
4.88 YES							
L0000166	0	0.19530E-05	404495.5	3771133.1	89.3	4.50	0.93
4.88 YES							
L0000167	0	0.19530E-05	404497.1	3771131.9	89.3	4.50	0.93
4.88 YES							
L0000168	0	0.19530E-05	404498.7	3771130.7	89.3	4.50	0.93
4.88 YES							
L0000169	0	0.19530E-05	404500.3	3771129.5	89.3	4.50	0.93
4.88 YES							
L0000170	0	0.19530E-05	404501.9	3771128.3	89.3	4.50	0.93
4.88 YES							
L0000171	0	0.19530E-05	404503.5	3771127.1	89.3	4.50	0.93
4.88 YES							
L0000172	0	0.19530E-05	404505.1	3771125.9	89.4	4.50	0.93
4.88 YES							
L0000173	0	0.19530E-05	404506.7	3771124.7	89.4	4.50	0.93
4.88 YES							
L0000174	0	0.19530E-05	404508.3	3771123.5	89.4	4.50	0.93
4.88 YES							
L0000175	0	0.19530E-05	404509.9	3771122.3	89.4	4.50	0.93
4.88 YES							
L0000176	0	0.19530E-05	404511.5	3771121.1	89.4	4.50	0.93
4.88 YES							
L0000177	0	0.19530E-05	404513.1	3771119.9	89.4	4.50	0.93
4.88 YES							
L0000178	0	0.19530E-05	404514.7	3771118.7	89.4	4.50	0.93
4.88 YES							
L0000179	0	0.19530E-05	404516.3	3771117.5	89.4	4.50	0.93
4.88 YES							
L0000180	0	0.19530E-05	404517.9	3771116.3	89.4	4.50	0.93
4.88 YES							
L0000181	0	0.19530E-05	404519.5	3771115.1	89.3	4.50	0.93
4.88 YES							
L0000182	0	0.19530E-05	404521.1	3771113.9	89.3	4.50	0.93
4.88 YES							
L0000183	0	0.19530E-05	404522.7	3771112.7	89.3	4.50	0.93
4.88 YES							
L0000184	0	0.19530E-05	404524.3	3771111.5	89.3	4.50	0.93
4.88 YES							
L0000185	0	0.19530E-05	404525.9	3771110.3	89.3	4.50	0.93
4.88 YES							
L0000186	0	0.19530E-05	404527.5	3771109.1	89.3	4.50	0.93

```
4.88     YES
 L0000187         0   0.19530E-05  404529.0 3771107.9    89.3     4.50     0.93
4.88     YES
 L0000188         0   0.19530E-05  404530.6 3771106.7    89.3     4.50     0.93
4.88     YES
 L0000189         0   0.19530E-05  404532.2 3771105.5    89.3     4.50     0.93
4.88     YES
 L0000190         0   0.19530E-05  404533.8 3771104.3    89.3     4.50     0.93
4.88     YES
 L0000191         0   0.19530E-05  404535.4 3771103.1    89.3     4.50     0.93
4.88     YES
 L0000192         0   0.19530E-05  404537.0 3771101.9    89.3     4.50     0.93
4.88     YES
 L0000193         0   0.19530E-05  404538.6 3771100.7    89.3     4.50     0.93
4.88     YES
 L0000194         0   0.19530E-05  404540.2 3771099.5    89.3     4.50     0.93
4.88     YES
 L0000195         0   0.19530E-05  404541.8 3771098.3    89.3     4.50     0.93
4.88     YES
 L0000196         0   0.19530E-05  404543.4 3771097.1    89.3     4.50     0.93
4.88     YES
 L0000197         0   0.19530E-05  404545.0 3771095.9    89.3     4.50     0.93
4.88     YES
 L0000198         0   0.19530E-05  404546.6 3771094.7    89.3     4.50     0.93
4.88     YES
 L0000199         0   0.19530E-05  404548.2 3771093.5    89.3     4.50     0.93
4.88     YES
 L0000200         0   0.19530E-05  404549.8 3771092.3    89.3     4.50     0.93
4.88     YES
♠ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
                      ***       15:56:17

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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -
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L0000201	0	0.19530E-05	404551.4	3771091.1	89.3	4.50	0.93
4.88	YES						
L0000202	0	0.19530E-05	404553.0	3771089.9	89.3	4.50	0.93
4.88	YES						
L0000203	0	0.19530E-05	404554.6	3771088.6	89.3	4.50	0.93
4.88	YES						
L0000204	0	0.19530E-05	404556.1	3771087.3	89.3	4.50	0.93
4.88	YES						
L0000205	0	0.19530E-05	404557.6	3771086.0	89.3	4.50	0.93
4.88	YES						
L0000206	0	0.19530E-05	404559.2	3771084.7	89.3	4.50	0.93
4.88	YES						
L0000207	0	0.19530E-05	404560.7	3771083.4	89.3	4.50	0.93
4.88	YES						
L0000208	0	0.19530E-05	404562.2	3771082.1	89.2	4.50	0.93
4.88	YES						
L0000209	0	0.19530E-05	404563.7	3771080.9	89.2	4.50	0.93
4.88	YES						
L0000210	0	0.19530E-05	404565.3	3771079.6	89.2	4.50	0.93
4.88	YES						
L0000211	0	0.19530E-05	404566.8	3771078.3	89.2	4.50	0.93
4.88	YES						
L0000212	0	0.19530E-05	404568.3	3771077.0	89.2	4.50	0.93
4.88	YES						
L0000213	0	0.19530E-05	404569.8	3771075.7	89.2	4.50	0.93
4.88	YES						
L0000214	0	0.19530E-05	404571.4	3771074.4	89.1	4.50	0.93
4.88	YES						
L0000215	0	0.19530E-05	404572.9	3771073.1	89.1	4.50	0.93
4.88	YES						
L0000216	0	0.19530E-05	404574.4	3771071.8	89.1	4.50	0.93
4.88	YES						
L0000217	0	0.19530E-05	404575.9	3771070.5	89.1	4.50	0.93
4.88	YES						
L0000218	0	0.19530E-05	404577.5	3771069.2	89.1	4.50	0.93
4.88	YES						
L0000219	0	0.19530E-05	404579.0	3771067.9	89.1	4.50	0.93
4.88	YES						
L0000220	0	0.19530E-05	404580.5	3771066.6	89.1	4.50	0.93
4.88	YES						
L0000221	0	0.19530E-05	404582.0	3771065.3	89.1	4.50	0.93
4.88	YES						
L0000222	0	0.19530E-05	404583.6	3771064.0	89.1	4.50	0.93
4.88	YES						
L0000223	0	0.19530E-05	404585.1	3771062.7	89.2	4.50	0.93
4.88	YES						
L0000224	0	0.19530E-05	404586.6	3771061.4	89.2	4.50	0.93

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4.88     YES
 L0000225         0   0.19530E-05  404588.1 3771060.1    89.2     4.50     0.93
4.88     YES
 L0000226         0   0.19530E-05  404589.7 3771058.9    89.3     4.50     0.93
4.88     YES
 L0000227         0   0.19530E-05  404591.2 3771057.6    89.3     4.50     0.93
4.88     YES
 L0000228         0   0.19530E-05  404592.7 3771056.3    89.3     4.50     0.93
4.88     YES
 L0000229         0   0.19530E-05  404594.2 3771055.0    89.3     4.50     0.93
4.88     YES
 L0000230         0   0.19530E-05  404595.8 3771053.7    89.3     4.50     0.93
4.88     YES
 L0000231         0   0.19530E-05  404597.3 3771052.4    89.3     4.50     0.93
4.88     YES
 L0000232         0   0.19530E-05  404598.8 3771051.1    89.2     4.50     0.93
4.88     YES
 L0000233         0   0.19530E-05  404600.3 3771049.8    89.2     4.50     0.93
4.88     YES
 L0000234         0   0.19530E-05  404601.9 3771048.5    89.2     4.50     0.93
4.88     YES
 L0000235         0   0.19530E-05  404603.4 3771047.2    89.2     4.50     0.93
4.88     YES
 L0000236         0   0.19530E-05  404604.9 3771045.9    89.1     4.50     0.93
4.88     YES
 L0000237         0   0.19530E-05  404606.4 3771044.6    89.1     4.50     0.93
4.88     YES
 L0000238         0   0.19530E-05  404608.0 3771043.3    89.1     4.50     0.93
4.88     YES
 L0000239         0   0.19530E-05  404609.5 3771042.0    89.0     4.50     0.93
4.88     YES
 L0000240         0   0.19530E-05  404611.0 3771040.7    89.0     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
                       ***       15:56:17

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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*


                                                  *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
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ID	CATS.	(METERS)	(METERS)	(METERS)	(METERS)	(METERS)	(METERS)	BY
L0000241	0	0.19530E-05	404612.5	3771039.4	89.0	4.50	0.93	4.88 YES
L0000242	0	0.19530E-05	404614.1	3771038.1	89.0	4.50	0.93	4.88 YES
L0000243	0	0.19530E-05	404615.6	3771036.9	89.0	4.50	0.93	4.88 YES
L0000244	0	0.19530E-05	404617.1	3771035.6	88.9	4.50	0.93	4.88 YES
L0000245	0	0.19530E-05	404618.6	3771034.3	88.9	4.50	0.93	4.88 YES
L0000246	0	0.19530E-05	404620.2	3771033.0	88.9	4.50	0.93	4.88 YES
L0000247	0	0.19530E-05	404621.7	3771031.7	88.9	4.50	0.93	4.88 YES
L0000248	0	0.19530E-05	404623.2	3771030.4	88.8	4.50	0.93	4.88 YES
L0000249	0	0.19530E-05	404624.7	3771029.1	88.8	4.50	0.93	4.88 YES
L0000250	0	0.19530E-05	404626.3	3771027.8	88.8	4.50	0.93	4.88 YES
L0000251	0	0.19530E-05	404627.8	3771026.5	88.8	4.50	0.93	4.88 YES
L0000252	0	0.19530E-05	404629.3	3771025.2	88.7	4.50	0.93	4.88 YES
L0000253	0	0.19530E-05	404630.8	3771023.9	88.7	4.50	0.93	4.88 YES
L0000254	0	0.19530E-05	404632.4	3771022.6	88.7	4.50	0.93	4.88 YES
L0000255	0	0.19530E-05	404633.9	3771021.3	88.7	4.50	0.93	4.88 YES
L0000256	0	0.19530E-05	404635.4	3771020.0	88.7	4.50	0.93	4.88 YES
L0000257	0	0.19530E-05	404636.9	3771018.7	88.6	4.50	0.93	4.88 YES
L0000258	0	0.19530E-05	404638.5	3771017.4	88.6	4.50	0.93	4.88 YES
L0000259	0	0.19530E-05	404640.0	3771016.1	88.6	4.50	0.93	4.88 YES
L0000260	0	0.19530E-05	404641.5	3771014.9	88.6	4.50	0.93	4.88 YES
L0000261	0	0.19530E-05	404643.0	3771013.6	88.6	4.50	0.93	4.88 YES
L0000262	0	0.19530E-05	404644.6	3771012.3	88.6	4.50	0.93	

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4.88     YES
 L0000263         0   0.19530E-05  404646.1 3771011.0    88.7     4.50     0.93
4.88     YES
 L0000264         0   0.19530E-05  404647.6 3771009.7    88.7     4.50     0.93
4.88     YES
 L0000265         0   0.19530E-05  404649.1 3771008.4    88.8     4.50     0.93
4.88     YES
 L0000266         0   0.19530E-05  404650.7 3771007.1    88.8     4.50     0.93
4.88     YES
 L0000267         0   0.19530E-05  404652.2 3771005.8    88.9     4.50     0.93
4.88     YES
 L0000268         0   0.19530E-05  404653.7 3771004.5    88.9     4.50     0.93
4.88     YES
 L0000269         0   0.19530E-05  404655.2 3771003.2    89.0     4.50     0.93
4.88     YES
 L0000270         0   0.19530E-05  404656.8 3771001.9    89.0     4.50     0.93
4.88     YES
 L0000271         0   0.19530E-05  404658.3 3771000.6    89.1     4.50     0.93
4.88     YES
 L0000272         0   0.19530E-05  404659.8 3770999.3    89.1     4.50     0.93
4.88     YES
 L0000273         0   0.19530E-05  404661.3 3770998.0    89.0     4.50     0.93
4.88     YES
 L0000274         0   0.19530E-05  404662.9 3770996.7    89.0     4.50     0.93
4.88     YES
 L0000275         0   0.19530E-05  404664.4 3770995.4    88.9     4.50     0.93
4.88     YES
 L0000276         0   0.19530E-05  404665.9 3770994.2    88.9     4.50     0.93
4.88     YES
 L0000277         0   0.19530E-05  404667.4 3770992.9    88.8     4.50     0.93
4.88     YES
 L0000278         0   0.19530E-05  404669.0 3770991.6    88.8     4.50     0.93
4.88     YES
 L0000279         0   0.19530E-05  404670.5 3770990.3    88.7     4.50     0.93
4.88     YES
 L0000280         0   0.19530E-05  404672.0 3770989.0    88.6     4.50     0.93
4.88     YES
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
                       ***       15:56:17

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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*


                                                  *** VOLUME SOURCE DATA ***
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SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ	URBAN SOURCE EMISSION RATE VARY BY
L0000281	0	0.19530E-05	404673.5	3770987.7	88.6	4.50	0.93	4.88	YES
L0000282	0	0.19530E-05	404675.1	3770986.4	88.5	4.50	0.93	4.88	YES
L0000283	0	0.19530E-05	404676.6	3770985.1	88.5	4.50	0.93	4.88	YES
L0000284	0	0.19530E-05	404678.1	3770983.8	88.5	4.50	0.93	4.88	YES
L0000285	0	0.19530E-05	404679.6	3770982.5	88.4	4.50	0.93	4.88	YES
L0000286	0	0.19530E-05	404681.2	3770981.2	88.4	4.50	0.93	4.88	YES
L0000287	0	0.19530E-05	404682.7	3770979.9	88.4	4.50	0.93	4.88	YES
L0000288	0	0.19530E-05	404684.2	3770978.6	88.5	4.50	0.93	4.88	YES
L0000289	0	0.19530E-05	404685.7	3770977.3	88.5	4.50	0.93	4.88	YES
L0000290	0	0.19530E-05	404687.3	3770976.0	88.5	4.50	0.93	4.88	YES
L0000291	0	0.19530E-05	404688.8	3770974.7	88.6	4.50	0.93	4.88	YES
L0000292	0	0.19530E-05	404690.3	3770973.4	88.6	4.50	0.93	4.88	YES
L0000293	0	0.19530E-05	404691.8	3770972.2	88.7	4.50	0.93	4.88	YES
L0000294	0	0.19530E-05	404693.4	3770970.9	88.8	4.50	0.93	4.88	YES
L0000295	0	0.19530E-05	404694.9	3770969.6	88.8	4.50	0.93	4.88	YES
L0000296	0	0.19530E-05	404696.4	3770968.3	88.8	4.50	0.93	4.88	YES
L0000297	0	0.19530E-05	404697.9	3770967.0	88.7	4.50	0.93	4.88	YES
L0000298	0	0.19530E-05	404699.5	3770965.7	88.6	4.50	0.93	4.88	YES
L0000299	0	0.19530E-05	404701.0	3770964.4	88.6	4.50	0.93	4.88	YES
L0000300	0	0.19530E-05	404702.5	3770963.1	88.5	4.50	0.93		

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4.88     YES
 L0000301         0   0.19530E-05  404704.0 3770961.8    88.5     4.50     0.93
4.88     YES
 L0000302         0   0.19530E-05  404705.6 3770960.5    88.5     4.50     0.93
4.88     YES
 L0000303         0   0.19530E-05  404707.1 3770959.2    88.4     4.50     0.93
4.88     YES
 L0000304         0   0.19530E-05  404708.6 3770957.9    88.4     4.50     0.93
4.88     YES
 L0000305         0   0.19530E-05  404710.1 3770956.6    88.4     4.50     0.93
4.88     YES
 L0000306         0   0.19530E-05  404711.7 3770955.3    88.5     4.50     0.93
4.88     YES
 L0000307         0   0.19530E-05  404713.2 3770954.0    88.5     4.50     0.93
4.88     YES
 L0000308         0   0.19530E-05  404714.7 3770952.7    88.5     4.50     0.93
4.88     YES
 L0000309         0   0.19530E-05  404716.2 3770951.4    88.5     4.50     0.93
4.88     YES
 L0000310         0   0.19530E-05  404717.8 3770950.2    88.6     4.50     0.93
4.88     YES
 L0000311         0   0.19530E-05  404719.3 3770948.9    88.7     4.50     0.93
4.88     YES
 L0000312         0   0.19530E-05  404720.8 3770947.6    88.7     4.50     0.93
4.88     YES
 L0000313         0   0.19530E-05  404722.3 3770946.3    88.8     4.50     0.93
4.88     YES
 L0000314         0   0.19530E-05  404723.9 3770945.0    88.8     4.50     0.93
4.88     YES
 L0000315         0   0.19530E-05  404725.4 3770943.7    88.8     4.50     0.93
4.88     YES
 L0000316         0   0.19530E-05  404726.9 3770942.4    88.8     4.50     0.93
4.88     YES
 L0000317         0   0.19530E-05  404728.4 3770941.1    88.9     4.50     0.93
4.88     YES
 L0000318         0   0.19530E-05  404730.0 3770939.8    88.9     4.50     0.93
4.88     YES
 L0000319         0   0.19530E-05  404731.5 3770938.5    88.9     4.50     0.93
4.88     YES
 L0000320         0   0.19530E-05  404733.0 3770937.2    88.9     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*
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*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER EMISSION RATE PART. SCALAR CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE VARY BY
L0000321	0	0.19530E-05	404734.5	3770935.9	88.9	4.50	0.93	4.88	YES
L0000322	0	0.19530E-05	404736.1	3770934.6	88.8	4.50	0.93	4.88	YES
L0000323	0	0.19530E-05	404737.6	3770933.3	88.8	4.50	0.93	4.88	YES
L0000324	0	0.19530E-05	404739.1	3770932.0	88.8	4.50	0.93	4.88	YES
L0000325	0	0.19530E-05	404740.6	3770930.7	88.7	4.50	0.93	4.88	YES
L0000326	0	0.19530E-05	404742.2	3770929.5	88.7	4.50	0.93	4.88	YES
L0000327	0	0.19530E-05	404743.7	3770928.2	88.7	4.50	0.93	4.88	YES
L0000328	0	0.19530E-05	404745.2	3770926.9	88.6	4.50	0.93	4.88	YES
L0000329	0	0.19530E-05	404746.7	3770925.6	88.6	4.50	0.93	4.88	YES
L0000330	0	0.19530E-05	404748.3	3770924.3	88.6	4.50	0.93	4.88	YES
L0000331	0	0.19530E-05	404749.8	3770923.0	88.6	4.50	0.93	4.88	YES
L0000332	0	0.19530E-05	404751.3	3770921.7	88.6	4.50	0.93	4.88	YES
L0000333	0	0.19530E-05	404752.8	3770920.4	88.6	4.50	0.93	4.88	YES
L0000334	0	0.19530E-05	404754.4	3770919.1	88.6	4.50	0.93	4.88	YES
L0000335	0	0.19530E-05	404755.9	3770917.8	88.7	4.50	0.93	4.88	YES
L0000336	0	0.19530E-05	404757.4	3770916.5	88.7	4.50	0.93	4.88	YES
L0000337	0	0.19530E-05	404758.9	3770915.2	88.7	4.50	0.93	4.88	YES
L0000338	0	0.19530E-05	404760.5	3770913.9	88.7	4.50	0.93		

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4.88     YES
 L0000339         0   0.19530E-05  404762.0 3770912.6    88.8     4.50     0.93
4.88     YES
 L0000340         0   0.19530E-05  404763.5 3770911.3    88.8     4.50     0.93
4.88     YES
 L0000341         0   0.19530E-05  404765.0 3770910.0    88.9     4.50     0.93
4.88     YES
 L0000342         0   0.19530E-05  404766.6 3770908.7    88.9     4.50     0.93
4.88     YES
 L0000343         0   0.19530E-05  404768.1 3770907.5    89.0     4.50     0.93
4.88     YES
 L0000344         0   0.19530E-05  404769.6 3770906.2    89.0     4.50     0.93
4.88     YES
 L0000345         0   0.19530E-05  404771.1 3770904.9    89.0     4.50     0.93
4.88     YES
 L0000346         0   0.19530E-05  404772.7 3770903.6    89.0     4.50     0.93
4.88     YES
 L0000347         0   0.19530E-05  404774.2 3770902.3    89.0     4.50     0.93
4.88     YES
 L0000348         0   0.19530E-05  404775.7 3770901.0    88.9     4.50     0.93
4.88     YES
 L0000349         0   0.19530E-05  404777.2 3770899.7    88.9     4.50     0.93
4.88     YES
 L0000350         0   0.19530E-05  404778.8 3770898.4    88.9     4.50     0.93
4.88     YES
 L0000351         0   0.19530E-05  404780.3 3770897.1    88.8     4.50     0.93
4.88     YES
 L0000352         0   0.19530E-05  404781.8 3770895.8    88.8     4.50     0.93
4.88     YES
 L0000353         0   0.19530E-05  404783.4 3770894.5    88.8     4.50     0.93
4.88     YES
 L0000354         0   0.19530E-05  404784.9 3770893.2    88.8     4.50     0.93
4.88     YES
 L0000355         0   0.19530E-05  404786.4 3770892.0    88.8     4.50     0.93
4.88     YES
 L0000356         0   0.19530E-05  404787.9 3770890.7    88.8     4.50     0.93
4.88     YES
 L0000357         0   0.19530E-05  404789.5 3770889.4    88.8     4.50     0.93
4.88     YES
 L0000358         0   0.19530E-05  404791.0 3770888.1    88.8     4.50     0.93
4.88     YES
 L0000359         0   0.19530E-05  404792.5 3770886.8    88.8     4.50     0.93
4.88     YES
 L0000360         0   0.19530E-05  404794.1 3770885.5    88.8     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
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*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE BY	EMISSION RATE SCALAR VARY
L0000361	0	0.19530E-05	404795.6	3770884.2	88.8	4.50	0.93	4.88	YES	
L0000362	0	0.19530E-05	404797.1	3770882.9	88.8	4.50	0.93	4.88	YES	
L0000363	0	0.19530E-05	404798.6	3770881.6	88.8	4.50	0.93	4.88	YES	
L0000364	0	0.19530E-05	404800.2	3770880.4	88.8	4.50	0.93	4.88	YES	
L0000365	0	0.19530E-05	404801.7	3770879.1	88.8	4.50	0.93	4.88	YES	
L0000366	0	0.19530E-05	404803.2	3770877.8	88.8	4.50	0.93	4.88	YES	
L0000367	0	0.19530E-05	404804.8	3770876.5	88.8	4.50	0.93	4.88	YES	
L0000368	0	0.19530E-05	404806.3	3770875.2	88.8	4.50	0.93	4.88	YES	
L0000369	0	0.19530E-05	404807.8	3770873.9	88.8	4.50	0.93	4.88	YES	
L0000370	0	0.19530E-05	404809.3	3770872.6	88.8	4.50	0.93	4.88	YES	
L0000371	0	0.19530E-05	404810.9	3770871.3	88.8	4.50	0.93	4.88	YES	
L0000372	0	0.19530E-05	404812.4	3770870.0	88.8	4.50	0.93	4.88	YES	
L0000373	0	0.19530E-05	404813.9	3770868.8	88.8	4.50	0.93	4.88	YES	
L0000374	0	0.19530E-05	404815.5	3770867.5	88.8	4.50	0.93	4.88	YES	
L0000375	0	0.19530E-05	404817.0	3770866.2	88.8	4.50	0.93	4.88	YES	
L0000376	0	0.19530E-05	404818.5	3770864.9	88.8	4.50	0.93			

4.88 YES							
L0000377	0	0.19530E-05	404820.0	3770863.6	88.8	4.50	0.93
4.88 YES							
L0000378	0	0.19530E-05	404821.6	3770862.3	88.8	4.50	0.93
4.88 YES							
L0000379	0	0.19530E-05	404823.1	3770861.0	88.8	4.50	0.93
4.88 YES							
L0000380	0	0.19530E-05	404824.6	3770859.7	88.8	4.50	0.93
4.88 YES							
L0000381	0	0.19530E-05	404826.2	3770858.4	88.8	4.50	0.93
4.88 YES							
L0000382	0	0.19530E-05	404827.7	3770857.1	88.8	4.50	0.93
4.88 YES							
L0000383	0	0.19530E-05	404829.2	3770855.9	88.8	4.50	0.93
4.88 YES							
L0000384	0	0.19530E-05	404830.8	3770854.6	88.8	4.50	0.93
4.88 YES							
L0000385	0	0.19530E-05	404832.3	3770853.3	88.8	4.50	0.93
4.88 YES							
L0000386	0	0.19530E-05	404833.8	3770852.0	88.8	4.50	0.93
4.88 YES							
L0000387	0	0.19530E-05	404835.3	3770850.7	88.8	4.50	0.93
4.88 YES							
L0000388	0	0.19530E-05	404836.9	3770849.4	88.8	4.50	0.93
4.88 YES							
L0000389	0	0.19530E-05	404838.4	3770848.1	88.8	4.50	0.93
4.88 YES							
L0000390	0	0.19530E-05	404839.9	3770846.8	88.8	4.50	0.93
4.88 YES							
L0000391	0	0.19530E-05	404841.5	3770845.5	88.8	4.50	0.93
4.88 YES							
L0000392	0	0.19530E-05	404843.0	3770844.3	88.8	4.50	0.93
4.88 YES							
L0000393	0	0.19530E-05	404844.5	3770843.0	88.8	4.50	0.93
4.88 YES							
L0000394	0	0.19530E-05	404846.0	3770841.7	88.8	4.50	0.93
4.88 YES							
L0000395	0	0.19530E-05	404847.6	3770840.4	88.8	4.50	0.93
4.88 YES							
L0000396	0	0.19530E-05	404849.1	3770839.1	88.8	4.50	0.93
4.88 YES							
L0000397	0	0.19530E-05	404850.6	3770837.8	88.8	4.50	0.93
4.88 YES							
L0000398	0	0.19530E-05	404852.2	3770836.5	88.7	4.50	0.93
4.88 YES							
L0000399	0	0.19530E-05	404853.7	3770835.2	88.7	4.50	0.93
4.88 YES							
L0000400	0	0.19530E-05	404855.2	3770833.9	88.7	4.50	0.93

4.88 YES

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20

*** AERMET - VERSION 16216 *** *** *** 15:56:17

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000401	0	0.19530E-05	404856.7	3770832.7	88.7	4.50	0.93	4.88	YES	
L0000402	0	0.19530E-05	404858.3	3770831.4	88.7	4.50	0.93	4.88	YES	
L0000403	0	0.19530E-05	404859.8	3770830.1	88.7	4.50	0.93	4.88	YES	
L0000404	0	0.19530E-05	404861.3	3770828.8	88.7	4.50	0.93	4.88	YES	
L0000405	0	0.19530E-05	404862.9	3770827.5	88.7	4.50	0.93	4.88	YES	
L0000406	0	0.19530E-05	404864.4	3770826.2	88.6	4.50	0.93	4.88	YES	
L0000407	0	0.19530E-05	404865.9	3770824.9	88.6	4.50	0.93	4.88	YES	
L0000408	0	0.19530E-05	404867.4	3770823.6	88.6	4.50	0.93	4.88	YES	
L0000409	0	0.19530E-05	404869.0	3770822.3	88.7	4.50	0.93	4.88	YES	
L0000410	0	0.19530E-05	404870.5	3770821.0	88.7	4.50	0.93	4.88	YES	
L0000411	0	0.19530E-05	404872.0	3770819.8	88.7	4.50	0.93	4.88	YES	
L0000412	0	0.19530E-05	404873.6	3770818.5	88.7	4.50	0.93	4.88	YES	
L0000413	0	0.19530E-05	404875.1	3770817.2	88.7	4.50	0.93	4.88	YES	
L0000414	0	0.19530E-05	404876.6	3770815.9	88.7	4.50	0.93			

4.88 YES							
L0000415	0	0.19530E-05	404878.2	3770814.6	88.6	4.50	0.93
4.88 YES							
L0000416	0	0.19530E-05	404879.7	3770813.3	88.6	4.50	0.93
4.88 YES							
L0000417	0	0.19530E-05	404881.2	3770812.0	88.6	4.50	0.93
4.88 YES							
L0000418	0	0.19530E-05	404882.7	3770810.7	88.6	4.50	0.93
4.88 YES							
L0000419	0	0.19530E-05	404884.3	3770809.4	88.6	4.50	0.93
4.88 YES							
L0000420	0	0.19530E-05	404885.8	3770808.2	88.6	4.50	0.93
4.88 YES							
L0000421	0	0.19530E-05	404887.3	3770806.9	88.6	4.50	0.93
4.88 YES							
L0000422	0	0.19530E-05	404888.9	3770805.6	88.6	4.50	0.93
4.88 YES							
L0000423	0	0.19530E-05	404890.4	3770804.3	88.6	4.50	0.93
4.88 YES							
L0000424	0	0.19530E-05	404891.9	3770803.0	88.6	4.50	0.93
4.88 YES							
L0000425	0	0.19530E-05	404893.4	3770801.7	88.6	4.50	0.93
4.88 YES							
L0000426	0	0.19530E-05	404895.0	3770800.4	88.6	4.50	0.93
4.88 YES							
L0000427	0	0.19530E-05	404896.5	3770799.1	88.7	4.50	0.93
4.88 YES							
L0000428	0	0.19530E-05	404898.0	3770797.8	88.7	4.50	0.93
4.88 YES							
L0000429	0	0.19530E-05	404899.6	3770796.6	88.7	4.50	0.93
4.88 YES							
L0000430	0	0.19530E-05	404901.1	3770795.3	88.7	4.50	0.93
4.88 YES							
L0000431	0	0.19530E-05	404902.6	3770794.0	88.8	4.50	0.93
4.88 YES							
L0000432	0	0.19530E-05	404904.1	3770792.7	88.8	4.50	0.93
4.88 YES							
L0000433	0	0.19530E-05	404905.7	3770791.4	88.8	4.50	0.93
4.88 YES							
L0000434	0	0.19530E-05	404907.2	3770790.1	88.8	4.50	0.93
4.88 YES							
L0000435	0	0.19530E-05	404908.7	3770788.8	88.8	4.50	0.93
4.88 YES							
L0000436	0	0.19530E-05	404910.3	3770787.5	88.8	4.50	0.93
4.88 YES							
L0000437	0	0.19530E-05	404911.8	3770786.2	88.8	4.50	0.93
4.88 YES							
L0000438	0	0.19530E-05	404913.3	3770784.9	88.8	4.50	0.93

4.88 YES
L0000439 0 0.19530E-05 404914.8 3770783.7 88.8 4.50 0.93
4.88 YES
L0000440 0 0.19530E-05 404916.4 3770782.4 88.8 4.50 0.93
4.88 YES
↟ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20
*** AERMET - VERSION 16216 *** ***
*** 15:56:17

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE BY	EMISSION RATE SCALAR VARY
L0000441	0	0.19530E-05	404917.9	3770781.1	88.7	4.50	0.93	4.88	YES	
L0000442	0	0.19530E-05	404919.4	3770779.8	88.4	4.50	0.93	4.88	YES	
L0000443	0	0.19530E-05	404921.0	3770778.5	88.1	4.50	0.93	4.88	YES	
L0000444	0	0.19530E-05	404922.5	3770777.2	87.8	4.50	0.93	4.88	YES	
L0000445	0	0.19530E-05	404924.0	3770775.9	87.5	4.50	0.93	4.88	YES	
L0000446	0	0.19530E-05	404925.5	3770774.6	87.1	4.50	0.93	4.88	YES	
L0000447	0	0.19530E-05	404927.1	3770773.3	86.8	4.50	0.93	4.88	YES	
L0000448	0	0.19530E-05	404928.6	3770772.1	86.4	4.50	0.93	4.88	YES	
L0000449	0	0.19530E-05	404930.1	3770770.8	86.1	4.50	0.93	4.88	YES	
L0000450	0	0.19530E-05	404931.7	3770769.5	85.8	4.50	0.93	4.88	YES	
L0000451	0	0.19530E-05	404933.2	3770768.2	85.4	4.50	0.93	4.88	YES	
L0000452	0	0.19530E-05	404934.7	3770766.9	85.1	4.50	0.93			

4.88	YES							
L0000453		0	0.19530E-05	404936.3	3770765.6	84.8	4.50	0.93
4.88	YES							
L0000454		0	0.19530E-05	404937.8	3770764.3	84.4	4.50	0.93
4.88	YES							
L0000455		0	0.19530E-05	404939.3	3770763.0	84.1	4.50	0.93
4.88	YES							
L0000456		0	0.19530E-05	404940.8	3770761.7	83.8	4.50	0.93
4.88	YES							
L0000457		0	0.19530E-05	404942.4	3770760.5	83.4	4.50	0.93
4.88	YES							
L0000458		0	0.19530E-05	404943.9	3770759.2	83.1	4.50	0.93
4.88	YES							
L0000459		0	0.19530E-05	404945.4	3770757.9	82.8	4.50	0.93
4.88	YES							
L0000460		0	0.19530E-05	404947.0	3770756.6	82.4	4.50	0.93
4.88	YES							
L0000461		0	0.19530E-05	404948.5	3770755.3	82.1	4.50	0.93
4.88	YES							
L0000462		0	0.19530E-05	404950.0	3770754.0	81.8	4.50	0.93
4.88	YES							
L0000463		0	0.19530E-05	404951.5	3770752.7	81.6	4.50	0.93
4.88	YES							
L0000464		0	0.19530E-05	404953.1	3770751.4	81.3	4.50	0.93
4.88	YES							
L0000465		0	0.19530E-05	404954.6	3770750.1	81.2	4.50	0.93
4.88	YES							
L0000466		0	0.19530E-05	404956.1	3770748.9	81.5	4.50	0.93
4.88	YES							
L0000467		0	0.19530E-05	404957.7	3770747.6	81.8	4.50	0.93
4.88	YES							
L0000468		0	0.19530E-05	404959.2	3770746.3	82.1	4.50	0.93
4.88	YES							
L0000469		0	0.19530E-05	404960.7	3770745.0	82.4	4.50	0.93
4.88	YES							
L0000470		0	0.19530E-05	404962.2	3770743.7	82.7	4.50	0.93
4.88	YES							
L0000471		0	0.19530E-05	404963.8	3770742.4	83.0	4.50	0.93
4.88	YES							
L0000472		0	0.19530E-05	404965.3	3770741.1	83.3	4.50	0.93
4.88	YES							
L0000473		0	0.19530E-05	404966.8	3770739.8	83.6	4.50	0.93
4.88	YES							
L0000474		0	0.19530E-05	404968.4	3770738.5	83.9	4.50	0.93
4.88	YES							
L0000475		0	0.19530E-05	404969.9	3770737.2	84.2	4.50	0.93
4.88	YES							
L0000476		0	0.19530E-05	404971.4	3770736.0	84.5	4.50	0.93

```
4.88     YES
 L0000477         0   0.19530E-05  404972.9 3770734.7    84.8     4.50     0.93
4.88     YES
 L0000478         0   0.19530E-05  404974.5 3770733.4    85.1     4.50     0.93
4.88     YES
 L0000479         0   0.19530E-05  404976.0 3770732.1    85.4     4.50     0.93
4.88     YES
 L0000480         0   0.19530E-05  404977.5 3770730.8    85.7     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
                       ***        15:56:17
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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

 L0000481         0   0.19530E-05  404979.1 3770729.5    86.0     4.50     0.93
4.88     YES
 L0000482         0   0.19530E-05  404980.6 3770728.2    86.4     4.50     0.93
4.88     YES
 L0000483         0   0.19530E-05  404982.1 3770726.9    86.7     4.50     0.93
4.88     YES
 L0000484         0   0.19530E-05  404983.7 3770725.6    87.0     4.50     0.93
4.88     YES
 L0000485         0   0.19530E-05  404985.2 3770724.4    87.3     4.50     0.93
4.88     YES
 L0000486         0   0.19530E-05  404986.7 3770723.1    87.6     4.50     0.93
4.88     YES
 L0000487         0   0.19530E-05  404988.2 3770721.8    87.9     4.50     0.93
4.88     YES
 L0000488         0   0.19530E-05  404989.8 3770720.5    88.2     4.50     0.93
4.88     YES
 L0000489         0   0.19530E-05  404991.3 3770719.2    88.5     4.50     0.93
4.88     YES
 L0000490         0   0.19530E-05  404992.8 3770717.9    88.5     4.50     0.93
```

4.88 YES							
L0000491	0	0.19530E-05	404994.4	3770716.6	88.5	4.50	0.93
4.88 YES							
L0000492	0	0.19530E-05	404995.9	3770715.3	88.5	4.50	0.93
4.88 YES							
L0000493	0	0.19530E-05	404997.4	3770714.0	88.5	4.50	0.93
4.88 YES							
L0000494	0	0.19530E-05	404998.9	3770712.8	88.5	4.50	0.93
4.88 YES							
L0000495	0	0.19530E-05	405000.5	3770711.5	88.4	4.50	0.93
4.88 YES							
L0000496	0	0.19530E-05	405002.0	3770710.2	88.4	4.50	0.93
4.88 YES							
L0000497	0	0.19530E-05	405003.5	3770708.9	88.3	4.50	0.93
4.88 YES							
L0000498	0	0.19530E-05	405005.1	3770707.6	88.3	4.50	0.93
4.88 YES							
L0000499	0	0.19530E-05	405006.6	3770706.3	88.2	4.50	0.93
4.88 YES							
L0000500	0	0.19530E-05	405008.1	3770705.0	88.2	4.50	0.93
4.88 YES							
L0000501	0	0.19530E-05	405009.6	3770703.7	88.2	4.50	0.93
4.88 YES							
L0000502	0	0.19530E-05	405011.2	3770702.4	88.2	4.50	0.93
4.88 YES							
L0000503	0	0.19530E-05	405012.7	3770701.1	88.2	4.50	0.93
4.88 YES							
L0000504	0	0.19530E-05	405014.2	3770699.9	88.2	4.50	0.93
4.88 YES							
L0000505	0	0.19530E-05	405015.8	3770698.6	88.3	4.50	0.93
4.88 YES							
L0000506	0	0.19530E-05	405017.3	3770697.3	88.3	4.50	0.93
4.88 YES							
L0000507	0	0.19530E-05	405018.8	3770696.0	88.3	4.50	0.93
4.88 YES							
L0000508	0	0.19530E-05	405020.3	3770694.7	88.4	4.50	0.93
4.88 YES							
L0000509	0	0.19530E-05	405021.9	3770693.4	88.5	4.50	0.93
4.88 YES							
L0000510	0	0.19530E-05	405023.4	3770692.1	88.5	4.50	0.93
4.88 YES							
L0000511	0	0.19530E-05	405024.9	3770690.8	88.6	4.50	0.93
4.88 YES							
L0000512	0	0.19530E-05	405026.5	3770689.5	88.6	4.50	0.93
4.88 YES							
L0000513	0	0.19530E-05	405028.0	3770688.3	88.6	4.50	0.93
4.88 YES							
L0000514	0	0.19530E-05	405029.5	3770687.0	88.6	4.50	0.93

4.88 YES
L0000515 0 0.19530E-05 405031.1 3770685.7 88.5 4.50 0.93
4.88 YES
L0000516 0 0.19530E-05 405032.6 3770684.4 88.4 4.50 0.93
4.88 YES
L0000517 0 0.19530E-05 405034.1 3770683.1 88.3 4.50 0.93
4.88 YES
L0000518 0 0.19530E-05 405035.7 3770681.9 88.2 4.50 0.93
4.88 YES
L0000519 0 0.19530E-05 405037.2 3770680.6 88.1 4.50 0.93
4.88 YES
L0000520 0 0.19530E-05 405038.7 3770679.3 88.1 4.50 0.93
4.88 YES

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE BY	EMISSION RATE SCALAR VARY
L0000521	0	0.19530E-05	405040.3	3770678.0	88.0	4.50	0.93	4.88	YES	
L0000522	0	0.19530E-05	405041.8	3770676.7	88.0	4.50	0.93	4.88	YES	
L0000523	0	0.19530E-05	405043.4	3770675.5	87.9	4.50	0.93	4.88	YES	
L0000524	0	0.19530E-05	405044.9	3770674.2	87.9	4.50	0.93	4.88	YES	
L0000525	0	0.19530E-05	405046.4	3770672.9	87.8	4.50	0.93	4.88	YES	
L0000526	0	0.19530E-05	405048.0	3770671.6	87.8	4.50	0.93	4.88	YES	
L0000527	0	0.19530E-05	405049.5	3770670.3	87.8	4.50	0.93	4.88	YES	
L0000528	0	0.19530E-05	405051.0	3770669.1	87.8	4.50	0.93			

```
4.88     YES
 L0000529         0   0.19530E-05  405052.6 3770667.8    87.8     4.50     0.93
4.88     YES
 L0000530         0   0.19530E-05  405054.1 3770666.5    87.8     4.50     0.93
4.88     YES
 L0000531         0   0.19530E-05  405055.7 3770665.2    87.8     4.50     0.93
4.88     YES
 L0000532         0   0.19530E-05  405057.2 3770663.9    87.9     4.50     0.93
4.88     YES
 L0000533         0   0.19530E-05  405058.7 3770662.7    87.9     4.50     0.93
4.88     YES
 L0000534         0   0.19530E-05  405060.3 3770661.4    88.0     4.50     0.93
4.88     YES
 L0000535         0   0.19530E-05  405061.8 3770660.1    88.0     4.50     0.93
4.88     YES
 L0000536         0   0.19530E-05  405063.4 3770658.8    88.1     4.50     0.93
4.88     YES
 L0000537         0   0.19530E-05  405064.9 3770657.6    88.1     4.50     0.93
4.88     YES
 L0000538         0   0.19530E-05  405066.4 3770656.3    88.2     4.50     0.93
4.88     YES
 L0000539         0   0.19530E-05  405068.0 3770655.0    88.2     4.50     0.93
4.88     YES
 L0000540         0   0.19530E-05  405069.5 3770653.7    88.2     4.50     0.93
4.88     YES
 L0000541         0   0.19530E-05  405071.0 3770652.4    88.3     4.50     0.93
4.88     YES
 L0000542         0   0.19530E-05  405072.6 3770651.2    88.3     4.50     0.93
4.88     YES
 L0000543         0   0.19530E-05  405074.1 3770649.9    88.3     4.50     0.93
4.88     YES
 L0000544         0   0.19530E-05  405075.7 3770648.6    88.3     4.50     0.93
4.88     YES
 L0000545         0   0.19530E-05  405077.2 3770647.3    88.3     4.50     0.93
4.88     YES
 L0000546         0   0.19530E-05  405078.7 3770646.0    88.3     4.50     0.93
4.88     YES
 L0000547         0   0.19530E-05  405080.3 3770644.8    88.2     4.50     0.93
4.88     YES
 L0000548         0   0.19530E-05  405081.8 3770643.5    88.2     4.50     0.93
4.88     YES
 L0000549         0   0.19530E-05  405083.3 3770642.2    88.2     4.50     0.93
4.88     YES
 L0000550         0   0.19530E-05  405084.9 3770640.9    88.2     4.50     0.93
4.88     YES
 L0000551         0   0.19530E-05  405086.4 3770639.7    88.2     4.50     0.93
4.88     YES
 L0000552         0   0.19530E-05  405088.0 3770638.4    88.3     4.50     0.93
```

4.88 YES
L0000553 0 0.19530E-05 405089.5 3770637.1 88.3 4.50 0.93
4.88 YES
L0000554 0 0.19530E-05 405091.0 3770635.8 88.3 4.50 0.93
4.88 YES
L0000555 0 0.19530E-05 405092.6 3770634.5 88.4 4.50 0.93
4.88 YES
L0000556 0 0.19530E-05 405094.1 3770633.3 88.4 4.50 0.93
4.88 YES
L0000557 0 0.19530E-05 405095.6 3770632.0 88.5 4.50 0.93
4.88 YES
L0000558 0 0.19530E-05 405097.2 3770630.7 88.6 4.50 0.93
4.88 YES
L0000559 0 0.19530E-05 405098.7 3770629.4 88.6 4.50 0.93
4.88 YES
L0000560 0 0.19530E-05 405100.3 3770628.1 88.7 4.50 0.93
4.88 YES
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20
*** AERMET - VERSION 16216 *** *** *** 15:56:17

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000561	0	0.19530E-05	405101.8	3770626.9	88.8	4.50	0.93	4.88	YES	
L0000562	0	0.19530E-05	405103.3	3770625.6	88.7	4.50	0.93	4.88	YES	
L0000563	0	0.19530E-05	405104.9	3770624.3	88.6	4.50	0.93	4.88	YES	
L0000564	0	0.19530E-05	405106.4	3770623.0	88.5	4.50	0.93	4.88	YES	
L0000565	0	0.19530E-05	405107.9	3770621.7	88.4	4.50	0.93	4.88	YES	
L0000566	0	0.19530E-05	405109.5	3770620.5	88.3	4.50	0.93			

4.88	YES							
L0000567		0	0.19530E-05	405111.0	3770619.2	88.3	4.50	0.93
4.88	YES							
L0000568		0	0.19530E-05	405112.6	3770617.9	88.2	4.50	0.93
4.88	YES							
L0000569		0	0.19530E-05	405114.1	3770616.6	88.1	4.50	0.93
4.88	YES							
L0000570		0	0.19530E-05	405115.6	3770615.4	88.1	4.50	0.93
4.88	YES							
L0000571		0	0.19530E-05	405117.2	3770614.1	88.0	4.50	0.93
4.88	YES							
L0000572		0	0.19530E-05	405118.7	3770612.8	88.0	4.50	0.93
4.88	YES							
L0000573		0	0.19530E-05	405120.2	3770611.5	88.0	4.50	0.93
4.88	YES							
L0000574		0	0.19530E-05	405121.8	3770610.2	88.0	4.50	0.93
4.88	YES							
L0000575		0	0.19530E-05	405123.3	3770609.0	87.9	4.50	0.93
4.88	YES							
L0000576		0	0.19530E-05	405124.9	3770607.7	87.9	4.50	0.93
4.88	YES							
L0000577		0	0.19530E-05	405126.4	3770606.4	87.9	4.50	0.93
4.88	YES							
L0000578		0	0.19530E-05	405127.9	3770605.1	88.0	4.50	0.93
4.88	YES							
L0000579		0	0.19530E-05	405129.5	3770603.8	88.0	4.50	0.93
4.88	YES							
L0000580		0	0.19530E-05	405131.0	3770602.6	88.1	4.50	0.93
4.88	YES							
L0000581		0	0.19530E-05	405132.6	3770601.3	88.2	4.50	0.93
4.88	YES							
L0000582		0	0.19530E-05	405134.1	3770600.0	88.2	4.50	0.93
4.88	YES							
L0000583		0	0.19530E-05	405135.6	3770598.7	88.3	4.50	0.93
4.88	YES							
L0000584		0	0.19530E-05	405137.2	3770597.5	88.3	4.50	0.93
4.88	YES							
L0000585		0	0.19530E-05	405138.7	3770596.2	88.4	4.50	0.93
4.88	YES							
L0000586		0	0.19530E-05	405140.2	3770594.9	88.5	4.50	0.93
4.88	YES							
L0000587		0	0.19530E-05	405141.8	3770593.6	88.5	4.50	0.93
4.88	YES							
L0000588		0	0.19530E-05	405143.3	3770592.3	88.5	4.50	0.93
4.88	YES							
L0000589		0	0.19530E-05	405144.9	3770591.1	88.5	4.50	0.93
4.88	YES							
L0000590		0	0.19530E-05	405146.4	3770589.8	88.5	4.50	0.93

```
4.88     YES
 L0000591         0   0.19530E-05  405147.9 3770588.5    88.5     4.50     0.93
4.88     YES
 L0000592         0   0.19530E-05  405149.5 3770587.2    88.5     4.50     0.93
4.88     YES
 L0000593         0   0.19530E-05  405151.0 3770585.9    88.5     4.50     0.93
4.88     YES
 L0000594         0   0.19530E-05  405152.5 3770584.7    88.5     4.50     0.93
4.88     YES
 L0000595         0   0.19530E-05  405154.1 3770583.4    88.4     4.50     0.93
4.88     YES
 L0000596         0   0.19530E-05  405155.6 3770582.1    88.4     4.50     0.93
4.88     YES
 L0000597         0   0.19530E-05  405157.2 3770580.8    88.4     4.50     0.93
4.88     YES
 L0000598         0   0.19530E-05  405158.7 3770579.5    88.4     4.50     0.93
4.88     YES
 L0000599         0   0.19530E-05  405160.2 3770578.3    88.4     4.50     0.93
4.88     YES
 L0000600         0   0.19530E-05  405161.8 3770577.0    88.4     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
                      ***        15:56:17

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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
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- - - - - - - - - - - - - - - - - - - - -

 L0000601         0   0.19530E-05  405163.3 3770575.7    88.4     4.50     0.93
4.88     YES
 L0000602         0   0.19530E-05  405164.8 3770574.4    88.5     4.50     0.93
4.88     YES
 L0000603         0   0.19530E-05  405166.4 3770573.2    88.5     4.50     0.93
4.88     YES
 L0000604         0   0.19530E-05  405167.9 3770571.9    88.6     4.50     0.93
```

4.88	YES							
L0000605		0	0.19530E-05	405169.5	3770570.6	88.6	4.50	0.93
4.88	YES							
L0000606		0	0.19530E-05	405171.0	3770569.3	88.7	4.50	0.93
4.88	YES							
L0000607		0	0.19530E-05	405172.5	3770568.0	88.8	4.50	0.93
4.88	YES							
L0000608		0	0.19530E-05	405174.1	3770566.8	88.9	4.50	0.93
4.88	YES							
L0000609		0	0.19530E-05	405175.6	3770565.5	89.0	4.50	0.93
4.88	YES							
L0000610		0	0.19530E-05	405177.1	3770564.2	89.2	4.50	0.93
4.88	YES							
L0000611		0	0.19530E-05	405178.7	3770562.9	89.2	4.50	0.93
4.88	YES							
L0000612		0	0.19530E-05	405180.2	3770561.6	89.1	4.50	0.93
4.88	YES							
L0000613		0	0.19530E-05	405181.8	3770560.4	89.0	4.50	0.93
4.88	YES							
L0000614		0	0.19530E-05	405183.3	3770559.1	88.9	4.50	0.93
4.88	YES							
L0000615		0	0.19530E-05	405184.8	3770557.8	88.8	4.50	0.93
4.88	YES							
L0000616		0	0.19530E-05	405186.4	3770556.5	88.8	4.50	0.93
4.88	YES							
L0000617		0	0.19530E-05	405187.9	3770555.3	88.7	4.50	0.93
4.88	YES							
L0000618		0	0.19530E-05	405189.4	3770554.0	88.7	4.50	0.93
4.88	YES							
L0000619		0	0.19530E-05	405191.0	3770552.7	88.7	4.50	0.93
4.88	YES							
L0000620		0	0.19530E-05	405192.5	3770551.4	88.7	4.50	0.93
4.88	YES							
L0000621		0	0.19530E-05	405194.1	3770550.1	88.7	4.50	0.93
4.88	YES							
L0000622		0	0.19530E-05	405195.6	3770548.9	88.8	4.50	0.93
4.88	YES							
L0000623		0	0.19530E-05	405197.1	3770547.6	88.8	4.50	0.93
4.88	YES							
L0000624		0	0.19530E-05	405198.7	3770546.3	88.9	4.50	0.93
4.88	YES							
L0000625		0	0.19530E-05	405200.2	3770545.0	89.0	4.50	0.93
4.88	YES							
L0000626		0	0.19530E-05	405201.8	3770543.7	89.1	4.50	0.93
4.88	YES							
L0000627		0	0.19530E-05	405203.3	3770542.5	89.2	4.50	0.93
4.88	YES							
L0000628		0	0.19530E-05	405204.8	3770541.2	89.2	4.50	0.93

4.88 YES
L0000629 0 0.19530E-05 405206.4 3770539.9 89.3 4.50 0.93
4.88 YES
L0000630 0 0.19530E-05 405207.9 3770538.6 89.3 4.50 0.93
4.88 YES
L0000631 0 0.19530E-05 405209.4 3770537.3 89.4 4.50 0.93
4.88 YES
L0000632 0 0.19530E-05 405211.0 3770536.1 89.4 4.50 0.93
4.88 YES
L0000633 0 0.19530E-05 405212.5 3770534.8 89.5 4.50 0.93
4.88 YES
L0000634 0 0.19530E-05 405214.1 3770533.5 89.5 4.50 0.93
4.88 YES
L0000635 0 0.19530E-05 405215.6 3770532.2 89.6 4.50 0.93
4.88 YES
L0000636 0 0.19530E-05 405217.1 3770531.0 89.5 4.50 0.93
4.88 YES
L0000637 0 0.19530E-05 405218.7 3770529.7 89.5 4.50 0.93
4.88 YES
L0000638 0 0.19530E-05 405220.2 3770528.4 89.4 4.50 0.93
4.88 YES
L0000639 0 0.19530E-05 405221.7 3770527.1 89.3 4.50 0.93
4.88 YES
L0000640 0 0.19530E-05 405223.3 3770525.8 89.3 4.50 0.93
4.88 YES

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000641	0	0.19530E-05	405224.8	3770524.6	89.2	4.50	0.93	4.88	YES	
L0000642	0	0.19530E-05	405226.4	3770523.3	89.2	4.50	0.93			

4.88 YES							
L0000643	0	0.19530E-05	405227.9	3770522.0	89.1	4.50	0.93
4.88 YES							
L0000644	0	0.19530E-05	405229.4	3770520.7	89.1	4.50	0.93
4.88 YES							
L0000645	0	0.19530E-05	405231.0	3770519.4	89.0	4.50	0.93
4.88 YES							
L0000646	0	0.19530E-05	405232.5	3770518.2	89.0	4.50	0.93
4.88 YES							
L0000647	0	0.19530E-05	405234.0	3770516.9	89.0	4.50	0.93
4.88 YES							
L0000648	0	0.19530E-05	405235.6	3770515.6	89.0	4.50	0.93
4.88 YES							
L0000649	0	0.19530E-05	405237.1	3770514.3	89.0	4.50	0.93
4.88 YES							
L0000650	0	0.19530E-05	405238.7	3770513.1	89.0	4.50	0.93
4.88 YES							
L0000651	0	0.19530E-05	405240.2	3770511.8	89.0	4.50	0.93
4.88 YES							
L0000652	0	0.19530E-05	405241.7	3770510.5	89.0	4.50	0.93
4.88 YES							
L0000653	0	0.19530E-05	405243.3	3770509.2	89.1	4.50	0.93
4.88 YES							
L0000654	0	0.19530E-05	405244.8	3770507.9	89.1	4.50	0.93
4.88 YES							
L0000655	0	0.19530E-05	405246.3	3770506.7	89.2	4.50	0.93
4.88 YES							
L0000656	0	0.19530E-05	405247.9	3770505.4	89.3	4.50	0.93
4.88 YES							
L0000657	0	0.19530E-05	405249.4	3770504.1	89.4	4.50	0.93
4.88 YES							
L0000658	0	0.19530E-05	405251.0	3770502.8	89.5	4.50	0.93
4.88 YES							
L0000659	0	0.19530E-05	405252.5	3770501.5	89.6	4.50	0.93
4.88 YES							
L0000660	0	0.19530E-05	405254.0	3770500.3	89.6	4.50	0.93
4.88 YES							
L0000661	0	0.19530E-05	405255.6	3770499.0	89.5	4.50	0.93
4.88 YES							
L0000662	0	0.19530E-05	405257.1	3770497.7	89.4	4.50	0.93
4.88 YES							
L0000663	0	0.19530E-05	405258.6	3770496.4	89.3	4.50	0.93
4.88 YES							
L0000664	0	0.19530E-05	405260.2	3770495.1	89.2	4.50	0.93
4.88 YES							
L0000665	0	0.19530E-05	405261.7	3770493.9	89.1	4.50	0.93
4.88 YES							
L0000666	0	0.19530E-05	405263.3	3770492.6	89.1	4.50	0.93

```
4.88     YES
 L0000667         0   0.19530E-05  405264.8 3770491.3    89.0     4.50     0.93
4.88     YES
 L0000668         0   0.19530E-05  405266.3 3770490.0    89.0     4.50     0.93
4.88     YES
 L0000669         0   0.19530E-05  405267.9 3770488.8    88.9     4.50     0.93
4.88     YES
 L0000670         0   0.19530E-05  405269.4 3770487.5    88.9     4.50     0.93
4.88     YES
 L0000671         0   0.19530E-05  405271.0 3770486.2    88.9     4.50     0.93
4.88     YES
 L0000672         0   0.19530E-05  405272.5 3770484.9    88.9     4.50     0.93
4.88     YES
 L0000673         0   0.19530E-05  405274.0 3770483.6    88.9     4.50     0.93
4.88     YES
 L0000674         0   0.19530E-05  405275.6 3770482.4    88.9     4.50     0.93
4.88     YES
 L0000675         0   0.19530E-05  405277.1 3770481.1    88.9     4.50     0.93
4.88     YES
 L0000676         0   0.19530E-05  405278.6 3770479.8    88.9     4.50     0.93
4.88     YES
 L0000677         0   0.19530E-05  405280.2 3770478.5    88.8     4.50     0.93
4.88     YES
 L0000678         0   0.19530E-05  405281.7 3770477.2    88.6     4.50     0.93
4.88     YES
 L0000679         0   0.19530E-05  405283.3 3770476.0    88.3     4.50     0.93
4.88     YES
 L0000680         0   0.19530E-05  405284.8 3770474.7    88.1     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
                       ***        15:56:17

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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - -
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L0000681	0	0.19530E-05	405286.3	3770473.4	87.8	4.50	0.93	4.88 YES
L0000682	0	0.19530E-05	405287.9	3770472.1	87.5	4.50	0.93	4.88 YES
L0000683	0	0.19530E-05	405289.4	3770470.9	87.1	4.50	0.93	4.88 YES
L0000684	0	0.19530E-05	405290.9	3770469.6	86.7	4.50	0.93	4.88 YES
L0000685	0	0.19530E-05	405292.5	3770468.3	86.4	4.50	0.93	4.88 YES
L0000686	0	0.19530E-05	405294.0	3770467.0	86.2	4.50	0.93	4.88 YES
L0000687	0	0.19530E-05	405295.6	3770465.7	85.9	4.50	0.93	4.88 YES
L0000688	0	0.19530E-05	405297.1	3770464.5	85.8	4.50	0.93	4.88 YES
L0000689	0	0.19530E-05	405298.6	3770463.2	85.6	4.50	0.93	4.88 YES
L0000690	0	0.19530E-05	405300.2	3770461.9	85.5	4.50	0.93	4.88 YES
L0000691	0	0.19530E-05	405301.7	3770460.6	85.5	4.50	0.93	4.88 YES
L0000692	0	0.19530E-05	405303.2	3770459.3	85.5	4.50	0.93	4.88 YES
L0000693	0	0.19530E-05	405304.8	3770458.0	85.5	4.50	0.93	4.88 YES
L0000694	0	0.19530E-05	405306.3	3770456.8	85.8	4.50	0.93	4.88 YES
L0000695	0	0.19530E-05	405307.8	3770455.5	86.2	4.50	0.93	4.88 YES
L0000696	0	0.19530E-05	405309.4	3770454.2	86.5	4.50	0.93	4.88 YES
L0000697	0	0.19530E-05	405310.9	3770452.9	86.8	4.50	0.93	4.88 YES
L0000698	0	0.19530E-05	405312.4	3770451.6	87.1	4.50	0.93	4.88 YES
L0000699	0	0.19530E-05	405314.0	3770450.3	87.4	4.50	0.93	4.88 YES
L0000700	0	0.19530E-05	405315.5	3770449.0	87.7	4.50	0.93	4.88 YES
L0000701	0	0.19530E-05	405317.0	3770447.8	87.9	4.50	0.93	4.88 YES
L0000702	0	0.19530E-05	405318.5	3770446.5	88.2	4.50	0.93	4.88 YES
L0000703	0	0.19530E-05	405320.1	3770445.2	88.5	4.50	0.93	4.88 YES
L0000704	0	0.19530E-05	405321.6	3770443.9	88.7	4.50	0.93	

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4.88     YES
 L0000705         0   0.19530E-05  405323.1 3770442.6    89.0     4.50     0.93
4.88     YES
 L0000706         0   0.19530E-05  405324.7 3770441.3    89.2     4.50     0.93
4.88     YES
 L0000707         0   0.19530E-05  405326.2 3770440.0    89.4     4.50     0.93
4.88     YES
 L0000708         0   0.19530E-05  405327.7 3770438.8    89.6     4.50     0.93
4.88     YES
 L0000709         0   0.19530E-05  405329.3 3770437.5    89.7     4.50     0.93
4.88     YES
 L0000710         0   0.19530E-05  405330.8 3770436.2    89.7     4.50     0.93
4.88     YES
 L0000711         0   0.19530E-05  405332.3 3770434.9    89.6     4.50     0.93
4.88     YES
 L0000712         0   0.19530E-05  405333.9 3770433.6    89.5     4.50     0.93
4.88     YES
 L0000713         0   0.19530E-05  405335.4 3770432.3    89.4     4.50     0.93
4.88     YES
 L0000714         0   0.19530E-05  405336.9 3770431.0    89.3     4.50     0.93
4.88     YES
 L0000715         0   0.19530E-05  405338.5 3770429.8    89.3     4.50     0.93
4.88     YES
 L0000716         0   0.19530E-05  405340.0 3770428.5    89.3     4.50     0.93
4.88     YES
 L0000717         0   0.19530E-05  405341.5 3770427.2    89.2     4.50     0.93
4.88     YES
 L0000718         0   0.19530E-05  405343.1 3770425.9    89.2     4.50     0.93
4.88     YES
 L0000719         0   0.19530E-05  405344.6 3770424.6    89.2     4.50     0.93
4.88     YES
 L0000720         0   0.19530E-05  405346.1 3770423.3    89.2     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
                       ***        15:56:17

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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*


                                                  *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
```

ID	CATS.	(METERS)	(METERS)	(METERS)	(METERS)	(METERS)	(METERS)	BY
L0000721	0	0.19530E-05	405347.7	3770422.0	89.3	4.50	0.93	4.88 YES
L0000722	0	0.19530E-05	405349.2	3770420.8	89.3	4.50	0.93	4.88 YES
L0000723	0	0.19530E-05	405350.7	3770419.5	89.4	4.50	0.93	4.88 YES
L0000724	0	0.19530E-05	405352.2	3770418.2	89.4	4.50	0.93	4.88 YES
L0000725	0	0.19530E-05	405353.8	3770416.9	89.5	4.50	0.93	4.88 YES
L0000726	0	0.19530E-05	405355.3	3770415.6	89.6	4.50	0.93	4.88 YES
L0000727	0	0.19530E-05	405356.8	3770414.3	89.6	4.50	0.93	4.88 YES
L0000728	0	0.19530E-05	405358.4	3770413.0	89.6	4.50	0.93	4.88 YES
L0000729	0	0.19530E-05	405359.9	3770411.7	89.6	4.50	0.93	4.88 YES
L0000730	0	0.19530E-05	405361.4	3770410.5	89.5	4.50	0.93	4.88 YES
L0000731	0	0.19530E-05	405363.0	3770409.2	89.5	4.50	0.93	4.88 YES
L0000732	0	0.19530E-05	405364.5	3770407.9	89.5	4.50	0.93	4.88 YES
L0000733	0	0.19530E-05	405366.0	3770406.6	89.4	4.50	0.93	4.88 YES
L0000734	0	0.19530E-05	405367.6	3770405.3	89.3	4.50	0.93	4.88 YES
L0000735	0	0.19530E-05	405369.1	3770404.0	89.2	4.50	0.93	4.88 YES
L0000736	0	0.19530E-05	405370.6	3770402.7	89.1	4.50	0.93	4.88 YES
L0000737	0	0.19530E-05	405372.2	3770401.5	89.1	4.50	0.93	4.88 YES
L0000738	0	0.19530E-05	405373.7	3770400.2	89.0	4.50	0.93	4.88 YES
L0000739	0	0.19530E-05	405375.2	3770398.9	88.9	4.50	0.93	4.88 YES
L0000740	0	0.19530E-05	405376.8	3770397.6	88.9	4.50	0.93	4.88 YES
L0000741	0	0.19530E-05	405378.3	3770396.3	88.8	4.50	0.93	4.88 YES
L0000742	0	0.19530E-05	405379.8	3770395.0	88.8	4.50	0.93	

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4.88     YES
 L0000743         0   0.19530E-05  405381.4 3770393.7    88.8     4.50     0.93
4.88     YES
 L0000744         0   0.19530E-05  405382.9 3770392.5    88.8     4.50     0.93
4.88     YES
 L0000745         0   0.19530E-05  405384.4 3770391.2    88.8     4.50     0.93
4.88     YES
 L0000746         0   0.19530E-05  405385.9 3770389.9    88.8     4.50     0.93
4.88     YES
 L0000747         0   0.19530E-05  405387.5 3770388.6    88.8     4.50     0.93
4.88     YES
 L0000748         0   0.19530E-05  405389.0 3770387.3    88.9     4.50     0.93
4.88     YES
 L0000749         0   0.19530E-05  405390.5 3770386.0    88.9     4.50     0.93
4.88     YES
 L0000750         0   0.19530E-05  405392.1 3770384.7    89.0     4.50     0.93
4.88     YES
 L0000751         0   0.19530E-05  405393.6 3770383.5    89.0     4.50     0.93
4.88     YES
 L0000752         0   0.19530E-05  405395.1 3770382.2    89.1     4.50     0.93
4.88     YES
 L0000753         0   0.19530E-05  405396.7 3770380.9    89.2     4.50     0.93
4.88     YES
 L0000754         0   0.19530E-05  405398.2 3770379.6    89.2     4.50     0.93
4.88     YES
 L0000755         0   0.19530E-05  405399.7 3770378.3    89.3     4.50     0.93
4.88     YES
 L0000756         0   0.19530E-05  405401.3 3770377.0    89.4     4.50     0.93
4.88     YES
 L0000757         0   0.19530E-05  405402.8 3770375.7    89.5     4.50     0.93
4.88     YES
 L0000758         0   0.19530E-05  405404.3 3770374.5    89.5     4.50     0.93
4.88     YES
 L0000759         0   0.19530E-05  405405.9 3770373.2    89.5     4.50     0.93
4.88     YES
 L0000760         0   0.19530E-05  405407.4 3770371.9    89.4     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*


                                                  *** VOLUME SOURCE DATA ***
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SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000761	0	0.19530E-05	405408.9	3770370.6	89.3	4.50	0.93	4.88	YES	
L0000762	0	0.19530E-05	405410.5	3770369.3	89.2	4.50	0.93	4.88	YES	
L0000763	0	0.19530E-05	405412.0	3770368.0	89.1	4.50	0.93	4.88	YES	
L0000764	0	0.19530E-05	405413.5	3770366.7	89.1	4.50	0.93	4.88	YES	
L0000765	0	0.19530E-05	405415.0	3770365.5	89.0	4.50	0.93	4.88	YES	
L0000766	0	0.19530E-05	405416.6	3770364.2	89.0	4.50	0.93	4.88	YES	
L0000767	0	0.19530E-05	405418.1	3770362.9	89.0	4.50	0.93	4.88	YES	
L0000768	0	0.19530E-05	405419.6	3770361.6	89.0	4.50	0.93	4.88	YES	
L0000769	0	0.19530E-05	405421.2	3770360.3	89.0	4.50	0.93	4.88	YES	
L0000770	0	0.19530E-05	405422.7	3770359.0	89.0	4.50	0.93	4.88	YES	
L0000771	0	0.19530E-05	405424.2	3770357.7	89.0	4.50	0.93	4.88	YES	
L0000772	0	0.19530E-05	405425.8	3770356.5	89.1	4.50	0.93	4.88	YES	
L0000773	0	0.19530E-05	405427.3	3770355.2	89.2	4.50	0.93	4.88	YES	
L0000774	0	0.19530E-05	405428.8	3770353.9	89.2	4.50	0.93	4.88	YES	
L0000775	0	0.19530E-05	405430.4	3770352.6	89.3	4.50	0.93	4.88	YES	
L0000776	0	0.19530E-05	405431.9	3770351.3	89.4	4.50	0.93	4.88	YES	
L0000777	0	0.19530E-05	405433.4	3770350.0	89.3	4.50	0.93	4.88	YES	
L0000778	0	0.19530E-05	405435.0	3770348.7	89.3	4.50	0.93	4.88	YES	
L0000779	0	0.19530E-05	405436.5	3770347.4	89.2	4.50	0.93	4.88	YES	
L0000780	0	0.19530E-05	405438.0	3770346.2	89.1	4.50	0.93			

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4.88     YES
 L0000781         0   0.19530E-05  405439.6 3770344.9    89.0     4.50     0.93
4.88     YES
 L0000782         0   0.19530E-05  405441.1 3770343.6    88.9     4.50     0.93
4.88     YES
 L0000783         0   0.19530E-05  405442.6 3770342.3    88.8     4.50     0.93
4.88     YES
 L0000784         0   0.19530E-05  405444.2 3770341.0    88.6     4.50     0.93
4.88     YES
 L0000785         0   0.19530E-05  405445.7 3770339.7    88.5     4.50     0.93
4.88     YES
 L0000786         0   0.19530E-05  405447.2 3770338.4    88.4     4.50     0.93
4.88     YES
 L0000787         0   0.19530E-05  405448.7 3770337.2    88.3     4.50     0.93
4.88     YES
 L0000788         0   0.19530E-05  405450.3 3770335.9    88.2     4.50     0.93
4.88     YES
 L0000789         0   0.19530E-05  405451.8 3770334.6    88.2     4.50     0.93
4.88     YES
 L0000790         0   0.19530E-05  405453.3 3770333.3    88.1     4.50     0.93
4.88     YES
 L0000791         0   0.19530E-05  405454.9 3770332.0    88.0     4.50     0.93
4.88     YES
 L0000792         0   0.19530E-05  405456.4 3770330.7    88.0     4.50     0.93
4.88     YES
 L0000793         0   0.19530E-05  405457.9 3770329.4    88.0     4.50     0.93
4.88     YES
 L0000794         0   0.19530E-05  405459.5 3770328.2    88.1     4.50     0.93
4.88     YES
 L0000795         0   0.19530E-05  405461.0 3770326.9    88.2     4.50     0.93
4.88     YES
 L0000796         0   0.19530E-05  405462.5 3770325.6    88.2     4.50     0.93
4.88     YES
 L0000797         0   0.19530E-05  405464.1 3770324.3    88.3     4.50     0.93
4.88     YES
 L0000798         0   0.19530E-05  405465.6 3770323.0    88.4     4.50     0.93
4.88     YES
 L0000799         0   0.19530E-05  405467.1 3770321.7    88.5     4.50     0.93
4.88     YES
 L0000800         0   0.19530E-05  405468.7 3770320.4    88.6     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*
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*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER EMISSION RATE PART. SCALAR CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE VARY BY
L0000801	0	0.19530E-05	405470.2	3770319.2	88.6	4.50	0.93	4.88	YES
L0000802	0	0.19530E-05	405471.7	3770317.9	88.7	4.50	0.93	4.88	YES
L0000803	0	0.19530E-05	405473.3	3770316.6	88.8	4.50	0.93	4.88	YES
L0000804	0	0.19530E-05	405474.8	3770315.3	88.9	4.50	0.93	4.88	YES
L0000805	0	0.19530E-05	405476.3	3770314.0	89.0	4.50	0.93	4.88	YES
L0000806	0	0.19530E-05	405477.9	3770312.7	89.0	4.50	0.93	4.88	YES
L0000807	0	0.19530E-05	405479.4	3770311.4	89.0	4.50	0.93	4.88	YES
L0000808	0	0.19530E-05	405480.9	3770310.2	89.1	4.50	0.93	4.88	YES
L0000809	0	0.19530E-05	405482.4	3770308.9	89.1	4.50	0.93	4.88	YES
L0000810	0	0.19530E-05	405484.0	3770307.6	89.0	4.50	0.93	4.88	YES
L0000811	0	0.19530E-05	405485.5	3770306.3	89.0	4.50	0.93	4.88	YES
L0000812	0	0.19530E-05	405487.0	3770305.0	89.0	4.50	0.93	4.88	YES
L0000813	0	0.19530E-05	405488.6	3770303.7	88.9	4.50	0.93	4.88	YES
L0000814	0	0.19530E-05	405490.1	3770302.4	88.9	4.50	0.93	4.88	YES
L0000815	0	0.19530E-05	405491.6	3770301.2	88.9	4.50	0.93	4.88	YES
L0000816	0	0.19530E-05	405493.2	3770299.9	88.9	4.50	0.93	4.88	YES
L0000817	0	0.19530E-05	405494.7	3770298.6	89.0	4.50	0.93	4.88	YES
L0000818	0	0.19530E-05	405496.2	3770297.3	89.0	4.50	0.93		

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4.88     YES
 L0000819         0   0.19530E-05  405497.8 3770296.0    89.0     4.50     0.93
4.88     YES
 L0000820         0   0.19530E-05  405499.3 3770294.7    89.1     4.50     0.93
4.88     YES
 L0000821         0   0.19530E-05  405500.8 3770293.4    89.1     4.50     0.93
4.88     YES
 L0000822         0   0.19530E-05  405502.4 3770292.2    89.2     4.50     0.93
4.88     YES
 L0000823         0   0.19530E-05  405503.9 3770290.9    89.3     4.50     0.93
4.88     YES
 L0000824         0   0.19530E-05  405505.4 3770289.6    89.4     4.50     0.93
4.88     YES
 L0000825         0   0.19530E-05  405507.0 3770288.3    89.5     4.50     0.93
4.88     YES
 L0000826         0   0.19530E-05  405508.5 3770287.0    89.6     4.50     0.93
4.88     YES
 L0000827         0   0.19530E-05  405510.0 3770285.7    89.6     4.50     0.93
4.88     YES
 L0000828         0   0.19530E-05  405511.6 3770284.4    89.6     4.50     0.93
4.88     YES
 L0000829         0   0.19530E-05  405513.1 3770283.2    89.6     4.50     0.93
4.88     YES
 L0000830         0   0.19530E-05  405514.6 3770281.9    89.6     4.50     0.93
4.88     YES
 L0000831         0   0.19530E-05  405516.1 3770280.6    89.5     4.50     0.93
4.88     YES
 L0000832         0   0.19530E-05  405517.7 3770279.3    89.4     4.50     0.93
4.88     YES
 L0000833         0   0.19530E-05  405519.2 3770278.0    89.3     4.50     0.93
4.88     YES
 L0000834         0   0.19530E-05  405520.7 3770276.7    89.3     4.50     0.93
4.88     YES
 L0000835         0   0.19530E-05  405522.3 3770275.4    89.2     4.50     0.93
4.88     YES
 L0000836         0   0.19530E-05  405523.8 3770274.1    89.2     4.50     0.93
4.88     YES
 L0000837         0   0.19530E-05  405525.3 3770272.9    89.1     4.50     0.93
4.88     YES
 L0000838         0   0.19530E-05  405526.9 3770271.6    89.0     4.50     0.93
4.88     YES
 L0000839         0   0.19530E-05  405528.4 3770270.3    89.0     4.50     0.93
4.88     YES
 L0000840         0   0.19530E-05  405529.9 3770269.0    89.0     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
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*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000841	0	0.19530E-05	405531.5	3770267.7	88.9	4.50	0.93	4.88	YES	
L0000842	0	0.19530E-05	405533.0	3770266.4	88.9	4.50	0.93	4.88	YES	
L0000843	0	0.19530E-05	405534.5	3770265.1	88.8	4.50	0.93	4.88	YES	
L0000844	0	0.19530E-05	405536.1	3770263.9	88.8	4.50	0.93	4.88	YES	
L0000845	0	0.19530E-05	405537.6	3770262.6	88.8	4.50	0.93	4.88	YES	
L0000846	0	0.19530E-05	405539.1	3770261.3	88.9	4.50	0.93	4.88	YES	
L0000847	0	0.19530E-05	405540.7	3770260.0	88.9	4.50	0.93	4.88	YES	
L0000848	0	0.19530E-05	405542.2	3770258.7	88.9	4.50	0.93	4.88	YES	
L0000849	0	0.19530E-05	405543.7	3770257.4	88.9	4.50	0.93	4.88	YES	
L0000850	0	0.19530E-05	405545.2	3770256.1	89.0	4.50	0.93	4.88	YES	
L0000851	0	0.19530E-05	405546.8	3770254.9	89.0	4.50	0.93	4.88	YES	
L0000852	0	0.19530E-05	405548.3	3770253.6	89.1	4.50	0.93	4.88	YES	
L0000853	0	0.19530E-05	405549.8	3770252.3	89.1	4.50	0.93	4.88	YES	
L0000854	0	0.19530E-05	405551.4	3770251.0	89.2	4.50	0.93	4.88	YES	
L0000855	0	0.19530E-05	405552.9	3770249.7	89.2	4.50	0.93	4.88	YES	
L0000856	0	0.19530E-05	405554.4	3770248.4	89.3	4.50	0.93			

4.88 YES							
L0000857	0	0.19530E-05	405556.0	3770247.1	89.3	4.50	0.93
4.88 YES							
L0000858	0	0.19530E-05	405557.5	3770245.9	89.3	4.50	0.93
4.88 YES							
L0000859	0	0.19530E-05	405559.0	3770244.6	89.3	4.50	0.93
4.88 YES							
L0000860	0	0.19530E-05	405560.6	3770243.3	89.3	4.50	0.93
4.88 YES							
L0000861	0	0.19530E-05	405562.1	3770242.0	89.2	4.50	0.93
4.88 YES							
L0000862	0	0.19530E-05	405563.6	3770240.7	89.2	4.50	0.93
4.88 YES							
L0000863	0	0.19530E-05	405565.2	3770239.4	89.2	4.50	0.93
4.88 YES							
L0000864	0	0.19530E-05	405566.7	3770238.1	89.2	4.50	0.93
4.88 YES							
L0000865	0	0.19530E-05	405568.2	3770236.9	89.2	4.50	0.93
4.88 YES							
L0000866	0	0.19530E-05	405569.8	3770235.6	89.2	4.50	0.93
4.88 YES							
L0000867	0	0.19530E-05	405571.3	3770234.3	89.2	4.50	0.93
4.88 YES							
L0000868	0	0.19530E-05	405572.8	3770233.0	89.2	4.50	0.93
4.88 YES							
L0000869	0	0.19530E-05	405574.4	3770231.7	89.2	4.50	0.93
4.88 YES							
L0000870	0	0.19530E-05	405575.9	3770230.4	89.3	4.50	0.93
4.88 YES							
L0000871	0	0.19530E-05	405577.4	3770229.1	89.3	4.50	0.93
4.88 YES							
L0000872	0	0.19530E-05	405578.9	3770227.9	89.3	4.50	0.93
4.88 YES							
L0000873	0	0.19530E-05	405580.5	3770226.6	89.4	4.50	0.93
4.88 YES							
L0000874	0	0.19530E-05	405582.0	3770225.3	89.5	4.50	0.93
4.88 YES							
L0000875	0	0.19530E-05	405583.5	3770224.0	89.5	4.50	0.93
4.88 YES							
L0000876	0	0.19530E-05	405585.1	3770222.7	89.6	4.50	0.93
4.88 YES							
L0000877	0	0.19530E-05	405586.6	3770221.4	89.6	4.50	0.93
4.88 YES							
L0000878	0	0.19530E-05	405588.1	3770220.1	89.6	4.50	0.93
4.88 YES							
L0000879	0	0.19530E-05	405589.7	3770218.9	89.8	4.50	0.93
4.88 YES							
L0000880	0	0.19530E-05	405591.2	3770217.6	90.0	4.50	0.93

4.88 YES
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20
*** AERMET - VERSION 16216 *** ***
*** 15:56:17

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE BY	EMISSION RATE SCALAR VARY
L0000881	0	0.19530E-05	405592.7	3770216.3	90.1	4.50	0.93	4.88	YES	
L0000882	0	0.19530E-05	405594.3	3770215.0	90.2	4.50	0.93	4.88	YES	
L0000883	0	0.19530E-05	405595.8	3770213.7	90.3	4.50	0.93	4.88	YES	
L0000884	0	0.19530E-05	405597.3	3770212.4	90.4	4.50	0.93	4.88	YES	
L0000885	0	0.19530E-05	405598.9	3770211.1	90.3	4.50	0.93	4.88	YES	
L0000886	0	0.19530E-05	405600.4	3770209.9	90.3	4.50	0.93	4.88	YES	
L0000887	0	0.19530E-05	405601.9	3770208.6	90.2	4.50	0.93	4.88	YES	
L0000888	0	0.19530E-05	405603.5	3770207.3	90.1	4.50	0.93	4.88	YES	
L0000889	0	0.19530E-05	405605.0	3770206.0	90.0	4.50	0.93	4.88	YES	
L0000890	0	0.19530E-05	405606.5	3770204.7	89.8	4.50	0.93	4.88	YES	
L0000891	0	0.19530E-05	405608.1	3770203.4	89.5	4.50	0.93	4.88	YES	
L0000892	0	0.19530E-05	405609.6	3770202.1	89.3	4.50	0.93	4.88	YES	
L0000893	0	0.19530E-05	405611.1	3770200.8	89.3	4.50	0.93	4.88	YES	
L0000894	0	0.19530E-05	405612.6	3770199.6	89.3	4.50	0.93			

4.88	YES							
L0000895		0	0.19530E-05	405614.2	3770198.3	89.3	4.50	0.93
4.88	YES							
L0000896		0	0.19530E-05	405615.7	3770197.0	89.3	4.50	0.93
4.88	YES							
L0000897		0	0.19530E-05	405617.2	3770195.7	89.3	4.50	0.93
4.88	YES							
L0000898		0	0.19530E-05	405618.8	3770194.4	89.4	4.50	0.93
4.88	YES							
L0000899		0	0.19530E-05	405620.3	3770193.1	89.4	4.50	0.93
4.88	YES							
L0000900		0	0.19530E-05	405621.8	3770191.8	89.4	4.50	0.93
4.88	YES							
L0000901		0	0.19530E-05	405623.4	3770190.6	89.4	4.50	0.93
4.88	YES							
L0000902		0	0.19530E-05	405624.9	3770189.3	89.4	4.50	0.93
4.88	YES							
L0000903		0	0.19530E-05	405626.4	3770188.0	89.7	4.50	0.93
4.88	YES							
L0000904		0	0.19530E-05	405628.0	3770186.7	90.1	4.50	0.93
4.88	YES							
L0000905		0	0.19530E-05	405629.5	3770185.4	90.4	4.50	0.93
4.88	YES							
L0000906		0	0.19530E-05	405631.0	3770184.1	90.8	4.50	0.93
4.88	YES							
L0000907		0	0.19530E-05	405632.6	3770182.8	91.1	4.50	0.93
4.88	YES							
L0000908		0	0.19530E-05	405634.1	3770181.6	91.5	4.50	0.93
4.88	YES							
L0000909		0	0.19530E-05	405635.6	3770180.3	91.8	4.50	0.93
4.88	YES							
L0000910		0	0.19530E-05	405637.2	3770179.0	92.0	4.50	0.93
4.88	YES							
L0000911		0	0.19530E-05	405638.7	3770177.7	92.3	4.50	0.93
4.88	YES							
L0000912		0	0.19530E-05	405640.2	3770176.4	92.4	4.50	0.93
4.88	YES							
L0000913		0	0.19530E-05	405641.8	3770175.1	92.5	4.50	0.93
4.88	YES							
L0000914		0	0.19530E-05	405643.3	3770173.8	92.6	4.50	0.93
4.88	YES							
L0000915		0	0.19530E-05	405644.8	3770172.6	92.6	4.50	0.93
4.88	YES							
L0000916		0	0.19530E-05	405646.3	3770171.3	92.5	4.50	0.93
4.88	YES							
L0000917		0	0.19530E-05	405647.9	3770170.0	92.5	4.50	0.93
4.88	YES							
L0000918		0	0.19530E-05	405649.4	3770168.7	92.3	4.50	0.93

4.88 YES
L0000919 0 0.19530E-05 405650.9 3770167.4 92.1 4.50 0.93
4.88 YES
L0000920 0 0.19530E-05 405652.5 3770166.1 91.9 4.50 0.93
4.88 YES
*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20
*** AERMET - VERSION 16216 *** ***
*** 15:56:17

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE BY	EMISSION RATE SCALAR VARY
L0000921	0	0.19530E-05	405654.0	3770164.8	91.6	4.50	0.93	4.88	YES	
L0000922	0	0.19530E-05	405655.5	3770163.6	91.2	4.50	0.93	4.88	YES	
L0000923	0	0.19530E-05	405657.1	3770162.3	90.8	4.50	0.93	4.88	YES	
L0000924	0	0.19530E-05	405658.6	3770161.0	90.4	4.50	0.93	4.88	YES	
L0000925	0	0.19530E-05	405660.1	3770159.7	89.9	4.50	0.93	4.88	YES	
L0000926	0	0.19530E-05	405661.7	3770158.4	90.1	4.50	0.93	4.88	YES	
L0000927	0	0.19530E-05	405663.2	3770157.1	90.7	4.50	0.93	4.88	YES	
L0000928	0	0.19530E-05	405664.7	3770155.8	91.3	4.50	0.93	4.88	YES	
L0000929	0	0.19530E-05	405666.3	3770154.6	91.9	4.50	0.93	4.88	YES	
L0000930	0	0.19530E-05	405667.8	3770153.3	92.4	4.50	0.93	4.88	YES	
L0000931	0	0.19530E-05	405669.3	3770152.0	92.8	4.50	0.93	4.88	YES	
L0000932	0	0.19530E-05	405670.9	3770150.7	93.1	4.50	0.93			

4.88	YES							
L0000933		0	0.19530E-05	405672.4	3770149.4	93.4	4.50	0.93
4.88	YES							
L0000934		0	0.19530E-05	405673.9	3770148.1	93.6	4.50	0.93
4.88	YES							
L0000935		0	0.19530E-05	405675.4	3770146.8	93.8	4.50	0.93
4.88	YES							
L0000936		0	0.19530E-05	405677.0	3770145.6	93.8	4.50	0.93
4.88	YES							
L0000937		0	0.19530E-05	405678.5	3770144.3	93.9	4.50	0.93
4.88	YES							
L0000938		0	0.19530E-05	405680.0	3770143.0	93.8	4.50	0.93
4.88	YES							
L0000939		0	0.19530E-05	405681.6	3770141.7	93.7	4.50	0.93
4.88	YES							
L0000940		0	0.19530E-05	405683.1	3770140.4	93.5	4.50	0.93
4.88	YES							
L0000941		0	0.19530E-05	405684.6	3770139.1	93.2	4.50	0.93
4.88	YES							
L0000942		0	0.19530E-05	405686.2	3770137.8	92.9	4.50	0.93
4.88	YES							
L0000943		0	0.19530E-05	405687.7	3770136.5	92.5	4.50	0.93
4.88	YES							
L0000944		0	0.19530E-05	405689.2	3770135.3	92.1	4.50	0.93
4.88	YES							
L0000945		0	0.19530E-05	405690.8	3770134.0	91.7	4.50	0.93
4.88	YES							
L0000946		0	0.19530E-05	405692.3	3770132.7	91.3	4.50	0.93
4.88	YES							
L0000947		0	0.19530E-05	405693.8	3770131.4	90.9	4.50	0.93
4.88	YES							
L0000948		0	0.19530E-05	405695.4	3770130.1	90.5	4.50	0.93
4.88	YES							
L0000949		0	0.19530E-05	405696.9	3770128.8	90.1	4.50	0.93
4.88	YES							
L0000950		0	0.19530E-05	405698.4	3770127.5	89.7	4.50	0.93
4.88	YES							
L0000951		0	0.19530E-05	405700.0	3770126.3	89.5	4.50	0.93
4.88	YES							
L0000952		0	0.19530E-05	405701.5	3770125.0	89.5	4.50	0.93
4.88	YES							
L0000953		0	0.19530E-05	405703.0	3770123.7	89.5	4.50	0.93
4.88	YES							
L0000954		0	0.19530E-05	405704.6	3770122.4	89.5	4.50	0.93
4.88	YES							
L0000955		0	0.19530E-05	405706.1	3770121.1	89.4	4.50	0.93
4.88	YES							
L0000956		0	0.19530E-05	405707.6	3770119.8	89.4	4.50	0.93

```
4.88     YES
 L0000957         0   0.19530E-05  405709.1 3770118.5    89.4     4.50     0.93
4.88     YES
 L0000958         0   0.19530E-05  405710.7 3770117.3    89.4     4.50     0.93
4.88     YES
 L0000959         0   0.19530E-05  405712.2 3770116.0    89.6     4.50     0.93
4.88     YES
 L0000960         0   0.19530E-05  405713.7 3770114.7    90.0     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

 L0000961         0   0.19530E-05  405715.3 3770113.4    90.2     4.50     0.93
4.88     YES
 L0000962         0   0.19530E-05  405716.8 3770112.1    90.5     4.50     0.93
4.88     YES
 L0000963         0   0.19530E-05  405718.3 3770110.8    90.7     4.50     0.93
4.88     YES
 L0000964         0   0.19530E-05  405719.9 3770109.5    90.8     4.50     0.93
4.88     YES
 L0000965         0   0.19530E-05  405721.4 3770108.3    90.9     4.50     0.93
4.88     YES
 L0000966         0   0.19530E-05  405722.9 3770107.0    91.0     4.50     0.93
4.88     YES
 L0000967         0   0.19530E-05  405724.5 3770105.7    91.0     4.50     0.93
4.88     YES
 L0000968         0   0.19530E-05  405726.0 3770104.4    91.0     4.50     0.93
4.88     YES
 L0000969         0   0.19530E-05  405727.5 3770103.1    90.9     4.50     0.93
4.88     YES
 L0000970         0   0.19530E-05  405729.1 3770101.8    90.8     4.50     0.93
```

4.88 YES							
L0000971	0	0.19530E-05	405730.6	3770100.5	90.7	4.50	0.93
4.88 YES							
L0000972	0	0.19530E-05	405732.1	3770099.3	90.5	4.50	0.93
4.88 YES							
L0000973	0	0.19530E-05	405733.7	3770098.0	90.2	4.50	0.93
4.88 YES							
L0000974	0	0.19530E-05	405735.2	3770096.7	90.0	4.50	0.93
4.88 YES							
L0000975	0	0.19530E-05	405736.7	3770095.4	89.7	4.50	0.93
4.88 YES							
L0000976	0	0.19530E-05	405738.2	3770094.1	89.8	4.50	0.93
4.88 YES							
L0000977	0	0.19530E-05	405739.8	3770092.8	89.8	4.50	0.93
4.88 YES							
L0000978	0	0.19530E-05	405741.3	3770091.5	89.8	4.50	0.93
4.88 YES							
L0000979	0	0.19530E-05	405742.8	3770090.3	89.9	4.50	0.93
4.88 YES							
L0000980	0	0.19530E-05	405744.4	3770089.0	89.9	4.50	0.93
4.88 YES							
L0000981	0	0.19530E-05	405745.9	3770087.7	90.0	4.50	0.93
4.88 YES							
L0000982	0	0.19530E-05	405747.4	3770086.4	90.0	4.50	0.93
4.88 YES							
L0000983	0	0.19530E-05	405749.0	3770085.1	90.0	4.50	0.93
4.88 YES							
L0000984	0	0.19530E-05	405750.5	3770083.8	90.0	4.50	0.93
4.88 YES							
L0000985	0	0.19530E-05	405752.0	3770082.5	90.0	4.50	0.93
4.88 YES							
L0000986	0	0.19530E-05	405753.6	3770081.3	90.0	4.50	0.93
4.88 YES							
L0000987	0	0.19530E-05	405755.1	3770080.0	90.0	4.50	0.93
4.88 YES							
L0000988	0	0.19530E-05	405756.6	3770078.7	90.0	4.50	0.93
4.88 YES							
L0000989	0	0.19530E-05	405758.2	3770077.4	90.0	4.50	0.93
4.88 YES							
L0000990	0	0.19530E-05	405759.7	3770076.1	90.0	4.50	0.93
4.88 YES							
L0000991	0	0.19530E-05	405761.2	3770074.8	90.0	4.50	0.93
4.88 YES							
L0000992	0	0.19530E-05	405762.8	3770073.5	90.0	4.50	0.93
4.88 YES							
L0000993	0	0.19530E-05	405764.3	3770072.3	90.0	4.50	0.93
4.88 YES							
L0000994	0	0.19530E-05	405765.8	3770071.0	90.0	4.50	0.93

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4.88     YES
 L0000995         0   0.19530E-05  405767.4 3770069.7    90.0     4.50     0.93
4.88     YES
 L0000996         0   0.19530E-05  405768.9 3770068.4    90.0     4.50     0.93
4.88     YES
 L0000997         0   0.19530E-05  405770.4 3770067.1    89.9     4.50     0.93
4.88     YES
 L0000998         0   0.19530E-05  405771.9 3770065.8    89.8     4.50     0.93
4.88     YES
 L0000999         0   0.19530E-05  405773.5 3770064.5    89.6     4.50     0.93
4.88     YES
 L0001000         0   0.19530E-05  405775.0 3770063.2    89.6     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -

 L0001001         0   0.19530E-05  405776.5 3770062.0    89.6     4.50     0.93
4.88     YES
 L0001002         0   0.19530E-05  405778.1 3770060.7    89.6     4.50     0.93
4.88     YES
 L0001003         0   0.19530E-05  405779.6 3770059.4    89.6     4.50     0.93
4.88     YES
 L0001004         0   0.19530E-05  405781.1 3770058.1    89.7     4.50     0.93
4.88     YES
 L0001005         0   0.19530E-05  405782.7 3770056.8    89.7     4.50     0.93
4.88     YES
 L0001006         0   0.19530E-05  405784.2 3770055.5    89.7     4.50     0.93
4.88     YES
 L0001007         0   0.19530E-05  405785.7 3770054.2    89.7     4.50     0.93
4.88     YES
 L0001008         0   0.19530E-05  405787.3 3770053.0    89.7     4.50     0.93
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4.88     YES
 L0001009         0   0.19530E-05  405788.8 3770051.7    89.8     4.50     0.93
4.88     YES
 L0001010         0   0.19530E-05  405790.3 3770050.4    89.9     4.50     0.93
4.88     YES
 L0001011         0   0.19530E-05  405791.9 3770049.1    89.9     4.50     0.93
4.88     YES
 L0001012         0   0.19530E-05  405793.4 3770047.8    90.0     4.50     0.93
4.88     YES
 L0001013         0   0.19530E-05  405794.9 3770046.5    90.0     4.50     0.93
4.88     YES
 L0001014         0   0.19530E-05  405796.5 3770045.2    90.1     4.50     0.93
4.88     YES
 L0001015         0   0.19530E-05  405798.0 3770044.0    90.1     4.50     0.93
4.88     YES
 L0001016         0   0.19530E-05  405799.5 3770042.7    90.1     4.50     0.93
4.88     YES
 L0001017         0   0.19530E-05  405801.1 3770041.4    90.1     4.50     0.93
4.88     YES
 L0001018         0   0.19530E-05  405802.6 3770040.1    90.1     4.50     0.93
4.88     YES
 L0001019         0   0.19530E-05  405804.1 3770038.8    90.1     4.50     0.93
4.88     YES
 L0001020         0   0.19530E-05  405805.6 3770037.5    90.1     4.50     0.93
4.88     YES
 L0001021         0   0.19530E-05  405807.2 3770036.2    90.0     4.50     0.93
4.88     YES
 L0001022         0   0.19530E-05  405808.7 3770035.0    90.0     4.50     0.93
4.88     YES
 L0001023         0   0.19530E-05  405810.2 3770033.7    89.9     4.50     0.93
4.88     YES
 L0001024         0   0.19530E-05  405811.8 3770032.4    89.8     4.50     0.93
4.88     YES
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
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 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*


                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

 SRCGROUP ID                                          SOURCE IDs
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             L0000009    , L0000010    , L0000011    , L0000012    , L0000013    ,
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L0000153 , L0000154 , L0000155 , L0000156 , L0000157 , L0000158 , L0000159 , L0000160 ,

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20

*** AERMET - VERSION 16216 *** *** *** 15:56:17

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs

L0000161 , L0000162 , L0000163 , L0000164 , L0000165 , L0000166 , L0000167 , L0000168 ,

L0000169 , L0000170 , L0000171 , L0000172 , L0000173 , L0000174 , L0000175 , L0000176 ,

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↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20

*** AERMET - VERSION 16216 *** ***

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*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
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	L0000329 , L0000330 , L0000331 , L0000332 , L0000333 , L0000334 , L0000335 , L0000336 ,
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 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
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                                  PAGE  31
 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*


                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

 SRCGROUP ID                                          SOURCE IDs
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*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
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*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20

*** AERMET - VERSION 16216 *** *** *** 15:56:17

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs

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 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
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*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID SOURCE IDs

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L0001017 , L0001018 , L0001019 , L0001020 , L0001021 , L0001022 , L0001023 , L0001024 ,

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID URBAN POP SOURCE IDs

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*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs

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 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
                       ***       15:56:17
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*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
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*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs

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L0000638    , L0000639    , L0000640    ,
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*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs

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L0000705 , L0000706 , L0000707 , L0000708 , L0000709 , L0000710 , L0000711 , L0000712 ,

L0000713 , L0000714 , L0000715 , L0000716 , L0000717 , L0000718 , L0000719 , L0000720 ,

L0000721 , L0000722 , L0000723 , L0000724 , L0000725 , L0000726 , L0000727 , L0000728 ,

L0000729 , L0000730 , L0000731 , L0000732 , L0000733 ,
L0000734 , L0000735 , L0000736 ,

L0000737 , L0000738 , L0000739 , L0000740 , L0000741 ,
L0000742 , L0000743 , L0000744 ,

L0000745 , L0000746 , L0000747 , L0000748 , L0000749 ,
L0000750 , L0000751 , L0000752 ,

L0000753 , L0000754 , L0000755 , L0000756 , L0000757 ,
L0000758 , L0000759 , L0000760 ,

L0000761 , L0000762 , L0000763 , L0000764 , L0000765 ,
L0000766 , L0000767 , L0000768 ,

L0000769 , L0000770 , L0000771 , L0000772 , L0000773 ,
L0000774 , L0000775 , L0000776 ,

L0000777 , L0000778 , L0000779 , L0000780 , L0000781 ,
L0000782 , L0000783 , L0000784 ,

L0000785 , L0000786 , L0000787 , L0000788 , L0000789 ,
L0000790 , L0000791 , L0000792 ,

L0000793 , L0000794 , L0000795 , L0000796 , L0000797 ,
L0000798 , L0000799 , L0000800 ,

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs

L0000801 , L0000802 , L0000803 , L0000804 , L0000805 ,
L0000806 , L0000807 , L0000808 ,

L0000809 , L0000810 , L0000811 , L0000812 , L0000813 ,
L0000814 , L0000815 , L0000816 ,

L0000817 , L0000818 , L0000819 , L0000820 , L0000821 ,
L0000822 , L0000823 , L0000824 ,

L0000825 , L0000826 , L0000827 , L0000828 , L0000829 ,
L0000830 , L0000831 , L0000832 ,

L0000833 , L0000834 , L0000835 , L0000836 , L0000837 ,
L0000838 , L0000839 , L0000840 ,

L0000841 , L0000842 , L0000843 , L0000844 , L0000845 ,
L0000846 , L0000847 , L0000848 ,

L0000849 , L0000850 , L0000851 , L0000852 , L0000853 ,
L0000854 , L0000855 , L0000856 ,

L0000857 , L0000858 , L0000859 , L0000860 , L0000861 ,
L0000862 , L0000863 , L0000864 ,

L0000865 , L0000866 , L0000867 , L0000868 , L0000869 ,
L0000870 , L0000871 , L0000872 ,

L0000873 , L0000874 , L0000875 , L0000876 , L0000877 ,
L0000878 , L0000879 , L0000880 ,

L0000881 , L0000882 , L0000883 , L0000884 , L0000885 ,
L0000886 , L0000887 , L0000888 ,

L0000889 , L0000890 , L0000891 , L0000892 , L0000893 ,
L0000894 , L0000895 , L0000896 ,

L0000897 , L0000898 , L0000899 , L0000900 , L0000901 ,
L0000902 , L0000903 , L0000904 ,

L0000905 , L0000906 , L0000907 , L0000908 , L0000909 ,
L0000910 , L0000911 , L0000912 ,

L0000913 , L0000914 , L0000915 , L0000916 , L0000917 ,
L0000918 , L0000919 , L0000920 ,

L0000921 , L0000922 , L0000923 , L0000924 , L0000925 ,
L0000926 , L0000927 , L0000928 ,

L0000929 , L0000930 , L0000931 , L0000932 , L0000933 ,
L0000934 , L0000935 , L0000936 ,

L0000937 , L0000938 , L0000939 , L0000940 , L0000941 ,
L0000942 , L0000943 , L0000944 ,

L0000945 , L0000946 , L0000947 , L0000948 , L0000949 , L0000950 , L0000951 , L0000952 ,

L0000953 , L0000954 , L0000955 , L0000956 , L0000957 , L0000958 , L0000959 , L0000960 ,

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs

L0000961 , L0000962 , L0000963 , L0000964 , L0000965 , L0000966 , L0000967 , L0000968 ,

L0000969 , L0000970 , L0000971 , L0000972 , L0000973 , L0000974 , L0000975 , L0000976 ,

L0000977 , L0000978 , L0000979 , L0000980 , L0000981 , L0000982 , L0000983 , L0000984 ,

L0000985 , L0000986 , L0000987 , L0000988 , L0000989 , L0000990 , L0000991 , L0000992 ,

L0000993 , L0000994 , L0000995 , L0000996 , L0000997 , L0000998 , L0000999 , L0001000 ,

L0001001 , L0001002 , L0001003 , L0001004 , L0001005 , L0001006 , L0001007 , L0001008 ,

L0001009 , L0001010 , L0001011 , L0001012 , L0001013 , L0001014 , L0001015 , L0001016 ,

L0001017 , L0001018 , L0001019 , L0001020 , L0001021 , L0001022 , L0001023 , L0001024 ,

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(404992.4, 3770815.6, 88.5, 88.5, 0.0); (405007.4, 3770815.6, 88.4, 88.4, 0.0);
(405022.4, 3770815.6, 88.3, 88.3, 0.0); (405037.4, 3770815.6, 88.3, 88.3, 0.0);
(405052.4, 3770815.6, 88.2, 88.2, 0.0); (405067.4, 3770815.6, 88.1, 88.1, 0.0);
(404962.4, 3770830.6, 88.6, 88.6, 0.0); (404977.4, 3770830.6, 88.5, 88.5, 0.0);
(404992.4, 3770830.6, 88.5, 88.5, 0.0); (405007.4, 3770830.6, 88.5, 88.5, 0.0);
(405022.4, 3770830.6, 88.6, 88.6, 0.0); (405037.4, 3770830.6, 88.5, 88.5, 0.0);
(405052.4, 3770830.6, 88.3, 88.3, 0.0); (405067.4, 3770830.6, 88.4, 88.4, 0.0);
(405082.4, 3770830.6, 88.4, 88.4, 0.0); (405097.4, 3770830.6, 88.3, 88.3, 0.0);
(404947.4, 3770845.6, 88.6, 88.6, 0.0); (404962.4, 3770845.6, 88.6, 88.6, 0.0);
(404977.4, 3770845.6, 88.6, 88.6, 0.0); (404992.4, 3770845.6, 88.5, 88.5, 0.0);
(405007.4, 3770845.6, 88.5, 88.5, 0.0); (405022.4, 3770845.6, 88.7, 88.7, 0.0);
(405037.4, 3770845.6, 88.7, 88.7, 0.0); (405052.4, 3770845.6, 88.5, 88.5, 0.0);
(405067.4, 3770845.6, 88.6, 88.6, 0.0); (405082.4, 3770845.6, 88.6, 88.6, 0.0);
(405097.4, 3770845.6, 88.4, 88.4, 0.0); (405112.4, 3770845.6, 88.4, 88.4, 0.0);
(404947.4, 3770860.6, 88.6, 88.6, 0.0); (404962.4, 3770860.6, 88.6, 88.6, 0.0);
(404977.4, 3770860.6, 88.6, 88.6, 0.0); (404992.4, 3770860.6, 88.6, 88.6, 0.0);
(405007.4, 3770860.6, 88.6, 88.6, 0.0); (405022.4, 3770860.6, 88.7, 88.7, 0.0);
(405037.4, 3770860.6, 88.7, 88.7, 0.0); (405052.4, 3770860.6, 88.6, 88.6, 0.0);
(405067.4, 3770860.6, 88.6, 88.6, 0.0); (405082.4, 3770860.6, 88.6, 88.6, 0.0);
(405097.4, 3770860.6, 88.5, 88.5, 0.0); (405112.4,

```
3770860.6,      88.5,      88.5,       0.0);
     ( 405127.4, 3770860.6,      88.5,      88.5,       0.0);         ( 404947.4,
3770875.6,      88.6,      88.6,       0.0);
     ( 404962.4, 3770875.6,      88.6,      88.6,       0.0);         ( 404977.4,
3770875.6,      88.7,      88.7,       0.0);
     ( 404992.4, 3770875.6,      88.7,      88.7,       0.0);         ( 405007.4,
3770875.6,      88.7,      88.7,       0.0);
     ( 405022.4, 3770875.6,      88.7,      88.7,       0.0);         ( 405037.4,
3770875.6,      88.7,      88.7,       0.0);
     ( 405067.4, 3770875.6,      88.6,      88.6,       0.0);         ( 405082.4,
3770875.6,      88.6,      88.6,       0.0);
     ( 405097.4, 3770875.6,      88.6,      88.6,       0.0);         ( 405112.4,
3770875.6,      88.6,      88.6,       0.0);
     ( 405127.4, 3770875.6,      88.6,      88.6,       0.0);         ( 404962.4,
3770890.6,      88.8,      88.8,       0.0);
     ( 404977.4, 3770890.6,      88.8,      88.8,       0.0);         ( 404992.4,
3770890.6,      88.8,      88.8,       0.0);
     ( 405007.4, 3770890.6,      88.9,      88.9,       0.0);         ( 405022.4,
3770890.6,      89.0,      89.0,       0.0);
     ( 405082.4, 3770890.6,      88.6,      88.6,       0.0);         ( 405097.4,
3770890.6,      88.7,      88.7,       0.0);
     ( 405112.4, 3770890.6,      88.8,      88.8,       0.0);         ( 405127.4,
3770890.6,      88.9,      88.9,       0.0);
     ( 405142.4, 3770890.6,      88.8,      88.8,       0.0);         ( 404962.4,
3770905.6,      89.0,      89.0,       0.0);
     ( 404977.4, 3770905.6,      89.0,      89.0,       0.0);         ( 404992.4,
3770905.6,      88.9,      88.9,       0.0);
     ( 405007.4, 3770905.6,      89.0,      89.0,       0.0);         ( 405097.4,
3770905.6,      88.7,      88.7,       0.0);
     ( 405112.4, 3770905.6,      88.9,      88.9,       0.0);         ( 405127.4,
3770905.6,      89.2,      89.2,       0.0);
     ( 405142.4, 3770905.6,      89.0,      89.0,       0.0);         ( 405157.4,
3770905.6,      88.8,      88.8,       0.0);
     ( 404962.4, 3770920.6,      89.1,      89.1,       0.0);         ( 404977.4,
3770920.6,      89.1,      89.1,       0.0);
     ( 405112.4, 3770920.6,      88.9,      88.9,       0.0);         ( 405127.4,
3770920.6,      89.1,      89.1,       0.0);
     ( 405142.4, 3770920.6,      89.1,      89.1,       0.0);         ( 405157.4,
3770920.6,      89.1,      89.1,       0.0);
     ( 405172.4, 3770920.6,      89.1,      89.1,       0.0);         ( 405112.4,
3770935.6,      89.0,      89.0,       0.0);
     ( 405127.4, 3770935.6,      89.1,      89.1,       0.0);         ( 405142.4,
3770935.6,      89.2,      89.2,       0.0);
     ( 405157.4, 3770935.6,      89.3,      89.3,       0.0);         ( 405172.4,
3770935.6,      89.1,      89.1,       0.0);
     ( 405187.4, 3770935.6,      89.0,      89.0,       0.0);         ( 405127.4,
3770950.6,      89.1,      89.1,       0.0);
     ( 405142.4, 3770950.6,      89.2,      89.2,       0.0);         ( 405157.4,
```

3770950.6, 89.2, 89.2, 0.0);
(405172.4, 3770950.6, 89.1, 89.1, 0.0); (405142.4, 3770965.6, 89.1, 89.1, 0.0);
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20
*** AERMET - VERSION 16216 *** ***
*** 15:56:17

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*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(405157.4, 3770965.6, 89.1, 89.1, 0.0);

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20
*** AERMET - VERSION 16216 *** ***
*** 15:56:17

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*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20

*** AERMET - VERSION 16216 *** *** *** 15:56:17

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: PICO_V9_ADJU\PICO_v9.SFC
Met Version: 16216
Profile file: PICO_V9_ADJU\PICO_v9.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 3166 Upper air station no.: 3190
Name: UNKNOWN Name: UNKNOWN

Year: 2010 Year: 2010

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
10	01	01	1	01	-38.6	0.384	-9.000	-9.000	-999.	572.	162.4	0.34	0.73	1.00	3.10	321.	9.1	283.8	5.5
10	01	01	1	02	-33.5	0.333	-9.000	-9.000	-999.	462.	121.8	0.34	0.73	1.00	2.70	217.	9.1	282.5	5.5
10	01	01	1	03	-21.9	0.218	-9.000	-9.000	-999.	251.	52.2	0.34	0.73	1.00	1.80	290.	9.1	282.5	5.5
10	01	01	1	04	-27.1	0.269	-9.000	-9.000	-999.	334.	79.5	0.34	0.73	1.00	2.20	255.	9.1	282.0	5.5
10	01	01	1	05	-21.9	0.218	-9.000	-9.000	-999.	245.	52.2	0.34	0.73	1.00	1.80	234.	9.1	282.0	5.5
10	01	01	1	06	-27.1	0.269	-9.000	-9.000	-999.	334.	79.5	0.34	0.73						

```
1.00    2.20  258.    9.1  282.0    5.5
 10 01 01   1 07  -27.2  0.269 -9.000 -9.000 -999.  334.     79.5  0.34   0.73
1.00    2.20  213.    9.1  281.4    5.5
 10 01 01   1 08  -22.6  0.335 -9.000 -9.000 -999.  466.    151.7  0.34   0.73
0.54    2.70  215.    9.1  282.0    5.5
 10 01 01   1 09   26.9  0.249  0.347  0.008   56.  302.    -51.9  0.34   0.73
0.32    1.80  199.    9.1  284.2    5.5
 10 01 01   1 10   65.3  0.365  0.593  0.008  116.  529.    -67.5  0.34   0.73
0.24    2.70  117.    9.1  288.1    5.5
 10 01 01   1 11   94.5  0.374  0.933  0.008  311.  550.    -50.3  0.34   0.73
0.21    2.70  243.    9.1  290.4    5.5
 10 01 01   1 12  103.9  0.279  1.087  0.008  448.  359.    -19.0  0.34   0.73
0.20    1.80  130.    9.1  293.1    5.5
 10 01 01   1 13   83.7  0.273  1.073  0.008  533.  343.    -22.0  0.34   0.73
0.20    1.80  282.    9.1  294.9    5.5
 10 01 01   1 14   82.0  0.218  1.112  0.008  606.  245.    -11.4  0.34   0.73
0.21    1.30  290.    9.1  295.9    5.5
 10 01 01   1 15   38.9  0.202  0.881  0.008  636.  217.    -19.0  0.34   0.73
0.25    1.30  192.    9.1  294.9    5.5
 10 01 01   1 16   11.4  0.181  0.588  0.008  643.  185.    -47.4  0.34   0.73
0.33    1.30  218.    9.1  293.8    5.5
 10 01 01   1 17  -10.7  0.155 -9.000 -9.000 -999.  147.     31.4  0.34   0.73
0.60    1.30  255.    9.1  292.0    5.5
 10 01 01   1 18   -5.5  0.104 -9.000 -9.000 -999.   81.     18.6  0.34   0.73
1.00    0.90  129.    9.1  289.2    5.5
 10 01 01   1 19  -11.8  0.154 -9.000 -9.000 -999.  145.     27.8  0.34   0.73
1.00    1.30  264.    9.1  287.5    5.5
 10 01 01   1 20  -11.8  0.154 -9.000 -9.000 -999.  144.     27.8  0.34   0.73
1.00    1.30   25.    9.1  287.0    5.5
 10 01 01   1 21  -21.6  0.218 -9.000 -9.000 -999.  244.     52.2  0.34   0.73
1.00    1.80  343.    9.1  285.9    5.5
 10 01 01   1 22  -21.7  0.218 -9.000 -9.000 -999.  244.     52.2  0.34   0.73
1.00    1.80  332.    9.1  284.9    5.5
 10 01 01   1 23  -21.7  0.218 -9.000 -9.000 -999.  244.     52.2  0.34   0.73
1.00    1.80  178.    9.1  284.2    5.5
 10 01 01   1 24  -11.8  0.154 -9.000 -9.000 -999.  145.     27.6  0.34   0.73
1.00    1.30   28.    9.1  283.1    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 10 01 01 01    5.5 0 -999.  -99.00   283.8   99.0  -99.00  -99.00
 10 01 01 01    9.1 1  321.    3.10  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
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*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
404992.44	3770815.59	0.03046	405007.44	3770815.59	0.02771
405022.44	3770815.59	0.02542	405037.44	3770815.59	0.02346
405052.44	3770815.59	0.02180	405067.44	3770815.59	0.02035
404962.44	3770830.59	0.03306	404977.44	3770830.59	0.02988
404992.44	3770830.59	0.02728	405007.44	3770830.59	0.02508
405022.44	3770830.59	0.02320	405037.44	3770830.59	0.02158
405052.44	3770830.59	0.02016	405067.44	3770830.59	0.01892
405082.44	3770830.59	0.01783	405097.44	3770830.59	0.01685
404947.44	3770845.59	0.03236	404962.44	3770845.59	0.02930
404977.44	3770845.59	0.02680	404992.44	3770845.59	0.02469
405007.44	3770845.59	0.02289	405022.44	3770845.59	0.02134

405037.44 3770845.59 0.01997 405052.44 3770845.59 0.01875
405067.44 3770845.59 0.01768 405082.44 3770845.59 0.01672
405097.44 3770845.59 0.01585 405112.44 3770845.59 0.01507
404947.44 3770860.59 0.02873 404962.44 3770860.59 0.02631
404977.44 3770860.59 0.02429 404992.44 3770860.59 0.02256
405007.44 3770860.59 0.02106 405022.44 3770860.59 0.01974
405037.44 3770860.59 0.01856 405052.44 3770860.59 0.01751
405067.44 3770860.59 0.01658 405082.44 3770860.59 0.01573
405097.44 3770860.59 0.01496 405112.44 3770860.59 0.01426
405127.44 3770860.59 0.01362 404947.44 3770875.59 0.02585
404962.44 3770875.59 0.02389 404977.44 3770875.59 0.02221
404992.44 3770875.59 0.02076 405007.44 3770875.59 0.01949
405022.44 3770875.59 0.01835 405037.44 3770875.59 0.01734
405067.44 3770875.59 0.01560 405082.44 3770875.59 0.01485
405097.44 3770875.59 0.01416 405112.44 3770875.59 0.01353
405127.44 3770875.59 0.01295 404962.44 3770890.59 0.02188
404977.44 3770890.59 0.02047 404992.44 3770890.59 0.01923
405007.44 3770890.59 0.01814 405022.44 3770890.59 0.01716
405082.44 3770890.59 0.01404 405097.44 3770890.59 0.01343
405112.44 3770890.59 0.01287 405127.44 3770890.59 0.01235
405142.44 3770890.59 0.01185 404962.44 3770905.59 0.02018
404977.44 3770905.59 0.01898 404992.44 3770905.59 0.01791
405007.44 3770905.59 0.01695 405097.44 3770905.59 0.01277
405112.44 3770905.59 0.01226 405127.44 3770905.59 0.01179

405142.44 3770905.59 0.01134 405157.44 3770905.59 0.01092
404962.44 3770920.59 0.01873 404977.44 3770920.59 0.01768
405112.44 3770920.59 0.01170 405127.44 3770920.59 0.01127
405142.44 3770920.59 0.01086 405157.44 3770920.59 0.01047
405172.44 3770920.59 0.01012 405112.44 3770935.59 0.01119

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20
*** AERMET - VERSION 16216 *** ***
*** 15:56:17

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
405127.44	3770935.59	0.01078	405142.44	3770935.59	0.01041
405157.44	3770935.59	0.01006	405172.44	3770935.59	0.00972
405187.44	3770935.59	0.00940	405127.44	3770950.59	0.01034
405142.44	3770950.59	0.00999	405157.44	3770950.59	0.00966
405172.44	3770950.59	0.00935	405142.44		

3770965.59 0.00960
405157.44 3770965.59 0.00930

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20
*** AERMET - VERSION 16216 *** *** *** 15:56:17

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
404992.44	3770815.59	0.07222	(15092707)	405007.44	3770815.59	0.06574	(15092707)
405022.44	3770815.59	0.06039	(15092707)	405037.44	3770815.59	0.05589	(15092707)
405052.44	3770815.59	0.05204	(15092707)	405067.44	3770815.59	0.04870	(15092707)
404962.44	3770830.59	0.08933	(10011716)	404977.44	3770830.59	0.07415	(10011716)
404992.44	3770830.59	0.06465	(15092707)	405007.44	3770830.59	0.05946	(15092707)
405022.44	3770830.59	0.05509	(15092707)	405037.44	3770830.59	0.05135	(15092707)
405052.44	3770830.59	0.04810	(15092707)	405067.44	3770830.59	0.04525	(15092707)
405082.44	3770830.59	0.04272	(15092707)	405097.44	3770830.59	0.04046	(15092707)

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        404947.44   3770845.59        0.08978  (10011716)              404962.44
3770845.59        0.07904  (10011716)
        404977.44   3770845.59        0.06688  (10011716)              404992.44
3770845.59        0.05857  (15092707)
        405007.44   3770845.59        0.05432  (15092707)              405022.44
3770845.59        0.05067  (15092707)
        405037.44   3770845.59        0.04751  (15092707)              405052.44
3770845.59        0.04472  (15092707)
        405067.44   3770845.59        0.04225  (15092707)              405082.44
3770845.59        0.04005  (15092707)
        405097.44   3770845.59        0.03806  (15092707)              405112.44
3770845.59        0.03626  (15092707)
        404947.44   3770860.59        0.07816  (10011716)              404962.44
3770860.59        0.07022  (10011716)
        404977.44   3770860.59        0.06073  (10011716)              404992.44
3770860.59        0.05358  (15092707)
        405007.44   3770860.59        0.05002  (15092707)              405022.44
3770860.59        0.04693  (15092707)
        405037.44   3770860.59        0.04421  (15092707)              405052.44
3770860.59        0.04180  (15092707)
        405067.44   3770860.59        0.03963  (15092707)              405082.44
3770860.59        0.03769  (15092707)
        405097.44   3770860.59        0.03592  (15092707)              405112.44
3770860.59        0.03431  (15092707)
        405127.44   3770860.59        0.03284  (15092707)              404947.44
3770875.59        0.06887  (10011716)
        404962.44   3770875.59        0.06279  (10011716)              404977.44
3770875.59        0.05538  (10011716)
        404992.44   3770875.59        0.04939  (15092707)              405007.44
3770875.59        0.04637  (15092707)
        405022.44   3770875.59        0.04371  (15092707)              405037.44
3770875.59        0.04135  (15092707)
        405067.44   3770875.59        0.03732  (15092707)              405082.44
3770875.59        0.03559  (15092707)
        405097.44   3770875.59        0.03400  (15092707)              405112.44
3770875.59        0.03256  (15092707)
        405127.44   3770875.59        0.03122  (15092707)              404962.44
3770890.59        0.05666  (10011716)
        404977.44   3770890.59        0.05076  (10011716)              404992.44
3770890.59        0.04582  (15092707)
        405007.44   3770890.59        0.04321  (15092707)              405022.44
3770890.59        0.04090  (15092707)
        405082.44   3770890.59        0.03370  (15092707)              405097.44
3770890.59        0.03228  (15092707)
        405112.44   3770890.59        0.03096  (15092707)              405127.44
3770890.59        0.02975  (15092707)
        405142.44   3770890.59        0.02862  (15092707)              404962.44
3770905.59        0.05152  (10011716)
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        404977.44   3770905.59        0.04677  (10011716)                404992.44
3770905.59        0.04273  (15092707)
        405007.44   3770905.59        0.04046  (15092707)                405097.44
3770905.59        0.03071  (15092707)
        405112.44   3770905.59        0.02951  (15092707)                405127.44
3770905.59        0.02840  (15092707)
        405142.44   3770905.59        0.02737  (15092707)                405157.44
3770905.59        0.02641  (15092707)
        404962.44   3770920.59        0.04714  (10011716)                404977.44
3770920.59        0.04328  (10011716)
        405112.44   3770920.59        0.02818  (15092707)                405127.44
3770920.59        0.02717  (15092707)
        405142.44   3770920.59        0.02621  (15092707)                405157.44
3770920.59        0.02532  (15092707)
        405172.44   3770920.59        0.02449  (15092707)                405112.44
3770935.59        0.02696  (15092707)
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
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                                  PAGE  49
 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     L0000001    , L0000002
, L0000003    , L0000004    , L0000005    ,
                  L0000006    , L0000007    , L0000008    , L0000009    , L0000010
, L0000011    , L0000012    , L0000013    ,
                  L0000014    , L0000015    , L0000016    , L0000017    , L0000018
, L0000019    , L0000020    , L0000021    ,
                  L0000022    , L0000023    , L0000024    , L0000025    , L0000026
, L0000027    , L0000028    ,  . . .      ,

                                              *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                           ** CONC OF PM_10    IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        405127.44   3770935.59        0.02602  (15092707)                405142.44
3770935.59        0.02514  (15092707)
        405157.44   3770935.59        0.02432  (15092707)                405172.44
```

3770935.59 0.02354 (15092707)
  405187.44 3770935.59 0.02281 (15092707) 405127.44
3770950.59 0.02497 (15092707)
  405142.44 3770950.59 0.02415 (15092707) 405157.44
3770950.59 0.02339 (15092707)
  405172.44 3770950.59 0.02266 (15092707) 405142.44
3770965.59 0.02323 (15092707)
  405157.44 3770965.59 0.02251 (15092707)

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
  L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
  L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
  L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
404992.44	3770815.59	0.04587m	(15020724)	405007.44	3770815.59	0.04195m	(15020724)
405022.44	3770815.59	0.03868m	(15020724)	405037.44	3770815.59	0.03592m	(15020724)
405052.44	3770815.59	0.03353m	(15020724)	405067.44	3770815.59	0.03144m	(15020724)
404962.44	3770830.59	0.05003m	(15020724)	404977.44	3770830.59	0.04518m	(15020724)
404992.44	3770830.59	0.04129m	(15020724)	405007.44	3770830.59	0.03808m	(15020724)

405022.44 3770830.59 0.03536m (15020724) 405037.44 3770830.59 0.03304m (15020724)
405052.44 3770830.59 0.03102m (15020724) 405067.44 3770830.59 0.02923m (15020724)
405082.44 3770830.59 0.02764m (15020724) 405097.44 3770830.59 0.02622m (15020724)
404947.44 3770845.59 0.04923m (15020724) 404962.44 3770845.59 0.04453m (15020724)
404977.44 3770845.59 0.04071m (15020724) 404992.44 3770845.59 0.03757m (15020724)
405007.44 3770845.59 0.03490m (15020724) 405022.44 3770845.59 0.03259m (15020724)
405037.44 3770845.59 0.03061m (15020724) 405052.44 3770845.59 0.02888m (15020724)
405067.44 3770845.59 0.02731m (15020724) 405082.44 3770845.59 0.02591m (15020724)
405097.44 3770845.59 0.02467m (15020724) 405112.44 3770845.59 0.02353m (15020724)
404947.44 3770860.59 0.04388m (15020724) 404962.44 3770860.59 0.04017m (15020724)
404977.44 3770860.59 0.03708m (15020724) 404992.44 3770860.59 0.03446m (15020724)
405007.44 3770860.59 0.03221m (15020724) 405022.44 3770860.59 0.03026m (15020724)
405037.44 3770860.59 0.02854m (15020724) 405052.44 3770860.59 0.02702m (15020724)
405067.44 3770860.59 0.02565m (15020724) 405082.44 3770860.59 0.02441m (15020724)
405097.44 3770860.59 0.02329m (15020724) 405112.44 3770860.59 0.02227m (15020724)
405127.44 3770860.59 0.02133m (15020724) 404947.44 3770875.59 0.03962m (15020724)
404962.44 3770875.59 0.03661m (15020724) 404977.44 3770875.59 0.03405m (15020724)
404992.44 3770875.59 0.03185m (15020724) 405007.44 3770875.59 0.02992m (15020724)
405022.44 3770875.59 0.02823m (15020724) 405037.44 3770875.59 0.02673m (15020724)
405067.44 3770875.59 0.02417m (15020724) 405082.44 3770875.59 0.02307m (15020724)
405097.44 3770875.59 0.02206m (15020724) 405112.44 3770875.59 0.02113m (15020724)
405127.44 3770875.59 0.02028m (15020724) 404962.44 3770890.59 0.03364m (15020724)
404977.44 3770890.59 0.03148m (15020724) 404992.44 3770890.59 0.02959m (15020724)
405007.44 3770890.59 0.02793m (15020724) 405022.44 3770890.59 0.02644m (15020724)

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        405082.44   3770890.59        0.02187m (15020724)                405097.44
3770890.59        0.02095m (15020724)
        405112.44   3770890.59        0.02011m (15020724)                405127.44
3770890.59        0.01932m (15020724)
        405142.44   3770890.59        0.01861m (15020724)                404962.44
3770905.59        0.03111m (15020724)
        404977.44   3770905.59        0.02927m (15020724)                404992.44
3770905.59        0.02763m (15020724)
        405007.44   3770905.59        0.02618m (15020724)                405097.44
3770905.59        0.01994m (15020724)
        405112.44   3770905.59        0.01917m (15020724)                405127.44
3770905.59        0.01845m (15020724)
        405142.44   3770905.59        0.01779m (15020724)                405157.44
3770905.59        0.01718m (15020724)
        404962.44   3770920.59        0.02894m (15020724)                404977.44
3770920.59        0.02734m (15020724)
        405112.44   3770920.59        0.01831m (15020724)                405127.44
3770920.59        0.01765m (15020724)
        405142.44   3770920.59        0.01704m (15020724)                405157.44
3770920.59        0.01647m (15020724)
        405172.44   3770920.59        0.01593m (15020724)                405112.44
3770935.59        0.01753m (15020724)
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\Orchard & Cypress
2\Orchard & Cypress 2.isc     ***        01/13/20
 *** AERMET - VERSION  16216 ***   ***
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                                  PAGE  51
 *** MODELOPTs:    NonDFAULT  CONC  FLAT and  ELEV  URBAN  ADJ_U*

                                *** THE   1ST HIGHEST 24-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     L0000001    , L0000002
, L0000003    , L0000004    , L0000005    ,
                  L0000006    , L0000007    , L0000008    , L0000009    , L0000010
, L0000011    , L0000012    , L0000013    ,
                  L0000014    , L0000015    , L0000016    , L0000017    , L0000018
, L0000019    , L0000020    , L0000021    ,
                  L0000022    , L0000023    , L0000024    , L0000025    , L0000026
, L0000027    , L0000028    ,  . . .      ,

                                                *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                      ** CONC OF PM_10    IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
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Y-COORD (M) CONC (YYMMDDHH)

405127.44 3770935.59 0.01692m (15020724) 405142.44 3770935.59 0.01635m (15020724)
405157.44 3770935.59 0.01582m (15020724) 405172.44 3770935.59 0.01532m (15020724)
405187.44 3770935.59 0.01485m (15020724) 405127.44 3770950.59 0.01624m (15020724)
405142.44 3770950.59 0.01571m (15020724) 405157.44 3770950.59 0.01522m (15020724)
405172.44 3770950.59 0.01475m (15020724) 405142.44 3770965.59 0.01512m (15020724)
405157.44 3770965.59 0.01466m (15020724)

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Orchard & Cypress 2\Orchard & Cypress 2.isc *** 01/13/20
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*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

GROUP ID	NETWORK AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	0.03306 AT (404962.44, 3770830.59, 88.59, 88.59, 0.00)	DC	
	2ND HIGHEST VALUE IS	0.03236 AT (404947.44, 3770845.59, 88.61, 88.61, 0.00)	DC	
	3RD HIGHEST VALUE IS	0.03046 AT (404992.44, 3770815.59, 88.45, 88.45, 0.00)	DC	
	4TH HIGHEST VALUE IS	0.02988 AT (404977.44, 3770830.59, 88.53, 88.53, 0.00)	DC	
	5TH HIGHEST VALUE IS	0.02930 AT (404962.44, 3770845.59, 88.62, 88.62, 0.00)	DC	
	6TH HIGHEST VALUE IS	0.02873 AT (404947.44, 3770860.59, 88.60,		

88.60, 0.00) DC
7TH HIGHEST VALUE IS 0.02771 AT (405007.44, 3770815.59, 88.41,
88.41, 0.00) DC
8TH HIGHEST VALUE IS 0.02728 AT (404992.44, 3770830.59, 88.45,
88.45, 0.00) DC
9TH HIGHEST VALUE IS 0.02680 AT (404977.44, 3770845.59, 88.60,
88.60, 0.00) DC
10TH HIGHEST VALUE IS 0.02631 AT (404962.44, 3770860.59, 88.61,
88.61, 0.00) DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE	CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	0.08978	ON 10011716: AT (404947.44, 3770845.59, 88.61, 88.61, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	NETWORK OF TYPE	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	0.05003m ON 15020724:	AT (	404962.44, 3770830.59, 88.59, 88.59, 0.00)	DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV URBAN ADJ_U*

*** Message Summary : AERMOD Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 4 Warning Message(s)
A Total of 1277 Informational Message(s)

A Total of 43848 Hours Were Processed

A Total of 152 Calm Hours Identified

A Total of 1125 Missing Hours Identified (2.57 Percent)

```
   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
 ME W186    2131       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
     0.50
 ME W187    2131       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

 MX W450   26305       CHKDAT: Record Out of Sequence in Meteorological File at:
 15010101
 MX W450   26305       CHKDAT: Record Out of Sequence in Meteorological File at:
2 year gap

   ***********************************
   *** AERMOD Finishes Successfully ***
   ***********************************
```

Appendix C1

Biological Resources Due Diligence Assessment



Rincon Consultants, Inc.

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February 26, 2019
Project No: 19-07222

David Lelie, LEED AP
Forward Planning
KB Home
25152 Springfield Court Suite 180
Valencia, California 91355
Via E-mail: dlelie@kbhome.com

Subject: **Biological Resources Due Diligence Assessment for the Orchard and Cypress Housing Project, El Monte, California**

Dear Mr. Lelie:

Rincon Consultants, Inc. (Rincon) was retained by KB Home to conduct a Due Diligence Assessment of biological resource constraints for the Orchard and Cypress Housing Project (project) located in El Monte, Los Angeles, California. The purpose of this report is to identify the general site characteristics, including habitat types, likelihood of sensitive resources to be present on-site, obvious constraints to project development, type and extent of specialized surveys needed, permits expected to be required, and probable mitigation costs. In particular, we have sought to identify if the site has any potential "fatal flaws" or would be relatively costly to develop in terms of additional studies and/or mitigation.

Project Location and Description

The Orchard and Cypress Housing Project is located at 3700, 3640, 3630 Cypress Avenue and 11312 Orchard Street, El Monte, Los Angeles County, California. The project site is approximately 5.2 acres and is depicted within the El Monte 7.5-minute United States Geological Survey (USGS) quadrangle, Sections 21 and 22, Township 1S, Range 11W (San Bernardino baseline and meridian). The project site described in this assessment encompasses Assessor's Parcel Numbers (APN) 8568-002,034,035, and 053. As Rincon understands, project plans are currently being developed but the proposed development will consist of single-family residential units and open space. The project site is bound by Iris Lane to the south, Cypress Avenue to the west, and Orchard Street to the north and east. It currently consists of commercial development. Land uses surrounding the project site include dense residential and commercial development, and further out Interstate 10 and Interstate 605 occur to the south and east, respectively.

Methodology

The due diligence assessment consisted of a review of relevant literature followed by a field reconnaissance survey. The potential presence of sensitive species is based on a literature review and field survey designed to assess habitat suitability only. Definitive surveys to confirm the presence or absence of special-status species were not performed. Definitive surveys for sensitive plant and wildlife

species generally require specific survey protocols, extensive field survey time, and are conducted only at certain times of the year. The findings and opinions conveyed in this report are based on this methodology.

Literature Review

The literature review included an evaluation of current and historical aerial photographs of the site (Google Earth 2019), regional and site-specific topographic maps (El Monte, California United States Geological Survey 7.5-minute topographic quadrangle), geologic maps, climatic data, and other available background information. The California Natural Diversity Data Base (CNDDB), Biogeographic Information and Observation System (BIOS – http://www.bios.dfg.ca.gov) and United States Fish and Wildlife Service (USFWS) Critical Habitat Portal (http://criticalhabitat.fws.gov) were reviewed to determine if any special-status wildlife, plant or vegetation communities are known or have potential to occur on-site. Tree ordinance pertaining to the City of El Monte was reviewed. Other resources included the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants of California (2018), California Department of Fish and Wildlife (CDFW) Special Animals List (February 2019), and CDFW Special Vascular Plants, Bryophytes, and Lichens List (February 2019).

Field Reconnaissance Survey

Rincon Biologist Jennifer Kendrick conducted a site visit on February 8, 2019, between the hours of 0940 and 1100. Weather conditions during the survey included an average temperature of 74 degrees Fahrenheit, with winds of approximately 0 to 4 miles per hour, and 0 percent cloud cover. The field reconnaissance survey was limited to evaluating existing site conditions and the potential presence of sensitive biological resources, including sensitive plant and wildlife species, sensitive plant communities, jurisdictional waters and wetlands, and habitat for nesting birds. The field biologist surveyed the project site on foot, recorded the biological resources present such as plant and wildlife species, and noted potential biological constraints. A direct search for sensitive plants that would have been apparent at the time of the survey also occurred. Limitations to the compilation of a comprehensive floral checklist were imposed by seasonal factors, such as blooming period and emergence of some of the annual species. Animal species observed directly or detected from calls, tracks, scat, nests, or other sign were noted. Given that the survey was performed during the day, nocturnal animals potentially present were identified by sign.

Existing Conditions

The subject property occurs at an elevation of approximately 297 feet above mean sea level. The site is entirely developed consisting of five commercial buildings and parking lots. Trees that occur on or adjacent to the site consisted of pine (Pinus sp.), cypress (Cypress sp.), Queen palm (Syagrus romanzoffiana), magnolia (Magnolia sp.), and eucalyptus (Eucalyptus sp.). Other typical ornamental trees and shrubs such as citrus trees were observed in the neighboring residential areas.

Biological Resource Constraints

Based on the review of the CNDDB, knowledge of the project region and existing site conditions; biological constraints onsite include the potential for nesting birds. This constraint is discussed below. No additional biological constraints are expected to occur.

Nesting Birds

The project site contains suitable nesting trees and shrubs for protected native birds. Under the provisions of the Migratory Bird Treaty Act of 1918 (MBTA), it is unlawful "by any means or manner to pursue, hunt, take, capture (or) kill" any migratory birds except as permitted by regulations issued by the USFWS. The term "take" is defined by USFWS regulation to mean to "pursue, hunt, shoot, wound, kill, trap, capture or collect" any migratory bird or any part, nest or egg of any migratory bird covered by the conventions, or to attempt those activities. In addition, the California Fish and Game Code (CFGC) extends protection to non-migratory birds identified as resident game birds (Section 3500) and any birds in the orders Falconiformes or Strigiformes (birds-of-prey) (Section 3503).

Wildlife Movement Corridor

Wildlife movement corridors are defined as areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors for wildlife travel. Wildlife movement corridors are important because they provide access to mates, food, and water; allow the dispersal of individuals away from high population density areas; and facilitate the exchange of genetic traits between populations. The project site is completely developed and surrounded by development and does not occur within a wildlife movement corridor.

Jurisdictional Waters and Wetlands

No potentially jurisdictional waters or wetlands were observed within the project site.

Protected Trees

The City of El Monte Tree Protection and Preservation Ordinance, Chapter 14.03 of the El Monte Municipal Code (EMMC) provides protection for any of the following Southern California native tree species, with a trunk more than 25" in circumference, as measured at 4½' above the root crown:

- *Aesculus californica* (California Buckeye)
- *Alnus rhombifolia* (California Alder)
- *Juglans californica* (California Walnut)
- *Platanus racemosa* (California Sycamore)
- *Populus femontii* (Cottonwood)
- *Populus trichocarpa* (Black Cottonwood)
- *Quercus agrifolia* (Coast Live Oak)
- *Quercus berberidfolia* (Scrub Oak)
- *Quercus chysolepis* (Canyon Oak)
- *Quercus engelmanii* (Engelmann Oak)
- *Quercus lobata* (Valley Oak)
- *Salix lasiolepis* (Arroyo Willow)
- *Umbellularia californica* (California Bay)

None of these tree species were observed within the project site during the field survey.

Other Regulated Areas

Significant Ecological Areas (SEAs) are officially designated areas within the County identified for their biological value. These areas warrant special management because they contain biotic resources that are considered to be rare or unique; are critical to the maintenance of wildlife; represent relatively undisturbed areas of County habitat types; or serve as linkages. The project site does not occur within a SEA.

Associated Mitigation and Costs

Nesting Birds

Typically, pre-construction nesting bird surveys are required to ensure compliance with CFGC and MBTA if construction occurs during the breeding season (typically February 1 to September 1). If vegetation clearance and general construction commence outside of the nesting season, surveys can usually be avoided. If work commences during the nesting season, nesting bird surveys are recommended prior to the start of work to avoid and/or minimize effects to protected birds. In addition, biological monitoring may be required if active nests are present during development. Avoidance buffers put in place to protect nesting birds on or off site may temporarily impact project activities. A pre-construction survey of the site is anticipated to cost approximately $2,000 to $4,000. In addition, biological monitoring may be required if active nests are present during development. Daily full-time monitoring rates are typically about $1,200 (inclusive of expenses) for up to 8 hours; however, depending on construction activities, once-weekly checks may be adequate. The Initial Study identified impacts to nesting birds as a potential issue and includes the following mitigation measures:

> Proposed project activities (including disturbances to native and non-native vegetation, structures and substrates) should take place outside of the breeding bird season which generally runs from March 1- August 31 (as early as February 1 for raptors) to avoid take (including disturbances which would cause abandonment of active nests containing eggs and/or young). Take means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill (Fish and Game Code Section 86). If project activities cannot feasibly avoid the breeding bird season, beginning thirty days prior to the disturbance of suitable nesting habitat, the applicant shall:
>
> Arrange for weekly bird surveys to detect any protected native birds in the habitat to be removed and any other such habitat within properties adjacent to the project site, as access to adjacent areas allows. The surveys shall be conducted by a qualified biologist with experience in conducting breeding bird surveys. The surveys shall continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of clearance / construction work. If a protected native bird is found, the applicant shall delay all clearance / construction disturbance activities within 300 feet of suitable nesting habitat for the observed protected bird species until August 31.
>
> Alternatively, the Qualified Biologist could continue the surveys in order to locate any nests. If an active nest is located, clearing and construction within 300 feet of the nest or as determined by a qualified biological monitor, shall be postponed until the nest is vacated and juveniles have fledged and when there is no evidence of a second attempt at nesting. The buffer zone from the nest shall be established in the field with flagging and stakes. Construction personnel shall be instructed on the sensitivity of the area. The applicant shall record the results of the recommended protective

measures described above to document compliance with applicable State and Federal laws pertaining to the protection of native birds. Such record shall be submitted and received into the case file for the associated discretionary action permitting the project.

Fatal Flaws

No substantial fatal flaws to development of the site for residential use were identified.

Limitations

This limited biological analysis was prepared for use solely and exclusively by KB Home as part of a due diligence review. No other use or disclosure is intended or authorized by Rincon, nor shall this analysis be relied upon or transferred to any other party without the express written consent of Rincon. KB Home agrees to hold Rincon harmless for any inverse condemnation or devaluation of said property that may result if Rincon's report or information generated is used for other purposes. The findings and opinions conveyed in this analysis are based on the material reviewed and the limited field reconnaissance. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources reviewed.

Thank you for selecting Rincon Consultants to provide you with this due diligence service. Please call if you have questions, or if we can be of further assistance.

Sincerely,
Rincon Consultants, Inc.

Jennifer Kendrick
Biologist/Project Manager

Steven J. Hongola
Principal/Senior Biologist

Appendix C2

Tree Survey and Arborist Report



Tree Survey and Arborist Report

of the Proposed Orchard and Cypress Housing Project

in El Monte, CA



Prepared for:

Kimley-Horn
Rita Garcia, Project Manager

Prepared by:

Golden State Land & Tree Assessment
George J Wirtes, MS, ISA Certified Arborist

Submittal Date: July 3, 2019
Revised: September 25, 2019

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SECTION 1: EXECUTIVE SUMMARY

This arborist survey was performed at the request of Kimley-Horn for a proposed residential development in the City of El Monte, CA in the County of Los Angeles. This project is located at the NE corner of Cypress Avenue and Iris Lane. The project site is located approximately 1.4 miles west of the 605 Freeway and 0.5 miles north of Interstate 10.

The trees assessed were identified using a GPS and an aerial photograph of the project site (see Section 2.6 below). The decisions to include individual trees were based on the site plan as well as industry standards (minimum stem diameter of 4 inches at breast height). The survey was performed on June 19, 2019 by George Wirtes (ISA Certified Arborist and ASCA Member). Details of each tree were recorded documenting their species, stature, health, environment, and potential for failure (risk). The subject trees were tagged with an aluminum tag containing a unique number. The species onsite are listed in Appendix A below along with each tree's stature and health characteristics.

During the survey, 100 onsite trees were assessed (see section 3.1 below) comprised of eight distinct species. The species most represented were Italian cypress (*Cupressus sempervirens*), and Hollywood juniper (*Juniperus chinensis 'Torulosa'*). There were also *eight* onsite trees meeting the criteria as *Heritage* trees (see Section 2.8.1 below) based on their height of more than 35 feet; these trees include such species as Canary Island (*Pinus canariensis)* and Cook Pines (*Araucaria columnaris).* *Heritage* trees are considered *Protected* trees within the City's Municipal Code (see Section 2.8.1 below).

Many of the onsite trees are stressed, lacking vigor, or are in a state of decline possibly due to lack of maintenance or conditions associated with their placement (under building overhang, poor pruning, canopy crowding, local hardscape, etc.). In all, 24 trees are recommended for removal based on their health and characteristics. The City of El Monte Municipal Code outlines provisions and guidelines for tree removal, installation, preservation, and maintenance. Any trees removed require approval or a permit. The quantity, size, and species of the replacement trees must also be approved by the City's Planning Director.

SECTION 2: BACKGROUND

2.1 - Assignment and Scope of Project

This Tree Survey and Arborist Report (report) have been prepared for Kimley-Horn. The assignment was to perform a tree inventory and health assessment of the trees identified within four parcels that currently contain industrial buildings (see Section 2.2 below).

Golden State Land & Tree Assessment (GSL&T) conducted this tree survey and health assessment of all trees within the boundary of the project area recording the health as well as general appearance, risk, stature and canopy spread measurements. The health assessment included, but was not limited to; recording total diameter at breast height (DBH), canopy spread, tree height, apparent decay, other signs of potential hazard, and pest damage. A potential risk assessment was also conducted keeping public safety in mind as public safety is primary focus of any tree survey. The author endeavored to comply with industry and International Society of Arboriculture (ISA) standards and guidelines. This report includes recommendations and mitigation measures meant to satisfy all applicable ordinances, as well as the survey's goal of public safety.

2.2 - Project Location

The project site is in the City of El Monte, California in the County of Los Angeles. Specifically, the site involves Assessor's Parcels 8568-026-002,034,035, and 053 at the NE C/O Iris Ln. and Cypress Ave. (see Figure 1 below).

2.3 - Proposed Development

The proposed proposes a housing development with associated structures, infrastructure and landscaping.

2.5 - Environmental Setting

The project site is completely developed with multiple buildings and landscaping that includes planters. In general, the site's elevation is approximately 290 feet above mean sea level sloping slightly to the south. The onsite soils are described by the National Resource Conservation Service (NRCS) as indicated in Table 1 below. The onsite flora consists of landscaped ornamental plants. Most of the site contains a building or is paved.

Table 1. Soils Onsite

Los Angeles County, California, Southeastern Part (CA696)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1007	Urban land-Biscailuz-Pico complex, 0 to 2 percent slopes Map Unit Setting • *National map unit symbol:* 2qds9 • *Elevation:* 60 to 1,140 feet • *Mean annual precipitation:* 13 to 20 inches • *Mean annual air temperature:* 64 to 67 degrees F • *Frost-free period:* 350 to 365 days • *Farmland classification:* Prime farmland if irrigated and drained Map Unit Composition Setting • *Landform:* Alluvial fans • *Landform position (three-dimensional):* Tread • *Parent material:* Discontinuous human-transported material over mixed alluvium derived from granite and/or sedimentary rock Typical profile • *Ap - 0 to 13 inches:* loam • *Bk1 - 13 to 28 inches:* loam • *Bk2 - 28 to 37 inches:* loam • *Bkg - 37 to 49 inches:* sandy clay loam • *C1 - 49 to 57 inches:* sandy loam • *C2 - 57 to 79 inches:* sand	5.3	100.0%

2.6 - Survey Method and Health Assessment

The fieldwork for this report was conducted on June 19th, 2019 beginning at 10:00 AM. Prior to the field survey, the City of El Monte municipal code was accessed along with aerial photographs of the project site. An aerial photograph and Google Earth kmz file were also used as a visual guide during the assessment.

Tree status (relative condition, stature, and health) was conducted by ISA arborist/biologist, George Wirtes from ground level with the aid of binoculars. A high quality GPS device (Garmin 64s) and GPS-enabled

smartphone with digitized project boundaries were used to identify the precise location of each subject tree. The crown-width was estimated by pacing, and the height of each subject tree was visually estimated using a tangent height gauge. These data were recorded on field sheets, and associated aluminum numeric tags were affixed to trees on the north side at BH for later reference. To estimate wood integrity, a rubber mallet was occasionally used to assess possible decay within the tree stem and flare.

No invasive procedures were performed during the survey. Visual characteristics were recorded on field sheets and twig/leaf samples as well as digital photographs were taken as needed to ensure accurate identification. The subject trees' positions were recorded using a GPS with data exported into geographic information system (GIS) for periodic illustration over aerial photographs. The GPS data are provided in Appendix B.

2.7 - Hazard Risk Assessment

The International Society of Arboriculture (ISA) recommends a Hazard Assessment be included with arborist reports. Such an assessment is an important component of any such report and is critical if trees are located near public areas such as parks, walkways, residences, and buildings. This tree assessment includes a *Level 2 Basic Risk Assessment* as defined by ISA Best Management Practices. This type of assessment is limited to evaluating trees and obvious signs of defects such as:

- Dead or broken structures
- Cracks
- Weakly attached branches and codominant stems
- Missing or decayed wood
- Unusual tree architecture or distribution
- Obvious loss of root support

A risk rating is assigned to each tree based on its defects, aesthetics, apparent health, location and the nearby targets (people or property). The ratings are defined below as defined by ISA:

1. *Low* - Low-risk category applies when consequences are negligible, and likelihood is unlikely, or consequences are minor, and likelihood is somewhat likely.

2. *Moderate* - Moderate risk situations are those for which consequences are minor and likelihood is very likely or likely or likelihood is someone likely and the consequences are significant or severe.

3. *High* - High-risk situations are those for which consequences are significant and likelihood is very likely or likely or Consequences are severe, and likelihood is likely

4. *Extreme* - The extreme risk category applies in situations in which failure is imminent and there is a high likelihood of impacting the target and the consequence of the failure is severe. The tree risk assessor should recommend that mitigation measures be taken as soon as possible

It is impossible to maintain a tree free of risk. A tree is considered hazardous when it has a structural defect that predisposes it to failure, and it is located near a target.

- A target is person or property that may sustain potential injury or property damage if a tree or a portion of a tree fails.
- Target areas include sidewalks, walkways, roads, vehicles, structures, playgrounds, or any other area where people are likely to gather.
- Structurally sound and healthy trees may also be hazardous if they interfere with utilities, roadways, walkways, and sidewalks, or if they obstruct motorist vision.
- Common hazards include dead and diseased trees, dead branches including bark, stubs from topping cuts, broken branches (hangers), multiple leaders, tight-angled crotches, and an unbalanced crown. Evaluation of risk is as follows: 1-Excellent, 2-Fair, 3-Poses risk, and 4-Hazardous.

2.8 - Local Tree Regulation

2.8.1 - El Monte Municipal Code Chapter 14.03 - Tree Protection and Preservation

El Monte's Municipal Code (Code), Chapter 14.03 indicates that "Tree protection and preservation is necessary for the health and welfare of the City of El Monte. Trees growing within the city are a natural, aesthetic resource, which help define the character of the city and provide many social, economic, and environmental benefits. Trees are worthy of protection in order to preserve the scenic beauty, prevent soil erosion, provide shade and wind protection, serve as a natural buffer between adjacent land uses, and counteract air pollution." The Code defines significant as follows:

Protected Tree - means any public tree[1], Heritage Tree or Native Tree as the foregoing are defined under this chapter.

Heritage Tree - means any tree, shrub, or plant that meets one of the following criteria:

- Any woody plant having a single trunk circumference of thirty-six (36) inches or more measured at breast height, a point four and one-half (4½) feet above the natural grade;
- Any multi-trunk tree whose multiple trunks have a combined circumference of seventy-five (75) inches or more measured at a point four and one-half (4½) feet above the root crown;
- Any tree that is thirty-five (35) feet or more in height as measured from the root crown to the highest point above the root crown;
- Any stand of trees the nature of which makes each dependent upon the others for survival;
- Any other tree as may be deemed historically or culturally significant by the City Arborist or the Economic Development Director because of its size, connection to the city's history or lore, location, or aesthetic qualities.

Native Tree - any tree with a trunk more than eight (8) inches in diameter measured at a height of four and one-half 1(4½) feet above natural grade that is one of the following species:

- *Quercus agrifolia* (Coast live oak),

1 The Code does not define "public tree."

- *Quercus engelmannii* (Engelmann oak),
- *Quercus chrysolepis* (Canyon oak),
- *Platanus racemosa* (California sycamore),
- *Juglans californica* (California walnut),
- *Quercus berberidifolia* (Scrub oak),
- *Quercus lobata* (Valley oak),
- *Umbellularia californica* (California bay),
- *Populus fremontii* (Cottonwood),
- *Alnus rhombifolia* (California alder),
- *Populus trichocarpa* (Black cottonwood),
- *Salix lasiolepis* (Arroyo willow),
- *Aesculus californica* (California buckeye) and
- *Sequoia sempervirens* (California redwood).

2.8.2 - El Monte Municipal Code Chapter 14.03.090 - Tree replacement policy

The City has adopted a formal replacement ratio for any trees removed. According to the Code, "All removed trees shall be replaced with a tree ratio of 2:1. Two (2) thirty-six-inch box trees with a minimum height of twelve (12) feet shall be planted with suitable species selected from the city's recommended tree palette and with the approval from the Economic Development Department.

2.9 - Limitations and Exceptions of Assessment

This survey was conducted in a manner that draws upon the documentation provided, past education, acquired knowledge, training, experience, and research. It was conducted to the greatest extent feasible, and although the information gathered reduces risk of tree failure/decline, it does not fully remove it. No diagnostic testing was performed during this assessment. This survey did not include soil sampling, root excavation, trunk coring/drilling or any other invasive procedure. A limited assessment of each tree was made keeping the competing goals in mind of assessing the large the number of trees and maintaining a degree of due diligence required to determine their appropriateness to remain as part of the project. The determinations of damage due to pest infestation and decay were made solely on outward appearance and inspection of the tree structures. Epiphytic growth and structures can also obscure defects on the stem, limbs and canopy.

Not all tree defects may be visible from the ground or apparent due to overlapping canopies of adjacent vegetation. Visual inspection was conducted to the greatest extent feasible given the nature of the onsite conditions. As indicated in Section 2.4 above, the canopy spread was assessed by pacing.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms subject to attack by disease, insects, fungi, and other forces of nature. Many aspects of tree health and environmental conditions are often not detectable (internal decay, poor root

anchoring, etc.). Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified time.

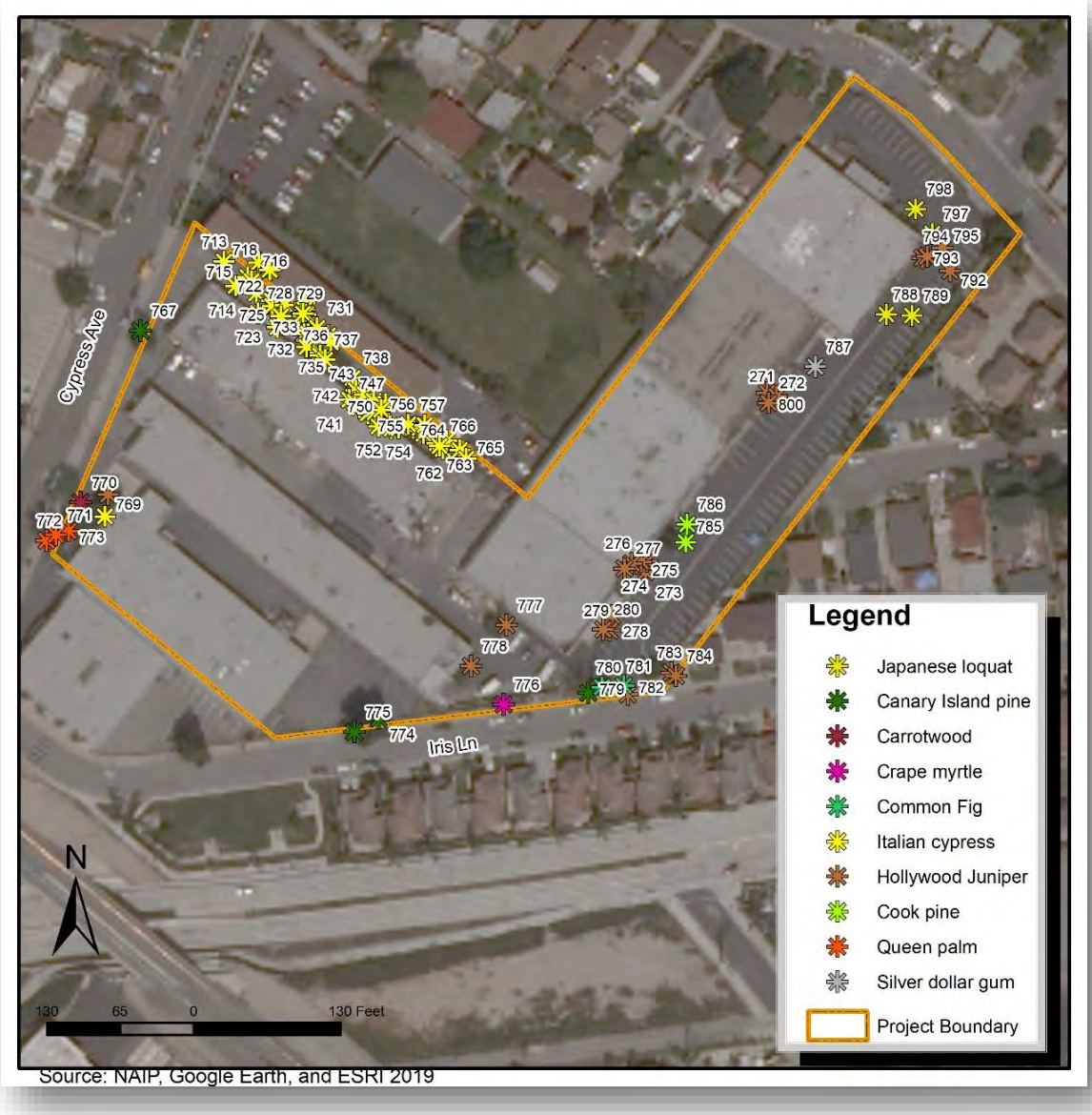
The statements made in this report do not consider the effects of extremes of climate, wind, vandalism, or accident (whether physical, chemical, or fire). In addition, this area is known to have periodic, high velocity Santa Ana winds from transient high-pressure ridges. Golden State Land & Tree Assessment cannot, therefore, accept any liability in connection with these factors, or where prescribed work is not carried out in a correct and professional manner in accordance with current ISA good practice. This report's authority ceases at any stated time limit within it, after one year from the date of the survey (if none stated), when any site conditions change, or after pruning (or other activity) not specified in this report.

The goal of this survey was not to diagnose all pathogens noted, but to assess each tree's potential to serve the project long term. It is also to recommend measures to limit risk exposure while enhancing the beauty and health of each tree onsite. The trees assessed within the site boundaries were surveyed, and decisions and conclusions were based primarily on public safety going forward. Other features of the trees were taken in consideration to draw conclusions. Clients may choose to accept or disregard the recommendations contained within this report or seek additional advice. ***To live near trees is to accept some degree of risk. The only way to eliminate all risk is to remove all onsite trees.***

SECTION 3: SUBJECT TREES AND OBSERVATIONS

During the site survey, specific measurements and parameters of all onsite trees were recorded on tree assessment worksheets; these data have been transferred into the table in Appendix A. In total, 100 ornamental trees consisting of *ten* distinct species were found within the project boundaries. The species observed are depicted on Figure 2.

There were many onsite trees in a state of decline or with poor structural integrity due to lack of proper maintenance, age, or poor site location. Appendix A includes a complete assessment of each tree.



3.1 - Tree Species Composition

During the survey, tree assessments were conducted according to general ISA and industry standards; GPS waypoints were recorded, as were specific details of each tree. The species onsite are described in detail below and a comprehensive table is provided in Appendix A. In general, the variety of species onsite was appropriate for the location.

As indicated, the project site includes 100 trees consisting of *ten* distinct species (see Table 2 below). Of the tagged trees within the project site, none are native, and all are considered exotic or ornamental. The age of the onsite trees ranged from mature to over-mature and the health from rigorous to dead.

Table 2. Tree Species Observed

Italian Cypress *Cupressus sempervirens*	This species is native to Southern Europe and Western Asia. It is smog tolerant and grows in a very narrow, upright form. Its canopy color is typically blue-green. Height: 60 - 70 feet. Width: 10 - 20 feet. Its growth Rate is about 36 Inches per Year. The longevity of this species is 50 to 150 years, and it thrives in Sunset Zones 4 – 24, and USDA Hardiness Zones 8 - 10. This tree tolerates exposure Full Sun to Partial Shade. This species tolerates moist to dry soil, and it is also drought tolerant. It can exist in clay, loam, or sand texture. This tree tolerates highly acidic to highly alkaline soil pH. Susceptible to spider mites, gummosis, *phytophthora* and root rot. Its branch strength rated as medium, and its root damage potential rated as moderate. It is a desirable plant to wildlife.	57
This tree species was the most common within the project site. It is used as a buffer for a neighboring apartment complex.		
Queen Palm *Syagrus romanzoffiana*	The queen palm or Cocos palm is a palm native to South America. This species has evergreen foliage. Height: up to 50 feet. Width: 20 - 30 feet. Its growth Rate is 24 or More Inches per Year. The longevity of this species is 50 to 150 years. Leaves are referred to as fronds and remain green throughout the year. Sunset Zones 12, 13, 15 - 17 and 19 - 24; USDA Hardiness Zones 10 - 11. This tree prefers full sun and well-drained soil composed of clay, loam or sand texture. This species is resistant to Texas root rot. Susceptible to scales and spider mites, butt rot, armillaria and root rot.	3

Hollywood Juniper *Juniperus chinensis 'Torulosa'*	This species is native to northeast Asia grows in China, Mongolia, Japan, Korea and the southeast of Russia. This tree is utility friendly tree and has irregular, twisted branches and fragrant leaves. It also has evergreen foliage. Trees may be referred to as male or female (dioecious), and it is part of the family, *Cupressaceae* Height: 10 - 15 feet. Width: 6 - 10 feet. This tree has a growth rate of 24 inches per year and can live 40 to 150 years. The Sunset Zones include zones 1 – 24, and the USDA Hardiness Zones ranges 5 - 11. It tolerates exposure from Full Sun to Partial Shade. It also tolerates moist to Dry Soil consisting of Clay, Loam or Sand Texture. Highly Acidic to Highly Alkaline Soil pH. It is resistant to Texas root rot. Susceptible to beetle borers and spider mites, armillaria, root rot and rust. Its branch strength rated as medium strong and its root damage potential rated as low. Desirable wildlife plant and attracts birds.	25
This species was included in this assessment due to its typical stature and size presented within the project site. Many of the trees of this type had been "lion's tail" pruned, which can be unhealthy for the tree and promote breakage due to uneven loading on the branches.		
Carrotwood *Cupaniopsis anacardiodes*	This species is native to Australia and tolerates hot and dry winds. Some mature trees produce marble size fruits, which drop and can be a nuisance, some never fruit. Its growth habit is erect or spreading with a low canopy. Has evergreen foliage. Height: 40 feet. Width: 30 feet. Its growth Rate is 12 to 24 Inches per Season. Longevity 50 to 150 years. It prefers moist soil clay, loam or sand type soil. Its branch strength is rated as medium weak. Its Root damage potential is rated as moderate.	1
Cook Pine* *Araucaria columnaris*	The tree is endemic to New Caledonia in the southern region of the Pacific. The bark of the cook pine peels off in thin paper-like sheets or strips and is rough, grey, and resinous. This tree is from the family, *Araucariaceae* and typically grows with a lean. It has a columnar or conical shape of evergreen foliage. Height: 100 - 160 feet. Width: 10 - 20 feet. Its growth Rate is 12 to 24 inches per Year. The flowers of this tree are Inconspicuous, and it is monoecious having separate male and female flowers on the same tree. This tree has very large cones of 1.5 to 3.0 inches. It does the best in USDA Hardiness Zones 10 – 11 in clay, loam or sand textured soils.	2
These tall tree species are at a substantial lean, but it is typical to their growth pattern and indicative of the species. Given their height of over 35 feet, these two trees are protected as *Heritage* trees.		
Crape Myrtle *Lagerstroemia indica*	The Crape Myrtle tree is native to China and is a commonly used single or multi-trunk tree. It is commonly used as in the urban setting in Southern California for its flowering, foliage, and bark features. Erect or Spreading with a Low Canopy. Has Deciduous foliage. Height: 25 feet. Width: 25 feet. Its growth Rate is 24 Inches per Year. The longevity of this species is 50 to 150 years. It prefers exposure to full sun. Moist to Dry Soil. This species is drought tolerant and tolerates clay, loam or sand texture. Its branch strength rated as medium, and its root damage potential rated as low. Susceptible to aphids, powdery mildew and sooty mold.	1

Common Fig ** *Ficus carica*	This species is native to western Asia and the Eastern Mediterranean. Cal-IPC (California invasive plant council) classifies the invasiveness of this plant as moderate. Its growth habit is spreading with a low canopy, with a rounded, umbrella or vase shape form. It has deciduous foliage. Height: 20 - 30 feet. Width: 10 - 20 feet. Its growth Rate is 36 Inches per Season. Longevity 50 to 150 years. It tolerates exposure to full sun to partial shade as well as moist to dry soil. It tolerates clay, loam or sand texture. Susceptible to canker, fusarium, oak root rot, root rot and virus. Its branch strength is rated as medium and its root damage potential is rated as low.	2
Given their height of over 35 feet, these two trees are protected as *Heritage* trees.		
Canary Island Pine* *Pinus canariensis*	Native to Canary Islands of Spain in the Atlantic Ocean, the Canary Island pine is a species of gymnosperm in the conifer family *Pinaceae*. It is a large, evergreen tree Columnar or Conical in Shape. Height: 50 - 80 feet. Width: 20 - 35 feet. Its growth Rate is 36 Inches per Year and its longevity is 50 to 150 years. The flowers of this tree are Inconspicuous. It is also monoecious having separate male and female flowers on the same tree. Its cones are brown growing as large as 3 inches. It thrives best in Sunset Zones 8, 9, and 12 – 24 and USDA Hardiness Zones 9 - 10. It tolerates exposure Full Sun to Partial Shade in Moist to Dry Soil. It is a drought tolerant tree. It can grow in loam or sand texture soil with highly acidic to highly alkaline soil pH. It is a subtropical pine and does not tolerate low temperatures or hard frost. It is resistant to verticillium. Susceptible to aphids, beetle borers and spider mites, armillaria, phytophthora, root rot, sooty mold and pitch canker. Its root damage potential rated as moderate and branch strength rated as medium. This tree attracts birds and squirrels and is resistant to oak root fungus.	4
Given their height of over 35 feet, these four trees are protected as *Heritage* trees.		
Silver Dollar Gum *Eucalyptus polyanthemos*	This species is native to Southeastern Australia. Its growth habit is erect or spreading and requires ample growing space. It typically has an oval Shape with evergreen foliage. Height: 30 - 75 feet. Width: 15 - 45 feet. Its growth Rate is 36 or More Inches per Season. Longevity 50 to 150 years. It tolerates exposure to full sun to partial shade and wet to dry soil. It is drought tolerant and tolerates clay, loam or sand texture. Susceptible to beetle borers, oak root rot and root rot. Its branch strength rated as medium and its root damage potential rated as moderate.	1
Japanese Loquat *Eriobotrya japonica*	This tree is native to Southeastern China and is a species of flowering plant in the family Rosaceae, a native to the cooler hill regions of China to south-central China. It is from the rose family *Rosaceae* and has evergreen foliage. Height: 15 - 30 feet. Width: 15 - 30 feet. Its growth Rate is 36 Inches per Year and can live 50 to 150 years. Leaves Oblong, Dark Green, No Change, Evergreen. This tree thrives in Sunset Zones 6 – 24 and USDA Hardiness Zones 8 - 10. Exposure full sun to partial shade. Has fragrant flower and fruit. This species is also drought tolerant and can grow in moist to dry soil consisting of clay, loam or sand texture with highly acidic to highly alkaline soil pH. This tree is susceptible to fire blight, armillaria and root rot. Its branch strength rated as medium and its root damage potential rated as low. This tree is known to attract birds and bees.	4
Source: Urban Forest Ecosystems Institute (UFEI), 2019 * Heritage Trees due to their height >35 feet as defined by the City's municipal code.		

** Cal-IPC (California Invasive Plant Council) classifies the invasiveness of this plant

3.2 - Observations

As previously indicated, the stature and condition of each tree within the project site were assessed at the time of the survey. Below are representative examples of the conditions found among the onsite trees.

3.2.1 - Canopy Crowding and Structural Concerns

Within the project site, a few instances of competing canopies were observed. If adequate spacing is not permitted, it can lead to offset canopies/above ground biomass, poor uptake of nutrients, stressed trees with lack of vigor and canopy dieback (among many other conditions).

Other structural concerns within the site were observed in cases where co-dominant stems were present with included bark. This form of branch union has a relatively weak attachment. Typically, the wider the angle of the branch the stronger it is. Likewise, the narrower branch angles are weaker, and included bark predisposes the tree to branch failure.



Plate 1. This is a view of a tree with poor stem and flare structure (tree #721).



Plate 2. This is a view of competing canopies caused from an invasive tree (tree #742).



Plate 3. This is a view of lion's tail pruning (tree #769).



Plate 4. This is a view of trees with competing canopies affecting their stature (tree #777).



Plate 5. This is a view of a tree planted that developed a substantial lean and off center mass (tree #277).



Plate 6. This is a view of a tree planted beneath a building overhang affecting its growth form (tree #280).

3.2.2 - Pest and Disease

Below are incidences of pest infestation found within the onsite trees. It appears the trees' stressed conditions made them prone to attack by pests such as the psyllid; this is evident based on foliage found.



Plate 7. This is a large branch cut that has remained unclosed introducing decay (tree #787).



Plate 8. This is a view of a canker on the stem of a tree(tree #789).



Plate 9. This is a view of decay within a canker (tree #796).



Plate 10. This is a view of a canker at the flare of a tree affecting its stability (tree # 795)

3.2.3 - Potential or Immanent Hazard

Several trees within the site pose a significant threat of failure. These trees may show signs of significant lean, serious decay, inappropriate location or are simply dead.



Plate 11. This is a view of co-dominant stems with included bark (tree #781).



Plate 12. This is a view of a line of trees beneath utilities.

SECTION 4: CONCLUSION AND RECOMMENDATIONS

4.1 - Conclusion

The project site includes an area that is currently developed with several buildings, infrastructure, and associated landscaping. The project site contains 100 trees (excluding one dead tree) consisting of *ten* distinct ornamental species. Of the 100 trees, *eight* are considered *Protected* trees as they qualify as *Heritage* trees given their height of over 35 feet; these include the Canary Island (*Pinus canariensis),* Cook Pines (*Araucaria columnaris)*, and common fig (*Ficus carica*). Note: common fig is listed as having invasive characteristics by the Cal-IPC (see Section 3.1 above). None of the trees onsite are considered native, but were planted as part of the previous landscaping. Ultimately, of the 100 trees, 24 show evidence of infection, decline, poor stature, or the hazardous condition they pose.

4.2 - Discussion

The species onsite are aged, but are typical of landscaping trees and appropriate for the local climate. Careful evaluation of the individual trees revealed that several pose a risk of limb or total tree failure. Also, many trees have a poor prognosis due to their current condition / stature or are simply unaesthetically pleasing. A detailed list is each tree is provided in Appendix A below.

4.3 - Recommendations

4.3.1 - Dead/Declining Trees

There were 24 trees that have been determined to be in decline, have a poor prognosis, possess a significant risk of failure, or have substantial defects to where they pose a liability. Mitigation for any trees removed should be at a ratio of 2:1 or at the discretion of the City's Planning Department (see Section 2.8.2 above).

4.3.2 - Tree Protection and Monitoring

None of the onsite trees are included in the proposed project. If any of the existing trees are intended for preservation, a tree protection plan is warranted to assure protection through the construction phase and minimize any negative impacts. In addition, these trees must be evaluated following the implementation of the project.

4.3.3 - Migratory Bird Treaty Act

Pursuant to the Migratory Bird Treaty Act (MBTA) and CDFG Code, removal of any trees, shrubs, or any other potential nesting habitat should be conducted outside the avian nesting season. The nesting season generally extends from early February through August but can vary slightly from year to year based upon seasonal weather conditions.

Should construction begin during the nesting season, it is recommended that a pre-construction nesting survey be conducted according to California Fish and Wildlife protocol. If no nests or nesting birds are found, construction may move forward. If occupied nests or nesting birds are found, a buffer must be established around the nests, and no construction shall be performed in that area until the young have fledged or as recommended in the report.

QUALIFICATIONS OF ARBORIST

Mr. Wirtes is a Certified Arborist with the International Society of Arboriculture (CH-08084) and a member of the American Society of Consulting Arborists. Mr. Wirtes was certified in November of 2005 and has conducted numerous tree assessments for residential properties that involve oak and other tree species. Most notably, Mr. Wirtes has created an oak regeneration plan for a 2.3-acre project site in Ventura County as mitigation within a specific plan development. He has performed numerous tree surveys is Riverside, San Bernardino, and Los Angeles Counties on sites with as many as 400 trees. Mr. Wirtes' education includes a Bachelor of Science in Biology and a Master of Science in Environmental Science from California State University at Fullerton.

I certify that the details stated herein this report are true and accurate:

_____

George Wirtes, MS

ISA Certified Arborist

SECTION 5: REFERENCES

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Appendix A - Tree Species Observed

Note - This tree survey and the details recorded below are meant to characterize the trees within the property. The assessment is not exhaustive, but is a balance between the competing forces of in-depth description and cost effectiveness. The goal was to accumulate enough data to make a judgment as to what role, if any, the existing trees may have in the proposed project.

Tree evaluation

Tree Tag #	Species	DBH (inches)							Height (feet)	Canopy Width (feet) (north on top)			Gen App	Env	Risk
		1st Trunk	2nd Trunk	3rd Trunk	4th Trunk	5th Trunk	6th Trunk	Total							
711	Italian Cypress	55						55	24	2	2	2	2	2	2
Good form, In planter, Next to fence. To be removed.															
712	Italian Cypress	5.5						5.5	26	2	2	2	2	2	2
Good form. To be removed.															
713	Italian Cypress	4.5						4.5	19	1.5	1.5	1.5	2-3	2-3	2
Canopy is fairly sparse. To be removed.															
714	Italian Cypress	4						4	17	2	2	2	2-3	2	2
Canopy is fair, Spiders. To be removed.															
715	Italian Cypress	3	2					5	20	2	2	2	2	2	2
Canopy fair. To be removed.															
716	Italian Cypress	5.5						5.5	24	2	2	4	2-3	2-3	2
Canopy is somewhat sporadic. To be removed.															
717	Italian Cypress	5.5						5.5	22	3	2.5	2	2	2	2
Canopy OK. To be removed.															
718	Italian Cypress	5						5	25	2.5	2.5	2.5	2	2-3	2
Canopy is fair, Some exuding. To be removed.															
719	Italian Cypress	2	2	5.5				9.5	25	2	2	2	2	2-3	2
Some bare spots. To be removed.															
720	Italian Cypress	6	2	7				15	22	2	2	2	2	3	2-3
Some bare spots, Flare poorly developed. To be removed.															
721	Italian Cypress	7						7	24	2	2	2	2	3	2-3
Deformed flare, Some bare spots. To be removed.															
722	Italian Cypress	7	2					9	24	2	1.5	2	2	2	2
Some bare spots. To be removed.										2.5	4				

												1.5				
723	Italian Cypress	8	2					10	18			2		2	2-3	2
Some bare spots, Sweep lean. To be removed.										2.5			3.5			
												2				
724	Italian Cypress	7						7	16			1.5		2	2-3	2
Some bare spots. To be removed.										4			4			
												1.5				
725	Italian Cypress	6						6	25			2		2	2	2
Tall, Some bare spots. To be removed.										3			4			
												2				
726	Italian Cypress	5						5	16			2		2	2-3	2
Some bare spots. To be removed.										3			3			
												2				
727	Italian Cypress	6						6	23			2		2	2-3	2
Some bare spots. To be removed.										2.5			2.5			
												2				
728	Italian Cypress	6						6	23			1.5		2	2	2
Minor bare spots, Canopy fair. To be removed.										2.5			2.5			
												1.5				
729	Italian Cypress	5						5	20			1.5		2	2	2
Canopy fair. To be removed.										2			2.5			
												1.5				
730	Italian Cypress	2	6					8	21			1.5		2	2	2
Canopy fair. To be removed.										2			4			
												2				
731	Italian Cypress	4	2					6	14			1		2	2-3	2
Short in stature, Large bare spots. To be removed.										13			1			
												1.5				
732	Italian Cypress	7						7	26			2		2	2	2
Some bare spots, Canopy fair. To be removed.										2			2			
												2				
733	Italian Cypress	6						6	25			2		2	2	2
Good form. To be removed.										2			2			
												2				
734	Italian Cypress	6						6	18			2		2	2-3	2
Large bare spots. To be removed.										2			2.5			
												2				
735	Italian Cypress	7						7	24			1.5		2	2	2
Good form. To be removed.										1.5			1.5			
												1.5				
736	Italian Cypress	4						4	21			2		2	2	2
Good form, Minor bare spot. To be removed.										2			2			
												2				
737	Italian Cypress	4						4	23			2		2	2-3	2
Minor bare spots, Some lean. To be removed.										2			2			
												2				
738	Italian Cypress	4						4	14			1.5		2	2	2
Competing canopy with Fig, To be removed.										1.5			2			

												1.5				
739	Italian Cypress	6.5						6.5	20			2		2	2	2
Canopy fair, Crowded canopy. To be removed.										2		2.5				
												2				
740	Italian Cypress	4						4	16			2		2	2-3	2
Good form. To be removed.										2		3				
												2				
741	Italian Cypress	4						4	20			2		2	2	2
Good form with minor bareness. To be removed.										2.5		2.5				
												2				
742	Italian Cypress	2.5	7					9.5	24			2		2	2	2
Good form with minor bareness. To be removed.										2		3				
												2.5				
743	Italian Cypress	5						5	18			2		2	2-3	2
Large bare spots, Short stature. To be removed.										2.5		3				
												2				
744	Italian Cypress	2	4					6	17			2		2	2-3	2
Crowded canopy with Tree of Heaven, Fair growth form. To be removed.										2		2				
												2				
745	Italian Cypress	4						4	18			1.5		2	2-3	2
Crowded canopy with Tree of Heaven, Fair growth form. To be removed.										1		2.5				
												2				
746	Italian Cypress	4						0	15			1.5		2	2-3	2
Crowded canopy with Tree of Heaven, Fair growth form. To be removed.										2		1				
												1.5				
747	Italian Cypress	5						5	20			2		2	2	2
Crowded canopy, Good form. To be removed.										2.5		2.5				
												2				
748	Italian Cypress	2	4					0	19			2		2	2	2
Fair form. To be removed.										2.5		2.5				
												2				
749	Italian Cypress	4						4	14			1.5		2	2-3	2
Short stature, appears to be topped. To be removed.										1.5		1.5				
												1.5				
750	Italian Cypress	5						5	28			1.5		2	2	2
Good form. To be removed.										1.5		2.5				
												2				
751	Italian Cypress	7						7	28			2.5		2	2	2
Good form. To be removed.										2.5		2.5				
												2.5				
752	Italian Cypress	7						7	30			2.5		2	2-3	2
Scraggly. To be removed.										2.5		2.5				
												2.5				
753	Italian Cypress	6						6	28			2		2	2	2
Good form, Bareness mild. To be removed.										2		2				
												2				
754	Italian Cypress	4.5						4.5	24			2.5		2	2	2
Large bare spot, Covered stem and flare. To be removed.										2.5		2.5				

												2.5				
755	Italian Cypress	5						5	22			2		2	3	2-3
Stature OK, Poor flare. To be removed.										2			2			
												2				
756	Italian Cypress	5						5	22			1.5		2	2-3	2
Plants at flare, Stature OK. To be removed.										1.5			2			
												2				
757	Italian Cypress	2	3	4				9	20			1.5		2	3	2
Poor scaffolding, Vigor OK. To be removed.										1.5			1.5			
												1.5				
758	Italian Cypress	5						5	18			1.5		2	2-3	2
Vigor fair, Codominant stem. To be removed.										1.5			1.5			
												1.5				
759	Italian Cypress	5						5	26			1.5		2	2	2
Crowded canopy with Elm. To be removed.										1.5			1.5			
												1.5				
760	Italian Cypress	9						9	31			2		1-2	2	2
Huge specimen, Crowded canopy. To be removed.										4			4			
												6				
761	Italian Cypress	4						4	22			1.5		2-3	2-3	2
Crowded canopy, Large bare spot. To be removed.										1.5			1.5			
												1.5				
762	Italian Cypress	7						7	22			2		2	2	2
Large specimen. To be removed.										4			5			
												6				
763	Italian Cypress	6						6	27			2		2	2	2
Large specimen . To be removed.										2			2			
												2				
764	Italian Cypress	4.5	2.5					7	25			2		2	2	2
Good vigor. To be removed.										2			2			
												2				
765	Italian Cypress	5						5	26			2		2	2-3	2-3
Codominant stem, Poor growth form, Poor aesthetics . To be removed.										5			3			
												5				
766	Italian Cypress	3	4					7	22			2.5		2	2-3	2
Scraggly. To be removed.										2.5			2.5			
												2.5				
767	Canary Island Pine	24						24	48			8		2	2-3	2-3
Form fair, Large lower branch to prune, Vigor OK, Top heavy mass. To be removed.										4			4			
												18				
768	Hollywood Juniper	16.5						16.5	20			12		2-3	3	3
Top heavy, Lean, Pollard cut. To be removed.										4			2			
												2				
769	Italian Cypress	14						14	26			12		2-3	3	3
Top heavy, Lean, Pollard cut. To be removed.										6			4			
												0				
770	Carrotwood	16						16	34			8		2	2	2-3
Large branch cut at epicormic shoots, topped in past, Water sprouting, Vigor OK. To be removed.										10			8			

												12				
771	Queen Palm	9						9	26			14		2	2	2
Good form, Good vigor. To be removed.										12	6	12				
772	Queen Palm	10						10	24			14		2	2	2
Good form, Good vigor. To be removed.										8	8	12				
773	Queen Palm	9						9	26			12		2	2	2
Good form, Good vigor, In fruit, Some mechanical damage. To be removed.										8	8	12				
774	Canary Island Pine	30						30	80			6		2	2	2-3
Very tall, 3 needles per fascicle, Good form, Vigor OK, 15' needle. To be removed.										10	8	10				
775	Canary Island Pine	25						25	76			10		2	2	2-3
Very tall, Good form. To be removed.										10	8	6				
776	Crape Myrtle	7						7	15			8		1-2	1-2	1-2
Good form, Vigor good. To be removed.										10	4	8				
777	Hollywood Juniper	10	15					25	22			10		2-3	2	3
Codominant stem, Next to utility wires, Poorly pruned. To be removed.										6	4	6				
778	Hollywood Juniper	11	10					21	16			17		2	2-3	3
Increased deadwood in canopy, Codominant stem, Increased liability. To be removed.										4	8	2				
779	Canary Island Pine	23						23	48			16		2	3	2
Topped beneath utility lines, Vigor OK, Poor prognosis. To be removed.										12	10	14				
780	Common Fig	9	7	6	15	9	4	50	42			20		2	3	2
Chlorotic leaves, Next to utility pole, Some internal decay, Vigor good. To be removed.										10	10	14				
781	Common Fig	10	10					20	42			10		2-3	3	3
Epicormic shoots, Codominant stem, Unclosed branch cut. To be removed.										16	14	10				
782	Hollywood Juniper	5.5						5.5	14			4		2-3	2	2-3
Chopped, Lean, Cut like tree, Crowded canopy, Top heavy, Poor prognosis. To be removed.										4	4	4				
783	Hollywood Juniper	6						6	8			3		2	2	2
Good vigor, Bush like, Raised Canopy. To be removed.										3	3	3				
784	Hollywood Juniper	8						8	10			3		2	2	2
Lean. To be removed.										3	3	3				
785	Cook Pine	21						21	68			8		2	2-3	3
Lean, Crowded canopy, in planter, Exuding sap, Increased liability. To be removed.										0	14	9				
786	Cook Pine	18						18	64			4		2	2	2-3
Lean, Crowded canopy, some cankers noted, Exuding sap. To be removed.										4	6					

												6			
787	Silver Dollar Gum	14						14	34			16		2-3	3-4	3
Lean, Poor growth form, Poor prognosis, Vigor OK. To be removed.										8			12			
												16				
788	Japanese Loquat	10						10	26			8		2-3	2-3	2
Lean, Crowded canopy, Vigor OK. To be removed.										4			10			
												13				
789	Japanese Loquat	10						10	25			8		2-3	2-3	2-3
Vigor OK, Slight lean. To be removed.										4			10			
												8				
790	Hollywood Juniper	11						11	25			6		2	2	2
Lion's Tail, Vigor OK. To be removed.										4			10			
												6				
791	Hollywood Juniper	12						12	25			6		2	2-3	2-3
Lion's Tail, Top heavy. To be removed.										4			10			
												4				
792	Hollywood Juniper	8						8	22			2		2	2-3	2-3
Lean, Lion's Tail. To be removed.										1			4			
												6				
793	Hollywood Juniper	7						7	22			2		2	2-3	2-3
Lion's Tail, Poor form. To be removed.										1			4			
												5				
794	Hollywood Juniper	13						13	22			4		2	2-3	2-3
Lion's Tail, Lean. To be removed.										1			4			
												6				
795	Hollywood Juniper	10						10	20			6		2	2-3	2-3
Lion's Tail, Lean . To be removed.										1			4			
												8				
796	Hollywood Juniper	11						11	20			3		2	3	3
Torn branch, Internal decay. To be removed.										1			3			
												3				
797	Japanese Loquat	6						6	21			6		2	2	2
Good form, Vigor OK. To be removed.										4			8			
												6				
798	Japanese Loquat	8.5						8.5	30			8		2	2	2
Good form, Vigor OK. To be removed.										6			6			
												4				
799	Hollywood Juniper	12						12	25			8		2	2-3	2-3
Lion's Tail. To be removed.										4			8			
												2				
800	Hollywood Juniper	6.5						6.5	14			6		2-3	3	3
Lean, Lion's Tail. To be removed.										2			8			
												0				
271	Hollywood Juniper	8.5						8.5	14			6		2-3	3	3
Lion's Tail, Lean. To be removed.										2			8			
												8				
272	Hollywood Juniper	8						8	13			4		3	3	3
Lion's Tail, Lean. To be removed.										2			6			

												6			
273	Hollywood Juniper	15						15	22		6		2	3	3
Lean, Lion's Tail. To be removed.										2		10			
											4				
274	Hollywood Juniper	6	5					11	16		4		2	3	3
Lean, Lion's Tail. To be removed.										2		4			
											6				
275	Hollywood Juniper	14.5						14.5	18		8		2	2-3	2-3
Poor scaffolding. To be removed.										6		8			
											4				
276	Hollywood Juniper	10						10	22		3		3-4	3-4	3-4
Dead upper canopy. To be removed.										2		3			
											3				
277	Hollywood Juniper	4	6					10	18		12		3	3-4	3-4
Substantial lean, Soil heaving. To be removed.										3		2			
											2				
278	Hollywood Juniper	9						9	17		9		2-3	3	3
Lion's Tail, Lean, Under an overhang. To be removed.										0		8			
											3				
279	Hollywood Juniper	10						10	17		4		2-3	3	3
Lion's Tail, Lean, Under an overhang. To be removed.										0		9			
											2.5				
280	Hollywood Juniper	6	5					11	18		5		2-3	3	3
Codominant, Lion's Tail, Lean, Under and overhang. To be removed.										0		8			
											5				

Appendix D1

Cultural Resources Due Diligence Assessment



Rincon Consultants, Inc.

250 East 1st Street, Suite 301
Los Angeles, California 90012

213 788 4842
FAX 908 2200

info@rinconconsultants.com
www.rinconconsultants.com

February 25, 2019
Project No: 19-07222

David Lelie, LEED AP
Forward Planning
KB Home
25152 Springfield Court, Suite 180
Valencia, California 91355
Via E-mail: dlelie@kbhome.com

Subject: **Cultural Resources Due Diligence Assessment for the Orchard and Cypress Housing Project, El Monte, California**

Dear Mr. Lelie:

Rincon Consultants, Inc. (Rincon) was retained by KB Home to conduct a Due Diligence Assessment of cultural resource constraints for the Orchard and Cypress Housing Project (project) located in El Monte, Los Angeles, California. The purpose of this study is to determine the feasibility of the project under the California Environmental Quality Act (CEQA) and to identify any obvious cultural resources constraints that could potentially affect costs, schedule, or would be considered a substantial constraint (i.e., "fatal flaw"). Rincon has completed a cultural resources record search for this project; the results of the record search are documented in this assessment.

PROJECT LOCATION AND DESCRIPTION

The project is located at 3700, 3640, 3630 Cypress Avenue and 11312 Orchard Street, El Monte, Los Angeles County, California. The project site is approximately 5.2 acres and is depicted within the *El Monte* 7.5-minute United States Geological Survey (USGS) quadrangle, Sections 21 and 22, Township 1S, Range 11W (San Bernardino baseline and meridian; Attachment A, Figure 1). As Rincon understands, project plans are currently being developed but the proposed development will consist of single-family residential units and open space. The project site is bound by Iris Lane to the south, Cypress Avenue to the west, and Orchard Street to the north and east. It currently consists of commercial development. Land uses surrounding the project site include dense residential and commercial development, and further out Interstate 10 and Interstate 605 occur to the south and east, respectively. Rincon understands the project site is currently developed with several light industrial structures and associated parking areas.

BACKGROUND RESEARCH

California Historical Resources Information System

On February 19, 2019, Rincon Archaeologist Tricia Dodds, M.A., Registered Professional Archaeologist (RPA) performed a search of the California Historical Resources Information System (CHRIS) at the South

Central Coastal Information Center (SCCIC) located at California State University, Fullerton. The purpose of the records search was to identify all previously recorded cultural resources, as well as previously conducted cultural resources studies within the proposed study area and a 0.5-mile radius around it. The CHRIS search included a review of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list.

The SCCIC records search identified 20 cultural resources within a 0.5-mile radius of the project site, none of which are within the study area. The resources are listed in Table 1 below.

Table 1. Previously Recorded Cultural Resources within a 0.5-mile radius of the Study Area

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status	Relationship to Study Area
P-19-004730	CA-LAN-004730H	Historic	Site	Ballester (2016)	Unknown	Outside
P-19-187901		Historic	Building	Tanaguchi (2006); Crawford (2012)	Unknown	Outside
P-19-188158		Historic	Building	Fisher (2007)	Unknown	Outside
P-19-188409		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188411		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188412		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188413		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188414		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188416		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188417		Historic	Building	Bai (2005)	Unknown	Outside

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status	Relationship to Study Area
P-19-188418		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188424		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188425		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188426		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188427		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188428		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188429		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188430		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188431		Historic	Building	Bai (2005)	Unknown	Outside
P-19-188432		Historic	Structure (Railroad Depot)	Bai (2005)	Unknown	Outside

Source: South Central Coastal Information Center February 19, 2019

The SCCIC records search identified eight previously conducted cultural resources studies within a 0.5-mile radius of the study area; none of which include a portion of the study area. Table 2 below provides a summary of the reports within the search radius.

Table 2. Previous Cultural Resources Studies within a 0.5-mile radius of the Study Area

Report Number	Author	Year	Title	Relationship to Study Area
LA-02871	Wlodarski and Larson	1993	*Department of Transportation Negative Archaeological Survey Report Dpd-ep-25 (revised 2/83) Interstate 10 (I-10) Between Baldwin Avenue in City of El Monte on the West and the Interchange Between I-10 and I-605*	Outside
LA-04835	Ashkar	1999	*Cultural Resources Inventory Report for Williams Communications, Inc. Proposed Fiber Optic Cable System Installation Project, Los Angeles to Riverside, Los Angeles and Riverside Counties*	Outside
LA-06318	Duke	2002	*Cultural Resource Assessment Cingular Wireless Facility No. Vy 120-02 Los Angeles County, California*	Outside
LA-06323	Crippen	2000	*Historical Value of Residence Located at 11423 Medina Court in El Monte, California*	Outside
LA-07943	Billat	2006	*SBC El Monte, LA-0297a*	Outside
LA-09659	Bai, Hogan, and Tibbet	2005	*Historic-Period Building Survey, Santa Fe Trail Plaza Redevelopment Project, In the City of El Monte, Los Angeles County, California*	Outside
LA-10641	Bai	2010	*Preliminary Historical/Archaeological Resources Study, San Bernardino Line Positive Train Control Project, Southern California Regional Rail Authority, Counties of Los Angeles and San Bernardino*	Outside
LA-12131	Bonner and Crawford	2012	*Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate IE04037A (LA017 LA-017-01-PB) 3614 Center Avenue, El Monte, Los Angeles County, California*	Outside

Source: South Central Coastal Information Center February 19, 2019

HISTORIC AERIAL IMAGERY AND RECORDS REVIEW

Rincon reviewed historic aerials to determine the age of the extant structures located on the project site. According to aerial imagery and construction records, the extant structures located at 3640 and 3700 Cypress Avenue exceed 50 years in age and the structures at 3630 Cypress Avenue and 11312 Orchard Street exceed 45 years in age and have not been previously evaluated for the CRHR according to the records housed at the SCCIC. Street view images available for the structures were reviewed as part of this research. The structures exhibit minor features of Late-Modern style on their facades and they are fairly utilitarian in design. They are not likely architecturally significant under CEQA. Archival

research is necessary to determine if any of the buildings were important for historical events or individuals.

FINDINGS AND RECOMMENDATIONS

The cultural resources records search identified 19 historic age structures and 1 historic site located within 0.5-mile of the project site. No prehistoric resources were identified near or within the vicinity of the project site.

A review of construction records and historic aerials for the project site indicate that two of the extant structures exceed the 50-year threshold for evaluation; and although they do not appear to have features that would make them eligible for listing on the CRHR additional archival research may be requested by the lead agency to determine if any of the buildings were important for historical events or individuals. Therefore, the lead agency may request a built environment evaluation for the structures' eligibility for listing on the CRHR.

Based on the results of the records search and historic use of the project site, the cultural resources sensitivity of the project site is low although the potential to find buried deposits remains. Archaeological and/or Native American monitoring during any dirt moving may be required to fulfil CEQA compliance; however, the site does not appear sensitive for prehistoric resources.

Please do not hesitate to call or email me at 760-918-9444, extension 217, or mstrother@rinconconsultants.com if you have any questions regarding the findings presented in this assessment.

Sincerely,

Rincon Consultants, Inc.



Mark Strother, M.A.
Associate Archaeologist



Breana Campbell, M.A., RPA
Archaeologist & Project Manager

Attachments

Attachment A Figures

Attachment B Record Search Summary

References

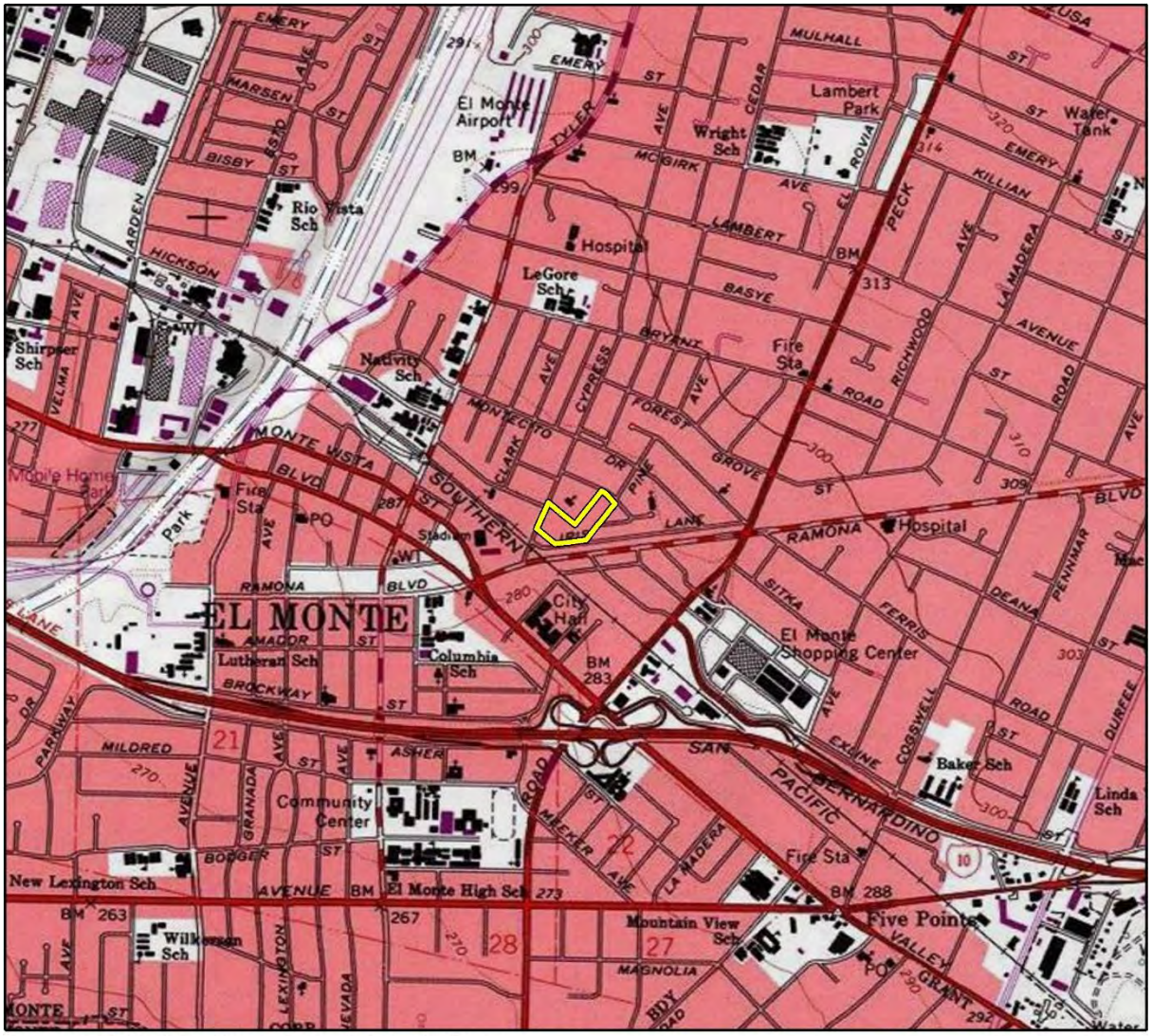
National Park Service

1983 Archaeological and Historic Preservation: Secretary of the Interior's Standards and Guidelines. Electronic document, online at http://www.nps.gov/history/local-law-Arch_Standards.htm accessed December 6, 2011.

Attachment A

Figures

Figure 1. Project Location Map



Imagery provided by National Geographic Society, Esri and its licensors © 2019. El Monte Quadrangle. T01S R11W S21,22. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may havechanged since the original topographic map was assembled.



Attachment B

Record Search Summary

Appendix D2

Assembly Bill 52 and Senate Bill 18 Communications



Assembly Bill 52
Letters



CITY OF EL MONTE
COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT

Betty Donavanik
Community & Economic Development Director

VIA CERTIFIED MAIL
(Return Receipt Requested)

September 10, 2019

Andrew Salas
Gabrieleno Band of Mission Indians – Kizh Nation
P.O. Box 393
Covina, CA 91723

Subject: ***Notification of the Proposed KB Home Orchard Street & Cypress Avenue Project located at 11312 Orchard Street, and 3630, 3640, and 3700 Cypress Avenue***
General Plan Amendment (GPA) 03-19; Zone Change (ZC) 01-19
Tentative Tract Map (TTM) 82797; Variance(s) (VAR) 02-19 and 03-19;
Conditional Use Permit (CUP) 20-19; and Modification(s) (MOD) 28-19, 29-19, and 30-19

Dear Andrew Salas,

Pursuant to California Assembly Bill 52 (AB52), the City of El Monte (City) is providing you with notification of the proposed KB Home Orchard Street & Cypress Avenue Project (Project), in the City of El Monte, County of Los Angeles, California.

Project Location and Description
The Project site involves a 5.69-gross-acre lot comprised of four parcels (Assessor's Parcel Numbers (APN) 8568-026-002, 8568-026-034, 8568-026-035, 8568-026-053). *Exhibit 2-1, Regional Vicinity Map* and *Exhibit 2-2, Site Vicinity Map* depict the Project site in a regional and local context, respectively. The Project site is fully developed with an industrial business complex comprised of four buildings with a mix of commercial and light-industrial land uses. The Project proposes to remove all existing onsite improvements and construct 110 three-story townhomes. Additional improvements are also proposed, including 275 parking spaces and landscaping.

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in Public Resources Code § 21074) in relation to the proposed Project, please provide a written request for consultation to the address below or via email to nlee@elmonteca.gov within 30 days of receipt of this letter and include the name of a designated lead contact person.

Sincerely,

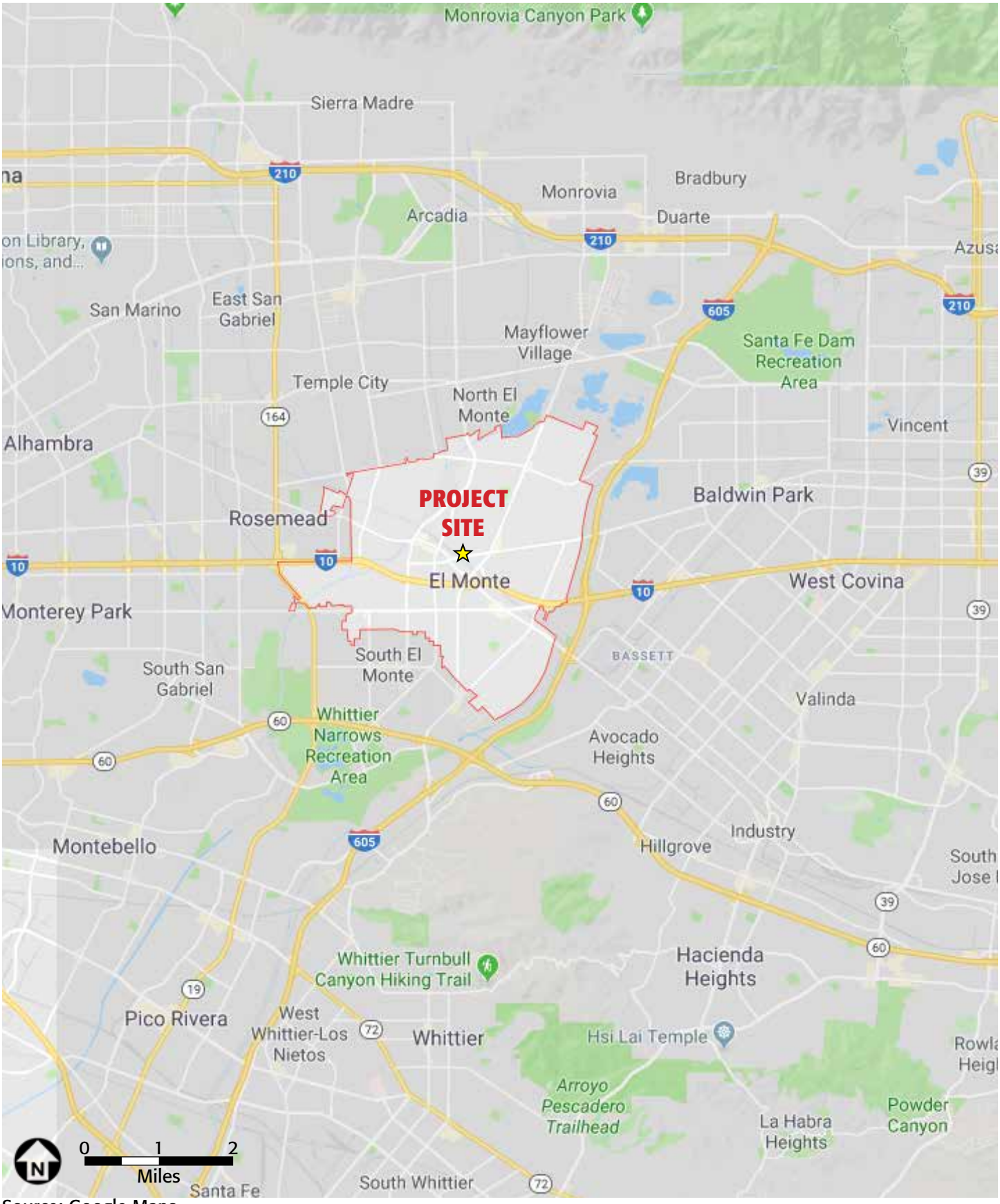


Nancy Lee
Senior Planner

NL/rg

CC: Rita Garcia, Kimley-Horn and Associates

Attachments:
Exhibit 2-1, Regional Vicinity Map
Exhibit 2-2, Site Vicinity Map



Source: Google Maps

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 1: Regional Vicinity Map



Source: Near Map

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 2: Local Vicinity Map

CITY OF EL MONTE
COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT

Betty Donavanik
Community & Economic Development Director

VIA CERTIFIED MAIL
(Return Receipt Requested)

September 10, 2019

Gabrieleno Tongva Of the Los Angeles Basin Peo' Tskome
Tribal Council
Po Box 86908
Los Angeles, Ca 90086

Subject: ***Notification of the Proposed KB Home Orchard Street & Cypress Avenue Project located at 11312 Orchard Street, and 3630, 3640, and 3700 Cypress Avenue***
General Plan Amendment (GPA) 03-19; Zone Change (ZC) 01-19
Tentative Tract Map (TTM) 82797; Variance(s) (VAR) 02-19 and 03-19;
Conditional Use Permit (CUP) 20-19; and Modification(s) (MOD) 28-19, 29-19, and 30-19

Dear Tribal Council,

Pursuant to California Assembly Bill 52 (AB52), the City of El Monte (City) is providing you with notification of the proposed KB Home Orchard Street & Cypress Avenue Project (Project), in the City of El Monte, County of Los Angeles, California.

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Sincerely,

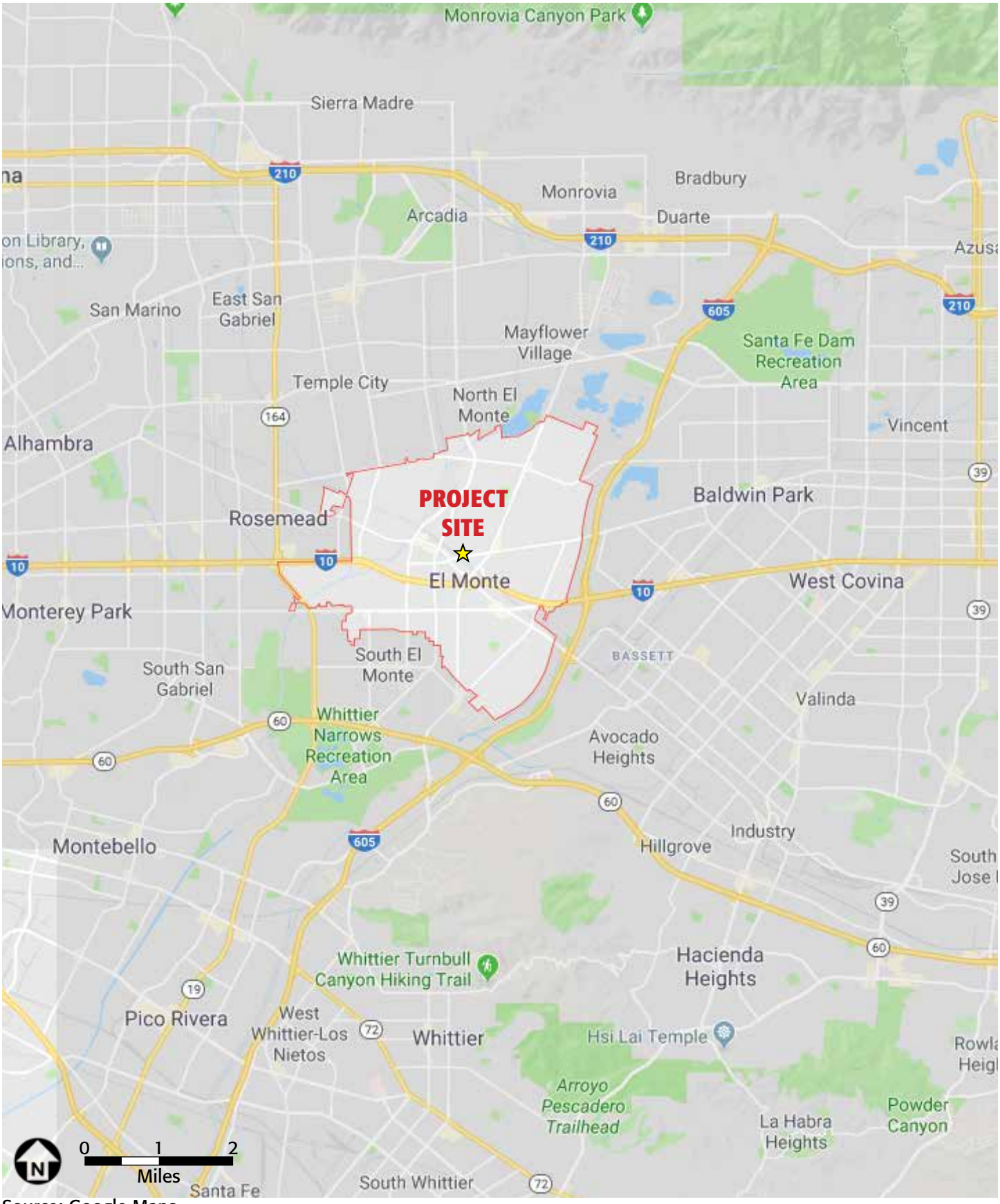


Nancy Lee
Senior Planner

NL/rg

CC: Rita Garcia, Kimley-Horn and Associates

Attachments:
Exhibit 2-1, Regional Vicinity Map
Exhibit 2-2, Site Vicinity Map



Source: Google Maps

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 1: Regional Vicinity Map



Source: Near Map

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 2: Local Vicinity Map

CITY OF EL MONTE
COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT

Betty Donavanik
Community & Economic Development Director

VIA CERTIFIED MAIL
(Return Receipt Requested)

September 10, 2019

Sam Dunlap
Gabrielino Tongva Tribe
80839 Camino Santa Juliana
Indio, CA 92203

Subject: ***Notification of the Proposed KB Home Orchard Street & Cypress Avenue Project located at 11312 Orchard Street, and 3630, 3640, and 3700 Cypress Avenue***
General Plan Amendment (GPA) 03-19; Zone Change (ZC) 01-19
Tentative Tract Map (TTM) 82797; Variance(s) (VAR) 02-19 and 03-19;
Conditional Use Permit (CUP) 20-19; and Modification(s) (MOD) 28-19, 29-19, and 30-19

Dear Sam Dunlap,

Pursuant to California Assembly Bill 52 (AB52), the City of El Monte (City) is providing you with notification of the proposed KB Home Orchard Street & Cypress Avenue Project (Project), in the City of El Monte, County of Los Angeles, California.

Project Location and Description
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If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in Public Resources Code § 21074) in relation to the proposed Project, please provide a written request for consultation to the address below or via email to nlee@elmonteca.gov within 30 days of receipt of this letter and include the name of a designated lead contact person.

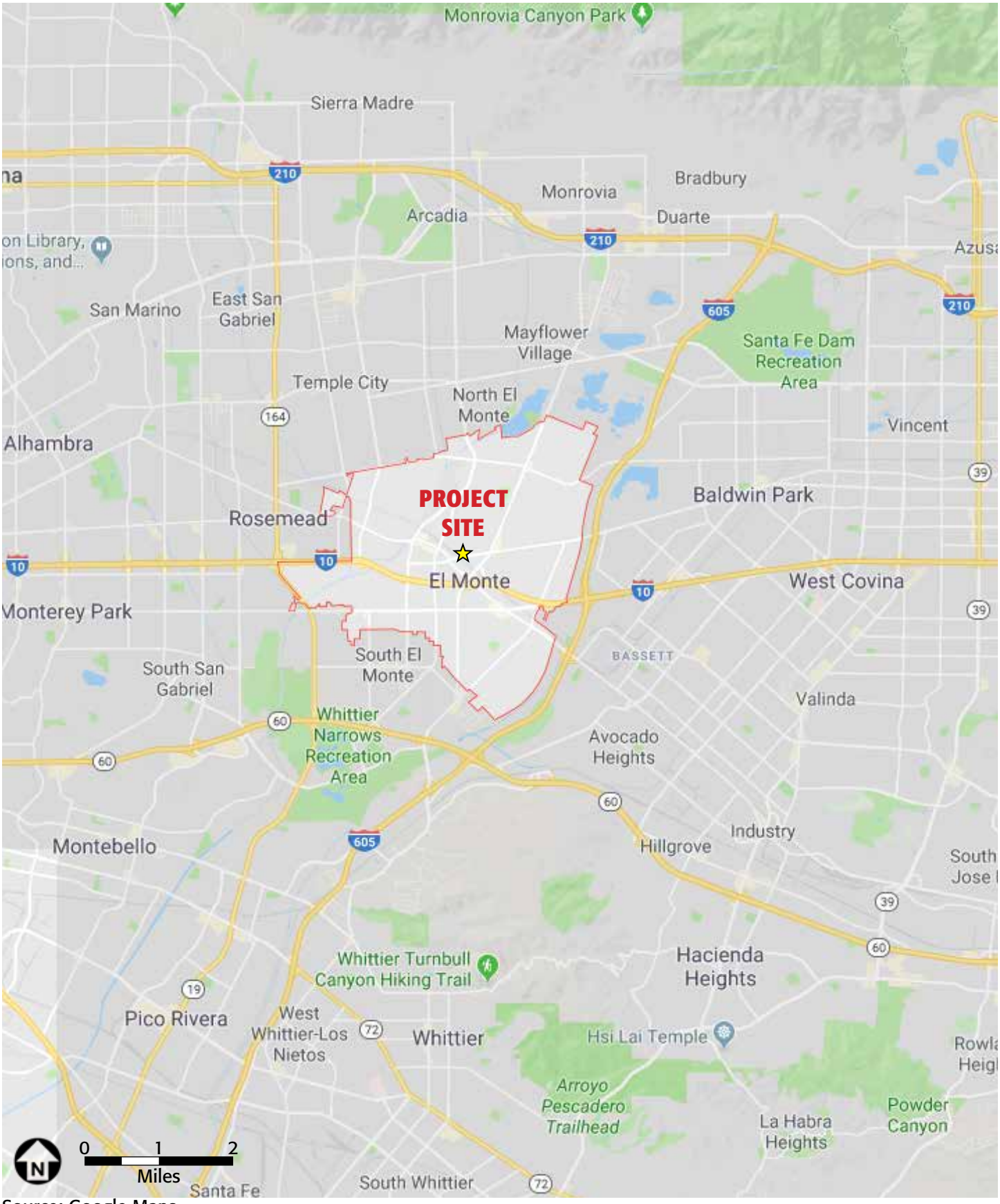
Sincerely,

Nancy Lee
Senior Planner

NL/rg

CC: Rita Garcia, Kimley-Horn and Associates

Attachments:
Exhibit 2-1, Regional Vicinity Map
Exhibit 2-2, Site Vicinity Map



Source: Google Maps

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 1: Regional Vicinity Map



Source: Near Map

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 2: Local Vicinity Map

CITY OF EL MONTE
COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT

Betty Donavanik
Community & Economic Development Director

VIA CERTIFIED MAIL
(Return Receipt Requested)

September 10, 2019

Gabrielino/Tongva Tribal Council
1999 Avenue of the Stars, Suite 1100
Los Angeles, CA 90067

Subject: ***Notification of the Proposed KB Home Orchard Street & Cypress Avenue Project located at 11312 Orchard Street, and 3630, 3640, and 3700 Cypress Avenue***
General Plan Amendment (GPA) 03-19; Zone Change (ZC) 01-19
Tentative Tract Map (TTM) 82797; Variance(s) (VAR) 02-19 and 03-19;
Conditional Use Permit (CUP) 20-19; and Modification(s) (MOD) 28-19, 29-19, and 30-19

Dear Gabrielino/Togva Tribal Council,

Pursuant to California Assembly Bill 52 (AB52), the City of El Monte (City) is providing you with notification of the proposed KB Home Orchard Street & Cypress Avenue Project (Project), in the City of El Monte, County of Los Angeles, California.

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If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in Public Resources Code § 21074) in relation to the proposed Project, please provide a written request for consultation to the address below or via email to nlee@elmonteca.gov within 30 days of receipt of this letter and include the name of a designated lead contact person.

Sincerely,

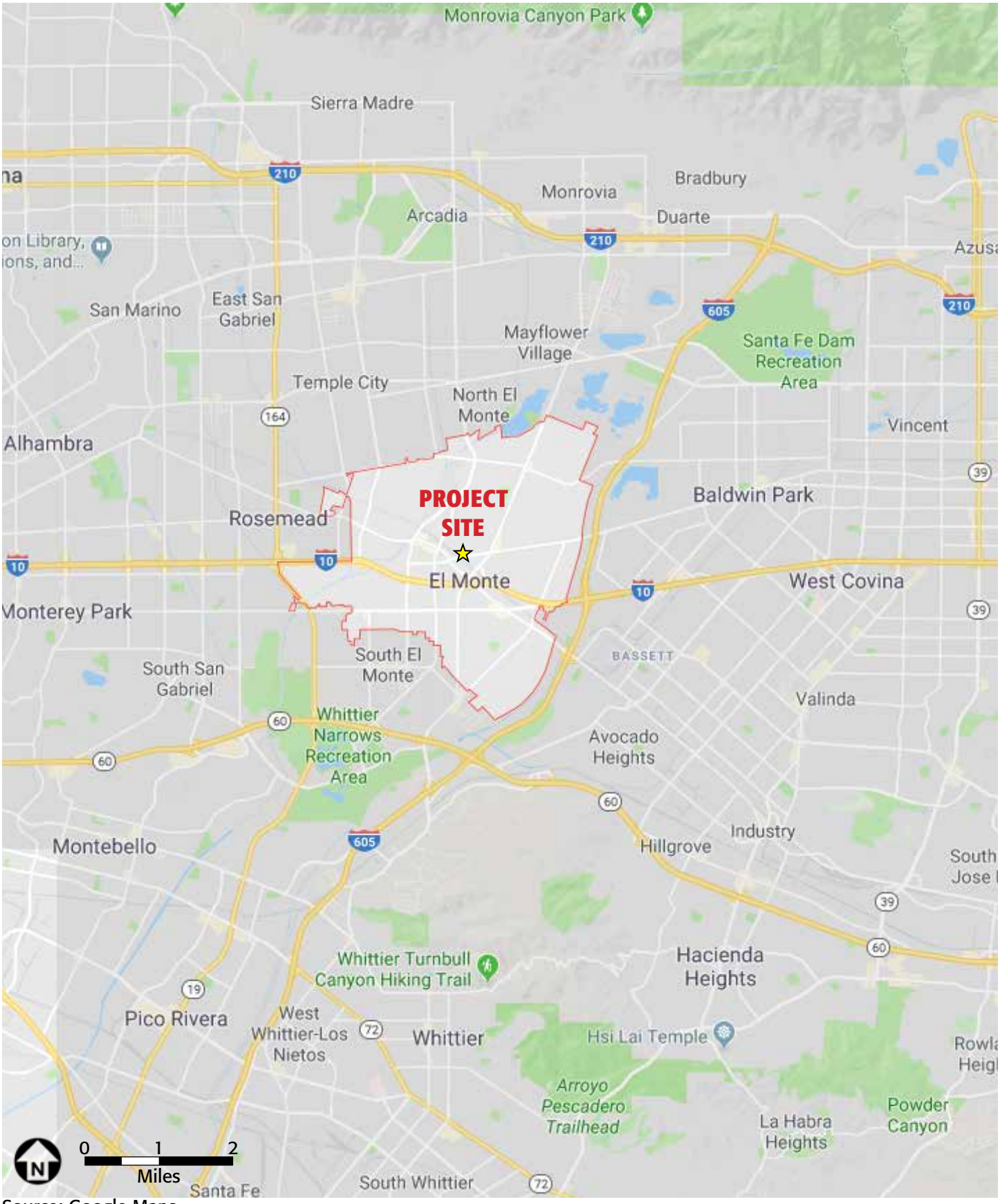


Nancy Lee
Senior Planner

NL/rg

CC: Rita Garcia, Kimley-Horn and Associates

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Exhibit 2-1, Regional Vicinity Map
Exhibit 2-2, Site Vicinity Map



Source: Google Maps

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 1: Regional Vicinity Map



Source: Near Map

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 2: Local Vicinity Map

CITY OF EL MONTE
COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT

Betty Donavanik
Community & Economic Development Director

VIA CERTIFIED MAIL
(Return Receipt Requested)

September 10, 2019

San Gabriel Band of Mission Indians
Anthony Morales, Chief
P.O. Box 693
San Gabriel, CA 91778

Subject: ***Notification of the Proposed KB Home Orchard Street & Cypress Avenue Project located at 11312 Orchard Street, and 3630, 3640, and 3700 Cypress Avenue***
General Plan Amendment (GPA) 03-19; Zone Change (ZC) 01-19
Tentative Tract Map (TTM) 82797; Variance(s) (VAR) 02-19 and 03-19;
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Dear Chief Morales,

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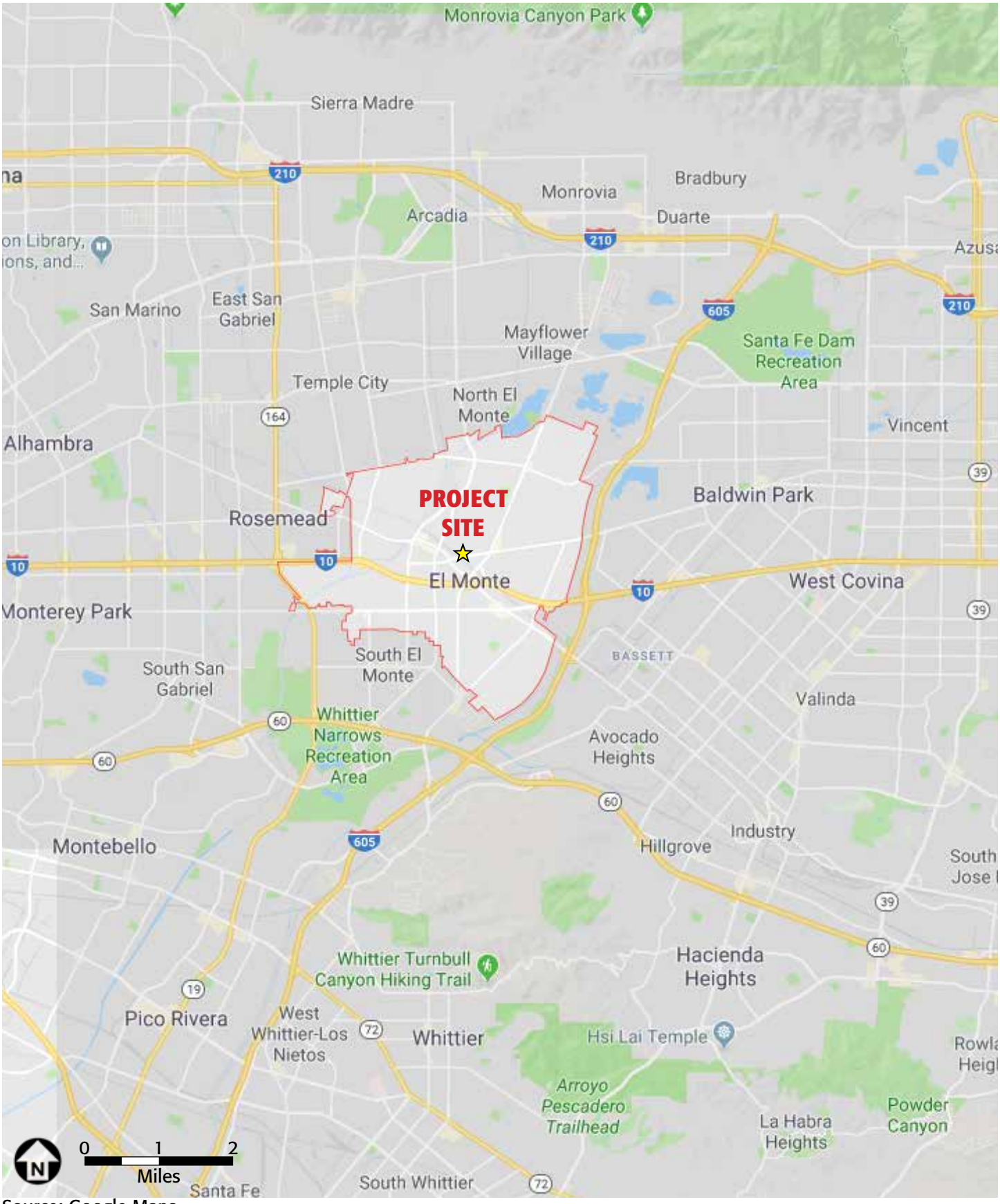
Sincerely,

Nancy Lee
Senior Planner

NL/rg

CC: Rita Garcia, Kimley-Horn and Associates

Attachments:
Exhibit 2-1, Regional Vicinity Map
Exhibit 2-2, Site Vicinity Map



Source: Google Maps

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 1: Regional Vicinity Map



Source: Near Map

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 2: Local Vicinity Map

CITY OF EL MONTE
COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT

Betty Donavanik
Community & Economic Development Director

VIA CERTIFIED MAIL
(Return Receipt Requested)

September 10, 2019

Torres Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, CA 92274

Subject: ***Notification of the Proposed KB Home Orchard Street & Cypress Avenue Project located at 11312 Orchard Street, and 3630, 3640, and 3700 Cypress Avenue***
General Plan Amendment (GPA) 03-19; Zone Change (ZC) 01-19
Tentative Tract Map (TTM) 82797; Variance(s) (VAR) 02-19 and 03-19;
Conditional Use Permit (CUP) 20-19; and Modification(s) (MOD) 28-19, 29-19, and 30-19

Dear Torres Martinez Desert Cahuilla Indians,

Pursuant to California Assembly Bill 52 (AB52), the City of El Monte (City) is providing you with notification of the proposed KB Home Orchard Street & Cypress Avenue Project (Project), in the City of El Monte, County of Los Angeles, California.

Project Location and Description
The Project site involves a 5.69-gross-acre lot comprised of four parcels (Assessor's Parcel Numbers (APN) 8568-026-002, 8568-026-034, 8568-026-035, 8568-026-053). *Exhibit 2-1, Regional Vicinity Map* and *Exhibit 2-2, Site Vicinity Map* depict the Project site in a regional and local context, respectively. The Project site is fully developed with an industrial business complex comprised of four buildings with a mix of commercial and light-industrial land uses. The Project proposes to remove all existing onsite improvements and construct 110 three-story townhomes. Additional improvements are also proposed, including 275 parking spaces and landscaping.

If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in Public Resources Code § 21074) in relation to the proposed Project, please provide a written request for consultation to the address below or via email to nlee@elmonteca.gov within 30 days of receipt of this letter and include the name of a designated lead contact person.

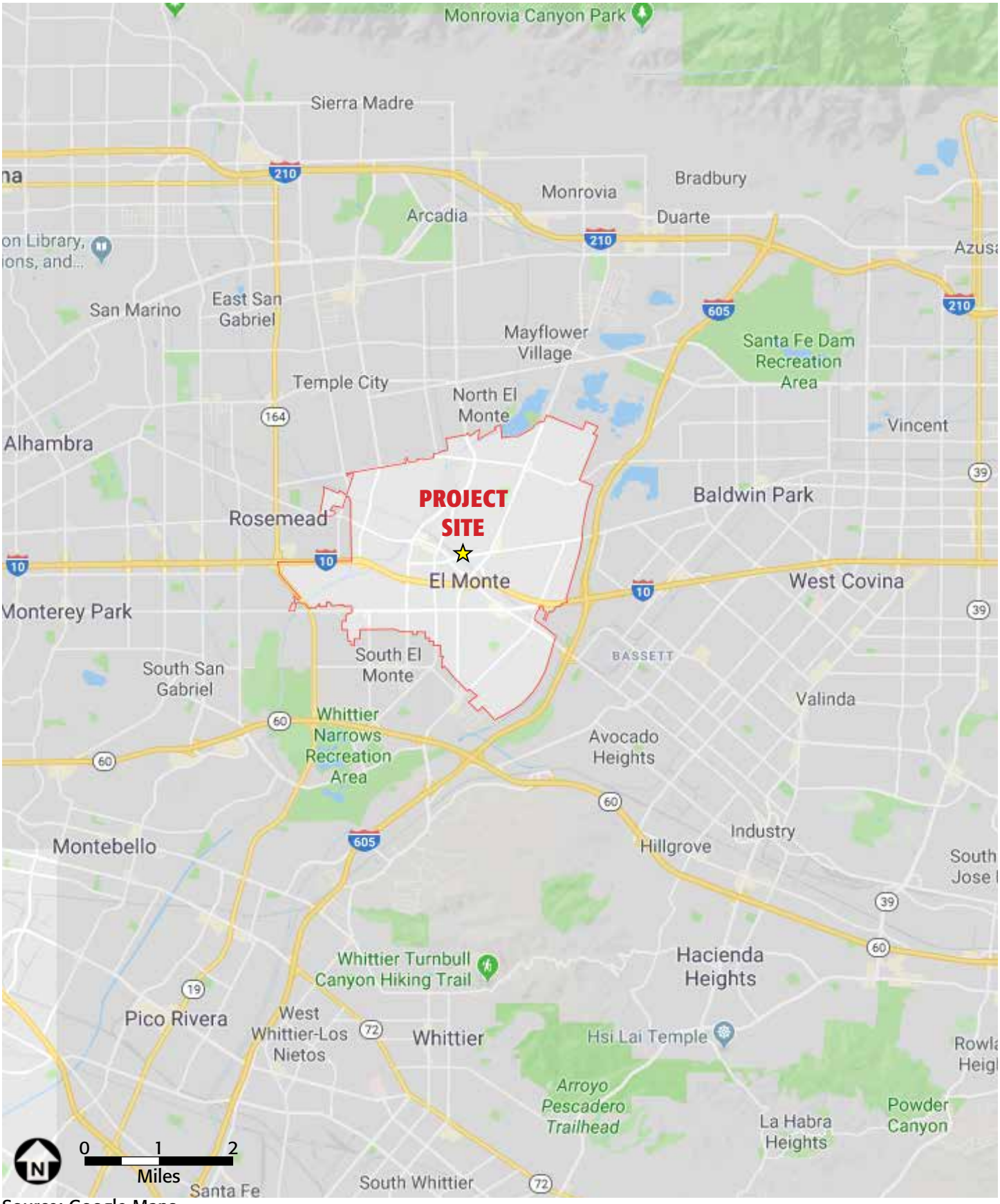
Sincerely,

Nancy Lee
Senior Planner

NL/rg

CC: Rita Garcia, Kimley-Horn and Associates

Attachments:
Exhibit 2-1, Regional Vicinity Map
Exhibit 2-2, Site Vicinity Map



Source: Google Maps

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 1: Regional Vicinity Map



Source: Near Map

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 2: Local Vicinity Map

Senate Bill 18
Letters



CITY OF EL MONTE
COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT

Betty Donavanik
Community & Economic Development Director

VIA CERTIFIED MAIL
(Return Receipt Requested)

October 4, 2019

Robert Dorame, Chairperson
Gabrielino Tongva Indians of California Tribal Council
P.O. Box 490
Bellflower, CA, 90707
gtongva@gmail.com

Subject: ***Notification of the Proposed KB Home Orchard Street and Cypress Avenue Project, Pursuant to Senate Bill 18***
Project located at 11312 Orchard Street, and 3630, 3640, and 3700 Cypress Avenue
General Plan Amendment (GPA) 03-19; Zone Change (ZC) 01-19; Tentative Tract Map (TTM) 82797; Variance(s) (VAR) 02-19 and 03-19; Conditional Use Permit (CUP) 20-19; and Modification(s) (MOD) 28-19, 29-19, and 30-19

Dear Robert Dorame,

Senate Bill 18 (SB 18) requires that cities/counties consult with California Native American Tribes that are on the contact list maintained by the California Native American Heritage Commission (NAHC), before adopting or amending a General Plan or Specific Plan. In compliance with SB 18 requirements, and as Lead Agency, the City of El Monte hereby extends an invitation to consult on the proposed KB Home Orchard Street and Cypress Avenue Project. This consultation is intended to assist with identifying and/or preserving and/or mitigating potential Project impacts to Native American cultural places. To assist in your evaluation, a record search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed for the area of potential Project effect (APE) (i.e., Project area), with positive results.

The Project site involves a 5.69-gross-acre lot comprised of four parcels (Assessor's Parcel Number) (APN) 8568-026-002, 8568-026-034, 8568-026-035, 8568-026-053). Exhibit 2-1, Regional Vicinity Map and Exhibit 2-2, Site Vicinity Map depict the Project site in a regional and local context, respectively. The Project site is fully developed with an industrial business complex comprised of four buildings with a mix of commercial and light-industrial land uses. The Project proposes to remove all existing onsite improvements and construct 110 three-story townhomes. Additional improvements are also proposed, including 275 parking spaces and landscaping.

If you desire to consult with the City on review of this Project, please respond and request consultation in writing to the address above or via email to nlee@elmonteca.gov within 90 days of receipt of this letter and

include the name of a designated lead contact person. Should the City not receive a response within 90 days, it will be presumed that you have declined consultation.

Should you have any questions or concerns, please call me at (626) 580-2096 or via e-mail at nlee@elmonteca.gov

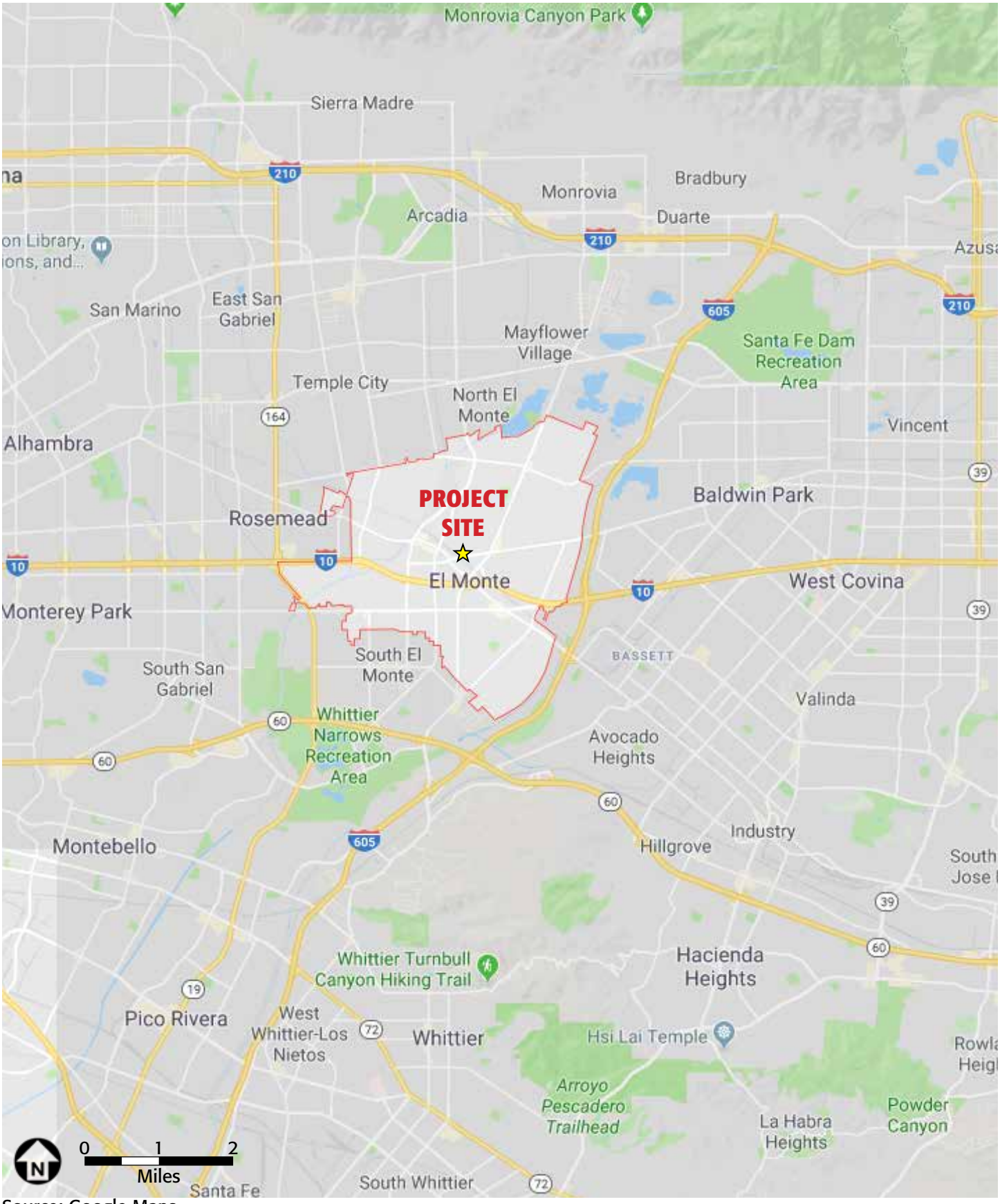
Sincerely,

Nancy Lee
Senior Planner

NL/rg

CC: Rita Garcia, Kimley-Horn

Attachments:
Exhibit 2-1, Regional Vicinity Map
Exhibit 2-2, Site Vicinity Map



Source: Google Maps

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 1: Regional Vicinity Map



Source: Near Map

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET& CYPRESS AVENUE PROJECT

Exhibit 2: Local Vicinity Map

CITY OF EL MONTE
COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT

Betty Donavanik
Community & Economic Development Director

VIA CERTIFIED MAIL
(Return Receipt Requested)

October 4, 2019

Sandonne Goad, Chairperson
Gabrielino /Tongva Nation
106 1/2 Judge John Aiso St.,#231
Los Angeles, CA, 90012
sgoad@gabrielino-tongva.com

Subject: ***Notification of the Proposed KB Home Orchard Street and Cypress Avenue Project, Pursuant to Senate Bill 18***
Project located at 11312 Orchard Street, and 3630, 3640, and 3700 Cypress Avenue
General Plan Amendment (GPA) 03-19; Zone Change (ZC) 01-19; Tentative Tract Map (TTM) 82797; Variance(s) (VAR) 02-19 and 03-19; Conditional Use Permit (CUP) 20-19; and Modification(s) (MOD) 28-19, 29-19, and 30-19

Dear Sandonne Goad,

Senate Bill 18 (SB 18) requires that cities/counties consult with California Native American Tribes that are on the contact list maintained by the California Native American Heritage Commission (NAHC), before adopting or amending a General Plan or Specific Plan. In compliance with SB 18 requirements, and as Lead Agency, the City of El Monte hereby extends an invitation to consult on the proposed KB Home Orchard Street and Cypress Avenue Project. This consultation is intended to assist with identifying and/or preserving and/or mitigating potential Project impacts to Native American cultural places. To assist in your evaluation, a record search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed for the area of potential Project effect (APE) (i.e., Project area), with positive results.

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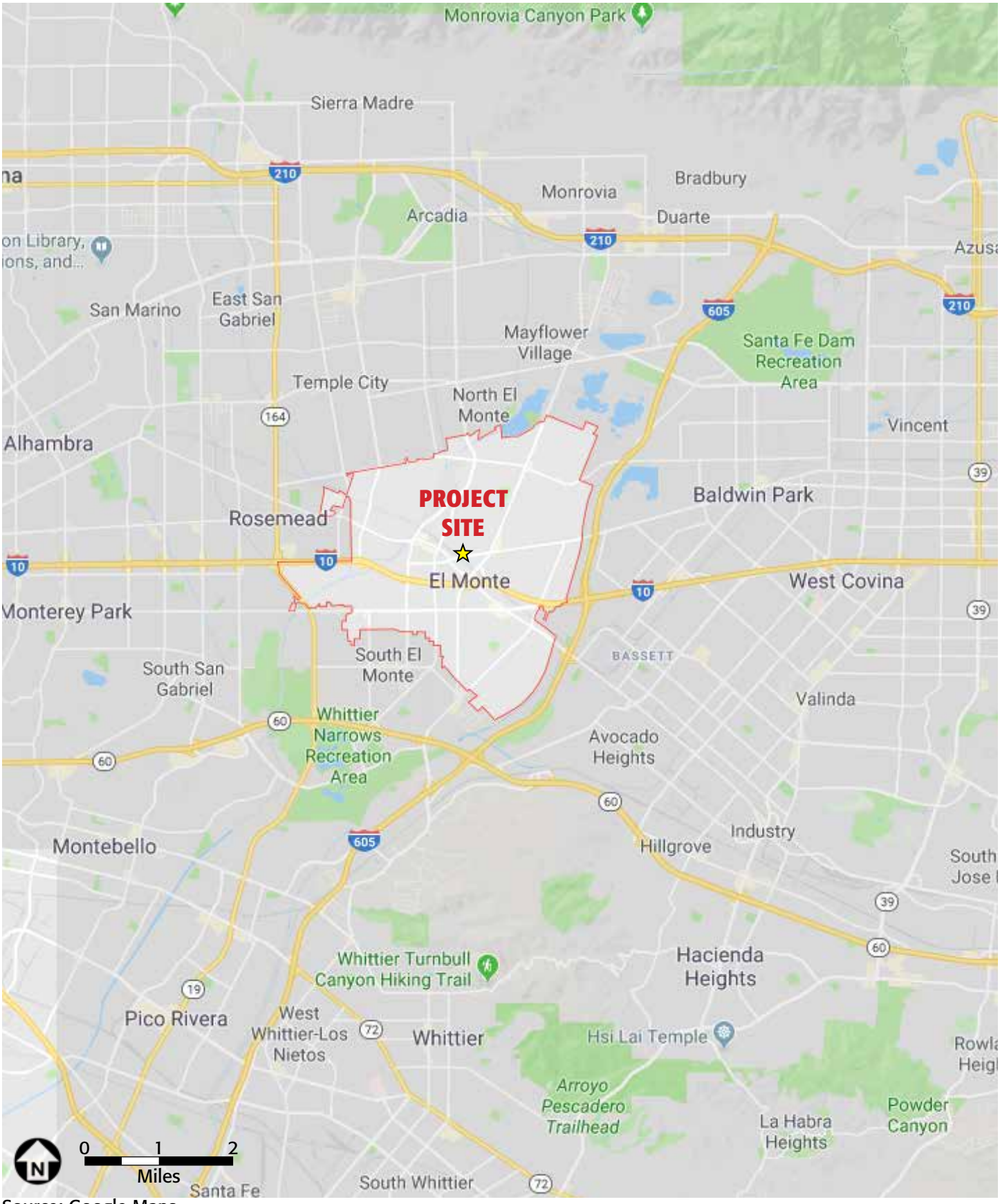


Nancy Lee
Senior Planner

NL/rg

CC: Rita Garcia, Kimley-Horn

Attachments:
Exhibit 2-1, Regional Vicinity Map
Exhibit 2-2, Site Vicinity Map



Source: Google Maps

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 1: Regional Vicinity Map



Source: Near Map

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET& CYPRESS AVENUE PROJECT

Exhibit 2: Local Vicinity Map

CITY OF EL MONTE
COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT

Betty Donavanik
Community & Economic Development Director

VIA CERTIFIED MAIL
(Return Receipt Requested)

October 4, 2019

Charles Alvarez
Gabrielino-Tongva Tribe
23454 Vanowen Street
West Hills, CA, 91307
roadkingcharles@aol.com

Subject: ***Notification of the Proposed KB Home Orchard Street and Cypress Avenue Project, Pursuant to Senate Bill 18***
Project located at 11312 Orchard Street, and 3630, 3640, and 3700 Cypress Avenue
General Plan Amendment (GPA) 03-19; Zone Change (ZC) 01-19; Tentative Tract Map (TTM) 82797; Variance(s) (VAR) 02-19 and 03-19; Conditional Use Permit (CUP) 20-19; and Modification(s) (MOD) 28-19, 29-19, and 30-19

Dear Charles Alvarez,

Senate Bill 18 (SB 18) requires that cities/counties consult with California Native American Tribes that are on the contact list maintained by the California Native American Heritage Commission (NAHC), before adopting or amending a General Plan or Specific Plan. In compliance with SB 18 requirements, and as Lead Agency, the City of El Monte hereby extends an invitation to consult on the proposed KB Home Orchard Street and Cypress Avenue Project. This consultation is intended to assist with identifying and/or preserving and/or mitigating potential Project impacts to Native American cultural places. To assist in your evaluation, a record search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed for the area of potential Project effect (APE) (i.e., Project area), with positive results.

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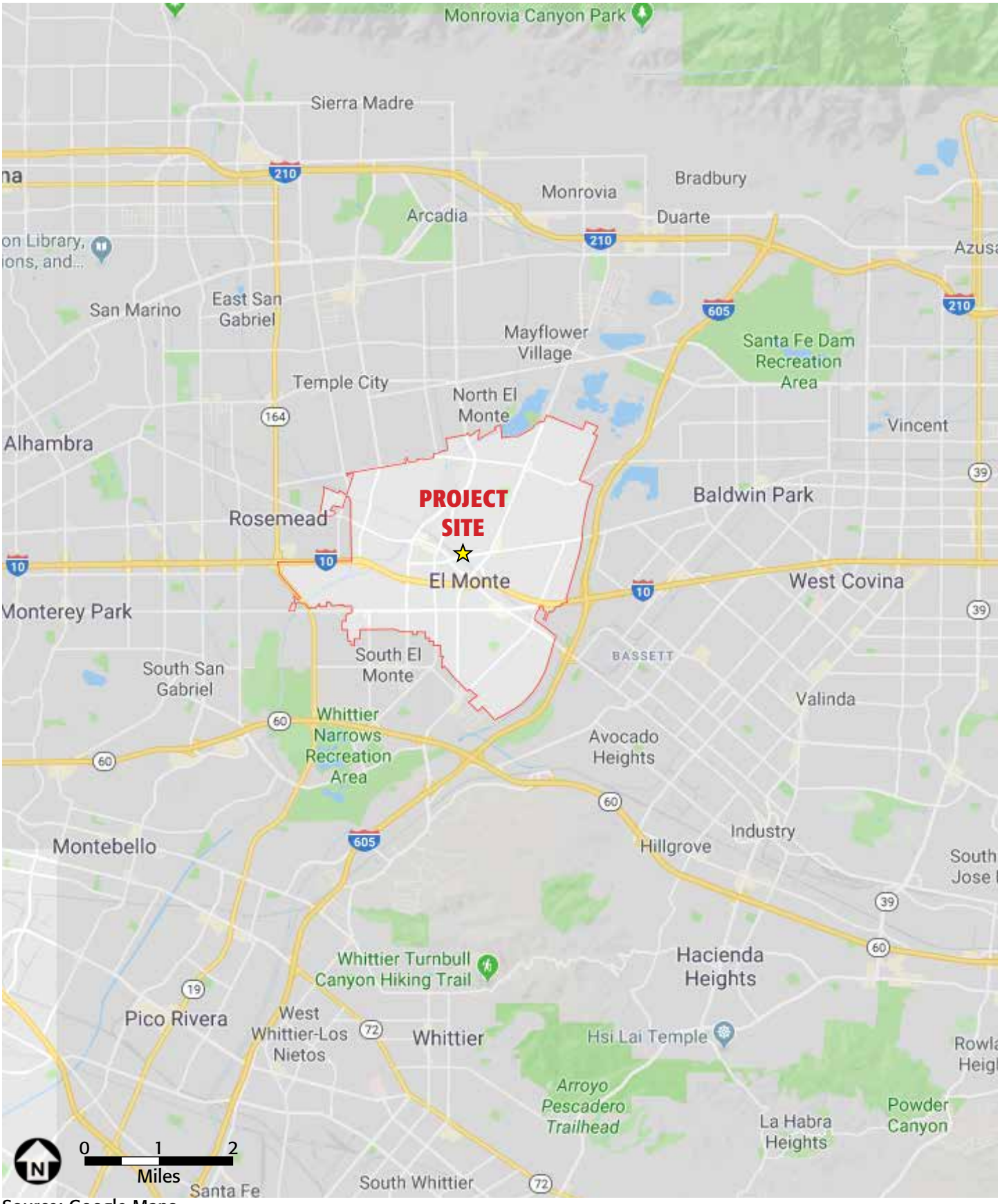


Nancy Lee
Senior Planner

NL/rg

CC: Rita Garcia, Kimley-Horn

Attachments:
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Exhibit 2-2, Site Vicinity Map



Source: Google Maps

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET & CYPRESS AVENUE PROJECT

Exhibit 1: Regional Vicinity Map



Source: Near Map

Kimley»Horn

September 2019

CITY OF EL MONTE California

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KB HOME ORCHARD STREET& CYPRESS AVENUE PROJECT

Exhibit 2: Local Vicinity Map

CITY OF EL MONTE
COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT

Betty Donavanik
Community & Economic Development Director

VIA CERTIFIED MAIL
(Return Receipt Requested)

October 4, 2019

Andrew Salas, Chairperson
Gabrieleno Band of Mission Indians – Kizh Nation
P.O. Box 393
Covina, CA 91723

Subject: ***Notification of the Proposed KB Home Orchard Street and Cypress Avenue Project, Pursuant to Senate Bill 18***
Project located at 11312 Orchard Street, and 3630, 3640, and 3700 Cypress Avenue
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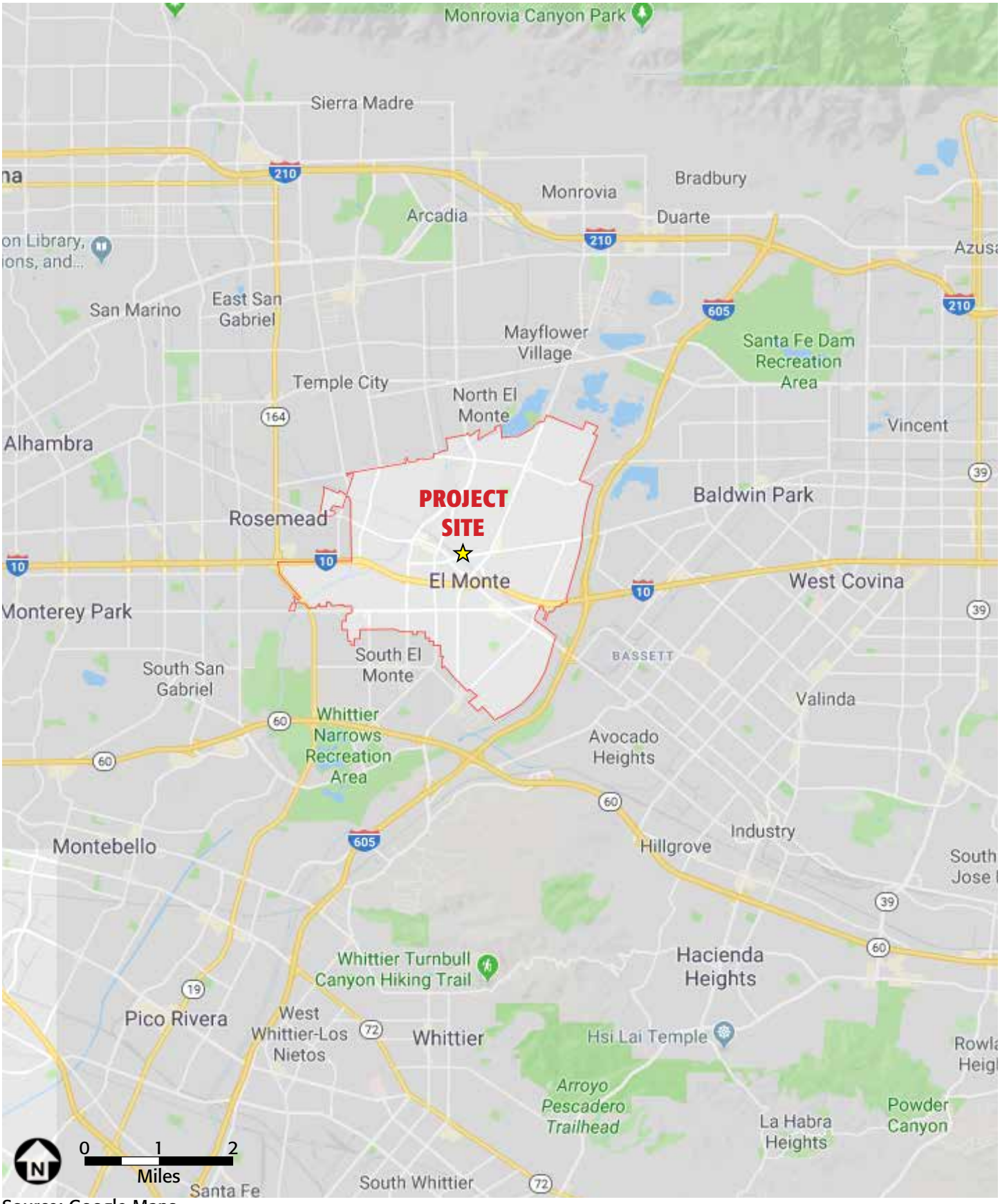


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Source: Google Maps

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Source: Near Map

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CITY OF EL MONTE
COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT

Betty Donavanik
Community & Economic Development Director

VIA CERTIFIED MAIL
(Return Receipt Requested)

October 4, 2019

Anthony Morales, Chairperson
Gabrieleno/Tongva San Gabriel Band of Mission Indians
P.O. Box 693
San Gabriel, CA, 91778
GTTribalcouncil@aol.com

Subject: ***Notification of the Proposed KB Home Orchard Street and Cypress Avenue Project, Pursuant to Senate Bill 18***
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Dear Anthony Morales,

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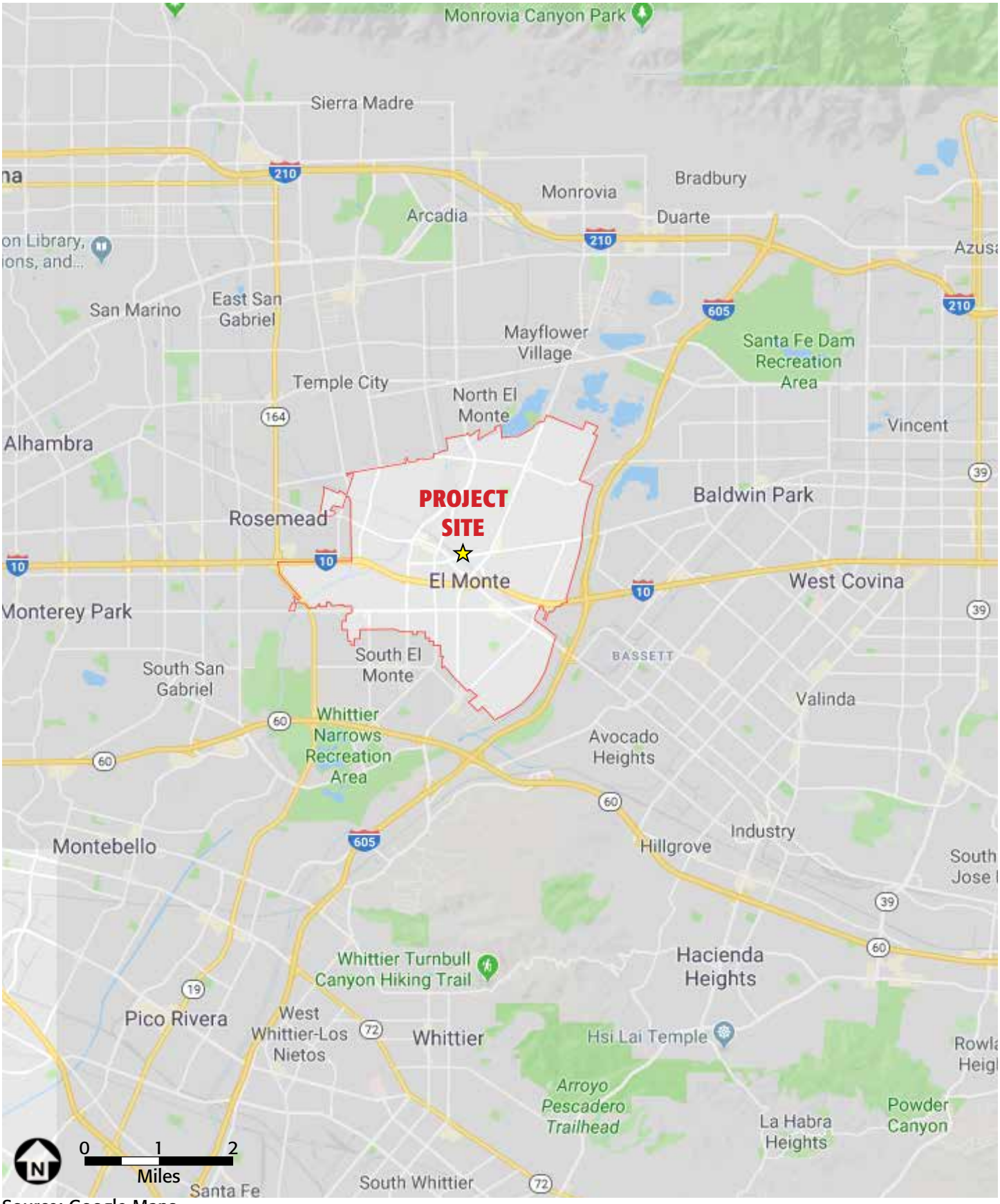


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Senior Planner

NL/rg

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Source: Google Maps

Kimley»Horn

September 2019

CITY OF EL MONTE California

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Source: Near Map

Kimley»Horn

September 2019

CITY OF EL MONTE California

kb HOME

KB HOME ORCHARD STREET& CYPRESS AVENUE PROJECT

Exhibit 2: Local Vicinity Map

Appendix E

Geotechnical Investigation



RMA GeoScience
Every Project Matters | www.rmacompanies.com

April 10, 2019 RMA Project Number 19G-0075 -0

KB Home
25152 Springfield Ct., Suite 180
Valencia, CA 91355

Attention: Mr. David Lelie

Subject: Geotechnical Investigation
Orchard and Cypress
3700-3630 Cypress Ave
El Monte, CA

Dear Mr. Lelie:

In accordance with your request, a geotechnical investigation has been completed for the proposed development at the above referenced property. The results of the investigation are presented in the accompanying report, which includes a description of site conditions, results of our field exploration and testing, laboratory testing, conclusions, and recommendations. This report has been prepared for specific application to this project, in accordance with generally accepted geotechnical engineering practice.

We appreciate this opportunity to be of service to you. If you have any questions regarding this report, please do not hesitate to contact us at your convenience.

Respectfully submitted,

RMA GeoScience



Haiyan Liu, PE
Project Engineer
C81463



Martha P. Sgriccia
Project Geologist
CEG 2494

Distribution: (1) Addressee

RMA GeoScience
Every Project Matters | www.rmacompanies.com

GEOTECHNICAL INVESTIGATION
ORCHARD AND CYPRESS
3700-3630 CYPRESS AVE
EL MONTE, CALIFORNIA

For

KB Home
25152 Springfield Ct., Suite 180
Valencia, CA 91355

April 10, 2019

Project No. 19G-0075-0

RMA GeoScience
Every Project Matters | www.rmacompanies.com

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RMA GeoScience
Every Project Matters | www.rmacompanies.com

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Figure 2	Regional Geology Map
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APPENDICES

Appendix A	Field Investigation
Appendix B	Laboratory Tests
Appendix C	General Earthwork and Grading Specifications
Appendix D	Liquefaction Analysis Results
Appendix E	References

RMA GeoScience
Every Project Matters | www.rmacompanies.com

1.00 INTRODUCTION

1.01 Purpose

The purpose of the investigation was to summarize geotechnical and geologic conditions at the site and to assess their potential impact on the proposed development.

1.02 Scope of the Investigation

The general scope of this geotechnical investigation included the following:

- Review of published and unpublished geologic, seismic, groundwater, and geotechnical literature
- Examination of aerial photographs and topographic maps
- Review of State of California Alquist-Priolo Earthquake Fault Zone and Seismic Hazard maps
- Contacting of Underground Service Alert (USA) to locate onsite utility lines
- Logging, sampling, and backfilling of three (3) hollow stem auger boring (8 inches diameter) to maximum depths of 50 feet
- Laboratory testing of representative soil samples
- Geotechnical evaluation of the compiled data
- provide a preliminary or narrow range estimate of the expected infiltration rate
- Preparation of this report presenting our findings, conclusions, and recommendations

Our scope of work did not include a preliminary site assessment for the potential of hazardous materials onsite.

1.03 Site Location and Description

The KB Home site is located at Cypress Avenue, in El Monte, California within a residential and commercial area. The 5 acre plus property includes Assessor Parcel Numbers 8568-026-002, 8568-026-034, 8568-026-035 and 8568-026-053. The site is bounded on the north and east by residential housing, on the south by Iris Lane and on the west by Cypress Avenue (Site Vicinity Map, Figure 1). The site is essentially level and sits at street grade. Structures on the site consist of six multi-unit, commercial buildings that are currently occupied by various businesses. Paved parking areas surround much of the buildings. There are utility poles in the paved areas between the buildings and is presumed to be the easements as shown in the Title Report provided for our review.

The site coordinates are 34.0742 North and -118.0294 West. .

1.04 Site History

Based on review of aerial photographs and other information readily available online the site appears to have been a mix of vacant land and commercial structures from as far back as 1927 up until the mid 1960s when

the first of the six existing commercial buildings is visible at the central portion of the site. The site appears in its current configuration in photographs from the early 1970s.

1.05 Planned Development

Based on the exhibit provided by Forma Engineering Inc., the planned improvements include 22 condominium buildings totaling 110 units with associated driveways and parking and common areas. A stormwater infiltration system is planned for the southeast end of the site.

1.06 Investigation Methods

Our investigation consisted of office research, field exploration, laboratory testing, review and analysis of the compiled data, and preparation of this report. It has been performed in a manner consistent with generally accepted engineering and geologic principles and practices, and has incorporated applicable requirements of California Buildings Code. Definitions of technical terms and symbols used in this report include those of the ASTM International, the California Building Code, and commonly used geologic nomenclature.

Technical supporting data are presented in the attached appendices. Appendix A presents a description of the methods and equipment used in performing the field exploration and logs of our subsurface exploration. Appendix B presents a description of our laboratory testing and the test results. General Earthwork and Grading Specifications are presented in Appendix C. Appendix D presents our engineering analysis. References are presented in Appendix E.

2.00 FINDINGS

2.01 Geologic Setting

The site lies at the southeastern end of the San Gabriel Valley the southern boundary of which is marked by the Puente and Montebello Hills. The valley is an east-west trending structural basin that has accumulated a thick sequence of Holocene- to Pleistocene-age alluvial sediments. The site is situated on a broad alluvial fan emanating from the San Gabriel Mountains to the north. The fan in the area of the site has been dissected by the ancestral San Gabriel Wash to the east and the Rio Hondo Wash at the west.

The earth materials that underlie the site consist of interbedded silt, clay and sand and gravel. Asphalt paving covers most of the site. A full description of the earth materials encountered within each borehole is included on the boring logs, Appendix A.

2.02 Earth Materials

<u>Asphalt and Base</u>

Asphalt and base conditions varied widely across all three borings. Asphalt paving of up to 5.5 inches thick overlying up to 6 inches thick base where encountered. In boring two, two generations of asphalt were

discovered.

Artificial Fill (af)

Artificial fill is at a maximum of 3 feet thick as observed in the boring excavations and is composed of medium brown silty clay to clayey silt with fine sand in a slightly moist to moist, low to medium stiff condition.

Alluvium Deposits (Q_{al})

Quaternary aged alluvial deposits are underlying artificial fill material. This unit consists of yellow-brown to grey, greenish brown, interbedded silty sand, sand, and clayey sand. The sand was micaceous and ranged from course to fine. The sandy units were in a medium dense to dense condition. The soils were slightly moist with moist to wet conditions occurring in the sand layers at the contact with the finer grained materials.. Layers of course to fine gravels were encountered below 25 feet.

2.03 Expansive Soils

Based on our preliminary observations and laboratory data, the soils at shallow depths are expected to have an expansion index in the low range. Additional expansion index and plasticity index testing will be required at the completion of rough grading to verify the properties of the near surface soils.

2.04 Surface and Groundwater Conditions

Groundwater was not encountered in the boring excavated to a maximum depth of 50 feet. Surface water on the site is limited to precipitation falling directly around the buildings on the site. Depth to groundwater in monitoring wells located approximately 0.24 miles to the southeast of the site as measured in 2003 ranged from 88.9 to 91 feet. There was no surface water encountered at the time of our investigation. Depth to historic high groundwater is approximately 10 feet below existing grade according to the Seismic Hazard Zone Report for the El Monte Quadrangle (CDMG, 1998).

2.05 Faults

The proposed site is not located within an Alquist-Priolo Earthquake Fault Zone, and there are no known active faults on or immediately adjacent to the property. However, there are faults in close enough proximity to the site to cause moderate to intense ground shaking during the lifetime of the proposed development. Additionally, the site has experienced earthquake-induced ground shaking in the past and can be expected to experience further shaking in the future. The closest zoned fault is the East Montebello fault zone, located approximately 3.75 miles to the southwest of the subject site.

2.06 Landslides

According to the California Geological Survey Seismic Hazard Zones Map of the El Monte Quadrangle (2017) the site does not lie in a landslide hazard zone. Since the site is relatively flat earthquake-induced landsliding does not appear to be a hazard to proposed development.

2.07 Liquefaction

According to the State of California Seismic Hazard Zones Map of the El Monte Quadrangle, the site lies within a "Zone of Required Investigation for Liquefaction". Therefore, a liquefaction screening evaluation has been performed in accordance with California Geological Survey Special Publication SP-117A (2008), "Guidelines for Evaluating and Mitigating Seismic Hazards in California". The findings of our liquefaction screening evaluation are presented in section 3.04 of this report.

2.08 Historic Seismicity

The region of the subject site has experienced shaking from several earthquakes recorded back to 1812. The nearest large historic earthquake is the Raymond fault that occurred in 1855, the epicenter of which is 4.4 miles northwest from the site. Historic earthquakes with magnitudes of greater than or equal to 6.0 and have been epicentered within approximately 50 miles of the site, are summarized in the table below.

Large Historic Earthquakes

Event	LAT. NORTH	LONG. WEST	DATE	Quake Mag.	APPROX. DISTANCE mi
Raymond	34.100	118.100	7/11/1855	6.3	4.40
	34.3	117.6	07/30/1894	6	29.0
Wrightwood	34.3	117.65	12/08/1812	7	29.8
Northridge	34.2130	118.5370	01/17/1994	6.7	30.6
	34.0	117.5	12/16/1858	7	30.7
	34.4110	118.4010	02/09/1971	6.4	31.5
Long Beach	33.6170	117.967	3/11/1933	6.3	31.8
	34.3	117.50	07/22/1899	6.50	34.0
	34.3	118.6	04/04/1893	6	36.2
	33.7	117.4	05/15/1910	6	44.3
	34.0	117.25	07/23/1923	6.25	44.9
	33.9	117.2	12/19/1880	6	48.9

3.00 CONCLUSIONS AND RECOMMENDATIONS

3.01 General Conclusion

Based on the data collected thus far the project appears feasible from a geotechnical standpoint. Our preliminary recommendations provided below are based on the data collected thus far and our understanding of the project and our general experience in engineering geology and geotechnical engineering.

3.02 Seismic Design Parameters

Seismic design parameters have been developed in accordance with the 2016 California Building Code (CBC)

using the online the online ATC Calculator (2010 ASCE 7-10 Standard) and a site location based on latitude and longitude. The calculator generates probabilistic and deterministic maximum considered earthquake spectral parameters represented by a 5-percent damped acceleration response spectrum having a 2-percent probability of exceedance in 50 years. The deterministic response accelerations are calculated as 150 percent of the largest median 5-percent damped spectral response acceleration computed on active faults within a region, where the deterministic values govern. The calculator does not, however, produce separate probabilistic and deterministic results. The parameters generated for the subject site are presented in the following table:

2016 California Building Code (CBC) Seismic Parameters

Parameter	Value
Site Location	Latitude = 34.0742 degrees Longitude = -118.0294 degrees
Site Class	Site Class = D
Mapped Spectral Accelerations (Site Class B)	S_s (0.2- second period) = 2.375 S_1 (1-second period) = 0.824g
Site Coefficients (Site Class D)	F_a = 1.0 F_v = 1.5
Maximum Considered Earthquake Spectral Accelerations (Site Class D)	S_{MS} (0.2- second period) = 2.375g S_{M1} (1-second period) = 1.236g
Design Earthquake Spectral Accelerations (Site Class D)	S_{DS} (0.2- second period) = 1.583g S_{D1} (1-second period) = 0.824g

For Risk Categories II, the Seismic Design Category is E (CBC Table 1604.5 and Section 1613.3.5). Consequently, as required for Seismic Design Categories C through F by CBC Section 1803.5.11, the following geologic and seismic hazards have been evaluated: slope instability, liquefaction, total and differential settlement and surface displacement due to faulting or seismically induced flooding have been evaluated. Applicable portions of CBC Section 1803.5.12 have been included in evaluation of the above listed geologic and seismic hazards.

Peak earthquake ground acceleration adjusted for site class effects (PGAM) has been determine in accordance with ASCE 7-10 Section 11.8.3 as follows: $PGA_M = F_{PGA} \times PGA = 1.000 \times 0.855g = 0.855g$.

3.03 Liquefaction and Secondary Earthquake Hazards

Potential secondary seismic hazards that can affect land development projects include liquefaction, tsunamis, seiches, seismically induced settlement, seismically induced flooding and seismically induced landsliding.

Liquefaction

Liquefaction hazard potential for the site is discussed in Section 2.07 and Section 3.04 of this report.

Tsunamis and Seiches

Tsunamis are sea waves that are generated in response to large-magnitude earthquakes. When these waves reach shorelines, they sometimes produce coastal flooding. Seiches are the oscillation of large bodies of standing water, such as lakes, that can occur in response to ground shaking. Tsunamis and seiches do not pose hazards due to the inland location of the site and lack of nearby bodies of standing water.

Seismically Induced Settlement

Seismically induced settlement occurs most frequently in areas underlain by loose, granular sediments. Damage as a result of seismically induced settlement is most dramatic when differential settlement occurs in areas with large variations in the thickness of underlying sediments. Settlement caused by ground shaking is often non-uniformly distributed, which can result in differential settlement.

A seismic settlement analysis was performed using LiquefyPro Version 5 (2015 Edition) for this project. A summary of the input data and the results of the seismic settlement analysis are provided in Appendix D.

Seismically Induced Flooding

According to Federal Emergency Management Agency (Flood Insurance Rate Map #06037C1675F, Effective date 9/26/2008), the site is located in an area of Flood Zone X, which is an area where the likelihood of flood hazards is considered minimal. In addition there are no water reservoirs in the vicinity of the site. Based on the aforementioned the potential for seismic induced flooding is unlikely.

Seismically Induced Landsliding

According to the California Geological Survey Seismic Hazard Zones Map of the El Monte Quadrangle (2017) the site does not lie in a landslide hazard zone. Since the site is relatively flat earthquake-induced landsliding does not appear to be a hazard to proposed development.

3.04 Liquefaction Screening Evaluation Results

Liquefaction describes a phenomenon where cyclic stresses, which are produced by earthquake-induced ground motions, create excess pore pressures in cohesionless soils. As a result, the soils may acquire a high degree of mobility, which can lead to lateral spreading, consolidation and settlement of loose sediments, ground oscillation, flow failure, loss of bearing strength, ground fissuring, sand boils, and other damaging deformations. This phenomenon occurs only below the water table, but after liquefaction has developed, it can propagate upward into overlying, non-saturated soil as excess pore water escapes. Descriptions of each of the phenomena associated with liquefaction are described below:

Research has shown that saturated, loose sands with a silt content less than about 25 percent are most susceptible to liquefaction, whereas other soil types are generally considered to have a low susceptibility. According to the California Geological Survey (CGS) Special Publication SP-117A (2008), "Guidelines for Evaluating and Mitigating Seismic Hazards in California," any materials with a PI > 12 and moisture content < 85%

of the liquid limit were considered not subject to liquefaction. Liquefaction susceptibility is related to numerous factors, and the following conditions must exist for liquefaction to occur:

- Sediments must be relatively young in age and must not have developed large amounts of cementation
- Sediments must consist mainly of cohesionless sands and silts
- The sediment must not have a high relative density
- Free groundwater must exist in the sediment; and
- The site must be exposed to seismic events of a magnitude large enough to induce straining of soil particles

Static groundwater was not encountered in either borings drilled to a maximum depth of 50 feet. However, according to the California Division of Mines and Geology Seismic Hazard Zone Report for the El Monte Quadrangle (CDMG, 1998), the historical high groundwater table is approximately 10 feet below grade. Therefore, RMA GeoScience considered the potential for groundwater to be at this depth below existing grade in the liquefaction screening evaluation.

For the PGA corresponding to two-thirds of the PGA_M and predominant earthquake magnitude corresponding to a 10% probability of exceedance in 50 years, potential seismic-induced settlements were determined when the safety factor was less than 1.1. Calculations of liquefaction potential, presented in Appendix D, indicate that there are discrete layers of sandy alluvial soils that will be susceptible to liquefaction during a design-level earthquake. Specifically, based on the Borings B-1 and B-2, these layers are present between depths of about 11 and 50 feet below the existing ground surface. The seismic settlement from Boring B-1 and B-2 are 0.53 inches and 1.02 inches, respectively.

3.05 Total and Differential Settlement

The above seismically induced settlements should be combined with the anticipated total static settlement in order to obtain an estimate of the amount of differential settlement that may affect the site. The maximum total static settlement is not expected to exceed ½ inch under the recommended bearing pressure.

We assume the seismic differential settlement is half of the total seismic settlement and static differential settlement is half of the total static settlement. Thus, total settlement (static and seismic) is expected to be approximately 1½ inches with differential settlement (static and seismic) of ¾ inches in a 40 feet span.

3.06 Removals and Overexcavation

Upon demolition and removal of all existing site improvements, all vegetation, organic rich soil (soils containing more that 2 percent organics by weight), trash and debris should be cleared from the grading area and removed from the site. After the removal of deleterious materials, stripping of organic-rich soils, and removal of tree roots, the following removals and over-excavation must be done within the area of the limits of grading:

- All artificial fill soil should be removed within the limits of grading. The fill soil may be used for engineered fill provided it is free of trash and organic material. Within the building areas, removals are recommended to a minimum of five feet below existing grade or three feet below the bottom of planned footings, whichever is greater.

- Within the area of planned streets and all other areas where grading is planned, all artificial fill must be completely removed and the subgrade must be over-excavated at least 12 inches below the stripped surface or the finished subgrade surface, whichever is lower.

Following the over-excavation indicated above, a designated representative for the Project Geotechnical Engineer must review the exposed ground surface and determine if any additional over-excavation is required. The over-excavated ground surface in all areas determined to be satisfactory for the support of fills must be scarified to a minimum depth of 6 inches. Scarification should continue until the soils are broken down and free from lumps or clods and until the scarified zone is uniform. The moisture content of the scarified zone shall be adjusted to within 2% of the optimum moisture content. The scarified zone must then be uniformly compacted to at least 90% relative compaction

The above recommendations are based on the assumption that soils encountered during field exploration are representative of soils throughout the site. However, there can be unforeseen and unanticipated variations in soils between points of subsurface exploration. Hence, overexcavation depths must be verified, and adjusted if necessary, at the time of grading.

3.07 General Earthwork and Grading

All grading should be performed in accordance with the General Earthwork and Grading Specifications outlined in Appendix C, unless specifically revised or amended below. Recommendations contained in Appendix C are general specifications for typical grading projects and may not be entirely applicable to this project.

It is also recommended that all earthwork and grading be performed in accordance with the requirements of the lead agency.

3.08 Earthwork Shrinkage and Subsidence

The site is not located within a zone of land subsidence according to the United States Geological Survey California Water Science Center website. It is our opinion that the potential for land subsidence due to over pumping of groundwater or oil extraction is low.

Shrinkage is the decrease in volume of soil upon removal and recompaction expressed as a percentage of the original in-place volume. Subsidence occurs as natural ground is densified to receive fill. These factors account for changes in earth volumes that will occur during grading. Our estimates are as follows:

- Shrinkage factor = 5% to 15% for soil removed and replaced as compacted fill.
- Subsidence factor = 0.1 foot.

The degree to which fill soils are compacted and variations in the in-situ density of existing soils will influence earth volume changes. Consequently, some adjustments in grades near the completion of grading could be required to balance the earthwork.

3.09 Foundation

Isolated spread footings and/or continuous wall footings are recommended to support the proposed structures. If the recommendations in the section on grading are followed and footings are established in compacted fill materials, footings may be designed using the following allowable soil bearing values:

- Continuous Footings:

  For one- and two-stories residential structures, footings having a minimum width of 15 inches and a minimum depth of 18 inches below the lowest adjacent grade have allowable bearing capacity of 2,000 pounds per square foot (psf). This value may be increased by 10% for each additional foot of width and/or depth to a maximum value of 3,000 psf. For three-story residential structures, footings should have a minimum width of 18 inches and a minimum depth of 24 inches below the lowest adjacent grade.

- Isolated Spread Footings:

  Footings having a minimum width of 24 inches and a minimum depth of 18 inches below the lowest adjacent grade have allowable bearing capacity of 2,000 psf. This value may be increased by 10% for each additional foot of width or depth to a maximum value of 3,000 psf.

- Retaining Wall Footings:

  Footings for retaining walls should be founded a minimum depth of 12 inches and have a minimum width of 12 inches. Footings may be designed using the allowable bearing capacity and lateral resistance values recommended for building footings. However, when calculating passive resistance, the upper 6 inches of the footings should be ignored in areas where the footings will not be covered with concrete flatwork. Reinforcement should be provided for structural considerations as determined by the design engineer.

The above bearing capacities represent an allowable net increase in soil pressure over existing soil pressure and may be increased by one-third for short-term wind or seismic loads.

Soils at the site have a low expansion potential. In view of the seismic setting, a nominal reinforcement consisting of at least one #4 bar placed within 3 inches of the top of footings and another placed within 3 inches of the bottom of footings is recommended. Reinforcement of wide footings should be determined by the structural engineer who may also require heavier reinforcement.

Due to the preliminary nature of the expansion tests performed for this study, we recommend additional testing be performed near the completion of rough grading to verify the test results and recommended foundation design criteria.

3.10 Slab-On-Grade

Concrete floor slabs on grade with a minimum thickness of 4 inches are recommended for slabs on grade for the proposed structures for normal floor loading conditions. However, if heavy concentrated or moving loads are anticipated, slabs should be designed using a modulus of subgrade reaction (k) of 120 psi/in when soils are prepared in conformance with the grading recommendations contained within the report. Reinforcement of

slabs on grading is not required to mitigate the expansive soils. Reinforcement may be specified by the structural engineer.

Concrete floor slabs on grade should be divided into squares or rectangles using weakened plane joints (contraction joints), each with maximum dimensions not exceeding 15 feet. Contraction joints should be made in accordance with American Concrete Institute (ACI) guidelines. If weakened plane joints are not used, then the slabs shall be reinforced with 6x6-10/10 welded wire fabric placed at mid-height of the slab.

Special care should be taken on floors slabs to be covered with thin-set tile or other inflexible coverings. These areas may be reinforced with 6x6-10/10 welded wire fabric placed at mid-height of the slab, to mitigate drying shrinkage cracks. Alternatively, inflexible flooring may be installed with unbonded fabric or liners to prevent reflection of slab cracks through the flooring.

A moisture vapor retarder/barrier is recommended beneath all slabs-on-grade that will be covered by moisture-sensitive flooring materials such as vinyl, linoleum, wood, carpet, rubber, rubber-backed carpet, tile, impermeable floor coatings, adhesives, or where moisture-sensitive equipment, products, or environments will exist. We recommend that design and construction of the vapor retarder or barrier conform to Section 1805 of the 2016 California Building Code (CBC) and pertinent sections of American Concrete Institute (ACI) guidance documents 302.1R-04, 302.2R-06 and 360R-10.

The moisture vapor retarder/barrier should consist of a minimum 10 mils thick polyethylene with a maximum perm rating of 0.3 in accordance with ASTM E 1745. Seams in the moisture vapor retarder/barrier should be overlapped no less than 6 inches or in accordance with the manufacturer's recommendations. Joints and penetrations should be sealed with the manufacturer's recommended adhesives, pressure-sensitive tape, or both. The contractor must avoid damaging or puncturing the vapor retarder/barrier and repair any punctures with additional polyethylene properly lapped and sealed.

ACI guidelines allow for the placement of moisture vapor retarder/barriers either directly beneath floor slabs or below an intermediate granular soil layer.

Placing the moisture retarder/barrier directly beneath the floor slab will provide improved curing of the slab bottom and will eliminate potential problems caused by water being trapped in a granular fill layer. Concrete slabs poured directly on a vapor retarder/barrier can experience shrinkage cracking and curling due to differential rates of curing through the thickness of the slab. Therefore, for concrete placed directly on the vapor retarded, we recommend a maximum water cement ratio of 0.45 and the use of water-reducing admixtures to increase workability and decrease bleeding.

If granular soil is placed over the vapor retarder/barrier, we recommend that the layer be at least 2 inches thick in accordance with traditional practice in southern California. Granular fill should consist of clean fine graded materials with 10 to 30% passing the No. 100 sieve and free from clay or silt. The granular layer should be uniformly compacted and trimmed to provide the full design thickness of the proposed slab. The granular fill layer should not be left exposed to rain or other sources of water such as wet-grinding, power washing, pipe leaks or other processes, and should be dry at the time of concrete placement. Granular fill layers that become saturated should be removed and replaced prior to concrete placement.

An additional layer of sand may be placed beneath the vapor retarder/barrier at the developer's discretion to minimize the potential of the retarder/barrier being punctured by underlying soils.

3.11 Miscellaneous Concrete Flatwork

Miscellaneous concrete flatwork and walkways may be designed with a minimum thickness of 4 inches. Large slabs should be reinforced with a minimum of 6x6-10/10 welded wire mesh placed at mid-height in the slab. Control joints should be constructed to create squares or rectangles with a maximum spacing of 15 feet.

Walkways may be constructed without reinforcement. Walkways should be separated from foundations with a thick expansion joint filler. Control joints should be constructed into non-reinforced walkways at a maximum of 5 feet spacing.

The subgrade soils beneath all miscellaneous concrete flatwork should be compacted to a minimum of 95 percent relative compaction for a minimum depth of 12 inches. The geotechnical engineer should monitor the compaction of the subgrade soils and perform testing to verify that proper compaction has been obtained.

3.12 Preliminary Infiltration Rate

One boring, boring B-3 was excavated in the area of the proposed infiltration systems at the south end of the site. The boring was excavated to a maximum depth of 15 feet below existing grade. The earth materials encountered in the borings were logged and classified by our Geologist using the field identification procedure of the Unified Soils Classification System (ASTM D2488). Based on data obtained both in the field and in the laboratory a preliminary infiltration rate of 0.8 inches/hour is estimated.

3.13 Footing Excavation and Slab Preparation

All footing excavations should be observed by the geotechnical consultant to verify that they have been excavated into competent soils. The foundation excavations should be observed prior to the placement of forms, reinforcement steel, or concrete. These excavations should be evenly trimmed and level. Prior to concrete placement, any loose or soft soils should be removed. Excavated soils should not be placed on slab or footing areas unless properly compacted.

Prior to the placement of the moisture barrier and sand, the subgrade soils underlying the slab should be observed by the geotechnical consultant to verify that all under-slab utility trenches have been properly backfilled and compacted, that no loose or soft soils are present, and that the slab subgrade has been properly compacted to a minimum of 95 percent relative compaction within the upper 12 inches.

Footings may experience and overall loss in bearing capacity or an increased potential to settle where located in close proximity to existing or future utility trenches. Furthermore, stresses imposed by the footings on the utility lines may cause cracking, collapse and/or a loss of serviceability. To reduce this risk, footings should extend below a 1:1 plane projected upward from the closest bottom of the trench.

Subgrade soils beneath slabs on grade and walkways moist prior to the placement of concrete. The geotechnical consultant should verify that the appropriate moisture content has been achieved a maximum of 24 hours prior to the placement of concrete or moisture barriers.

3.14 Lateral Load Resistance

Lateral loads may be resisted by soil friction and the passive resistance of the soil. The following parameters are recommended.

- Passive Earth Pressure = 350 pcf (equivalent fluid weight).

  We recommend neglecting passive soil resistance from the upper foot of soil unless protected by a concrete slab or pavement.

- Coefficient of Friction (soil to footing) = 0.30
- Retaining structures should be designed to resist the following lateral active earth pressures:

Surface Slope of Retained Materials (Horizontal:Vertical)	Equivalent Fluid Weight (pcf)
Level	42
5:1	44
4:1	46
3:1	50
2:1	67

  These active earth pressures are only applicable if the retained earth is allowed to strain sufficiently to achieve the active state. The required minimum horizontal strain to achieve the active state is approximately 0.0025H. Retaining structures should be designed to resist an at-rest lateral earth pressure if this horizontal strain cannot be achieved.

- At-rest Lateral Earth Pressure = 63 pcf (equivalent fluid weight)

The Mononobe-Okabe method is commonly utilized for determining seismically induced active and passive lateral earth pressures and is based on the limit equilibrium Coulomb theory for static stress conditions. This method entails three fundamental assumptions (e.g., Seed and Whitman, 1970): Wall movement is sufficient to ensure either active or passive conditions, the driving soil wedge inducing the lateral earth pressures is formed by a planar failure surface starting at the heel of the wall and extending to the free surface of the backfill, and the driving soil wedge and the retaining structure act as rigid bodies, and therefore, experiences uniform accelerations throughout the respective bodies (U.S. Army Corps of Engineers, 2003, Engineering and Design - Stability Analysis of Concrete Structures).

- Seismic Lateral Earth Pressure = 22 pcf (equivalent fluid weight).

The seismic lateral earth pressure given above is an inverted triangle, and the resultant of this pressure is an increment of force which should be applied to the back of the wall in the upper 1/3 of the wall height and also applied as a reduction of force to the front of the wall in the upper 1/3 of the footing depth.

3.15 Cement Type and Corrosion Potential

A soluble sulfate test performed on a shallow sample of soil indicates that concrete at the subject site will have a negligible exposure to water-soluble sulfate in the soil. Our recommendations for concrete exposed to sulfate-containing soils are presented in the following table.

Recommendations for Concrete exposed to Sulfate-containing Soils

Sulfate Exposure	Water Soluble Sulfate (SO_4) in Soil (% by Weight)	Sulfate (SO_4) in Water (ppm)	Cement Type (ASTM C150)	Maximum Water-Cement Ratio (by Weight)	Minimum Compressive Strength (psi)
Negligible	0.00 - 0.10	0-150	--	--	2,500
Moderate	0.10 - 0.20	150-1,500	II	0.50	4,000
Severe	0.20 - 2.00	1,500-10,000	V	0.45	4,500
Very Severe	Over 2.00	Over 10,000	V plus pozzolan or slag	0.45	4,500

Use of alternate combinations of cementitious materials may be permitted if the combinations meet design recommendations contained in American Concrete Institute guideline ACI 318-11.

The soils were also tested for soil reactivity (pH) and electrical resistivity (ohm-cm). The test results indicate that the on-site soils have a soil reactivity of 9.5 and an electrical resistivity of 7,881 ohm-cm. A neutral or non-corrosive soil has a reactivity value ranging from 5.5 to 8.4. Generally, soils that could be considered moderately corrosive to ferrous metals have resistivity values of about 3,000 ohm-cm to 10,000 ohm-cm. Soils with resistivity values less than 3,000 ohm-cm can be considered corrosive and soils with resistivity values less than 1,000 ohm-cm can be considered extremely corrosive.

Based on our analysis, underlying onsite soils are corrosive to ferrous metals. Protection of buried pipes utilizing coatings on all underground pipes; clean backfills and a cathodic protection system can be effective in controlling corrosion. A qualified corrosion engineer may be consulted to further assess the corrosive properties of the soil.

3.16 Utility Trench Backfill

The onsite fill soils will not be suitable for use as pipe bedding for buried utilities. All pipes should be bedded in a sand, gravel or crushed aggregate imported material complying with the requirements of the Standard Specifications for Public Works Construction (Greenbook) Section 306-1.2.1. Crushed rock products that do not contain appreciable fines should not be utilized as pipe bedding and/or backfill. Bedding materials should be densified to at least 90% relative compaction (ASTM D1557). The geotechnical consultant should review and approve of proposed bedding materials prior to use.

The on-site soils are expected to be suitable as trench backfill provided they are screened of organic matter, boulders and cobbles over 6 inches in diameter. Trench backfill should be densified to at least 90% relative

compaction (ASTM D1557). On-site granular soils with a sand equivalent value of 15 or greater may be water densified initially per Greenbook Specifications. Supplemental mechanical compaction methods will be required to attain the required 90% relative compaction.

All utility trench backfill within street right of way, utility easements, under or adjacent to sidewalks, driveways, or building pads should be observed and tested by the geotechnical consultant to verify proper compaction. Trenches excavated adjacent to foundations should not extend within the footing influence zone defined as the area within a line projected at a 1:1 drawn from the bottom edge of the footing. Trenches crossing perpendicular to foundations should be excavated and backfilled prior to the construction of the foundations. The excavations should be backfilled in the presence of the geotechnical engineer and tested to verify adequate compaction beneath the proposed footing.

Cal/OSHA construction safety orders should be observed during all underground work.

3.17 Temporary Excavations

Based on the recommended removal depths as described in Section 3.08, temporary excavations within the limits of grading are expected to be 5 feet. Excavations may be cut vertically to a maximum height of 5 feet. Cuts above 5 feet may be laid back at a gradient of 1:1.

3.18 Drainage

Surface drainage should be directed away from the proposed structures into suitable drainage devices. Neither excess irrigation nor rainwater should be allowed to collect or pond against building foundations or within low-lying or level areas of the lot. Surface waters should be diverted away from the tops of slopes and prevented from draining over the top of slopes and down the slope face.

3.19 Plan Review

Once formal plans are prepared for the subject property, this office should review the plans from a geotechnical viewpoint, comment on changes from the plan used during preparation of this report and revise the recommendations of this report where necessary.

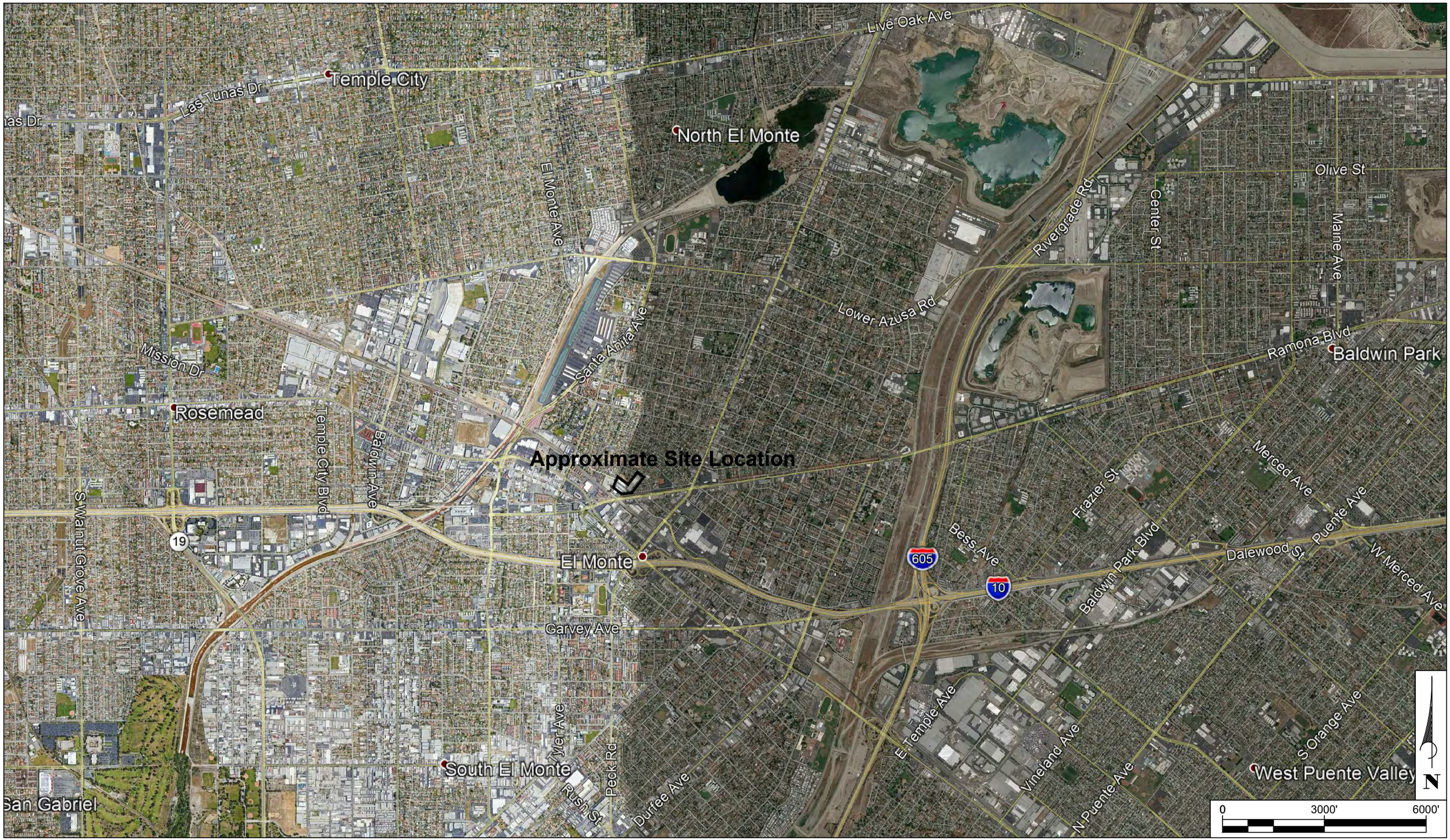
4.00 CLOSURE

This investigation was completed in accordance with generally accepted industry practice to provide recommendations for developing the property from a geotechnical perspective. Information presented in this report is based on research, field investigation, laboratory testing, and engineer judgment obtained from similar projects completed on nearby properties. This assessment is not, and should not be construed as, a warranty or guarantee concerning the geotechnical conditions which may affect the future development of the property. All discovered information has been disclosed and a good faith effort has been made to consult pertinent sources.

This study and report have been prepared on behalf and for the exclusive use of KB Home, and solely for use as a preliminary evaluation of the subject site. This report and its findings shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party in whole or in part, without prior written consent of RMA Geoscience, Inc. and KB Home. However, RMA Geoscience, Inc. acknowledges and agrees that the report may be conveyed to the design professionals for consideration in developing the property.

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FIGURES



Source: Google Earth Images

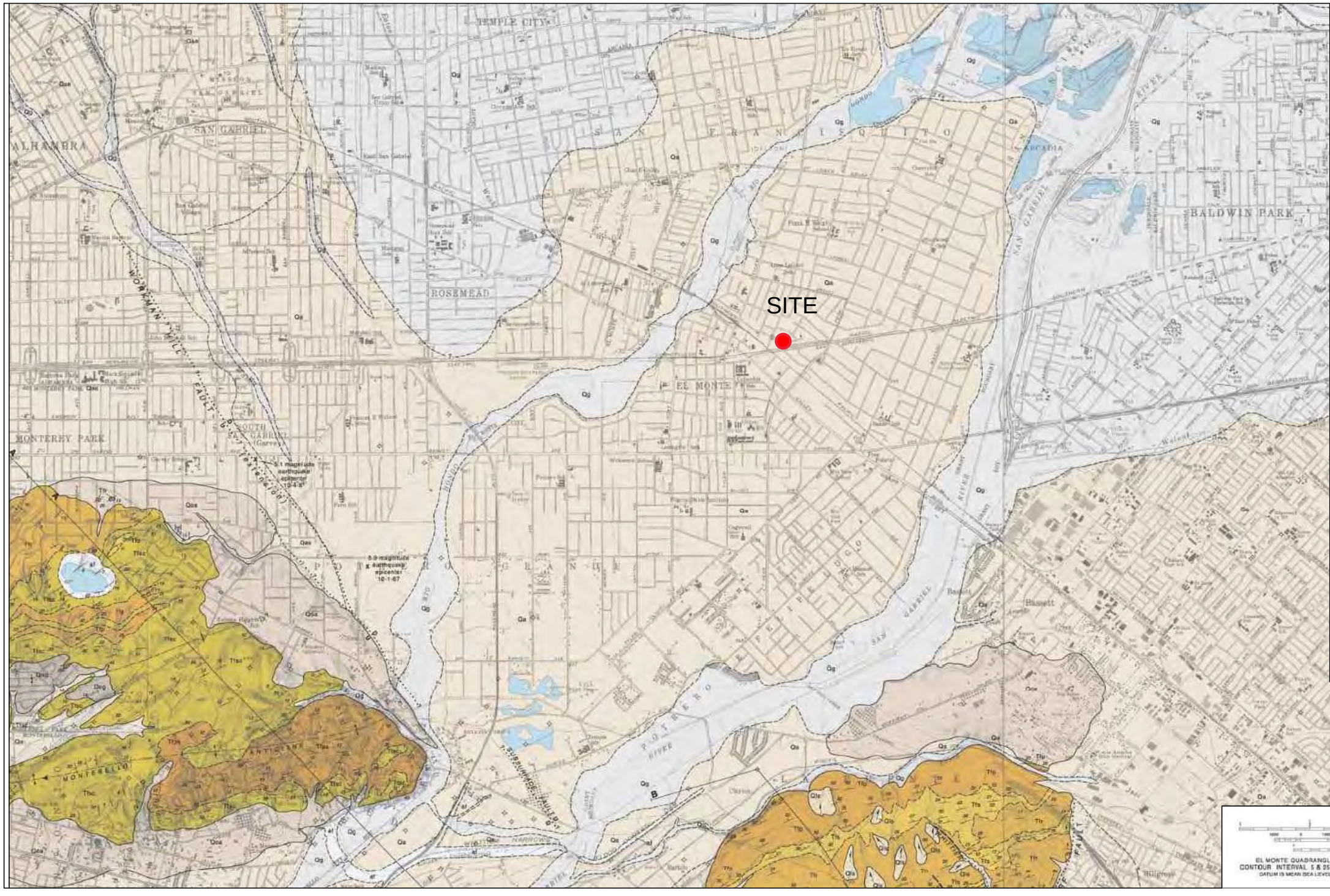
Site Vicinity Map

El Monte, CA

Figure 1

RMA Job No:	19G-0075
Report Date:	4/2018
Prepared By:	MRM

RMA GeoScience



EL MONTE AND BALDWIN PARK MAP (DF

LEGEND

SURFICIAL SEDIMENTS
Undissected alluvial deposits

af Artificial fill, and cut and fill areas.
Qg Gravel and sand of major streams, and alluvial fan debitus from San Gabriel Mountains, grades southward into alluvium (**Qa**) as sizes of clastic decrease.
Qa Alluvial gravel, sand and silt of valleys and floodplains.

LANDSLIDE DEBRIS

Qls Landslide debris

OLDER DISSECTED SURFICIAL SEDIMENTS

Qof Alluvial fan sediments derived from San Gabriel Mountains
Qae Slightly dissected and locally dissected alluvial gravel and sand at base of hill areas; shown as **Qa** on adjacent Los Angeles (Dibblee, 1989) and on Mt. Wilson/Azusa (Dibblee, 1989) quadrangles
Qoa Uplifted remnants of alluvial sand and gravel, north of hill areas
Qog Uplifted remnants of alluvial gravel, south of Montebello Hills

UNCONFORMITY

FERNANDO FORMATION
(Of Dalrymple and Woodford, 1969; Yerkes, 1972); Marine to nonmarine clastic sediments, weakly indurated; early Pliocene to Pleistocene (?) age

Tfnc Nonmarine sandstone and conglomerate: light gray to tan, massive, bedded, conglomerate composed of pebbles and cobbles of mostly granitic debris in friable sandstone matrix, probably nonmarine; may be in part marine, late (?) Pliocene to Pleistocene age; unit is lithologically similar to Saugus Formation of Ventura basin
Ttps "Pico" silty sandstone facies, at southwest end of Montebello Hills, composed of light gray, very fine-grained silty sandstone to siltstone, vaguely bedded, contains gray lenticular calcareous concretions and fossil shell fragments; deposited in shallow regressive sea
Ttp "Pico" claystone: gray micaceous silty claystone or siltstone, with spheroidal fracture; vaguely bedded, includes some silty sandstone; deposited in moderately deep sea; late (?) Pliocene age, probably equivalent to upper member of Fernando Fm. (of Yerkes, 1965 et al., in Puente Hills)
Tfs Sandstone facies of Fernando Formation: light to medium gray, weathered brown, fine to medium-grained, micaceous, bedded, locally pebbly; deposited in moderately deep sea
Tfr "Repetto" claystone member, lithologically similar to **Ttp**, early Pliocene age (Repettian Stage), probably equivalent to lower member of Fernando Fm. (of Yerkes et al., 1965, in Puente Hills)

SYCAMORE CANYON FORMATION
Named by Dalrymple and Woodford, 1969, as uppermost member of Puente Fm., as so mapped by Durham and Yerkes, 1965, and Yerkes, 1972, in Puente Hills; equivalent to "Sespe Shale" in Los Angeles quadrangle (Dibblee, 1989), and to Sespe Fm. in Ventura basin).
Marine clastic sediments: moderately bituminous; late Miocene age

Tsc Grey silty clay shale: micaceous, vaguely bedded to locally thin bedded, nodular, in places includes thin layers of fine-grained sandstone
Tscs Clay shale, light gray; vaguely bedded to locally thin bedded, includes thin layers of fine grained sandstone
Tscg Conglomerate and sandstone gray to rusty brown conglomerate; crudely bedding, composed of cobbles and pebbles of mostly light-colored granitic rocks and others of gray quartz diorite, gneiss, a few of andesitic porphyry and quartzite, in arkosic sandstone matrix; sandstone rusty brown, laminate, coarse to fine-grained; arkosic

MONTEREY FORMATION
(Major part of Puente Fm. of Olmsted, 1966; Yerkes, 1972; Durham and Yerkes, 1965)
Marine biogenic and clastic sediments; moderately lithified; middle Miocene age; Mohnian Stage

Tmy Yorba Shale Member: interlayered thin-bedded gray shaly siltstone, fine-grained sandstone and white weathering semi-siliceous to siliceous shale; includes some thin, hard beds of yellowish-gray to gray dolomite; late Mohnian Stage (Yerkes, 1972)
Tmcg Conglomerate facies of cobbles & pebbles of plutonic rocks in sandstone matrix lenses in unit **Tms**, deposited as submarine debris
Tms Soquel Sandstone Member: mostly sandstone, light gray, weathering to tan, medium to locally coarse-grained, locally partially braided channel, with minor shale; in eastern exposures in San Jose Hills includes silty shale similar to that of unit **Tmy**
Tmlv La Vida Shale Member: thinly bedded shale similar to that of unit **Tmy**, but containing somewhat more semi-siliceous shale; exposed only in San Jose Hills, base not exposed

GEOLOGIC MAP OF THE
EL MONTE & BALDWIN PARK QUADRANGLES
LOS ANGELES COUNTY, CALIFORNIA

BY THOMAS W. DIBBLEE, JR., 1999
EDITED BY HELMUT F. EHRENSPECK, 1999
EDITED BY JOHN A. MINCH, 2009

Dibblee Geology Center Map #DF-69. First Printing, 1999. Second Printing, 2009
PUBLISHED BY AND AVAILABLE FROM THE
SANTA BARBARA MUSEUM OF NATURAL HISTORY
2559 PUESTA DEL SOL ROAD, SANTA BARBARA, CA 93105
HTTP://WWW.SBNATURE.ORG/

TED L. BEAR HONORARY MAP

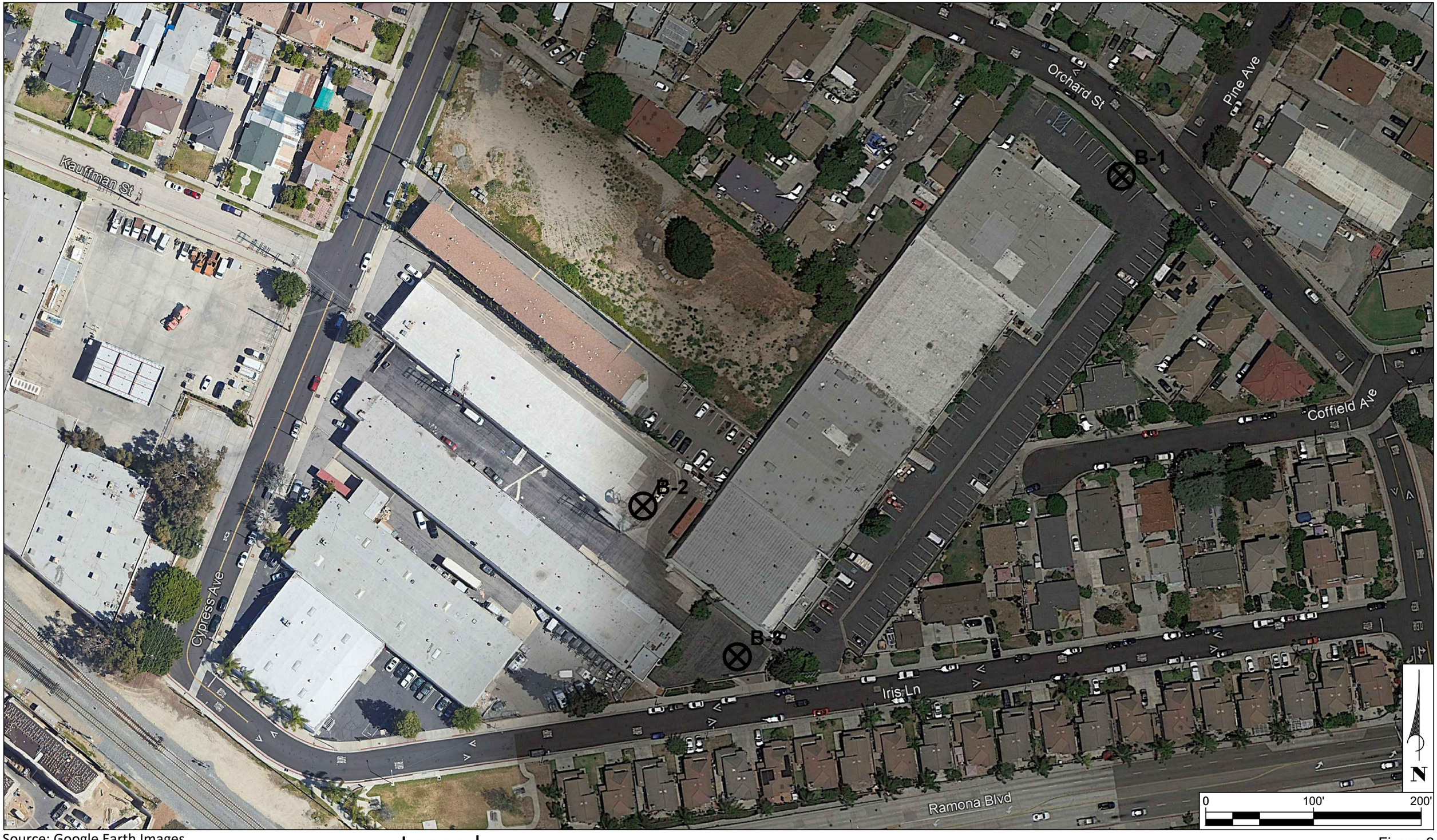
Figure 2

Regional Geology Map

El Monte, CA

Source: Geology Map of theEL Monte and Baldwin Park Quadrangle, Thomas W. Dibblee, Jr. 1999, Dibblee Geology Center Map #DF-69:, 1:24000

RMA Job No:	19G-0075
Report Date:	4/2018
Prepared By:	MRM



Source: Google Earth Images

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Legend

B-2 Approximate Boring Location

Boring Location Map

Cypress Ave and Orchard Street
El Monte, CA

Figure 3

RMA Job No:	19G-0075
Report Date:	4/2019
Prepared By:	MRM

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APPENDIX A

FIELD INVESTIGATION

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APPENDIX A

FIELD INVESTIGATION

A-1.00 FIELD EXPLORATION

A-1.01 Number of Borings

Our subsurface investigation consisted of three (3) hollow stem boring auger to depths of up to 50 feet.

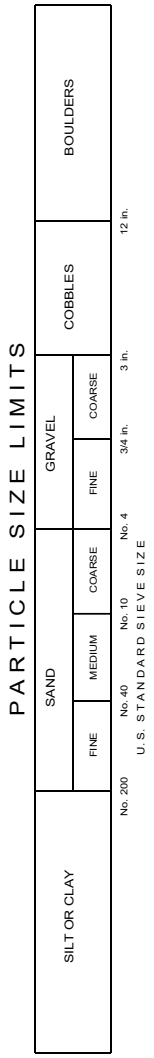
A-1.02 Location of Boring

A Boring Location Map showing the approximate locations of the borings is presented as Figure 3.

A-1.03 Boring Logging

Logs of the boring were prepared by one of our staff and are attached in this appendix. The logs contain factual information and interpretation of subsurface conditions between samples. The strata indicated on these logs represent the approximate boundary between earth units and the transition may be gradual. The logs show subsurface conditions at the dates and locations indicated, and may not be representative of subsurface conditions at other locations and times.

Identification of the soils encountered during the subsurface exploration was made using the field identification procedure of the Unified Soils Classification System (ASTM D2488). A legend indicating the symbols and definitions used in this classification system and a legend defining the terms used in describing the relative compaction, consistency or firmness of the soil are attached in this appendix. Bag samples of the major earth units were obtained for laboratory inspection and testing.



MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size.	CLEAN GRAVELS (Little or no fines)	GW	Well graded gravel, gravel-sand mixtures. little or no fines.
			GP	Poorly graded gravel or gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amt. of fines)	GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size)	CLEAN SANDS (Little or no fines)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)		ML	Inorganic silts and very fine sands, rock flour silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid limit GREATER than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

UNIFIED SOIL CLASSIFICATION SYSTEM

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I. SOIL STRENGTH/DENSITY

BASED ON STANDARD PENETRATION TESTS

Compactness of sand		Consistency of clay	
Penetration Resistance N (blows/Ft)	Compactness	Penetration Resistance N (blows/ft)	Consistency
0-4	Very Loose	<2	Very Soft
4-10	Loose	2-4	Soft
10-30	Medium Dense	4-8	Medium Stiff
30-50	Dense	8-15	Stiff
>50	Very Dense	15-30	Very Stiff
		>30	Hard

N = Number of blows of 140 lb. weight falling 30 in. to drive 2-in OD sampler 1 ft.

BASED ON RELATIVE COMPACTION

Compactness of sand		Consistency of clay	
% Compaction	Compactness	% Compaction	Consistency
<75	Loose	<80	Soft
75-83	Medium Dense	80-85	Medium Stiff
83-90	Dense	85-90	Stiff
>90	Very Dense	>90	Very Stiff

II. SOIL MOISTURE

Moisture of sands		Moisture of clays	
% Moisture	Description	% Moisture	Description
<5%	Dry	<12%	Dry
5-12%	Moist	12-20%	Moist
>12%	Very Moist	>20%	Very Moist, wet

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BORING NUMBER 1

Client: KB Home

Project Name: Copperleaf

Project Number 19G-0075-0

Project Location: Cypress Ave. & Orchard St., El Monte

Date Started: 3/13/2019 Completed: 3/13/2019

Boring Diameter: 8" Elevation: 292 ft

Excavation Metho Hollow Stem Drilling

Ground Water Levels: Not Encountered

Drilling Contractor Choice Drilling

Notes: Driller: Louie/ 140 lbs Auto Hammer with 30" Drop

Logged By: MRM Checked By: HHL

Lat,Long: (34.075003°, -118.027743°)

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	Wet Density (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
0										Surface: 5.5" of Asphalt, No Base **0-3' (Artificial Fill - af):**			
		1-1-2								Medium Brown , Silty fine SAND, asphalt in the tip of the sampler, slightly moist,	63		SM
										3-50' (Quaternary Alluvium - Qal):			
5		5-7-11								Medium Brown , Clayey SILT with fine Sand, moist, micaceous, loose			
		3-4-6								Yellow Brown, medium SAND with Silt, moist, slightly micaceous, Some medium gravels at 8'	8.1		SP-SM
10		7-15-20		32	88.9	117.4				Yellow brown, medium Sand, Silty fine SAND, medium course, micaceous, red water staining, indications of water levels present			
		3-5-7								Medium yellow brown, medium Silty SAND, slightly moist, micaceous, loose	36		SM
15		7-15-20		11	104	115.2				Medium yellow brown, medium Silty SAND,, slightly moist, micaceous, loose, roots			
		2-3-4								Medium yellow brown, medium Silty SAND,, slightly moist, micaceous, loose, rootlets	27		SM
20		9-15-17		4	100.6	104.7				Medium yellow brown medium Silty SAND, slightly moist, micaceous, loose, rootlets			
		9-13-15								Medium yellow brown medium SAND, slightly moist, micaceous, loose, rootlets	6.6		SP-SM
25		15-40-50 for 4		1.9	116	118.2				Whitish yellow medium course GRAVEL with course Sand, Cobbles up to an inch in diameter, slightly moist			
		12-27-25								Medium yellow brown medium SAND, slightly moist, micaceous, loose, rootlets	4.6		SP-SM
30		30-41-44		3.1	121	124.8				Medium yellow brown, medium course SAND with fine Gravels, slightly moist, micaceous, loose, Cobbles under 1" in diameter	4.5		SP-SM
		20-23-26								Medium yellow brown, medium course SAND with fine Gravels, slightly moist, micaceous, loose,			

Material Description

Thin Wall Tube | 2.5" Ring Sample | Bulk Sample | Standard Split Spoon Sample | Static Water Table

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BORING NUMBER 1

Client: KB Home
Project Name: Copperleaf
Project Number 19G-0075-0
Project Location: Cypress Ave. & Orchard St., El Monte
Date Started: 3/13/2019 Completed: 3/13/2019
Boring Diameter: 8" Elevation: 292 ft
Excavation Metho Hollow Stem Drilling
Ground Water Levels: Not Encountered
Drilling Contractor Choice Drilling
Notes: Driller: Louie/ 140 lbs Auto Hammer with 30" Drop
Logged By MRM Checked By: HHL
(34.075003°, -118.027743°)

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	Wet Density (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
35	☒	23-50 for 6"		2.7	106	109				Light yellow brown medium to course SAND with fine Sand and course to medium Gravels, slightly moist, loose			
		23-19-27								Medium yellow brown fine Silty SAND, slightly moist, broken cobble stuck in the tip of sampler	7.3		SP-SM
40	☒	39-50 for 3"		4	104	109				Medium yellow brown fine Silty SAND, slightly moist, broken cobble stuck in the tip of sampler			
		26-28-20								Lense of moist course Gravels at 42.5 that fines with depth to Medium yellow brown Silty SAND, slightly moist	7		SP-SM
45	☒	15-15-38		8.3	119	129	21	21	0	Grey greenish brown Silty SAND, highly micaceous, moist to wet, thinly deposited mica in faux bedding	17		SM
		16-27-29								Dark brown to Medium Yellow Brown SAND, slightly moist, water likely being help above layer of clayey material at 45'	7.3		SP-SM
50	☒	27-31-50 for 5'		25	106	133				Grey greenish brown Clayey SILT with Sand, highly micaceous, moist to wet, thinly deposited mica in faux bedding, red iron staining presumably from historic water levels			ML
55													
60													
65													

Material Description

Thin Wall Tube ☒ 2.5" Ring Sample ☒ Bulk Sample ☐ Standard Split Spoon Sample ▽ Static Water Table

Total Depth: 50'
Slurry Backfill, Cuttings placed in drums
Groundwater: None encountered

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BORING NUMBER 2

Client: KB Home

Project Name: Copperleaf

Project Number: 19G-0075-0

Project Location: Cypress Ave. & Orchard St., El Monte

Date Started: 3/13/2019 Completed: 3/13/2019

Boring Diameter: 8" Elevation: 291 ft

Excavation Method: Hollow Stem Drilling

Ground Water Levels: Not Encountered

Drilling Contractor: Choice Drilling

Notes: Driller: Louie/ 140 lbs Auto Hammer with 30" Drop

Logged By: MRM Checked By: HHL

Lat, Long: (34.074189°, -118.029123°)

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	Wet Density (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
0										Surface: 2.5 " of Asphalt overlying 6" of Base with 3" of asphalt underlying			
										0-3' (Artificial Fill - af):			
		1-2-2		18.1	102.9	121.5				Medium green brown Sandy SILT with trace Clay, mica flecks, moist, dense	73		SM
										3-50' (Quaternary Alluvium - Qal):			
5		4-6-8								Dark green brown Sandy SILT (higher silt content than 2.5'), mica flecks, slightly moist, dense			ML
		3-3-3		10						White yellow brown fine Sandy SILT, micaceous, slightly moist	54		ML
10		7-10-11		15	97.4	112				Green grey fine SAND with Silt, red iron staining, micaceous, slightly moist			
		3-4-4					28	28	0	Green grey fine SAND with Silt, red iron staining, micaceous, slightly moist			SM
15		9-11-21		16	110.9	128.8				Green grey fine SAND with Silt to fine Sandy SILT, red iron staining, micaceous, slightly moist (increased moisture)			SM
		2-3-5		23						White yellow brown clean SAND lense (width approx. 12" of sample) then sample returns to green grey fine SAND with Silt to fine Sandy SILT, red iron staining, micaceous, slightly moist			SM
20		9-12-13		28	96.1	123				Green grey fine SAND with Silt, red iron staining, micaceous, slightly moist			
		9-11-12		3.5						Grey medium Course SAND lense for 2" at the top of the sample then grades into a yellow white finer SAND, loose, minimum fines			SP-SM
25		9-20-31		5.3	88.4	93.1				Grey medium to fine SAND with fines, wet			
		3-4-5					31	31	0	Green grey Silty SAND (width approx. 12") that return to grey medium to fine SAND with fines, moist	48		SM
30		50 for 1"								No sample recovery, rock fragment stuck in tip of sampler			
		50 for 5"								No sample recovery			

Material Description

Thin Wall Tube | 2.5" Ring Sample | Bulk Sample | Standard Split Spoon Sample | Static Water Table

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BORING NUMBER 2

Client: KB Home

Project Name: Copperleaf

Project Number: 19G-0075-0

Project Location: Cypress Ave. & Orchard St., El Monte

Date Started: 3/13/2019 Completed: 3/13/2019

Boring Diameter: 8" Elevation: 291 ft

Excavation Method: Hollow Stem Drilling

Ground Water Levels: Not Encountered

Drilling Contractor: Choice Drilling

Notes: Driller: Louie/ 140 lbs Auto Hammer with 30" Drop

Logged By: MRM Checked By: HHL

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	Wet Density (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
35	☒	29-47-4"		2.8	14.8	125				Yellow brownish white course, medium and fine SAND with course gravel and cobbles up to 2" in diameter, slightly moist, dense			
		10-16-19								Tan yellow white course to medium SAND with lenses of fine Sand, slightly moist	5.8		SP-SM
40	☒	30-50 for 6"		4.4	101	105				Whitish brown fine SAND with Silt, some mica, slightly moist			SP-SM
		13-18-21								Whitish brown fine SAND with Silt, some mica, slightly moist			
45	☒	7-50 for 6"		6.7	104	111				Whitish brown fine SAND with increased Silt and course gravels, some mica, slightly moist			SP-SM
		19-21-27								Whitish brown fine SAND with increased Silt, some mica, slightly moist	5.7		SP-SM
50	☒	39-50 for 5"		2.9	110	113				Whitish brown fine SAND with increased Silt, some mica, slightly moist			SM
55													
60													
65													

Thin Wall Tube ☒ 2.5" Ring Sample ☒ Bulk Sample ◫ Standard Split Spoon Sample ▽ Static Water Table

Total Depth: 50'

Slurry Backfill, Cuttings placed in drums

Groundwater: None encountered

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BORING NUMBER 3

Page 1 of 1

Client: KB Home

Project Name: Copperleaf

Project Number 19G-0075-0

Project Location: Cypress Ave. & Orchard St., El Monte

Date Started: 3/13/2019 Completed: 3/13/2019

Boring Diameter: 8" Elevation: 290 ft

Excavation Metho Hollow Stem Drilling

Ground Water Levels: Not Encountered

Drilling Contractor: Choice Drilling

Notes: Driller: Louie/ 140 lbs Auto Hammer with 30" Drop

Logged By: MRM Checked By: HHL

Lat,Long: (34.073805°,-118.028887°)

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	Wet Density (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
0										Surface: 1"of Asphalt, 2" of Base **0-3' (Artificial Fill - af):**			
5										**3-50' (Quaternary Alluvium - Qal):**			
10	☒	4-6-7								Dark green brown Sandy SILT with trace clay, micaceous, wet, dense			SM
	☒	7-9-17	▨	18	87.9	104				Dark green brown fine SAND with trace clay, micaceous, dense, slightly moist	52		SM
15	☒	9-11-20								Dark green brown fine SAND with less Silt and some minor clay, micaceous, dense, slightly moist			SM
20													
25													
30													

Material Description: ■ Thin Wall Tube; ☒ 2.5" Ring Sample; ▨ Bulk Sample; ◫ Standard Split Spoon Sample; ▽ Static Water Table

Total Depth: 15'

Slurry Backfill, Cuttings placed in drums

Groundwater: None encountered

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APPENDIX B

LABORATORY TESTS

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APPENDIX B

B-1.00 LABORATORY TESTS

B-1.01 Maximum Density

Maximum density - optimum moisture relationships for the major soil types encountered during the field exploration were performed in the laboratory using the standard procedures of ASTM D1557.

B-1.02 Particle Size Analysis

Particle size analysis was performed on a representative sample of the on-site soils in accordance with the standard test methods of the ASTM D422. The test results are included in this Appendix B.

B-1.03 Materials Finer than #200

Particle size analysis was performed on representative samples of the on-site soils in accordance with the standard test methods of the ASTM D1140. The test results are presented on the boring logs in Appendix A.

B-1.04 Expansion Tests

Expansion index tests were performed on representative samples of the major soil types encountered by the test methods outlined in ASTM D4829.

B-1.05 Soluble Sulfates

A test was performed on representative sample encountered during the investigation using the California Test Method 417.

B-1.06 Soil Reactivity (pH) and Minimum Resistivity

A near-surface soil samples were tested for soil reactivity (pH) and minimum electrical resistivity using California Test Method 643. The pH measurement determines the degree of acidity or alkalinity in the soils. The minimum resistivity is used as an indicator of how corrosive the soil is relative to buried metallic items.

B-1.07 Moisture Determination

Moisture content of the soil samples was performed in accordance to standard method for determination of water content of soil by drying oven, ASTM D2216. The mass of material remaining after oven drying is used as the mass of the solid particles.

B-1.08 Density of Split-Barrel Samples

The density of ring and tube samples, which were obtained using a split-barrel sampler, were determined in accordance with ASTM D2937. The results of these tests are provided on the boring logs in Appendix A.

B-1.09 Atterberg Limits

The liquid limit, plastic limit, and the plasticity index of the major soil types encountered in the test holes were determined using the standard test methods of ASTM D4318.

B-1.10 Direct Shear

Direct shear test was performed on a representative sample of the major soil types encountered in the test holes using the standard test method of ASTM D3080 (consolidated and drained). Test was performed on remolded samples. Remolded samples were tested at 90 percent relative compaction. The test results are included in this Appendix B.

Shear tests were performed on a direct shear machine of the strain-controlled type. To simulate possible adverse field conditions, the samples were saturated prior to shearing. Several samples were sheared at varying normal loads and the results plotted to establish the angle of the internal friction and cohesion of the tested samples.

B-1.11 Consolidation (One-Dimensional)

One-dimensional consolidation tests were performed on a two ring sample using the standard test method of ASTM D2435. The rate of consolidation of the tested samples was not determined and the applied loading increments are indicated on the summary of the test results. The test results are included in this Appendix B.

B-1.12 Test Results

Test results for all laboratory tests performed on the subject project are presented in this appendix. For a sample-by-sample description, see the logs presented in Appendix A.

MAXIMUM DENSITY - OPTIMUM MOISTURE

(Test Method: ASTM D1557)

Sample Number	Optimum Moisture (Percent)	Maximum Density (lbs/ft^3)
B2 @ 0-5 ft	15.4	112.9

EXPANSION INDEX

(Test Method: ASTM D4829)

Sample Number	Expansion Index	Classification
B-1 @ 0-5 ft	22	Low
B-2 @ 0-5 ft	4	Very Low

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SOLUBLE SULFATES

(California Test Methods: 417 & 422)

Sample Number	Soluble Sulfate (ppm)	Chloride Content (ppm)
B-1 @ 0-5 ft	41	38

SOIL REACTIVITY (pH) AND MINIMUM RESISTIVITY

(California Test Method: 643)

Sample Number	pH	Minimum Resistivity (Ohm-cm)
B-1 @ 0-5 ft	9.5	7,881

ATTERBERG LIMITS

(Test Method: ASTM D4318)

Sample Number	Liquid Limit (Percent)	Plastic Limit (Percent)	Plasticity Index (Percent)	Water Content (Percent)
B-1 @ 45 ft	21	21	0	21.6
B-2 @ 12.5 ft	28	28	0	28.8
B-2 @ 27.5 ft	31	31	0	30.3

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APPENDIX C

GENERAL EARTHWORK
AND
GRADING SPECIFICATIONS

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GENERAL EARTHWORK AND GRADING SPECIFICATIONS

C-1.00 GENERAL DESCRIPTION

C-1.01 Introduction

These specifications present our general recommendations for earthwork and grading as shown on the approved grading plans for the subject project. These specifications shall cover all clearing and grubbing, removal of existing structures, preparation of land to be filled, filling of the land, spreading, compaction and control of the fill, and all subsidiary work necessary to complete the grading of the filled areas to conform with the lines, grades and slopes as shown on the approved plans.

The recommendations contained in the geotechnical report of which these general specifications are a part of shall supersede the provisions contained hereinafter in case of conflict.

C-1.02 Laboratory Standard and Field Test Methods

The laboratory standard used to establish the maximum density and optimum moisture shall be ASTM D1557.

The insitu density of earth materials (field compaction tests) shall be determined by the sand cone method (ASTM D1556), direct transmission nuclear method (ASTM D2922) or other test methods as considered appropriate by the geotechnical consultant.

Relative compaction is defined, for purposes of these specifications, as the ratio of the in-place density to the maximum density as determined in the previously mentioned laboratory standard.

C-2.00 Clearing

C-2.01 Surface Clearing

All structures marked for removal, timber, logs, trees, brush and other rubbish shall be removed and disposed of off the site. Any trees to be removed shall be pulled in such a manner so as to remove as much of the root system as possible.

C-2.02 Subsurface Removals

A thorough search should be made for possible underground storage tanks and/or septic tanks and cesspools. If found, tanks should be removed and cesspools pumped dry.

Any concrete irrigation lines shall be crushed in place and all metal underground lines shall be removed from the site.

C-2.03 Backfill of Cavities

All cavities created or exposed during clearing and grubbing operations or by previous use of the site shall be cleared of deleterious material and backfilled with native soils or other materials approved by the soil engineer. Said backfill shall be compacted to a minimum of 90% relative compaction.

C-3.00 ORIGINAL GROUND PREPARATION

C-3.01 Stripping of Vegetation

After the site has been properly cleared, all vegetation and topsoil containing the root systems of former vegetation shall be stripped from areas to be graded. Materials removed in this stripping process may be used as fill in areas designated by the soil engineer, provided the vegetation is mixed with a sufficient amount of soil to assure that no appreciable settlement or other detriment will occur due to decaying of the organic matter. Soil materials containing more than 3% organics shall not be used as structural fill.

C-3.02 Removals of Non-Engineered Fills

Any non-engineered fills encountered during grading shall be completely removed and the underlying ground shall be prepared in accordance to the recommendations for original ground preparation contained in this section. After cleansing of any organic matter the fill material may be used for engineered fill.

C-3.03 Overexcavation of Fill Areas

The existing ground in all areas determined to be satisfactory for the support of fills shall be scarified to a minimum depth of 6 inches. Scarification shall continue until the soils are broken down and free from lumps or clods and until the scarified zone is uniform. The moisture content of the scarified zone shall be adjusted to within 2% of optimum moisture. The scarified zone shall then be uniformly compacted to 90% relative compaction.

Where fill material is to be placed on ground with slopes steeper than 5:1 (H:V) the sloping ground shall be benched. The lowermost bench shall be a minimum of 15 feet wide, shall be a minimum of 2 feet deep, and shall expose firm material as determined by the geotechnical consultant. Other benches shall be excavated to firm material as determined by the geotechnical consultant and shall have a minimum width of 4 feet.

Existing ground that is determined to be unsatisfactory for the support of fills shall be overexcavated in accordance to the recommendations contained in the geotechnical report of which these general specifications are a part.

C-4.00 FILL MATERIALS

C-4.01 General

Materials for the fill shall be free from vegetable matter and other deleterious substances, shall not contain rocks or lumps of a greater dimension than is recommended by the geotechnical consultant, and shall be approved by the geotechnical consultant. Soils of poor gradation, expansion, or strength properties shall be placed in areas designated by the geotechnical consultant or shall be mixed with other soils providing satisfactory fill material.

C-4.02 Oversize Material

Oversize material, rock, or other irreducible material with a maximum dimension greater than 12 inches shall not be placed in fills, unless the location, materials, and disposal methods are specifically approved by the geotechnical consultant. Oversize material shall be placed in such a manner that nesting of oversize material does not occur and in such a manner that the oversize material is completely surrounded by fill material compacted to a minimum of

90% relative compaction. Oversize material shall not be placed within 10 feet of finished grade without the approval of the geotechnical consultant.

C-4.03 Import

Material imported to the site shall conform to the requirements of Section 4.01 of these specifications. Potential import material shall be approved by the geotechnical consultant prior to importation to the subject site.

C-5.00 PLACING AND SPREADING OF FILL

C-5.01 Fill Lifts

The selected fill material shall be placed in nearly horizontal layers which when compacted will not exceed approximately 6 inches in thickness. Thicker lifts may be placed if testing indicates the compaction procedures are such that the required compaction is being achieved and the geotechnical consultant approves their use.
Each layer shall be spread evenly and shall be thoroughly blade mixed during the spreading to insure uniformity of material in each layer.

C-5.02 Fill Moisture

When the moisture content of the fill material is below that recommended by the soils engineer, water shall then be added until he moisture content is as specified to assure thorough bonding during the compacting process.

When the moisture content of the fill material is above that recommended by the soils engineer, the fill material shall be aerated by blading or other satisfactory methods until the moisture content is as specified.

C-5.03 Fill Compaction

After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted to not less than 90% relative compaction. Compaction shall be by sheepsfoot rollers, multiple-wheel pneumatic tired rollers, or other types approved by the soil engineer.

Rolling shall be accomplished while the fill material is at the specified moisture content. Rolling of each layer shall be continuous over its entire area and the roller shall make sufficient trips to insure that the desired density has been obtained.

C-5.04 Fill Slopes

Fill slopes shall be compacted by means of sheepsfoot rollers or other suitable equipment. Compacting of the slopes may be done progressively in increments of 3 to 4 feet in fill height. At the completion of grading, the slope face shall be compacted to a minimum of 90% relative compaction. This may require track rolling or rolling with a grid roller attached to a tractor mounted side-boom.

Slopes may be over filled and cut back in such a manner that the exposed slope faces are compacted to a minimum of 90% relative compaction.

The fill operation shall be continued in six inch (6") compacted layers, or as specified above, until the fill has been brought to the finished slopes and grades as shown on the accepted plans.

C-5.05 Compaction Testing

Field density tests shall be made by the geotechnical consultant of the compaction of each layer of fill. Density tests shall be made at locations selected by the geotechnical consultant.

Frequency of field density tests shall be not less than one test for each 2.0 feet of fill height and at least every one thousand cubic yards of fill. Where fill slopes exceed four feet in height their finished faces shall be tested at a frequency of one test for each 1000 square feet of slope face.

Where sheepsfoot rollers are used, the soil may be disturbed to a depth of several inches. Density reading shall be taken in the compacted material below the disturbed surface. When these readings indicate that the density of any layer of fill or portion thereof is below the required density, the particular layer or portion shall be reworked until the required density has been obtained.

C-6.00 SUBDRAINS

C-6.01 Subdrain Material

Subdrains shall be constructed of a minimum 4-inch diameter pipe encased in a suitable filter material. The subdrain pipe shall be Schedule 40 Acrylonitrile Butadiene Styrene (ABS) or Schedule 40 Polyvinyl Chloride Plastic (PVC) pipe or approved equivalent. Subdrain pipe shall be installed with perforations down. Filter material shall consist of 3/4" to 1 1/2" clean gravel wrapped in an envelope of filter fabric consisting of Mirafi 140N or approved equivalent.

C-6.02 Subdrain Installation

Subdrain systems, if required, shall be installed in approved ground to conform the approximate alignment and details shown on the plans or herein. The subdrain locations shall not be changed or modified without the approval of the geotechnical consultant. The geotechnical consultant may recommend and direct changes in the subdrain line, grade or material upon approval by the design civil engineer and the appropriate governmental agencies.

C-7.00 EXCAVATIONS

C-7.01 General

Excavations and cut slopes shall be examined by the geotechnical consultant. If determined necessary by the geotechnical consultant, further excavation or overexcavation and refilling of overexcavated areas shall be performed, and/or remedial grading of cut slopes shall be performed.

C-7.02 Fill-Over-Cut Slopes

Where fill-over-cut slopes are to be graded the cut portion of the slope shall be made and approved by the geotechnical consultant prior to placement of materials for construction of the fill portion of the slope.

C-8.00 TRENCH BACKFILL

C-8.01 General

Trench backfill within street right of ways shall be compacted to 90% relative compaction as determined by the ASTM D1557 test method. Backfill may be jetted as a means of initial compaction; however, mechanical compaction will be required to obtain the required percentage of relative compaction. If trenches are jetted, there must be a suitable delay for drainage of excess water before mechanical compaction is applied.

C-9.00 SEASONAL LIMITS

C-9.01 General

No fill material shall be placed, spread or rolled while it is frozen or thawing or during unfavorable weather conditions. When the work is interrupted by heavy rain, fill operations shall not be resumed until field tests by the soils engineer indicate that the moisture content and density of the fill are as previously specified.

C-10.00 SUPERVISION

C-10.01 Prior to Grading

The site shall be observed by the geotechnical consultant upon completion of clearing and grubbing, prior to the preparation of any original ground for preparation of fill.

The supervisor of the grading contractor and the field representative of the geotechnical consultant shall have a meeting and discuss the geotechnical aspects of the earthwork prior to commencement of grading.

C-10.02 During Grading

Site preparation of all areas to receive fill shall be tested and approved by the geotechnical consultant prior to the placement of any fill.

The geotechnical consultant or his representative shall observe the fill and compaction operations so that he can provide an opinion regarding the conformance of the work to the recommendations

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APPENDIX D

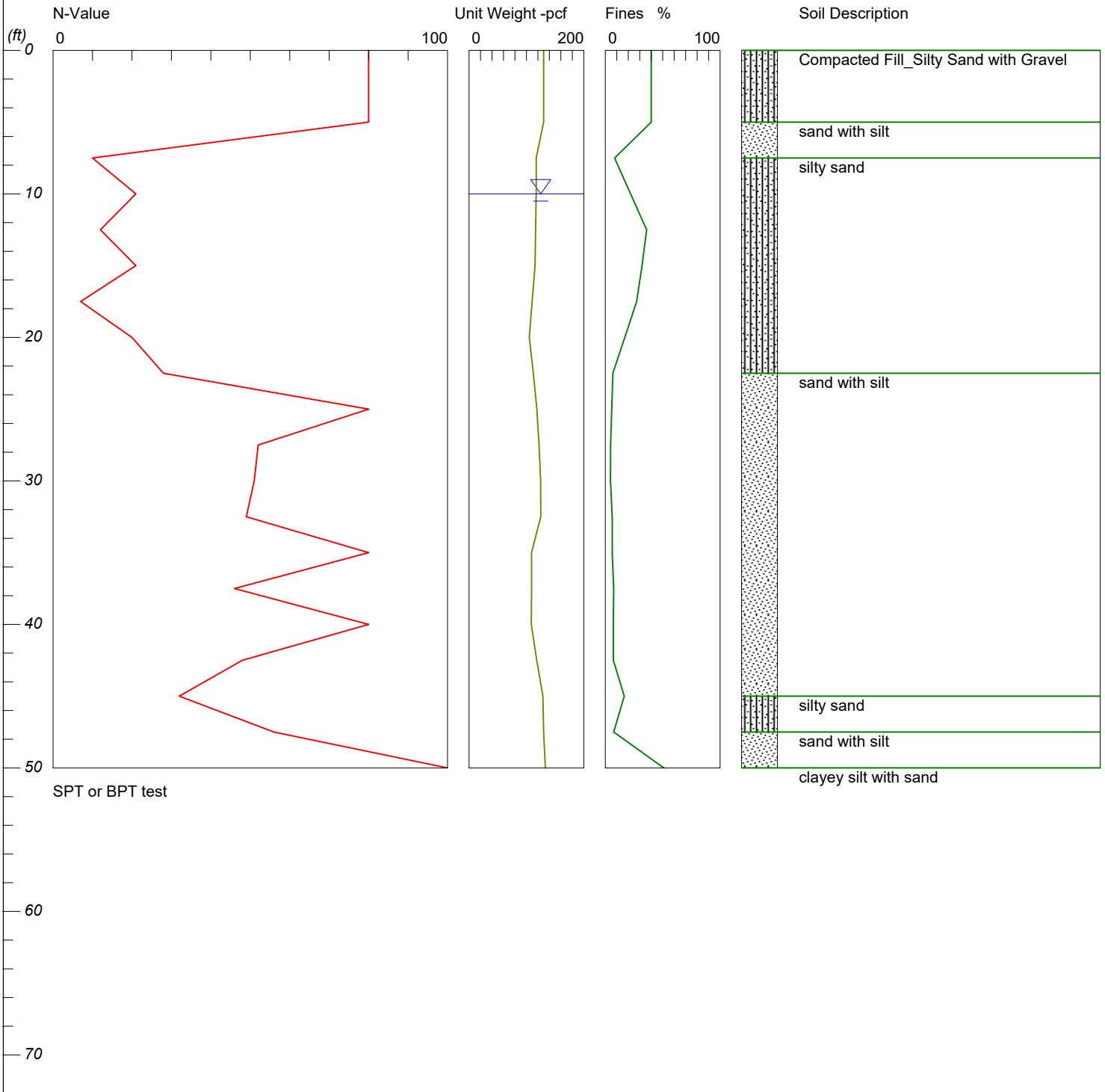
LIQUIFACTION AND SEISMIC SETTLEMENT ANALYSIS
(Figures and Analysis Summary)

LIQUEFACTION ANALYSIS

Copperleah El Monte

Hole No.=B-1 Water Depth=10 ft Surface Elev.=277

Magnitude=6.66
Acceleration=0.57g



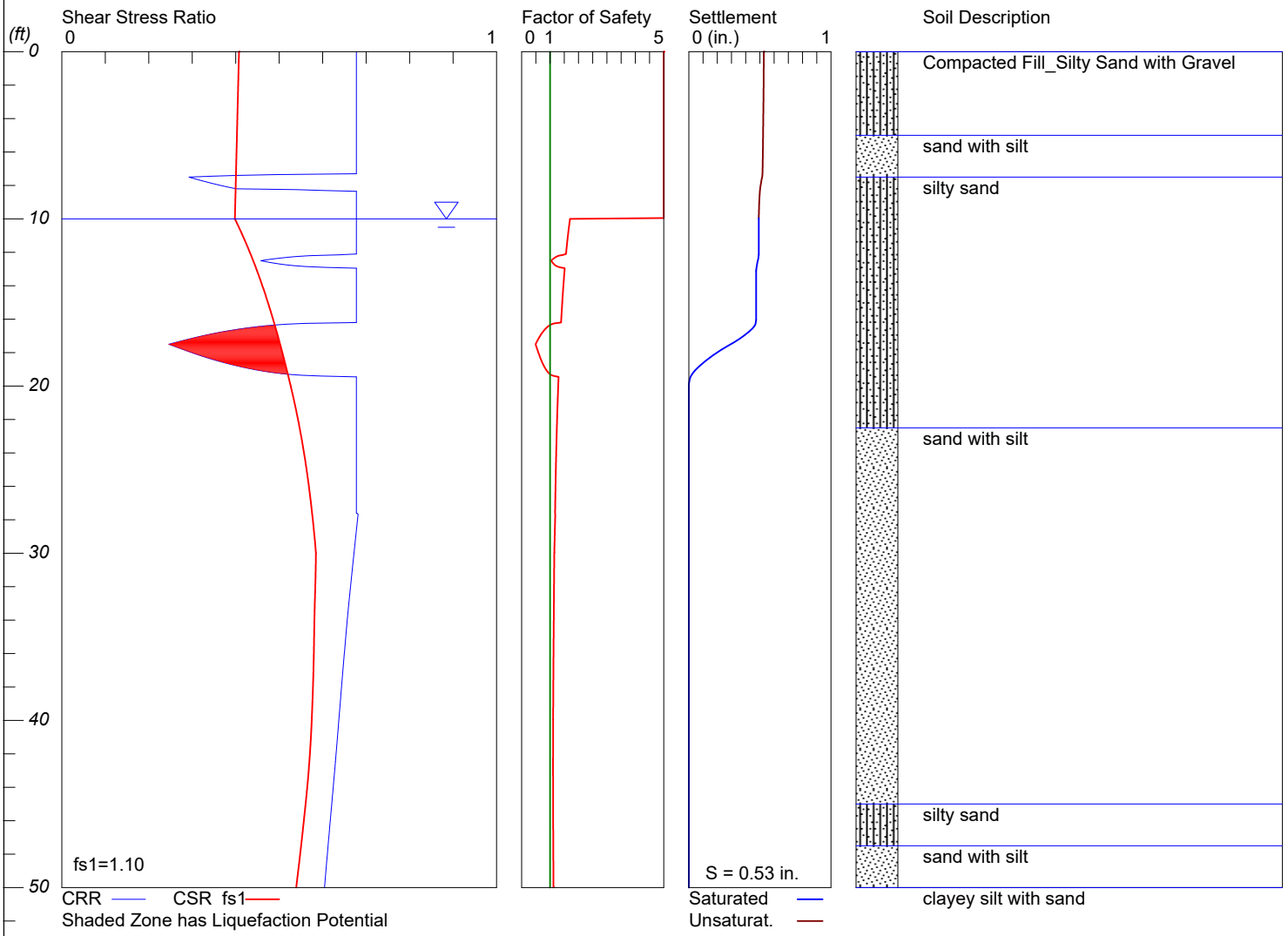
LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

Copperleah El Monte

Hole No.=B-1 Water Depth=10 ft Surface Elev.=277

Magnitude=6.66
Acceleration=0.57g



LiquefyPro CivilTech Software USA www.civiltech.com

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LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: G:_Projects\2019\19G-0075\Liquifaction Analysis\19G-0075-0_B1.liq
Title: Copperleah El Monte
Subtitle: 19G-0075-0

Surface Elev.=277
Hole No.=B-1
Depth of Hole= 50.00 ft
Water Table during Earthquake= 10.00 ft
Water Table during In-Situ Testing= 60.00 ft
Max. Acceleration= 0.57 g
Earthquake Magnitude= 6.66

Input Data:
Surface Elev.=277
Hole No.=B-1
Depth of Hole=50.00 ft
Water Table during Earthquake= 10.00 ft
Water Table during In-Situ Testing= 60.00 ft
Max. Acceleration=0.57 g
Earthquake Magnitude=6.66
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Stark/Olson et al.*
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1.15
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR) , User= 1.1
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	80.00	130.00	40.00
2.50	80.00	130.00	40.00
5.00	80.00	130.00	40.00
7.50	10.00	117.00	8.10
10.00	21.00	117.00	22.00
12.50	12.00	116.00	36.00
15.00	21.00	115.00	32.00
17.50	7.00	110.00	27.30
20.00	20.00	105.00	17.00
22.50	28.00	112.00	6.60

25.00	80.00	118.20	5.60
27.50	52.00	122.00	4.60
30.00	51.00	124.80	4.50
32.50	49.00	125.00	6.00
35.00	80.00	108.90	6.00
37.50	46.00	109.00	7.30
40.00	80.00	108.50	7.00
42.50	48.00	118.00	7.00
45.00	32.00	128.70	16.50
47.50	56.00	130.00	7.30
50.00	100.00	133.00	51.00

Output Results:

Settlement of Saturated Sands=0.49 in.
Settlement of Unsaturated Sands=0.04 in.
Total Settlement of Saturated and Unsaturated Sands=0.53 in.
Differential Settlement=0.264 to 0.348 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	0.68	0.41	5.00	0.49	0.04	0.53
0.05	0.68	0.41	5.00	0.49	0.04	0.53
0.10	0.68	0.41	5.00	0.49	0.04	0.53
0.15	0.68	0.41	5.00	0.49	0.04	0.53
0.20	0.68	0.41	5.00	0.49	0.04	0.53
0.25	0.68	0.41	5.00	0.49	0.04	0.53
0.30	0.68	0.41	5.00	0.49	0.04	0.53
0.35	0.68	0.41	5.00	0.49	0.04	0.53
0.40	0.68	0.41	5.00	0.49	0.04	0.53
0.45	0.68	0.41	5.00	0.49	0.04	0.53
0.50	0.68	0.41	5.00	0.49	0.04	0.53
0.55	0.68	0.41	5.00	0.49	0.04	0.53
0.60	0.68	0.41	5.00	0.49	0.04	0.53
0.65	0.68	0.41	5.00	0.49	0.04	0.53
0.70	0.68	0.41	5.00	0.49	0.04	0.53
0.75	0.68	0.41	5.00	0.49	0.04	0.53
0.80	0.68	0.41	5.00	0.49	0.04	0.53
0.85	0.68	0.41	5.00	0.49	0.04	0.53
0.90	0.68	0.41	5.00	0.49	0.04	0.53
0.95	0.68	0.41	5.00	0.49	0.04	0.53
1.00	0.68	0.41	5.00	0.49	0.04	0.53
1.05	0.68	0.41	5.00	0.49	0.04	0.53
1.10	0.68	0.41	5.00	0.49	0.04	0.53
1.15	0.68	0.41	5.00	0.49	0.03	0.53
1.20	0.68	0.41	5.00	0.49	0.03	0.53
1.25	0.68	0.41	5.00	0.49	0.03	0.53
1.30	0.68	0.41	5.00	0.49	0.03	0.53
1.35	0.68	0.41	5.00	0.49	0.03	0.53
1.40	0.68	0.41	5.00	0.49	0.03	0.53
1.45	0.68	0.41	5.00	0.49	0.03	0.53
1.50	0.68	0.41	5.00	0.49	0.03	0.53
1.55	0.68	0.41	5.00	0.49	0.03	0.53
1.60	0.68	0.41	5.00	0.49	0.03	0.53
1.65	0.68	0.41	5.00	0.49	0.03	0.53
1.70	0.68	0.41	5.00	0.49	0.03	0.53
1.75	0.68	0.41	5.00	0.49	0.03	0.53
1.80	0.68	0.41	5.00	0.49	0.03	0.53
1.85	0.68	0.41	5.00	0.49	0.03	0.53
1.90	0.68	0.41	5.00	0.49	0.03	0.53
1.95	0.68	0.41	5.00	0.49	0.03	0.53
2.00	0.68	0.41	5.00	0.49	0.03	0.53

2.05	0.68	0.41	5.00	0.49	0.03	0.53
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2.15	0.68	0.41	5.00	0.49	0.03	0.53
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2.90	0.68	0.40	5.00	0.49	0.03	0.53
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4.75	0.68	0.40	5.00	0.49	0.03	0.52
4.80	0.68	0.40	5.00	0.49	0.03	0.52
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6.15	0.68	0.40	5.00	0.49	0.03	0.52
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6.75	0.68	0.40	5.00	0.49	0.03	0.52
6.80	0.68	0.40	5.00	0.49	0.03	0.52
6.85	0.68	0.40	5.00	0.49	0.03	0.52
6.90	0.68	0.40	5.00	0.49	0.03	0.52
6.95	0.68	0.40	5.00	0.49	0.03	0.52
7.00	0.68	0.40	5.00	0.49	0.03	0.52
7.05	0.68	0.40	5.00	0.49	0.03	0.52
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7.25	0.68	0.40	5.00	0.49	0.03	0.52
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7.45	0.34	0.40	5.00	0.49	0.02	0.52
7.50	0.29	0.40	5.00	0.49	0.02	0.52
7.55	0.30	0.40	5.00	0.49	0.02	0.51
7.60	0.31	0.40	5.00	0.49	0.02	0.51
7.65	0.31	0.40	5.00	0.49	0.02	0.51
7.70	0.32	0.40	5.00	0.49	0.02	0.51
7.75	0.33	0.40	5.00	0.49	0.02	0.51
7.80	0.33	0.40	5.00	0.49	0.02	0.51
7.85	0.34	0.40	5.00	0.49	0.02	0.51
7.90	0.35	0.40	5.00	0.49	0.01	0.51
7.95	0.36	0.40	5.00	0.49	0.01	0.51
8.00	0.37	0.40	5.00	0.49	0.01	0.50
8.05	0.37	0.40	5.00	0.49	0.01	0.50
8.10	0.38	0.40	5.00	0.49	0.01	0.50
8.15	0.39	0.40	5.00	0.49	0.01	0.50
8.20	0.40	0.40	5.00	0.49	0.01	0.50
8.25	0.54	0.40	5.00	0.49	0.01	0.50
8.30	0.60	0.40	5.00	0.49	0.01	0.50

8.35	0.68	0.40	5.00	0.49	0.01	0.50
8.40	0.68	0.40	5.00	0.49	0.01	0.50
8.45	0.68	0.40	5.00	0.49	0.01	0.50
8.50	0.68	0.40	5.00	0.49	0.01	0.50
8.55	0.68	0.40	5.00	0.49	0.01	0.50
8.60	0.68	0.40	5.00	0.49	0.01	0.50
8.65	0.68	0.40	5.00	0.49	0.01	0.50
8.70	0.68	0.40	5.00	0.49	0.01	0.50
8.75	0.68	0.40	5.00	0.49	0.00	0.50
8.80	0.68	0.40	5.00	0.49	0.00	0.50
8.85	0.68	0.40	5.00	0.49	0.00	0.50
8.90	0.68	0.40	5.00	0.49	0.00	0.50
8.95	0.68	0.40	5.00	0.49	0.00	0.50
9.00	0.68	0.40	5.00	0.49	0.00	0.50
9.05	0.68	0.40	5.00	0.49	0.00	0.49
9.10	0.68	0.40	5.00	0.49	0.00	0.49
9.15	0.68	0.40	5.00	0.49	0.00	0.49
9.20	0.68	0.40	5.00	0.49	0.00	0.49
9.25	0.68	0.40	5.00	0.49	0.00	0.49
9.30	0.68	0.40	5.00	0.49	0.00	0.49
9.35	0.68	0.40	5.00	0.49	0.00	0.49
9.40	0.68	0.40	5.00	0.49	0.00	0.49
9.45	0.68	0.40	5.00	0.49	0.00	0.49
9.50	0.68	0.40	5.00	0.49	0.00	0.49
9.55	0.68	0.40	5.00	0.49	0.00	0.49
9.60	0.68	0.40	5.00	0.49	0.00	0.49
9.65	0.68	0.40	5.00	0.49	0.00	0.49
9.70	0.68	0.40	5.00	0.49	0.00	0.49
9.75	0.68	0.40	5.00	0.49	0.00	0.49
9.80	0.68	0.40	5.00	0.49	0.00	0.49
9.85	0.68	0.40	5.00	0.49	0.00	0.49
9.90	0.68	0.40	5.00	0.49	0.00	0.49
9.95	0.68	0.40	5.00	0.49	0.00	0.49
10.00	0.68	0.40	1.70	0.49	0.00	0.49
10.05	0.68	0.40	1.70	0.49	0.00	0.49
10.10	0.68	0.40	1.69	0.49	0.00	0.49
10.15	0.68	0.40	1.69	0.49	0.00	0.49
10.20	0.68	0.40	1.69	0.49	0.00	0.49
10.25	0.68	0.40	1.68	0.49	0.00	0.49
10.30	0.68	0.40	1.68	0.49	0.00	0.49
10.35	0.68	0.40	1.67	0.49	0.00	0.49
10.40	0.68	0.41	1.67	0.49	0.00	0.49
10.45	0.68	0.41	1.67	0.49	0.00	0.49
10.50	0.68	0.41	1.66	0.49	0.00	0.49
10.55	0.68	0.41	1.66	0.49	0.00	0.49
10.60	0.68	0.41	1.66	0.49	0.00	0.49
10.65	0.68	0.41	1.65	0.49	0.00	0.49
10.70	0.68	0.41	1.65	0.49	0.00	0.49
10.75	0.68	0.41	1.65	0.49	0.00	0.49
10.80	0.68	0.41	1.64	0.49	0.00	0.49
10.85	0.68	0.41	1.64	0.49	0.00	0.49
10.90	0.68	0.41	1.63	0.49	0.00	0.49
10.95	0.68	0.42	1.63	0.49	0.00	0.49
11.00	0.68	0.42	1.63	0.49	0.00	0.49
11.05	0.68	0.42	1.62	0.49	0.00	0.49
11.10	0.68	0.42	1.62	0.49	0.00	0.49
11.15	0.68	0.42	1.62	0.49	0.00	0.49
11.20	0.68	0.42	1.61	0.49	0.00	0.49
11.25	0.68	0.42	1.61	0.49	0.00	0.49
11.30	0.68	0.42	1.61	0.49	0.00	0.49
11.35	0.68	0.42	1.61	0.49	0.00	0.49
11.40	0.68	0.42	1.60	0.49	0.00	0.49
11.45	0.68	0.42	1.60	0.49	0.00	0.49

11.50	0.68	0.42	1.60	0.49	0.00	0.49
11.55	0.68	0.43	1.59	0.49	0.00	0.49
11.60	0.68	0.43	1.59	0.49	0.00	0.49
11.65	0.68	0.43	1.59	0.49	0.00	0.49
11.70	0.68	0.43	1.58	0.49	0.00	0.49
11.75	0.68	0.43	1.58	0.49	0.00	0.49
11.80	0.68	0.43	1.58	0.49	0.00	0.49
11.85	0.68	0.43	1.57	0.49	0.00	0.49
11.90	0.68	0.43	1.57	0.49	0.00	0.49
11.95	0.68	0.43	1.57	0.49	0.00	0.49
12.00	0.68	0.43	1.57	0.49	0.00	0.49
12.05	0.68	0.43	1.56	0.49	0.00	0.49
12.10	0.68	0.43	1.56	0.49	0.00	0.49
12.15	0.64	0.43	1.47	0.49	0.00	0.49
12.20	0.57	0.44	1.31	0.49	0.00	0.49
12.25	0.54	0.44	1.24	0.49	0.00	0.49
12.30	0.52	0.44	1.19	0.49	0.00	0.49
12.35	0.50	0.44	1.14	0.49	0.00	0.49
12.40	0.48	0.44	1.10	0.49	0.00	0.49
12.45	0.47	0.44	1.07	0.49	0.00	0.49
12.50	0.46	0.44	1.04	0.49	0.00	0.49
12.55	0.47	0.44	1.06	0.48	0.00	0.48
12.60	0.48	0.44	1.08	0.48	0.00	0.48
12.65	0.49	0.44	1.11	0.48	0.00	0.48
12.70	0.50	0.44	1.13	0.48	0.00	0.48
12.75	0.52	0.44	1.16	0.48	0.00	0.48
12.80	0.53	0.44	1.20	0.48	0.00	0.48
12.85	0.56	0.45	1.26	0.48	0.00	0.48
12.90	0.61	0.45	1.36	0.48	0.00	0.48
12.95	0.68	0.45	1.52	0.48	0.00	0.48
13.00	0.68	0.45	1.51	0.47	0.00	0.47
13.05	0.68	0.45	1.51	0.47	0.00	0.47
13.10	0.68	0.45	1.51	0.47	0.00	0.47
13.15	0.68	0.45	1.51	0.47	0.00	0.47
13.20	0.68	0.45	1.50	0.47	0.00	0.47
13.25	0.68	0.45	1.50	0.47	0.00	0.47
13.30	0.68	0.45	1.50	0.47	0.00	0.47
13.35	0.68	0.45	1.50	0.47	0.00	0.47
13.40	0.68	0.45	1.49	0.47	0.00	0.47
13.45	0.68	0.45	1.49	0.47	0.00	0.47
13.50	0.68	0.45	1.49	0.47	0.00	0.47
13.55	0.68	0.46	1.49	0.47	0.00	0.47
13.60	0.68	0.46	1.49	0.47	0.00	0.47
13.65	0.68	0.46	1.48	0.47	0.00	0.47
13.70	0.68	0.46	1.48	0.47	0.00	0.47
13.75	0.68	0.46	1.48	0.47	0.00	0.47
13.80	0.68	0.46	1.48	0.47	0.00	0.47
13.85	0.68	0.46	1.47	0.47	0.00	0.47
13.90	0.68	0.46	1.47	0.47	0.00	0.47
13.95	0.68	0.46	1.47	0.47	0.00	0.47
14.00	0.68	0.46	1.47	0.47	0.00	0.47
14.05	0.68	0.46	1.47	0.47	0.00	0.47
14.10	0.68	0.46	1.46	0.47	0.00	0.47
14.15	0.68	0.46	1.46	0.47	0.00	0.47
14.20	0.68	0.46	1.46	0.47	0.00	0.47
14.25	0.68	0.46	1.46	0.47	0.00	0.47
14.30	0.68	0.47	1.46	0.47	0.00	0.47
14.35	0.68	0.47	1.45	0.47	0.00	0.47
14.40	0.68	0.47	1.45	0.47	0.00	0.47
14.45	0.68	0.47	1.45	0.47	0.00	0.47
14.50	0.68	0.47	1.45	0.47	0.00	0.47
14.55	0.68	0.47	1.45	0.47	0.00	0.47
14.60	0.68	0.47	1.44	0.47	0.00	0.47

14.65	0.68	0.47	1.44	0.47	0.00	0.47
14.70	0.68	0.47	1.44	0.47	0.00	0.47
14.75	0.68	0.47	1.44	0.47	0.00	0.47
14.80	0.68	0.47	1.44	0.47	0.00	0.47
14.85	0.68	0.47	1.43	0.47	0.00	0.47
14.90	0.68	0.47	1.43	0.47	0.00	0.47
14.95	0.68	0.47	1.43	0.47	0.00	0.47
15.00	0.68	0.47	1.43	0.47	0.00	0.47
15.05	0.68	0.47	1.43	0.47	0.00	0.47
15.10	0.68	0.48	1.43	0.47	0.00	0.47
15.15	0.68	0.48	1.42	0.47	0.00	0.47
15.20	0.68	0.48	1.42	0.47	0.00	0.47
15.25	0.68	0.48	1.42	0.47	0.00	0.47
15.30	0.68	0.48	1.42	0.47	0.00	0.47
15.35	0.68	0.48	1.42	0.47	0.00	0.47
15.40	0.68	0.48	1.41	0.47	0.00	0.47
15.45	0.68	0.48	1.41	0.47	0.00	0.47
15.50	0.68	0.48	1.41	0.47	0.00	0.47
15.55	0.68	0.48	1.41	0.47	0.00	0.47
15.60	0.68	0.48	1.41	0.47	0.00	0.47
15.65	0.68	0.48	1.41	0.47	0.00	0.47
15.70	0.68	0.48	1.40	0.47	0.00	0.47
15.75	0.68	0.48	1.40	0.47	0.00	0.47
15.80	0.68	0.48	1.40	0.47	0.00	0.47
15.85	0.68	0.48	1.40	0.47	0.00	0.47
15.90	0.68	0.48	1.40	0.47	0.00	0.47
15.95	0.68	0.49	1.40	0.47	0.00	0.47
16.00	0.68	0.49	1.39	0.47	0.00	0.47
16.05	0.68	0.49	1.39	0.47	0.00	0.47
16.10	0.68	0.49	1.39	0.47	0.00	0.47
16.15	0.68	0.49	1.39	0.47	0.00	0.47
16.20	0.68	0.49	1.39	0.47	0.00	0.47
16.25	0.56	0.49	1.15	0.47	0.00	0.47
16.30	0.52	0.49	1.05	0.47	0.00	0.47
16.35	0.49	0.49	1.00*	0.47	0.00	0.47
16.40	0.47	0.49	0.95*	0.46	0.00	0.46
16.45	0.45	0.49	0.92*	0.46	0.00	0.46
16.50	0.43	0.49	0.88*	0.45	0.00	0.45
16.55	0.42	0.49	0.85*	0.45	0.00	0.45
16.60	0.41	0.49	0.82*	0.44	0.00	0.44
16.65	0.39	0.49	0.80*	0.44	0.00	0.44
16.70	0.38	0.49	0.77*	0.43	0.00	0.43
16.75	0.37	0.49	0.75*	0.42	0.00	0.42
16.80	0.36	0.49	0.73*	0.42	0.00	0.42
16.85	0.35	0.50	0.71*	0.41	0.00	0.41
16.90	0.34	0.50	0.69*	0.40	0.00	0.40
16.95	0.33	0.50	0.67*	0.39	0.00	0.39
17.00	0.32	0.50	0.65*	0.39	0.00	0.39
17.05	0.31	0.50	0.63*	0.38	0.00	0.38
17.10	0.31	0.50	0.62*	0.37	0.00	0.37
17.15	0.30	0.50	0.60*	0.36	0.00	0.36
17.20	0.29	0.50	0.58*	0.35	0.00	0.35
17.25	0.28	0.50	0.57*	0.34	0.00	0.34
17.30	0.28	0.50	0.55*	0.33	0.00	0.33
17.35	0.27	0.50	0.54*	0.32	0.00	0.32
17.40	0.26	0.50	0.52*	0.31	0.00	0.31
17.45	0.25	0.50	0.51*	0.30	0.00	0.30
17.50	0.25	0.50	0.49*	0.29	0.00	0.29
17.55	0.25	0.50	0.50*	0.28	0.00	0.28
17.60	0.26	0.50	0.51*	0.27	0.00	0.27
17.65	0.26	0.50	0.52*	0.26	0.00	0.26
17.70	0.27	0.50	0.53*	0.25	0.00	0.25
17.75	0.27	0.50	0.54*	0.24	0.00	0.24

17.80	0.28	0.51	0.55*	0.23	0.00	0.23
17.85	0.28	0.51	0.56*	0.22	0.00	0.22
17.90	0.29	0.51	0.57*	0.22	0.00	0.22
17.95	0.29	0.51	0.58*	0.21	0.00	0.21
18.00	0.30	0.51	0.59*	0.20	0.00	0.20
18.05	0.30	0.51	0.60*	0.19	0.00	0.19
18.10	0.31	0.51	0.61*	0.18	0.00	0.18
18.15	0.32	0.51	0.62*	0.17	0.00	0.17
18.20	0.32	0.51	0.63*	0.16	0.00	0.16
18.25	0.33	0.51	0.64*	0.16	0.00	0.16
18.30	0.33	0.51	0.65*	0.15	0.00	0.15
18.35	0.34	0.51	0.67*	0.14	0.00	0.14
18.40	0.35	0.51	0.68*	0.13	0.00	0.13
18.45	0.35	0.51	0.69*	0.12	0.00	0.12
18.50	0.36	0.51	0.70*	0.12	0.00	0.12
18.55	0.37	0.51	0.71*	0.11	0.00	0.11
18.60	0.37	0.51	0.73*	0.10	0.00	0.10
18.65	0.38	0.51	0.74*	0.10	0.00	0.10
18.70	0.39	0.51	0.76*	0.09	0.00	0.09
18.75	0.40	0.51	0.77*	0.08	0.00	0.08
18.80	0.40	0.52	0.78*	0.08	0.00	0.08
18.85	0.41	0.52	0.80*	0.07	0.00	0.07
18.90	0.42	0.52	0.82*	0.06	0.00	0.06
18.95	0.43	0.52	0.83*	0.06	0.00	0.06
19.00	0.44	0.52	0.85*	0.05	0.00	0.05
19.05	0.45	0.52	0.87*	0.05	0.00	0.05
19.10	0.46	0.52	0.89*	0.04	0.00	0.04
19.15	0.47	0.52	0.91*	0.04	0.00	0.04
19.20	0.49	0.52	0.94*	0.03	0.00	0.03
19.25	0.50	0.52	0.97*	0.03	0.00	0.03
19.30	0.52	0.52	1.01	0.02	0.00	0.02
19.35	0.55	0.52	1.06	0.02	0.00	0.02
19.40	0.60	0.52	1.14	0.02	0.00	0.02
19.45	0.68	0.52	1.30	0.01	0.00	0.01
19.50	0.68	0.52	1.30	0.01	0.00	0.01
19.55	0.68	0.52	1.30	0.01	0.00	0.01
19.60	0.68	0.52	1.30	0.01	0.00	0.01
19.65	0.68	0.52	1.29	0.01	0.00	0.01
19.70	0.68	0.52	1.29	0.00	0.00	0.00
19.75	0.68	0.52	1.29	0.00	0.00	0.00
19.80	0.68	0.52	1.29	0.00	0.00	0.00
19.85	0.68	0.53	1.29	0.00	0.00	0.00
19.90	0.68	0.53	1.29	0.00	0.00	0.00
19.95	0.68	0.53	1.29	0.00	0.00	0.00
20.00	0.68	0.53	1.29	0.00	0.00	0.00
20.05	0.68	0.53	1.29	0.00	0.00	0.00
20.10	0.68	0.53	1.28	0.00	0.00	0.00
20.15	0.68	0.53	1.28	0.00	0.00	0.00
20.20	0.68	0.53	1.28	0.00	0.00	0.00
20.25	0.68	0.53	1.28	0.00	0.00	0.00
20.30	0.68	0.53	1.28	0.00	0.00	0.00
20.35	0.68	0.53	1.28	0.00	0.00	0.00
20.40	0.68	0.53	1.28	0.00	0.00	0.00
20.45	0.68	0.53	1.28	0.00	0.00	0.00
20.50	0.68	0.53	1.28	0.00	0.00	0.00
20.55	0.68	0.53	1.27	0.00	0.00	0.00
20.60	0.68	0.53	1.27	0.00	0.00	0.00
20.65	0.68	0.53	1.27	0.00	0.00	0.00
20.70	0.68	0.53	1.27	0.00	0.00	0.00
20.75	0.68	0.53	1.27	0.00	0.00	0.00
20.80	0.68	0.53	1.27	0.00	0.00	0.00
20.85	0.68	0.53	1.27	0.00	0.00	0.00
20.90	0.68	0.53	1.27	0.00	0.00	0.00

20.95	0.68	0.53	1.27	0.00	0.00	0.00
21.00	0.68	0.54	1.27	0.00	0.00	0.00
21.05	0.68	0.54	1.26	0.00	0.00	0.00
21.10	0.68	0.54	1.26	0.00	0.00	0.00
21.15	0.68	0.54	1.26	0.00	0.00	0.00
21.20	0.68	0.54	1.26	0.00	0.00	0.00
21.25	0.68	0.54	1.26	0.00	0.00	0.00
21.30	0.68	0.54	1.26	0.00	0.00	0.00
21.35	0.68	0.54	1.26	0.00	0.00	0.00
21.40	0.68	0.54	1.26	0.00	0.00	0.00
21.45	0.68	0.54	1.26	0.00	0.00	0.00
21.50	0.68	0.54	1.26	0.00	0.00	0.00
21.55	0.68	0.54	1.26	0.00	0.00	0.00
21.60	0.68	0.54	1.25	0.00	0.00	0.00
21.65	0.68	0.54	1.25	0.00	0.00	0.00
21.70	0.68	0.54	1.25	0.00	0.00	0.00
21.75	0.68	0.54	1.25	0.00	0.00	0.00
21.80	0.68	0.54	1.25	0.00	0.00	0.00
21.85	0.68	0.54	1.25	0.00	0.00	0.00
21.90	0.68	0.54	1.25	0.00	0.00	0.00
21.95	0.68	0.54	1.25	0.00	0.00	0.00
22.00	0.68	0.54	1.25	0.00	0.00	0.00
22.05	0.68	0.54	1.25	0.00	0.00	0.00
22.10	0.68	0.54	1.25	0.00	0.00	0.00
22.15	0.68	0.54	1.24	0.00	0.00	0.00
22.20	0.68	0.54	1.24	0.00	0.00	0.00
22.25	0.68	0.55	1.24	0.00	0.00	0.00
22.30	0.68	0.55	1.24	0.00	0.00	0.00
22.35	0.68	0.55	1.24	0.00	0.00	0.00
22.40	0.68	0.55	1.24	0.00	0.00	0.00
22.45	0.68	0.55	1.24	0.00	0.00	0.00
22.50	0.68	0.55	1.24	0.00	0.00	0.00
22.55	0.68	0.55	1.24	0.00	0.00	0.00
22.60	0.68	0.55	1.24	0.00	0.00	0.00
22.65	0.68	0.55	1.24	0.00	0.00	0.00
22.70	0.68	0.55	1.24	0.00	0.00	0.00
22.75	0.68	0.55	1.23	0.00	0.00	0.00
22.80	0.68	0.55	1.23	0.00	0.00	0.00
22.85	0.68	0.55	1.23	0.00	0.00	0.00
22.90	0.68	0.55	1.23	0.00	0.00	0.00
22.95	0.68	0.55	1.23	0.00	0.00	0.00
23.00	0.68	0.55	1.23	0.00	0.00	0.00
23.05	0.68	0.55	1.23	0.00	0.00	0.00
23.10	0.68	0.55	1.23	0.00	0.00	0.00
23.15	0.68	0.55	1.23	0.00	0.00	0.00
23.20	0.68	0.55	1.23	0.00	0.00	0.00
23.25	0.68	0.55	1.23	0.00	0.00	0.00
23.30	0.68	0.55	1.23	0.00	0.00	0.00
23.35	0.68	0.55	1.23	0.00	0.00	0.00
23.40	0.68	0.55	1.22	0.00	0.00	0.00
23.45	0.68	0.55	1.22	0.00	0.00	0.00
23.50	0.68	0.55	1.22	0.00	0.00	0.00
23.55	0.68	0.55	1.22	0.00	0.00	0.00
23.60	0.68	0.55	1.22	0.00	0.00	0.00
23.65	0.68	0.55	1.22	0.00	0.00	0.00
23.70	0.68	0.56	1.22	0.00	0.00	0.00
23.75	0.68	0.56	1.22	0.00	0.00	0.00
23.80	0.68	0.56	1.22	0.00	0.00	0.00
23.85	0.68	0.56	1.22	0.00	0.00	0.00
23.90	0.68	0.56	1.22	0.00	0.00	0.00
23.95	0.68	0.56	1.22	0.00	0.00	0.00
24.00	0.68	0.56	1.22	0.00	0.00	0.00
24.05	0.68	0.56	1.22	0.00	0.00	0.00

24.10	0.68	0.56	1.21	0.00	0.00	0.00
24.15	0.68	0.56	1.21	0.00	0.00	0.00
24.20	0.68	0.56	1.21	0.00	0.00	0.00
24.25	0.68	0.56	1.21	0.00	0.00	0.00
24.30	0.68	0.56	1.21	0.00	0.00	0.00
24.35	0.68	0.56	1.21	0.00	0.00	0.00
24.40	0.68	0.56	1.21	0.00	0.00	0.00
24.45	0.68	0.56	1.21	0.00	0.00	0.00
24.50	0.68	0.56	1.21	0.00	0.00	0.00
24.55	0.68	0.56	1.21	0.00	0.00	0.00
24.60	0.68	0.56	1.21	0.00	0.00	0.00
24.65	0.68	0.56	1.21	0.00	0.00	0.00
24.70	0.68	0.56	1.21	0.00	0.00	0.00
24.75	0.68	0.56	1.21	0.00	0.00	0.00
24.80	0.68	0.56	1.21	0.00	0.00	0.00
24.85	0.68	0.56	1.21	0.00	0.00	0.00
24.90	0.68	0.56	1.20	0.00	0.00	0.00
24.95	0.68	0.56	1.20	0.00	0.00	0.00
25.00	0.68	0.56	1.20	0.00	0.00	0.00
25.05	0.68	0.56	1.20	0.00	0.00	0.00
25.10	0.68	0.56	1.20	0.00	0.00	0.00
25.15	0.68	0.56	1.20	0.00	0.00	0.00
25.20	0.68	0.56	1.20	0.00	0.00	0.00
25.25	0.68	0.56	1.20	0.00	0.00	0.00
25.30	0.68	0.56	1.20	0.00	0.00	0.00
25.35	0.68	0.56	1.20	0.00	0.00	0.00
25.40	0.68	0.57	1.20	0.00	0.00	0.00
25.45	0.68	0.57	1.20	0.00	0.00	0.00
25.50	0.68	0.57	1.20	0.00	0.00	0.00
25.55	0.68	0.57	1.20	0.00	0.00	0.00
25.60	0.68	0.57	1.20	0.00	0.00	0.00
25.65	0.68	0.57	1.20	0.00	0.00	0.00
25.70	0.68	0.57	1.20	0.00	0.00	0.00
25.75	0.68	0.57	1.19	0.00	0.00	0.00
25.80	0.68	0.57	1.19	0.00	0.00	0.00
25.85	0.68	0.57	1.19	0.00	0.00	0.00
25.90	0.68	0.57	1.19	0.00	0.00	0.00
25.95	0.68	0.57	1.19	0.00	0.00	0.00
26.00	0.68	0.57	1.19	0.00	0.00	0.00
26.05	0.68	0.57	1.19	0.00	0.00	0.00
26.10	0.68	0.57	1.19	0.00	0.00	0.00
26.15	0.68	0.57	1.19	0.00	0.00	0.00
26.20	0.68	0.57	1.19	0.00	0.00	0.00
26.25	0.68	0.57	1.19	0.00	0.00	0.00
26.30	0.68	0.57	1.19	0.00	0.00	0.00
26.35	0.68	0.57	1.19	0.00	0.00	0.00
26.40	0.68	0.57	1.19	0.00	0.00	0.00
26.45	0.68	0.57	1.19	0.00	0.00	0.00
26.50	0.68	0.57	1.19	0.00	0.00	0.00
26.55	0.68	0.57	1.19	0.00	0.00	0.00
26.60	0.68	0.57	1.19	0.00	0.00	0.00
26.65	0.68	0.57	1.19	0.00	0.00	0.00
26.70	0.68	0.57	1.19	0.00	0.00	0.00
26.75	0.68	0.57	1.18	0.00	0.00	0.00
26.80	0.68	0.57	1.18	0.00	0.00	0.00
26.85	0.68	0.57	1.18	0.00	0.00	0.00
26.90	0.68	0.57	1.18	0.00	0.00	0.00
26.95	0.68	0.57	1.18	0.00	0.00	0.00
27.00	0.68	0.57	1.18	0.00	0.00	0.00
27.05	0.68	0.57	1.18	0.00	0.00	0.00
27.10	0.68	0.57	1.18	0.00	0.00	0.00
27.15	0.68	0.57	1.18	0.00	0.00	0.00
27.20	0.68	0.57	1.18	0.00	0.00	0.00

27.25	0.68	0.57	1.18	0.00	0.00	0.00
27.30	0.68	0.57	1.18	0.00	0.00	0.00
27.35	0.68	0.57	1.18	0.00	0.00	0.00
27.40	0.68	0.57	1.18	0.00	0.00	0.00
27.45	0.68	0.58	1.18	0.00	0.00	0.00
27.50	0.68	0.58	1.18	0.00	0.00	0.00
27.55	0.68	0.58	1.18	0.00	0.00	0.00
27.60	0.68	0.58	1.18	0.00	0.00	0.00
27.65	0.68	0.58	1.18	0.00	0.00	0.00
27.70	0.68	0.58	1.18	0.00	0.00	0.00
27.75	0.68	0.58	1.18	0.00	0.00	0.00
27.80	0.68	0.58	1.18	0.00	0.00	0.00
27.85	0.68	0.58	1.18	0.00	0.00	0.00
27.90	0.68	0.58	1.18	0.00	0.00	0.00
27.95	0.68	0.58	1.18	0.00	0.00	0.00
28.00	0.68	0.58	1.18	0.00	0.00	0.00
28.05	0.68	0.58	1.18	0.00	0.00	0.00
28.10	0.68	0.58	1.18	0.00	0.00	0.00
28.15	0.68	0.58	1.18	0.00	0.00	0.00
28.20	0.68	0.58	1.18	0.00	0.00	0.00
28.25	0.68	0.58	1.17	0.00	0.00	0.00
28.30	0.68	0.58	1.17	0.00	0.00	0.00
28.35	0.68	0.58	1.17	0.00	0.00	0.00
28.40	0.68	0.58	1.17	0.00	0.00	0.00
28.45	0.68	0.58	1.17	0.00	0.00	0.00
28.50	0.68	0.58	1.17	0.00	0.00	0.00
28.55	0.68	0.58	1.17	0.00	0.00	0.00
28.60	0.68	0.58	1.17	0.00	0.00	0.00
28.65	0.68	0.58	1.17	0.00	0.00	0.00
28.70	0.68	0.58	1.17	0.00	0.00	0.00
28.75	0.68	0.58	1.17	0.00	0.00	0.00
28.80	0.68	0.58	1.17	0.00	0.00	0.00
28.85	0.68	0.58	1.17	0.00	0.00	0.00
28.90	0.68	0.58	1.16	0.00	0.00	0.00
28.95	0.68	0.58	1.16	0.00	0.00	0.00
29.00	0.68	0.58	1.16	0.00	0.00	0.00
29.05	0.68	0.58	1.16	0.00	0.00	0.00
29.10	0.68	0.58	1.16	0.00	0.00	0.00
29.15	0.68	0.58	1.16	0.00	0.00	0.00
29.20	0.68	0.58	1.16	0.00	0.00	0.00
29.25	0.68	0.58	1.16	0.00	0.00	0.00
29.30	0.67	0.58	1.16	0.00	0.00	0.00
29.35	0.67	0.58	1.16	0.00	0.00	0.00
29.40	0.67	0.58	1.16	0.00	0.00	0.00
29.45	0.67	0.58	1.16	0.00	0.00	0.00
29.50	0.67	0.58	1.16	0.00	0.00	0.00
29.55	0.67	0.58	1.16	0.00	0.00	0.00
29.60	0.67	0.58	1.15	0.00	0.00	0.00
29.65	0.67	0.58	1.15	0.00	0.00	0.00
29.70	0.67	0.58	1.15	0.00	0.00	0.00
29.75	0.67	0.58	1.15	0.00	0.00	0.00
29.80	0.67	0.58	1.15	0.00	0.00	0.00
29.85	0.67	0.58	1.15	0.00	0.00	0.00
29.90	0.67	0.58	1.15	0.00	0.00	0.00
29.95	0.67	0.58	1.15	0.00	0.00	0.00
30.00	0.67	0.58	1.15	0.00	0.00	0.00
30.05	0.67	0.58	1.15	0.00	0.00	0.00
30.10	0.67	0.58	1.15	0.00	0.00	0.00
30.15	0.67	0.58	1.15	0.00	0.00	0.00
30.20	0.67	0.58	1.15	0.00	0.00	0.00
30.25	0.67	0.58	1.15	0.00	0.00	0.00
30.30	0.67	0.58	1.15	0.00	0.00	0.00
30.35	0.67	0.58	1.15	0.00	0.00	0.00

30.40	0.67	0.58	1.15	0.00	0.00	0.00
30.45	0.67	0.58	1.15	0.00	0.00	0.00
30.50	0.67	0.58	1.15	0.00	0.00	0.00
30.55	0.67	0.58	1.15	0.00	0.00	0.00
30.60	0.67	0.58	1.15	0.00	0.00	0.00
30.65	0.67	0.58	1.15	0.00	0.00	0.00
30.70	0.67	0.58	1.15	0.00	0.00	0.00
30.75	0.67	0.58	1.15	0.00	0.00	0.00
30.80	0.67	0.58	1.15	0.00	0.00	0.00
30.85	0.67	0.58	1.14	0.00	0.00	0.00
30.90	0.67	0.58	1.14	0.00	0.00	0.00
30.95	0.67	0.58	1.14	0.00	0.00	0.00
31.00	0.67	0.58	1.14	0.00	0.00	0.00
31.05	0.67	0.58	1.14	0.00	0.00	0.00
31.10	0.67	0.58	1.14	0.00	0.00	0.00
31.15	0.67	0.58	1.14	0.00	0.00	0.00
31.20	0.67	0.58	1.14	0.00	0.00	0.00
31.25	0.67	0.58	1.14	0.00	0.00	0.00
31.30	0.67	0.58	1.14	0.00	0.00	0.00
31.35	0.67	0.58	1.14	0.00	0.00	0.00
31.40	0.67	0.58	1.14	0.00	0.00	0.00
31.45	0.67	0.58	1.14	0.00	0.00	0.00
31.50	0.67	0.58	1.14	0.00	0.00	0.00
31.55	0.67	0.58	1.14	0.00	0.00	0.00
31.60	0.67	0.58	1.14	0.00	0.00	0.00
31.65	0.67	0.58	1.14	0.00	0.00	0.00
31.70	0.67	0.58	1.14	0.00	0.00	0.00
31.75	0.67	0.58	1.14	0.00	0.00	0.00
31.80	0.66	0.58	1.14	0.00	0.00	0.00
31.85	0.66	0.58	1.14	0.00	0.00	0.00
31.90	0.66	0.58	1.14	0.00	0.00	0.00
31.95	0.66	0.58	1.14	0.00	0.00	0.00
32.00	0.66	0.58	1.14	0.00	0.00	0.00
32.05	0.66	0.58	1.14	0.00	0.00	0.00
32.10	0.66	0.58	1.14	0.00	0.00	0.00
32.15	0.66	0.58	1.14	0.00	0.00	0.00
32.20	0.66	0.58	1.14	0.00	0.00	0.00
32.25	0.66	0.58	1.14	0.00	0.00	0.00
32.30	0.66	0.58	1.14	0.00	0.00	0.00
32.35	0.66	0.58	1.14	0.00	0.00	0.00
32.40	0.66	0.58	1.14	0.00	0.00	0.00
32.45	0.66	0.58	1.14	0.00	0.00	0.00
32.50	0.66	0.58	1.14	0.00	0.00	0.00
32.55	0.66	0.58	1.14	0.00	0.00	0.00
32.60	0.66	0.58	1.14	0.00	0.00	0.00
32.65	0.66	0.58	1.14	0.00	0.00	0.00
32.70	0.66	0.58	1.14	0.00	0.00	0.00
32.75	0.66	0.58	1.14	0.00	0.00	0.00
32.80	0.66	0.58	1.14	0.00	0.00	0.00
32.85	0.66	0.58	1.14	0.00	0.00	0.00
32.90	0.66	0.58	1.13	0.00	0.00	0.00
32.95	0.66	0.58	1.13	0.00	0.00	0.00
33.00	0.66	0.58	1.13	0.00	0.00	0.00
33.05	0.66	0.58	1.13	0.00	0.00	0.00
33.10	0.66	0.58	1.13	0.00	0.00	0.00
33.15	0.66	0.58	1.13	0.00	0.00	0.00
33.20	0.66	0.58	1.13	0.00	0.00	0.00
33.25	0.66	0.58	1.13	0.00	0.00	0.00
33.30	0.66	0.58	1.13	0.00	0.00	0.00
33.35	0.66	0.58	1.13	0.00	0.00	0.00
33.40	0.66	0.58	1.13	0.00	0.00	0.00
33.45	0.66	0.58	1.13	0.00	0.00	0.00
33.50	0.66	0.58	1.13	0.00	0.00	0.00

33.55	0.66	0.58	1.13	0.00	0.00	0.00
33.60	0.66	0.58	1.13	0.00	0.00	0.00
33.65	0.66	0.58	1.13	0.00	0.00	0.00
33.70	0.66	0.58	1.13	0.00	0.00	0.00
33.75	0.66	0.58	1.13	0.00	0.00	0.00
33.80	0.66	0.58	1.13	0.00	0.00	0.00
33.85	0.66	0.58	1.13	0.00	0.00	0.00
33.90	0.66	0.58	1.13	0.00	0.00	0.00
33.95	0.66	0.58	1.13	0.00	0.00	0.00
34.00	0.66	0.58	1.13	0.00	0.00	0.00
34.05	0.66	0.58	1.13	0.00	0.00	0.00
34.10	0.66	0.58	1.13	0.00	0.00	0.00
34.15	0.66	0.58	1.13	0.00	0.00	0.00
34.20	0.66	0.58	1.13	0.00	0.00	0.00
34.25	0.66	0.58	1.13	0.00	0.00	0.00
34.30	0.66	0.58	1.13	0.00	0.00	0.00
34.35	0.66	0.58	1.13	0.00	0.00	0.00
34.40	0.66	0.58	1.13	0.00	0.00	0.00
34.45	0.65	0.58	1.13	0.00	0.00	0.00
34.50	0.65	0.58	1.13	0.00	0.00	0.00
34.55	0.65	0.58	1.13	0.00	0.00	0.00
34.60	0.65	0.58	1.13	0.00	0.00	0.00
34.65	0.65	0.58	1.13	0.00	0.00	0.00
34.70	0.65	0.58	1.13	0.00	0.00	0.00
34.75	0.65	0.58	1.13	0.00	0.00	0.00
34.80	0.65	0.58	1.13	0.00	0.00	0.00
34.85	0.65	0.58	1.13	0.00	0.00	0.00
34.90	0.65	0.58	1.13	0.00	0.00	0.00
34.95	0.65	0.58	1.13	0.00	0.00	0.00
35.00	0.65	0.58	1.13	0.00	0.00	0.00
35.05	0.65	0.58	1.13	0.00	0.00	0.00
35.10	0.65	0.58	1.12	0.00	0.00	0.00
35.15	0.65	0.58	1.12	0.00	0.00	0.00
35.20	0.65	0.58	1.12	0.00	0.00	0.00
35.25	0.65	0.58	1.12	0.00	0.00	0.00
35.30	0.65	0.58	1.12	0.00	0.00	0.00
35.35	0.65	0.58	1.12	0.00	0.00	0.00
35.40	0.65	0.58	1.12	0.00	0.00	0.00
35.45	0.65	0.58	1.12	0.00	0.00	0.00
35.50	0.65	0.58	1.12	0.00	0.00	0.00
35.55	0.65	0.58	1.12	0.00	0.00	0.00
35.60	0.65	0.58	1.12	0.00	0.00	0.00
35.65	0.65	0.58	1.12	0.00	0.00	0.00
35.70	0.65	0.58	1.12	0.00	0.00	0.00
35.75	0.65	0.58	1.12	0.00	0.00	0.00
35.80	0.65	0.58	1.12	0.00	0.00	0.00
35.85	0.65	0.58	1.12	0.00	0.00	0.00
35.90	0.65	0.58	1.12	0.00	0.00	0.00
35.95	0.65	0.58	1.12	0.00	0.00	0.00
36.00	0.65	0.58	1.12	0.00	0.00	0.00
36.05	0.65	0.58	1.12	0.00	0.00	0.00
36.10	0.65	0.58	1.12	0.00	0.00	0.00
36.15	0.65	0.58	1.12	0.00	0.00	0.00
36.20	0.65	0.58	1.12	0.00	0.00	0.00
36.25	0.65	0.58	1.12	0.00	0.00	0.00
36.30	0.65	0.58	1.12	0.00	0.00	0.00
36.35	0.65	0.58	1.12	0.00	0.00	0.00
36.40	0.65	0.58	1.12	0.00	0.00	0.00
36.45	0.65	0.58	1.12	0.00	0.00	0.00
36.50	0.65	0.58	1.12	0.00	0.00	0.00
36.55	0.65	0.58	1.12	0.00	0.00	0.00
36.60	0.65	0.58	1.12	0.00	0.00	0.00
36.65	0.65	0.58	1.12	0.00	0.00	0.00

36.70	0.65	0.58	1.12	0.00	0.00	0.00
36.75	0.65	0.58	1.12	0.00	0.00	0.00
36.80	0.65	0.58	1.12	0.00	0.00	0.00
36.85	0.65	0.58	1.12	0.00	0.00	0.00
36.90	0.65	0.58	1.12	0.00	0.00	0.00
36.95	0.65	0.58	1.12	0.00	0.00	0.00
37.00	0.65	0.58	1.12	0.00	0.00	0.00
37.05	0.65	0.58	1.12	0.00	0.00	0.00
37.10	0.65	0.58	1.12	0.00	0.00	0.00
37.15	0.65	0.58	1.12	0.00	0.00	0.00
37.20	0.65	0.58	1.12	0.00	0.00	0.00
37.25	0.65	0.58	1.12	0.00	0.00	0.00
37.30	0.65	0.58	1.12	0.00	0.00	0.00
37.35	0.65	0.58	1.12	0.00	0.00	0.00
37.40	0.65	0.58	1.12	0.00	0.00	0.00
37.45	0.65	0.58	1.12	0.00	0.00	0.00
37.50	0.64	0.58	1.12	0.00	0.00	0.00
37.55	0.64	0.58	1.12	0.00	0.00	0.00
37.60	0.64	0.58	1.12	0.00	0.00	0.00
37.65	0.64	0.58	1.11	0.00	0.00	0.00
37.70	0.64	0.58	1.11	0.00	0.00	0.00
37.75	0.64	0.58	1.11	0.00	0.00	0.00
37.80	0.64	0.58	1.11	0.00	0.00	0.00
37.85	0.64	0.58	1.11	0.00	0.00	0.00
37.90	0.64	0.58	1.11	0.00	0.00	0.00
37.95	0.64	0.58	1.11	0.00	0.00	0.00
38.00	0.64	0.58	1.11	0.00	0.00	0.00
38.05	0.64	0.58	1.11	0.00	0.00	0.00
38.10	0.64	0.58	1.11	0.00	0.00	0.00
38.15	0.64	0.58	1.11	0.00	0.00	0.00
38.20	0.64	0.58	1.11	0.00	0.00	0.00
38.25	0.64	0.58	1.11	0.00	0.00	0.00
38.30	0.64	0.58	1.11	0.00	0.00	0.00
38.35	0.64	0.58	1.11	0.00	0.00	0.00
38.40	0.64	0.58	1.11	0.00	0.00	0.00
38.45	0.64	0.58	1.11	0.00	0.00	0.00
38.50	0.64	0.58	1.11	0.00	0.00	0.00
38.55	0.64	0.58	1.11	0.00	0.00	0.00
38.60	0.64	0.58	1.11	0.00	0.00	0.00
38.65	0.64	0.58	1.11	0.00	0.00	0.00
38.70	0.64	0.58	1.11	0.00	0.00	0.00
38.75	0.64	0.58	1.11	0.00	0.00	0.00
38.80	0.64	0.58	1.11	0.00	0.00	0.00
38.85	0.64	0.58	1.11	0.00	0.00	0.00
38.90	0.64	0.58	1.11	0.00	0.00	0.00
38.95	0.64	0.58	1.11	0.00	0.00	0.00
39.00	0.64	0.58	1.11	0.00	0.00	0.00
39.05	0.64	0.58	1.11	0.00	0.00	0.00
39.10	0.64	0.58	1.11	0.00	0.00	0.00
39.15	0.64	0.58	1.11	0.00	0.00	0.00
39.20	0.64	0.58	1.11	0.00	0.00	0.00
39.25	0.64	0.58	1.11	0.00	0.00	0.00
39.30	0.64	0.58	1.11	0.00	0.00	0.00
39.35	0.64	0.58	1.11	0.00	0.00	0.00
39.40	0.64	0.58	1.11	0.00	0.00	0.00
39.45	0.64	0.58	1.11	0.00	0.00	0.00
39.50	0.64	0.58	1.11	0.00	0.00	0.00
39.55	0.64	0.58	1.11	0.00	0.00	0.00
39.60	0.64	0.58	1.11	0.00	0.00	0.00
39.65	0.64	0.58	1.11	0.00	0.00	0.00
39.70	0.64	0.58	1.11	0.00	0.00	0.00
39.75	0.64	0.58	1.11	0.00	0.00	0.00
39.80	0.64	0.58	1.11	0.00	0.00	0.00

39.85	0.64	0.58	1.11	0.00	0.00	0.00
39.90	0.64	0.57	1.11	0.00	0.00	0.00
39.95	0.64	0.57	1.11	0.00	0.00	0.00
40.00	0.64	0.57	1.11	0.00	0.00	0.00
40.05	0.64	0.57	1.11	0.00	0.00	0.00
40.10	0.64	0.57	1.11	0.00	0.00	0.00
40.15	0.64	0.57	1.11	0.00	0.00	0.00
40.20	0.64	0.57	1.11	0.00	0.00	0.00
40.25	0.64	0.57	1.11	0.00	0.00	0.00
40.30	0.64	0.57	1.11	0.00	0.00	0.00
40.35	0.64	0.57	1.11	0.00	0.00	0.00
40.40	0.64	0.57	1.11	0.00	0.00	0.00
40.45	0.64	0.57	1.11	0.00	0.00	0.00
40.50	0.64	0.57	1.11	0.00	0.00	0.00
40.55	0.64	0.57	1.11	0.00	0.00	0.00
40.60	0.64	0.57	1.11	0.00	0.00	0.00
40.65	0.64	0.57	1.11	0.00	0.00	0.00
40.70	0.63	0.57	1.11	0.00	0.00	0.00
40.75	0.63	0.57	1.11	0.00	0.00	0.00
40.80	0.63	0.57	1.11	0.00	0.00	0.00
40.85	0.63	0.57	1.11	0.00	0.00	0.00
40.90	0.63	0.57	1.11	0.00	0.00	0.00
40.95	0.63	0.57	1.11	0.00	0.00	0.00
41.00	0.63	0.57	1.11	0.00	0.00	0.00
41.05	0.63	0.57	1.11	0.00	0.00	0.00
41.10	0.63	0.57	1.11	0.00	0.00	0.00
41.15	0.63	0.57	1.11	0.00	0.00	0.00
41.20	0.63	0.57	1.11	0.00	0.00	0.00
41.25	0.63	0.57	1.11	0.00	0.00	0.00
41.30	0.63	0.57	1.11	0.00	0.00	0.00
41.35	0.63	0.57	1.11	0.00	0.00	0.00
41.40	0.63	0.57	1.11	0.00	0.00	0.00
41.45	0.63	0.57	1.11	0.00	0.00	0.00
41.50	0.63	0.57	1.11	0.00	0.00	0.00
41.55	0.63	0.57	1.11	0.00	0.00	0.00
41.60	0.63	0.57	1.11	0.00	0.00	0.00
41.65	0.63	0.57	1.11	0.00	0.00	0.00
41.70	0.63	0.57	1.11	0.00	0.00	0.00
41.75	0.63	0.57	1.11	0.00	0.00	0.00
41.80	0.63	0.57	1.11	0.00	0.00	0.00
41.85	0.63	0.57	1.11	0.00	0.00	0.00
41.90	0.63	0.57	1.11	0.00	0.00	0.00
41.95	0.63	0.57	1.11	0.00	0.00	0.00
42.00	0.63	0.57	1.11	0.00	0.00	0.00
42.05	0.63	0.57	1.11	0.00	0.00	0.00
42.10	0.63	0.57	1.11	0.00	0.00	0.00
42.15	0.63	0.57	1.11	0.00	0.00	0.00
42.20	0.63	0.57	1.11	0.00	0.00	0.00
42.25	0.63	0.57	1.11	0.00	0.00	0.00
42.30	0.63	0.57	1.11	0.00	0.00	0.00
42.35	0.63	0.57	1.11	0.00	0.00	0.00
42.40	0.63	0.57	1.11	0.00	0.00	0.00
42.45	0.63	0.57	1.11	0.00	0.00	0.00
42.50	0.63	0.57	1.11	0.00	0.00	0.00
42.55	0.63	0.57	1.11	0.00	0.00	0.00
42.60	0.63	0.57	1.11	0.00	0.00	0.00
42.65	0.63	0.57	1.11	0.00	0.00	0.00
42.70	0.63	0.57	1.11	0.00	0.00	0.00
42.75	0.63	0.57	1.11	0.00	0.00	0.00
42.80	0.63	0.57	1.11	0.00	0.00	0.00
42.85	0.63	0.57	1.11	0.00	0.00	0.00
42.90	0.63	0.57	1.11	0.00	0.00	0.00
42.95	0.63	0.57	1.11	0.00	0.00	0.00

43.00	0.63	0.57	1.11	0.00	0.00	0.00
43.05	0.63	0.57	1.11	0.00	0.00	0.00
43.10	0.63	0.57	1.11	0.00	0.00	0.00
43.15	0.63	0.57	1.11	0.00	0.00	0.00
43.20	0.63	0.57	1.11	0.00	0.00	0.00
43.25	0.63	0.57	1.11	0.00	0.00	0.00
43.30	0.63	0.57	1.11	0.00	0.00	0.00
43.35	0.63	0.57	1.11	0.00	0.00	0.00
43.40	0.63	0.57	1.11	0.00	0.00	0.00
43.45	0.63	0.57	1.11	0.00	0.00	0.00
43.50	0.63	0.57	1.11	0.00	0.00	0.00
43.55	0.63	0.57	1.11	0.00	0.00	0.00
43.60	0.63	0.57	1.11	0.00	0.00	0.00
43.65	0.63	0.57	1.11	0.00	0.00	0.00
43.70	0.63	0.57	1.11	0.00	0.00	0.00
43.75	0.63	0.57	1.11	0.00	0.00	0.00
43.80	0.62	0.57	1.11	0.00	0.00	0.00
43.85	0.62	0.57	1.11	0.00	0.00	0.00
43.90	0.62	0.56	1.11	0.00	0.00	0.00
43.95	0.62	0.56	1.11	0.00	0.00	0.00
44.00	0.62	0.56	1.11	0.00	0.00	0.00
44.05	0.62	0.56	1.11	0.00	0.00	0.00
44.10	0.62	0.56	1.11	0.00	0.00	0.00
44.15	0.62	0.56	1.11	0.00	0.00	0.00
44.20	0.62	0.56	1.11	0.00	0.00	0.00
44.25	0.62	0.56	1.11	0.00	0.00	0.00
44.30	0.62	0.56	1.11	0.00	0.00	0.00
44.35	0.62	0.56	1.11	0.00	0.00	0.00
44.40	0.62	0.56	1.11	0.00	0.00	0.00
44.45	0.62	0.56	1.11	0.00	0.00	0.00
44.50	0.62	0.56	1.11	0.00	0.00	0.00
44.55	0.62	0.56	1.11	0.00	0.00	0.00
44.60	0.62	0.56	1.11	0.00	0.00	0.00
44.65	0.62	0.56	1.11	0.00	0.00	0.00
44.70	0.62	0.56	1.11	0.00	0.00	0.00
44.75	0.62	0.56	1.11	0.00	0.00	0.00
44.80	0.62	0.56	1.11	0.00	0.00	0.00
44.85	0.62	0.56	1.11	0.00	0.00	0.00
44.90	0.62	0.56	1.11	0.00	0.00	0.00
44.95	0.62	0.56	1.11	0.00	0.00	0.00
45.00	0.62	0.56	1.11	0.00	0.00	0.00
45.05	0.62	0.56	1.11	0.00	0.00	0.00
45.10	0.62	0.56	1.11	0.00	0.00	0.00
45.15	0.62	0.56	1.11	0.00	0.00	0.00
45.20	0.62	0.56	1.11	0.00	0.00	0.00
45.25	0.62	0.56	1.11	0.00	0.00	0.00
45.30	0.62	0.56	1.11	0.00	0.00	0.00
45.35	0.62	0.56	1.11	0.00	0.00	0.00
45.40	0.62	0.56	1.11	0.00	0.00	0.00
45.45	0.62	0.56	1.11	0.00	0.00	0.00
45.50	0.62	0.56	1.11	0.00	0.00	0.00
45.55	0.62	0.56	1.11	0.00	0.00	0.00
45.60	0.62	0.56	1.11	0.00	0.00	0.00
45.65	0.62	0.56	1.11	0.00	0.00	0.00
45.70	0.62	0.56	1.11	0.00	0.00	0.00
45.75	0.62	0.56	1.11	0.00	0.00	0.00
45.80	0.62	0.56	1.11	0.00	0.00	0.00
45.85	0.62	0.56	1.11	0.00	0.00	0.00
45.90	0.62	0.56	1.11	0.00	0.00	0.00
45.95	0.62	0.56	1.11	0.00	0.00	0.00
46.00	0.62	0.56	1.11	0.00	0.00	0.00
46.05	0.62	0.56	1.11	0.00	0.00	0.00
46.10	0.62	0.56	1.11	0.00	0.00	0.00

46.15	0.62	0.56	1.11	0.00	0.00	0.00
46.20	0.62	0.56	1.11	0.00	0.00	0.00
46.25	0.62	0.56	1.11	0.00	0.00	0.00
46.30	0.62	0.56	1.11	0.00	0.00	0.00
46.35	0.62	0.56	1.11	0.00	0.00	0.00
46.40	0.62	0.56	1.11	0.00	0.00	0.00
46.45	0.62	0.55	1.11	0.00	0.00	0.00
46.50	0.62	0.55	1.11	0.00	0.00	0.00
46.55	0.62	0.55	1.11	0.00	0.00	0.00
46.60	0.62	0.55	1.11	0.00	0.00	0.00
46.65	0.62	0.55	1.11	0.00	0.00	0.00
46.70	0.62	0.55	1.11	0.00	0.00	0.00
46.75	0.61	0.55	1.11	0.00	0.00	0.00
46.80	0.61	0.55	1.11	0.00	0.00	0.00
46.85	0.61	0.55	1.11	0.00	0.00	0.00
46.90	0.61	0.55	1.11	0.00	0.00	0.00
46.95	0.61	0.55	1.11	0.00	0.00	0.00
47.00	0.61	0.55	1.11	0.00	0.00	0.00
47.05	0.61	0.55	1.11	0.00	0.00	0.00
47.10	0.61	0.55	1.11	0.00	0.00	0.00
47.15	0.61	0.55	1.11	0.00	0.00	0.00
47.20	0.61	0.55	1.11	0.00	0.00	0.00
47.25	0.61	0.55	1.11	0.00	0.00	0.00
47.30	0.61	0.55	1.11	0.00	0.00	0.00
47.35	0.61	0.55	1.11	0.00	0.00	0.00
47.40	0.61	0.55	1.11	0.00	0.00	0.00
47.45	0.61	0.55	1.11	0.00	0.00	0.00
47.50	0.61	0.55	1.11	0.00	0.00	0.00
47.55	0.61	0.55	1.11	0.00	0.00	0.00
47.60	0.61	0.55	1.11	0.00	0.00	0.00
47.65	0.61	0.55	1.11	0.00	0.00	0.00
47.70	0.61	0.55	1.11	0.00	0.00	0.00
47.75	0.61	0.55	1.11	0.00	0.00	0.00
47.80	0.61	0.55	1.11	0.00	0.00	0.00
47.85	0.61	0.55	1.11	0.00	0.00	0.00
47.90	0.61	0.55	1.11	0.00	0.00	0.00
47.95	0.61	0.55	1.11	0.00	0.00	0.00
48.00	0.61	0.55	1.11	0.00	0.00	0.00
48.05	0.61	0.55	1.11	0.00	0.00	0.00
48.10	0.61	0.55	1.11	0.00	0.00	0.00
48.15	0.61	0.55	1.11	0.00	0.00	0.00
48.20	0.61	0.55	1.11	0.00	0.00	0.00
48.25	0.61	0.55	1.11	0.00	0.00	0.00
48.30	0.61	0.55	1.11	0.00	0.00	0.00
48.35	0.61	0.55	1.12	0.00	0.00	0.00
48.40	0.61	0.55	1.12	0.00	0.00	0.00
48.45	0.61	0.55	1.12	0.00	0.00	0.00
48.50	0.61	0.55	1.12	0.00	0.00	0.00
48.55	0.61	0.55	1.12	0.00	0.00	0.00
48.60	0.61	0.55	1.12	0.00	0.00	0.00
48.65	0.61	0.55	1.12	0.00	0.00	0.00
48.70	0.61	0.55	1.12	0.00	0.00	0.00
48.75	0.61	0.54	1.12	0.00	0.00	0.00
48.80	0.61	0.54	1.12	0.00	0.00	0.00
48.85	0.61	0.54	1.12	0.00	0.00	0.00
48.90	0.61	0.54	1.12	0.00	0.00	0.00
48.95	0.61	0.54	1.12	0.00	0.00	0.00
49.00	0.61	0.54	1.12	0.00	0.00	0.00
49.05	0.61	0.54	1.12	0.00	0.00	0.00
49.10	0.61	0.54	1.12	0.00	0.00	0.00
49.15	0.61	0.54	1.12	0.00	0.00	0.00
49.20	0.61	0.54	1.12	0.00	0.00	0.00
49.25	0.61	0.54	1.12	0.00	0.00	0.00

49.30	0.61	0.54	1.12	0.00	0.00	0.00
49.35	0.61	0.54	1.12	0.00	0.00	0.00
49.40	0.61	0.54	1.12	0.00	0.00	0.00
49.45	0.61	0.54	1.12	0.00	0.00	0.00
49.50	0.61	0.54	1.12	0.00	0.00	0.00
49.55	0.61	0.54	1.12	0.00	0.00	0.00
49.60	0.61	0.54	1.12	0.00	0.00	0.00
49.65	0.61	0.54	1.12	0.00	0.00	0.00
49.70	0.61	0.54	1.12	0.00	0.00	0.00
49.75	0.60	0.54	1.12	0.00	0.00	0.00
49.80	0.60	0.54	1.12	0.00	0.00	0.00
49.85	0.60	0.54	1.12	0.00	0.00	0.00
49.90	0.60	0.54	1.12	0.00	0.00	0.00
49.95	0.60	0.54	1.12	0.00	0.00	0.00
50.00	0.60	0.54	1.12	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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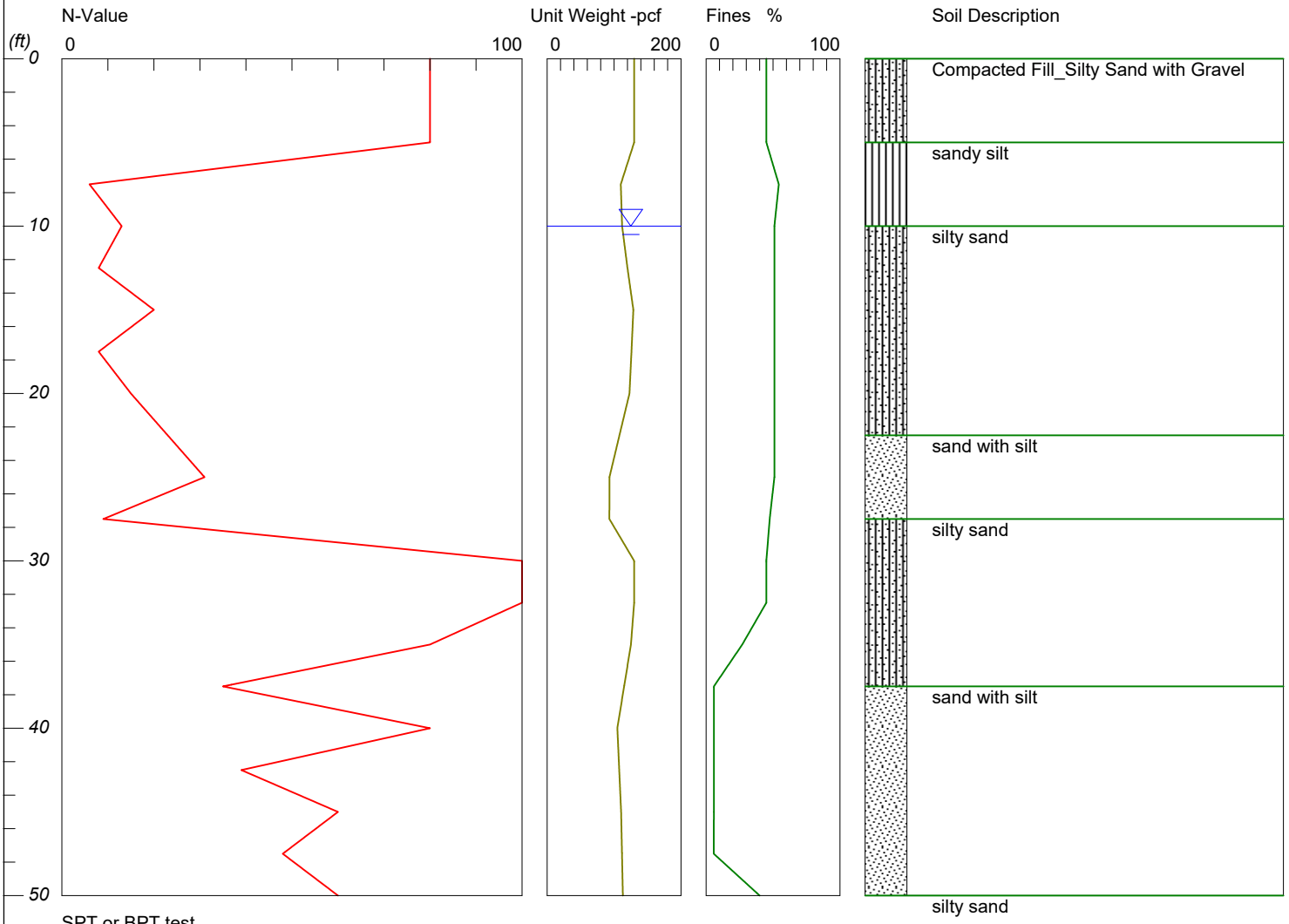
1 atm (atmosphere) = 1 tsf (ton/ft2)
CRRm Cyclic resistance ratio from soils
CSRsf Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat Settlement from saturated sands
S_dry Settlement from Unsaturated Sands
S_all Total Settlement from Saturated and Unsaturated Sands
NoLiq No-Liquefy Soils

LIQUEFACTION ANALYSIS

Copperleah El Monte

Hole No.=B-2 Water Depth=10 ft Surface Elev.=277

Magnitude=6.66
Acceleration=0.57g



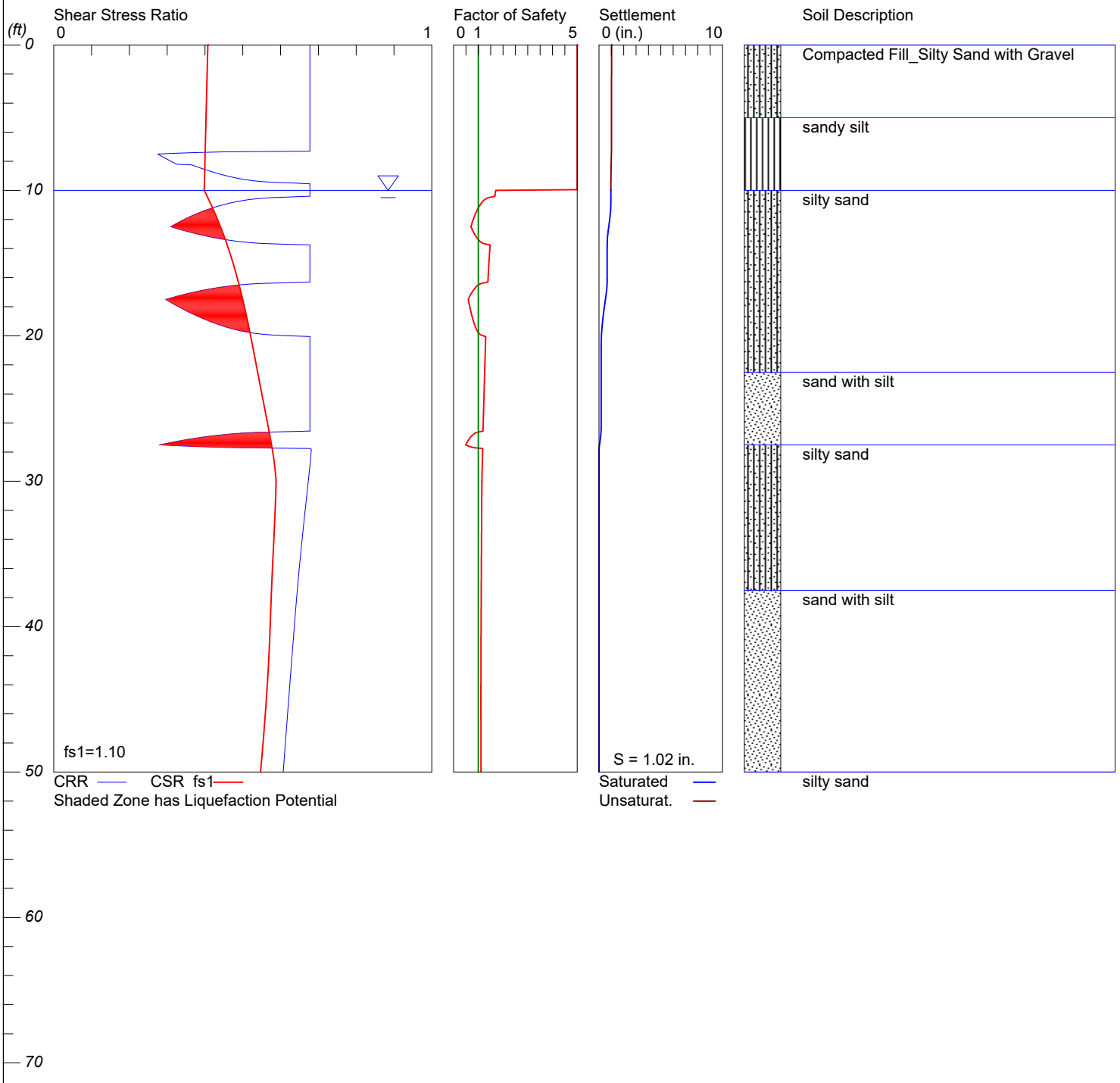
LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

Copperleah El Monte

Hole No.=B-2 Water Depth=10 ft Surface Elev.=277

Magnitude=6.66
Acceleration=0.57g



LiquefyPro CivilTech Software USA www.civiltech.com

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LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: G:_Projects\2019\19G-0075\Liquifaction Analysis\19G-0075-0_B2.liq
Title: Copperleah El Monte
Subtitle: 19G-0075-0

Surface Elev.=277
Hole No.=B-2
Depth of Hole= 50.00 ft
Water Table during Earthquake= 10.00 ft
Water Table during In-Situ Testing= 60.00 ft
Max. Acceleration= 0.57 g
Earthquake Magnitude= 6.66

Input Data:
Surface Elev.=277
Hole No.=B-2
Depth of Hole=50.00 ft
Water Table during Earthquake= 10.00 ft
Water Table during In-Situ Testing= 60.00 ft
Max. Acceleration=0.57 g
Earthquake Magnitude=6.66
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Stark/Olson et al.*
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1.15
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR) , User= 1.1
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	80.00	130.00	45.00
2.50	80.00	130.00	45.00
5.00	80.00	130.00	45.00
7.50	6.00	110.00	54.30
10.00	13.00	112.00	51.00
12.50	8.00	120.00	51.00
15.00	20.00	128.80	51.00
17.50	8.00	126.00	51.00
20.00	15.00	123.00	51.00
22.50	23.00	108.00	51.00

25.00	31.00	93.10	51.00
27.50	9.00	93.00	47.50
30.00	100.00	130.00	45.00
32.50	100.00	130.00	45.00
35.00	80.00	125.20	27.00
37.50	35.00	115.00	5.80
40.00	80.00	104.90	5.80
42.50	39.00	107.70	5.80
45.00	60.00	110.50	5.80
47.50	48.00	111.80	5.70
50.00	60.00	113.10	40.00

Output Results:

Settlement of Saturated Sands=0.96 in.
Settlement of Unsaturated Sands=0.05 in.
Total Settlement of Saturated and Unsaturated Sands=1.02 in.
Differential Settlement=0.508 to 0.671 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	0.68	0.41	5.00	0.96	0.05	1.02
0.05	0.68	0.41	5.00	0.96	0.05	1.02
0.10	0.68	0.41	5.00	0.96	0.05	1.02
0.15	0.68	0.41	5.00	0.96	0.05	1.02
0.20	0.68	0.41	5.00	0.96	0.05	1.02
0.25	0.68	0.41	5.00	0.96	0.05	1.02
0.30	0.68	0.41	5.00	0.96	0.05	1.02
0.35	0.68	0.41	5.00	0.96	0.05	1.02
0.40	0.68	0.41	5.00	0.96	0.05	1.02
0.45	0.68	0.41	5.00	0.96	0.05	1.02
0.50	0.68	0.41	5.00	0.96	0.05	1.02
0.55	0.68	0.41	5.00	0.96	0.05	1.02
0.60	0.68	0.41	5.00	0.96	0.05	1.02
0.65	0.68	0.41	5.00	0.96	0.05	1.02
0.70	0.68	0.41	5.00	0.96	0.05	1.02
0.75	0.68	0.41	5.00	0.96	0.05	1.02
0.80	0.68	0.41	5.00	0.96	0.05	1.02
0.85	0.68	0.41	5.00	0.96	0.05	1.02
0.90	0.68	0.41	5.00	0.96	0.05	1.02
0.95	0.68	0.41	5.00	0.96	0.05	1.02
1.00	0.68	0.41	5.00	0.96	0.05	1.02
1.05	0.68	0.41	5.00	0.96	0.05	1.02
1.10	0.68	0.41	5.00	0.96	0.05	1.02
1.15	0.68	0.41	5.00	0.96	0.05	1.02
1.20	0.68	0.41	5.00	0.96	0.05	1.02
1.25	0.68	0.41	5.00	0.96	0.05	1.02
1.30	0.68	0.41	5.00	0.96	0.05	1.02
1.35	0.68	0.41	5.00	0.96	0.05	1.02
1.40	0.68	0.41	5.00	0.96	0.05	1.02
1.45	0.68	0.41	5.00	0.96	0.05	1.02
1.50	0.68	0.41	5.00	0.96	0.05	1.02
1.55	0.68	0.41	5.00	0.96	0.05	1.02
1.60	0.68	0.41	5.00	0.96	0.05	1.02
1.65	0.68	0.41	5.00	0.96	0.05	1.02
1.70	0.68	0.41	5.00	0.96	0.05	1.02
1.75	0.68	0.41	5.00	0.96	0.05	1.02
1.80	0.68	0.41	5.00	0.96	0.05	1.02
1.85	0.68	0.41	5.00	0.96	0.05	1.02
1.90	0.68	0.41	5.00	0.96	0.05	1.02
1.95	0.68	0.41	5.00	0.96	0.05	1.01
2.00	0.68	0.41	5.00	0.96	0.05	1.01

2.05	0.68	0.41	5.00	0.96	0.05	1.01
2.10	0.68	0.41	5.00	0.96	0.05	1.01
2.15	0.68	0.41	5.00	0.96	0.05	1.01
2.20	0.68	0.41	5.00	0.96	0.05	1.01
2.25	0.68	0.41	5.00	0.96	0.05	1.01
2.30	0.68	0.41	5.00	0.96	0.05	1.01
2.35	0.68	0.41	5.00	0.96	0.05	1.01
2.40	0.68	0.41	5.00	0.96	0.05	1.01
2.45	0.68	0.41	5.00	0.96	0.05	1.01
2.50	0.68	0.41	5.00	0.96	0.05	1.01
2.55	0.68	0.41	5.00	0.96	0.05	1.01
2.60	0.68	0.41	5.00	0.96	0.05	1.01
2.65	0.68	0.41	5.00	0.96	0.05	1.01
2.70	0.68	0.40	5.00	0.96	0.05	1.01
2.75	0.68	0.40	5.00	0.96	0.05	1.01
2.80	0.68	0.40	5.00	0.96	0.05	1.01
2.85	0.68	0.40	5.00	0.96	0.05	1.01
2.90	0.68	0.40	5.00	0.96	0.05	1.01
2.95	0.68	0.40	5.00	0.96	0.05	1.01
3.00	0.68	0.40	5.00	0.96	0.05	1.01
3.05	0.68	0.40	5.00	0.96	0.05	1.01
3.10	0.68	0.40	5.00	0.96	0.05	1.01
3.15	0.68	0.40	5.00	0.96	0.05	1.01
3.20	0.68	0.40	5.00	0.96	0.05	1.01
3.25	0.68	0.40	5.00	0.96	0.05	1.01
3.30	0.68	0.40	5.00	0.96	0.05	1.01
3.35	0.68	0.40	5.00	0.96	0.05	1.01
3.40	0.68	0.40	5.00	0.96	0.05	1.01
3.45	0.68	0.40	5.00	0.96	0.05	1.01
3.50	0.68	0.40	5.00	0.96	0.05	1.01
3.55	0.68	0.40	5.00	0.96	0.05	1.01
3.60	0.68	0.40	5.00	0.96	0.05	1.01
3.65	0.68	0.40	5.00	0.96	0.05	1.01
3.70	0.68	0.40	5.00	0.96	0.05	1.01
3.75	0.68	0.40	5.00	0.96	0.05	1.01
3.80	0.68	0.40	5.00	0.96	0.05	1.01
3.85	0.68	0.40	5.00	0.96	0.05	1.01
3.90	0.68	0.40	5.00	0.96	0.05	1.01
3.95	0.68	0.40	5.00	0.96	0.05	1.01
4.00	0.68	0.40	5.00	0.96	0.05	1.01
4.05	0.68	0.40	5.00	0.96	0.05	1.01
4.10	0.68	0.40	5.00	0.96	0.05	1.01
4.15	0.68	0.40	5.00	0.96	0.05	1.01
4.20	0.68	0.40	5.00	0.96	0.05	1.01
4.25	0.68	0.40	5.00	0.96	0.05	1.01
4.30	0.68	0.40	5.00	0.96	0.05	1.01
4.35	0.68	0.40	5.00	0.96	0.05	1.01
4.40	0.68	0.40	5.00	0.96	0.05	1.01
4.45	0.68	0.40	5.00	0.96	0.05	1.01
4.50	0.68	0.40	5.00	0.96	0.05	1.01
4.55	0.68	0.40	5.00	0.96	0.05	1.01
4.60	0.68	0.40	5.00	0.96	0.05	1.01
4.65	0.68	0.40	5.00	0.96	0.05	1.01
4.70	0.68	0.40	5.00	0.96	0.05	1.01
4.75	0.68	0.40	5.00	0.96	0.05	1.01
4.80	0.68	0.40	5.00	0.96	0.05	1.01
4.85	0.68	0.40	5.00	0.96	0.05	1.01
4.90	0.68	0.40	5.00	0.96	0.05	1.01
4.95	0.68	0.40	5.00	0.96	0.05	1.01
5.00	0.68	0.40	5.00	0.96	0.05	1.01
5.05	0.68	0.40	5.00	0.96	0.05	1.01
5.10	0.68	0.40	5.00	0.96	0.05	1.01
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5.25	0.68	0.40	5.00	0.96	0.05	1.01
5.30	0.68	0.40	5.00	0.96	0.05	1.01
5.35	0.68	0.40	5.00	0.96	0.05	1.01
5.40	0.68	0.40	5.00	0.96	0.05	1.01
5.45	0.68	0.40	5.00	0.96	0.05	1.01
5.50	0.68	0.40	5.00	0.96	0.05	1.01
5.55	0.68	0.40	5.00	0.96	0.05	1.01
5.60	0.68	0.40	5.00	0.96	0.05	1.01
5.65	0.68	0.40	5.00	0.96	0.05	1.01
5.70	0.68	0.40	5.00	0.96	0.05	1.01
5.75	0.68	0.40	5.00	0.96	0.05	1.01
5.80	0.68	0.40	5.00	0.96	0.05	1.01
5.85	0.68	0.40	5.00	0.96	0.05	1.01
5.90	0.68	0.40	5.00	0.96	0.05	1.01
5.95	0.68	0.40	5.00	0.96	0.05	1.01
6.00	0.68	0.40	5.00	0.96	0.05	1.01
6.05	0.68	0.40	5.00	0.96	0.05	1.01
6.10	0.68	0.40	5.00	0.96	0.05	1.01
6.15	0.68	0.40	5.00	0.96	0.05	1.01
6.20	0.68	0.40	5.00	0.96	0.05	1.01
6.25	0.68	0.40	5.00	0.96	0.05	1.01
6.30	0.68	0.40	5.00	0.96	0.05	1.01
6.35	0.68	0.40	5.00	0.96	0.05	1.01
6.40	0.68	0.40	5.00	0.96	0.05	1.01
6.45	0.68	0.40	5.00	0.96	0.05	1.01
6.50	0.68	0.40	5.00	0.96	0.05	1.01
6.55	0.68	0.40	5.00	0.96	0.05	1.01
6.60	0.68	0.40	5.00	0.96	0.05	1.01
6.65	0.68	0.40	5.00	0.96	0.05	1.01
6.70	0.68	0.40	5.00	0.96	0.05	1.01
6.75	0.68	0.40	5.00	0.96	0.05	1.01
6.80	0.68	0.40	5.00	0.96	0.05	1.01
6.85	0.68	0.40	5.00	0.96	0.05	1.01
6.90	0.68	0.40	5.00	0.96	0.05	1.01
6.95	0.68	0.40	5.00	0.96	0.05	1.01
7.00	0.68	0.40	5.00	0.96	0.05	1.01
7.05	0.68	0.40	5.00	0.96	0.05	1.01
7.10	0.68	0.40	5.00	0.96	0.05	1.01
7.15	0.68	0.40	5.00	0.96	0.05	1.01
7.20	0.68	0.40	5.00	0.96	0.05	1.01
7.25	0.68	0.40	5.00	0.96	0.05	1.01
7.30	0.68	0.40	5.00	0.96	0.05	1.01
7.35	0.45	0.40	5.00	0.96	0.04	1.01
7.40	0.37	0.40	5.00	0.96	0.04	1.01
7.45	0.32	0.40	5.00	0.96	0.04	1.01
7.50	0.27	0.40	5.00	0.96	0.04	1.00
7.55	0.28	0.40	5.00	0.96	0.04	1.00
7.60	0.28	0.40	5.00	0.96	0.04	1.00
7.65	0.29	0.40	5.00	0.96	0.04	1.00
7.70	0.29	0.40	5.00	0.96	0.04	1.00
7.75	0.29	0.40	5.00	0.96	0.03	1.00
7.80	0.30	0.40	5.00	0.96	0.03	0.99
7.85	0.30	0.40	5.00	0.96	0.03	0.99
7.90	0.30	0.40	5.00	0.96	0.03	0.99
7.95	0.31	0.40	5.00	0.96	0.03	0.99
8.00	0.31	0.40	5.00	0.96	0.03	0.99
8.05	0.31	0.40	5.00	0.96	0.03	0.99
8.10	0.32	0.40	5.00	0.96	0.02	0.99
8.15	0.32	0.40	5.00	0.96	0.02	0.98
8.20	0.32	0.40	5.00	0.96	0.02	0.98
8.25	0.37	0.40	5.00	0.96	0.02	0.98
8.30	0.37	0.40	5.00	0.96	0.02	0.98

8.35	0.38	0.40	5.00	0.96	0.02	0.98
8.40	0.38	0.40	5.00	0.96	0.02	0.98
8.45	0.39	0.40	5.00	0.96	0.02	0.98
8.50	0.39	0.40	5.00	0.96	0.02	0.98
8.55	0.40	0.40	5.00	0.96	0.02	0.98
8.60	0.40	0.40	5.00	0.96	0.01	0.98
8.65	0.41	0.40	5.00	0.96	0.01	0.98
8.70	0.42	0.40	5.00	0.96	0.01	0.97
8.75	0.42	0.40	5.00	0.96	0.01	0.97
8.80	0.43	0.40	5.00	0.96	0.01	0.97
8.85	0.44	0.40	5.00	0.96	0.01	0.97
8.90	0.44	0.40	5.00	0.96	0.01	0.97
8.95	0.45	0.40	5.00	0.96	0.01	0.97
9.00	0.46	0.40	5.00	0.96	0.01	0.97
9.05	0.47	0.40	5.00	0.96	0.01	0.97
9.10	0.47	0.40	5.00	0.96	0.01	0.97
9.15	0.48	0.40	5.00	0.96	0.01	0.97
9.20	0.49	0.40	5.00	0.96	0.01	0.97
9.25	0.50	0.40	5.00	0.96	0.01	0.97
9.30	0.52	0.40	5.00	0.96	0.00	0.97
9.35	0.53	0.40	5.00	0.96	0.00	0.97
9.40	0.55	0.40	5.00	0.96	0.00	0.97
9.45	0.58	0.40	5.00	0.96	0.00	0.97
9.50	0.64	0.40	5.00	0.96	0.00	0.96
9.55	0.68	0.40	5.00	0.96	0.00	0.96
9.60	0.68	0.40	5.00	0.96	0.00	0.96
9.65	0.68	0.40	5.00	0.96	0.00	0.96
9.70	0.68	0.40	5.00	0.96	0.00	0.96
9.75	0.68	0.40	5.00	0.96	0.00	0.96
9.80	0.68	0.40	5.00	0.96	0.00	0.96
9.85	0.68	0.40	5.00	0.96	0.00	0.96
9.90	0.68	0.40	5.00	0.96	0.00	0.96
9.95	0.68	0.40	5.00	0.96	0.00	0.96
10.00	0.68	0.40	1.70	0.96	0.00	0.96
10.05	0.68	0.40	1.70	0.96	0.00	0.96
10.10	0.68	0.40	1.69	0.96	0.00	0.96
10.15	0.68	0.40	1.69	0.96	0.00	0.96
10.20	0.68	0.40	1.69	0.96	0.00	0.96
10.25	0.68	0.40	1.68	0.96	0.00	0.96
10.30	0.68	0.40	1.68	0.96	0.00	0.96
10.35	0.68	0.40	1.67	0.96	0.00	0.96
10.40	0.68	0.41	1.67	0.96	0.00	0.96
10.45	0.63	0.41	1.55	0.96	0.00	0.96
10.50	0.58	0.41	1.41	0.96	0.00	0.96
10.55	0.55	0.41	1.34	0.96	0.00	0.96
10.60	0.53	0.41	1.29	0.96	0.00	0.96
10.65	0.51	0.41	1.25	0.96	0.00	0.96
10.70	0.50	0.41	1.22	0.96	0.00	0.96
10.75	0.49	0.41	1.19	0.96	0.00	0.96
10.80	0.48	0.41	1.16	0.96	0.00	0.96
10.85	0.47	0.41	1.14	0.96	0.00	0.96
10.90	0.46	0.41	1.11	0.96	0.00	0.96
10.95	0.45	0.42	1.09	0.96	0.00	0.96
11.00	0.45	0.42	1.07	0.96	0.00	0.96
11.05	0.44	0.42	1.05	0.95	0.00	0.95
11.10	0.43	0.42	1.04	0.95	0.00	0.95
11.15	0.43	0.42	1.02	0.95	0.00	0.95
11.20	0.42	0.42	1.00	0.95	0.00	0.95
11.25	0.41	0.42	0.99*	0.95	0.00	0.95
11.30	0.41	0.42	0.97*	0.94	0.00	0.94
11.35	0.40	0.42	0.95*	0.94	0.00	0.94
11.40	0.40	0.42	0.94*	0.94	0.00	0.94
11.45	0.39	0.42	0.93*	0.93	0.00	0.93

11.50	0.39	0.43	0.91*	0.93	0.00	0.93
11.55	0.38	0.43	0.90*	0.92	0.00	0.92
11.60	0.38	0.43	0.89*	0.92	0.00	0.92
11.65	0.37	0.43	0.87*	0.91	0.00	0.91
11.70	0.37	0.43	0.86*	0.90	0.00	0.90
11.75	0.37	0.43	0.85*	0.90	0.00	0.90
11.80	0.36	0.43	0.84*	0.89	0.00	0.89
11.85	0.36	0.43	0.83*	0.88	0.00	0.88
11.90	0.35	0.43	0.82*	0.88	0.00	0.88
11.95	0.35	0.43	0.81*	0.87	0.00	0.87
12.00	0.34	0.43	0.80*	0.86	0.00	0.86
12.05	0.34	0.43	0.79*	0.86	0.00	0.86
12.10	0.34	0.43	0.78*	0.85	0.00	0.85
12.15	0.33	0.44	0.77*	0.84	0.00	0.84
12.20	0.33	0.44	0.76*	0.83	0.00	0.83
12.25	0.33	0.44	0.75*	0.83	0.00	0.83
12.30	0.32	0.44	0.74*	0.82	0.00	0.82
12.35	0.32	0.44	0.73*	0.81	0.00	0.81
12.40	0.32	0.44	0.72*	0.80	0.00	0.80
12.45	0.31	0.44	0.71*	0.80	0.00	0.80
12.50	0.31	0.44	0.70*	0.79	0.00	0.79
12.55	0.32	0.44	0.72*	0.78	0.00	0.78
12.60	0.32	0.44	0.73*	0.77	0.00	0.77
12.65	0.33	0.44	0.74*	0.76	0.00	0.76
12.70	0.34	0.44	0.76*	0.76	0.00	0.76
12.75	0.34	0.44	0.77*	0.75	0.00	0.75
12.80	0.35	0.45	0.78*	0.74	0.00	0.74
12.85	0.36	0.45	0.80*	0.73	0.00	0.73
12.90	0.36	0.45	0.81*	0.73	0.00	0.73
12.95	0.37	0.45	0.83*	0.72	0.00	0.72
13.00	0.38	0.45	0.85*	0.71	0.00	0.71
13.05	0.39	0.45	0.86*	0.71	0.00	0.71
13.10	0.40	0.45	0.88*	0.70	0.00	0.70
13.15	0.41	0.45	0.90*	0.70	0.00	0.70
13.20	0.41	0.45	0.92*	0.69	0.00	0.69
13.25	0.42	0.45	0.94*	0.69	0.00	0.69
13.30	0.43	0.45	0.96*	0.68	0.00	0.68
13.35	0.45	0.45	0.98*	0.68	0.00	0.68
13.40	0.46	0.45	1.01	0.67	0.00	0.67
13.45	0.47	0.45	1.04	0.67	0.00	0.67
13.50	0.49	0.46	1.07	0.67	0.00	0.67
13.55	0.50	0.46	1.10	0.67	0.00	0.67
13.60	0.52	0.46	1.14	0.67	0.00	0.67
13.65	0.55	0.46	1.21	0.66	0.00	0.66
13.70	0.61	0.46	1.33	0.66	0.00	0.66
13.75	0.68	0.46	1.48	0.66	0.00	0.66
13.80	0.68	0.46	1.47	0.66	0.00	0.66
13.85	0.68	0.46	1.47	0.66	0.00	0.66
13.90	0.68	0.46	1.47	0.66	0.00	0.66
13.95	0.68	0.46	1.47	0.66	0.00	0.66
14.00	0.68	0.46	1.47	0.66	0.00	0.66
14.05	0.68	0.46	1.46	0.66	0.00	0.66
14.10	0.68	0.46	1.46	0.66	0.00	0.66
14.15	0.68	0.46	1.46	0.66	0.00	0.66
14.20	0.68	0.46	1.46	0.66	0.00	0.66
14.25	0.68	0.47	1.46	0.66	0.00	0.66
14.30	0.68	0.47	1.45	0.66	0.00	0.66
14.35	0.68	0.47	1.45	0.66	0.00	0.66
14.40	0.68	0.47	1.45	0.66	0.00	0.66
14.45	0.68	0.47	1.45	0.66	0.00	0.66
14.50	0.68	0.47	1.45	0.66	0.00	0.66
14.55	0.68	0.47	1.44	0.66	0.00	0.66
14.60	0.68	0.47	1.44	0.66	0.00	0.66

14.65	0.68	0.47	1.44	0.66	0.00	0.66
14.70	0.68	0.47	1.44	0.66	0.00	0.66
14.75	0.68	0.47	1.44	0.66	0.00	0.66
14.80	0.68	0.47	1.44	0.66	0.00	0.66
14.85	0.68	0.47	1.43	0.66	0.00	0.66
14.90	0.68	0.47	1.43	0.66	0.00	0.66
14.95	0.68	0.47	1.43	0.66	0.00	0.66
15.00	0.68	0.47	1.43	0.66	0.00	0.66
15.05	0.68	0.47	1.43	0.66	0.00	0.66
15.10	0.68	0.48	1.43	0.66	0.00	0.66
15.15	0.68	0.48	1.42	0.66	0.00	0.66
15.20	0.68	0.48	1.42	0.66	0.00	0.66
15.25	0.68	0.48	1.42	0.66	0.00	0.66
15.30	0.68	0.48	1.42	0.66	0.00	0.66
15.35	0.68	0.48	1.42	0.66	0.00	0.66
15.40	0.68	0.48	1.42	0.66	0.00	0.66
15.45	0.68	0.48	1.41	0.66	0.00	0.66
15.50	0.68	0.48	1.41	0.66	0.00	0.66
15.55	0.68	0.48	1.41	0.66	0.00	0.66
15.60	0.68	0.48	1.41	0.66	0.00	0.66
15.65	0.68	0.48	1.41	0.66	0.00	0.66
15.70	0.68	0.48	1.41	0.66	0.00	0.66
15.75	0.68	0.48	1.40	0.66	0.00	0.66
15.80	0.68	0.48	1.40	0.66	0.00	0.66
15.85	0.68	0.48	1.40	0.66	0.00	0.66
15.90	0.68	0.48	1.40	0.66	0.00	0.66
15.95	0.68	0.48	1.40	0.66	0.00	0.66
16.00	0.68	0.49	1.40	0.66	0.00	0.66
16.05	0.68	0.49	1.39	0.66	0.00	0.66
16.10	0.68	0.49	1.39	0.66	0.00	0.66
16.15	0.68	0.49	1.39	0.66	0.00	0.66
16.20	0.68	0.49	1.39	0.66	0.00	0.66
16.25	0.68	0.49	1.39	0.66	0.00	0.66
16.30	0.68	0.49	1.39	0.66	0.00	0.66
16.35	0.62	0.49	1.26	0.66	0.00	0.66
16.40	0.55	0.49	1.12	0.66	0.00	0.66
16.45	0.51	0.49	1.05	0.65	0.00	0.65
16.50	0.49	0.49	1.00	0.65	0.00	0.65
16.55	0.47	0.49	0.96*	0.65	0.00	0.65
16.60	0.46	0.49	0.93*	0.64	0.00	0.64
16.65	0.44	0.49	0.90*	0.64	0.00	0.64
16.70	0.43	0.49	0.88*	0.63	0.00	0.63
16.75	0.42	0.49	0.85*	0.63	0.00	0.63
16.80	0.41	0.49	0.83*	0.62	0.00	0.62
16.85	0.40	0.49	0.81*	0.62	0.00	0.62
16.90	0.39	0.49	0.78*	0.61	0.00	0.61
16.95	0.38	0.49	0.77*	0.60	0.00	0.60
17.00	0.37	0.50	0.75*	0.60	0.00	0.60
17.05	0.36	0.50	0.73*	0.59	0.00	0.59
17.10	0.35	0.50	0.71*	0.58	0.00	0.58
17.15	0.35	0.50	0.69*	0.58	0.00	0.58
17.20	0.34	0.50	0.68*	0.57	0.00	0.57
17.25	0.33	0.50	0.66*	0.56	0.00	0.56
17.30	0.32	0.50	0.65*	0.55	0.00	0.55
17.35	0.32	0.50	0.63*	0.54	0.00	0.54
17.40	0.31	0.50	0.62*	0.54	0.00	0.54
17.45	0.30	0.50	0.61*	0.53	0.00	0.53
17.50	0.30	0.50	0.59*	0.52	0.00	0.52
17.55	0.30	0.50	0.60*	0.51	0.00	0.51
17.60	0.30	0.50	0.60*	0.50	0.00	0.50
17.65	0.31	0.50	0.61*	0.49	0.00	0.49
17.70	0.31	0.50	0.62*	0.48	0.00	0.48
17.75	0.31	0.50	0.62*	0.48	0.00	0.48

17.80	0.32	0.50	0.63*	0.47	0.00	0.47
17.85	0.32	0.50	0.64*	0.46	0.00	0.46
17.90	0.32	0.50	0.64*	0.45	0.00	0.45
17.95	0.33	0.50	0.65*	0.44	0.00	0.44
18.00	0.33	0.50	0.65*	0.43	0.00	0.43
18.05	0.33	0.50	0.66*	0.43	0.00	0.43
18.10	0.34	0.51	0.67*	0.42	0.00	0.42
18.15	0.34	0.51	0.67*	0.41	0.00	0.41
18.20	0.34	0.51	0.68*	0.40	0.00	0.40
18.25	0.35	0.51	0.69*	0.40	0.00	0.40
18.30	0.35	0.51	0.69*	0.39	0.00	0.39
18.35	0.36	0.51	0.70*	0.38	0.00	0.38
18.40	0.36	0.51	0.71*	0.37	0.00	0.37
18.45	0.36	0.51	0.72*	0.37	0.00	0.37
18.50	0.37	0.51	0.72*	0.36	0.00	0.36
18.55	0.37	0.51	0.73*	0.35	0.00	0.35
18.60	0.38	0.51	0.74*	0.35	0.00	0.35
18.65	0.38	0.51	0.75*	0.34	0.00	0.34
18.70	0.38	0.51	0.75*	0.33	0.00	0.33
18.75	0.39	0.51	0.76*	0.33	0.00	0.33
18.80	0.39	0.51	0.77*	0.32	0.00	0.32
18.85	0.40	0.51	0.78*	0.31	0.00	0.31
18.90	0.40	0.51	0.79*	0.31	0.00	0.31
18.95	0.41	0.51	0.79*	0.30	0.00	0.30
19.00	0.41	0.51	0.80*	0.29	0.00	0.29
19.05	0.42	0.51	0.81*	0.29	0.00	0.29
19.10	0.42	0.51	0.82*	0.28	0.00	0.28
19.15	0.43	0.51	0.83*	0.27	0.00	0.27
19.20	0.43	0.51	0.84*	0.27	0.00	0.27
19.25	0.44	0.51	0.85*	0.26	0.00	0.26
19.30	0.44	0.52	0.86*	0.26	0.00	0.26
19.35	0.45	0.52	0.87*	0.25	0.00	0.25
19.40	0.46	0.52	0.88*	0.25	0.00	0.25
19.45	0.46	0.52	0.90*	0.24	0.00	0.24
19.50	0.47	0.52	0.91*	0.24	0.00	0.24
19.55	0.48	0.52	0.92*	0.23	0.00	0.23
19.60	0.48	0.52	0.94*	0.23	0.00	0.23
19.65	0.49	0.52	0.95*	0.22	0.00	0.22
19.70	0.50	0.52	0.97*	0.22	0.00	0.22
19.75	0.51	0.52	0.99*	0.21	0.00	0.21
19.80	0.52	0.52	1.01	0.21	0.00	0.21
19.85	0.54	0.52	1.04	0.21	0.00	0.21
19.90	0.56	0.52	1.07	0.20	0.00	0.20
19.95	0.58	0.52	1.12	0.20	0.00	0.20
20.00	0.62	0.52	1.20	0.20	0.00	0.20
20.05	0.68	0.52	1.30	0.19	0.00	0.19
20.10	0.68	0.52	1.30	0.19	0.00	0.19
20.15	0.68	0.52	1.30	0.19	0.00	0.19
20.20	0.68	0.52	1.30	0.19	0.00	0.19
20.25	0.68	0.52	1.30	0.19	0.00	0.19
20.30	0.68	0.52	1.30	0.18	0.00	0.18
20.35	0.68	0.52	1.29	0.18	0.00	0.18
20.40	0.68	0.52	1.29	0.18	0.00	0.18
20.45	0.68	0.52	1.29	0.18	0.00	0.18
20.50	0.68	0.52	1.29	0.18	0.00	0.18
20.55	0.68	0.52	1.29	0.18	0.00	0.18
20.60	0.68	0.53	1.29	0.18	0.00	0.18
20.65	0.68	0.53	1.29	0.18	0.00	0.18
20.70	0.68	0.53	1.29	0.18	0.00	0.18
20.75	0.68	0.53	1.29	0.18	0.00	0.18
20.80	0.68	0.53	1.29	0.18	0.00	0.18
20.85	0.68	0.53	1.29	0.18	0.00	0.18
20.90	0.68	0.53	1.28	0.18	0.00	0.18

20.95	0.68	0.53	1.28	0.18	0.00	0.18
21.00	0.68	0.53	1.28	0.18	0.00	0.18
21.05	0.68	0.53	1.28	0.18	0.00	0.18
21.10	0.68	0.53	1.28	0.18	0.00	0.18
21.15	0.68	0.53	1.28	0.18	0.00	0.18
21.20	0.68	0.53	1.28	0.18	0.00	0.18
21.25	0.68	0.53	1.28	0.18	0.00	0.18
21.30	0.68	0.53	1.28	0.18	0.00	0.18
21.35	0.68	0.53	1.28	0.18	0.00	0.18
21.40	0.68	0.53	1.28	0.18	0.00	0.18
21.45	0.68	0.53	1.27	0.18	0.00	0.18
21.50	0.68	0.53	1.27	0.18	0.00	0.18
21.55	0.68	0.53	1.27	0.18	0.00	0.18
21.60	0.68	0.53	1.27	0.18	0.00	0.18
21.65	0.68	0.53	1.27	0.18	0.00	0.18
21.70	0.68	0.53	1.27	0.18	0.00	0.18
21.75	0.68	0.53	1.27	0.18	0.00	0.18
21.80	0.68	0.53	1.27	0.18	0.00	0.18
21.85	0.68	0.53	1.27	0.18	0.00	0.18
21.90	0.68	0.53	1.27	0.18	0.00	0.18
21.95	0.68	0.54	1.27	0.18	0.00	0.18
22.00	0.68	0.54	1.26	0.18	0.00	0.18
22.05	0.68	0.54	1.26	0.18	0.00	0.18
22.10	0.68	0.54	1.26	0.18	0.00	0.18
22.15	0.68	0.54	1.26	0.18	0.00	0.18
22.20	0.68	0.54	1.26	0.18	0.00	0.18
22.25	0.68	0.54	1.26	0.18	0.00	0.18
22.30	0.68	0.54	1.26	0.18	0.00	0.18
22.35	0.68	0.54	1.26	0.18	0.00	0.18
22.40	0.68	0.54	1.26	0.18	0.00	0.18
22.45	0.68	0.54	1.26	0.18	0.00	0.18
22.50	0.68	0.54	1.26	0.18	0.00	0.18
22.55	0.68	0.54	1.26	0.18	0.00	0.18
22.60	0.68	0.54	1.25	0.18	0.00	0.18
22.65	0.68	0.54	1.25	0.18	0.00	0.18
22.70	0.68	0.54	1.25	0.18	0.00	0.18
22.75	0.68	0.54	1.25	0.18	0.00	0.18
22.80	0.68	0.54	1.25	0.18	0.00	0.18
22.85	0.68	0.54	1.25	0.18	0.00	0.18
22.90	0.68	0.54	1.25	0.18	0.00	0.18
22.95	0.68	0.54	1.25	0.18	0.00	0.18
23.00	0.68	0.54	1.25	0.18	0.00	0.18
23.05	0.68	0.54	1.25	0.18	0.00	0.18
23.10	0.68	0.54	1.25	0.18	0.00	0.18
23.15	0.68	0.54	1.25	0.18	0.00	0.18
23.20	0.68	0.54	1.24	0.18	0.00	0.18
23.25	0.68	0.54	1.24	0.18	0.00	0.18
23.30	0.68	0.55	1.24	0.18	0.00	0.18
23.35	0.68	0.55	1.24	0.18	0.00	0.18
23.40	0.68	0.55	1.24	0.18	0.00	0.18
23.45	0.68	0.55	1.24	0.18	0.00	0.18
23.50	0.68	0.55	1.24	0.18	0.00	0.18
23.55	0.68	0.55	1.24	0.18	0.00	0.18
23.60	0.68	0.55	1.24	0.18	0.00	0.18
23.65	0.68	0.55	1.24	0.18	0.00	0.18
23.70	0.68	0.55	1.24	0.18	0.00	0.18
23.75	0.68	0.55	1.24	0.18	0.00	0.18
23.80	0.68	0.55	1.23	0.18	0.00	0.18
23.85	0.68	0.55	1.23	0.18	0.00	0.18
23.90	0.68	0.55	1.23	0.18	0.00	0.18
23.95	0.68	0.55	1.23	0.18	0.00	0.18
24.00	0.68	0.55	1.23	0.18	0.00	0.18
24.05	0.68	0.55	1.23	0.18	0.00	0.18

24.10	0.68	0.55	1.23	0.18	0.00	0.18
24.15	0.68	0.55	1.23	0.18	0.00	0.18
24.20	0.68	0.55	1.23	0.18	0.00	0.18
24.25	0.68	0.55	1.23	0.18	0.00	0.18
24.30	0.68	0.55	1.23	0.18	0.00	0.18
24.35	0.68	0.55	1.23	0.18	0.00	0.18
24.40	0.68	0.55	1.22	0.18	0.00	0.18
24.45	0.68	0.55	1.22	0.18	0.00	0.18
24.50	0.68	0.55	1.22	0.18	0.00	0.18
24.55	0.68	0.55	1.22	0.18	0.00	0.18
24.60	0.68	0.55	1.22	0.18	0.00	0.18
24.65	0.68	0.56	1.22	0.18	0.00	0.18
24.70	0.68	0.56	1.22	0.18	0.00	0.18
24.75	0.68	0.56	1.22	0.18	0.00	0.18
24.80	0.68	0.56	1.22	0.18	0.00	0.18
24.85	0.68	0.56	1.22	0.18	0.00	0.18
24.90	0.68	0.56	1.22	0.18	0.00	0.18
24.95	0.68	0.56	1.22	0.18	0.00	0.18
25.00	0.68	0.56	1.21	0.18	0.00	0.18
25.05	0.68	0.56	1.21	0.18	0.00	0.18
25.10	0.68	0.56	1.21	0.18	0.00	0.18
25.15	0.68	0.56	1.21	0.18	0.00	0.18
25.20	0.68	0.56	1.21	0.18	0.00	0.18
25.25	0.68	0.56	1.21	0.18	0.00	0.18
25.30	0.68	0.56	1.21	0.18	0.00	0.18
25.35	0.68	0.56	1.21	0.18	0.00	0.18
25.40	0.68	0.56	1.21	0.18	0.00	0.18
25.45	0.68	0.56	1.21	0.18	0.00	0.18
25.50	0.68	0.56	1.21	0.18	0.00	0.18
25.55	0.68	0.56	1.21	0.18	0.00	0.18
25.60	0.68	0.56	1.20	0.18	0.00	0.18
25.65	0.68	0.56	1.20	0.18	0.00	0.18
25.70	0.68	0.56	1.20	0.18	0.00	0.18
25.75	0.68	0.56	1.20	0.18	0.00	0.18
25.80	0.68	0.56	1.20	0.18	0.00	0.18
25.85	0.68	0.56	1.20	0.18	0.00	0.18
25.90	0.68	0.56	1.20	0.18	0.00	0.18
25.95	0.68	0.57	1.20	0.18	0.00	0.18
26.00	0.68	0.57	1.20	0.18	0.00	0.18
26.05	0.68	0.57	1.20	0.18	0.00	0.18
26.10	0.68	0.57	1.20	0.18	0.00	0.18
26.15	0.68	0.57	1.20	0.18	0.00	0.18
26.20	0.68	0.57	1.20	0.18	0.00	0.18
26.25	0.68	0.57	1.19	0.18	0.00	0.18
26.30	0.68	0.57	1.19	0.18	0.00	0.18
26.35	0.68	0.57	1.19	0.17	0.00	0.17
26.40	0.68	0.57	1.19	0.17	0.00	0.17
26.45	0.68	0.57	1.19	0.17	0.00	0.17
26.50	0.68	0.57	1.19	0.17	0.00	0.17
26.55	0.68	0.57	1.19	0.17	0.00	0.17
26.60	0.60	0.57	1.06	0.16	0.00	0.16
26.65	0.53	0.57	0.93*	0.16	0.00	0.16
26.70	0.49	0.57	0.87*	0.16	0.00	0.16
26.75	0.47	0.57	0.82*	0.15	0.00	0.15
26.80	0.45	0.57	0.78*	0.15	0.00	0.15
26.85	0.43	0.57	0.75*	0.14	0.00	0.14
26.90	0.41	0.57	0.72*	0.13	0.00	0.13
26.95	0.40	0.57	0.70*	0.13	0.00	0.13
27.00	0.39	0.57	0.67*	0.12	0.00	0.12
27.05	0.37	0.57	0.65*	0.11	0.00	0.11
27.10	0.36	0.57	0.63*	0.11	0.00	0.11
27.15	0.35	0.57	0.61*	0.10	0.00	0.10
27.20	0.34	0.57	0.59*	0.09	0.00	0.09

27.25	0.33	0.57	0.57*	0.08	0.00	0.08
27.30	0.32	0.57	0.55*	0.08	0.00	0.08
27.35	0.31	0.58	0.53*	0.07	0.00	0.07
27.40	0.30	0.58	0.52*	0.06	0.00	0.06
27.45	0.29	0.58	0.50*	0.05	0.00	0.05
27.50	0.28	0.58	0.49*	0.04	0.00	0.04
27.55	0.32	0.58	0.55*	0.03	0.00	0.03
27.60	0.36	0.58	0.63*	0.02	0.00	0.02
27.65	0.41	0.58	0.72*	0.02	0.00	0.02
27.70	0.49	0.58	0.86*	0.01	0.00	0.01
27.75	0.68	0.58	1.17	0.00	0.00	0.00
27.80	0.68	0.58	1.18	0.00	0.00	0.00
27.85	0.68	0.58	1.18	0.00	0.00	0.00
27.90	0.68	0.58	1.18	0.00	0.00	0.00
27.95	0.68	0.58	1.18	0.00	0.00	0.00
28.00	0.68	0.58	1.18	0.00	0.00	0.00
28.05	0.68	0.58	1.17	0.00	0.00	0.00
28.10	0.68	0.58	1.17	0.00	0.00	0.00
28.15	0.68	0.58	1.17	0.00	0.00	0.00
28.20	0.68	0.58	1.17	0.00	0.00	0.00
28.25	0.68	0.58	1.17	0.00	0.00	0.00
28.30	0.68	0.58	1.17	0.00	0.00	0.00
28.35	0.68	0.58	1.17	0.00	0.00	0.00
28.40	0.68	0.58	1.17	0.00	0.00	0.00
28.45	0.68	0.58	1.17	0.00	0.00	0.00
28.50	0.68	0.58	1.17	0.00	0.00	0.00
28.55	0.68	0.58	1.17	0.00	0.00	0.00
28.60	0.68	0.58	1.16	0.00	0.00	0.00
28.65	0.68	0.58	1.16	0.00	0.00	0.00
28.70	0.68	0.58	1.16	0.00	0.00	0.00
28.75	0.68	0.58	1.16	0.00	0.00	0.00
28.80	0.68	0.58	1.16	0.00	0.00	0.00
28.85	0.68	0.58	1.16	0.00	0.00	0.00
28.90	0.68	0.58	1.16	0.00	0.00	0.00
28.95	0.68	0.58	1.16	0.00	0.00	0.00
29.00	0.68	0.58	1.16	0.00	0.00	0.00
29.05	0.68	0.58	1.16	0.00	0.00	0.00
29.10	0.68	0.59	1.16	0.00	0.00	0.00
29.15	0.68	0.59	1.16	0.00	0.00	0.00
29.20	0.68	0.59	1.16	0.00	0.00	0.00
29.25	0.68	0.59	1.15	0.00	0.00	0.00
29.30	0.68	0.59	1.15	0.00	0.00	0.00
29.35	0.68	0.59	1.15	0.00	0.00	0.00
29.40	0.68	0.59	1.15	0.00	0.00	0.00
29.45	0.68	0.59	1.15	0.00	0.00	0.00
29.50	0.68	0.59	1.15	0.00	0.00	0.00
29.55	0.68	0.59	1.15	0.00	0.00	0.00
29.60	0.67	0.59	1.15	0.00	0.00	0.00
29.65	0.67	0.59	1.15	0.00	0.00	0.00
29.70	0.67	0.59	1.15	0.00	0.00	0.00
29.75	0.67	0.59	1.15	0.00	0.00	0.00
29.80	0.67	0.59	1.15	0.00	0.00	0.00
29.85	0.67	0.59	1.15	0.00	0.00	0.00
29.90	0.67	0.59	1.15	0.00	0.00	0.00
29.95	0.67	0.59	1.15	0.00	0.00	0.00
30.00	0.67	0.59	1.14	0.00	0.00	0.00
30.05	0.67	0.59	1.14	0.00	0.00	0.00
30.10	0.67	0.59	1.14	0.00	0.00	0.00
30.15	0.67	0.59	1.14	0.00	0.00	0.00
30.20	0.67	0.59	1.14	0.00	0.00	0.00
30.25	0.67	0.59	1.14	0.00	0.00	0.00
30.30	0.67	0.59	1.14	0.00	0.00	0.00
30.35	0.67	0.59	1.14	0.00	0.00	0.00

30.40	0.67	0.59	1.14	0.00	0.00	0.00
30.45	0.67	0.59	1.14	0.00	0.00	0.00
30.50	0.67	0.59	1.14	0.00	0.00	0.00
30.55	0.67	0.59	1.14	0.00	0.00	0.00
30.60	0.67	0.59	1.14	0.00	0.00	0.00
30.65	0.67	0.59	1.14	0.00	0.00	0.00
30.70	0.67	0.59	1.14	0.00	0.00	0.00
30.75	0.67	0.59	1.14	0.00	0.00	0.00
30.80	0.67	0.59	1.14	0.00	0.00	0.00
30.85	0.67	0.59	1.14	0.00	0.00	0.00
30.90	0.67	0.59	1.14	0.00	0.00	0.00
30.95	0.67	0.59	1.14	0.00	0.00	0.00
31.00	0.67	0.59	1.14	0.00	0.00	0.00
31.05	0.67	0.59	1.14	0.00	0.00	0.00
31.10	0.67	0.59	1.14	0.00	0.00	0.00
31.15	0.67	0.59	1.14	0.00	0.00	0.00
31.20	0.67	0.59	1.14	0.00	0.00	0.00
31.25	0.67	0.59	1.14	0.00	0.00	0.00
31.30	0.67	0.59	1.14	0.00	0.00	0.00
31.35	0.67	0.59	1.14	0.00	0.00	0.00
31.40	0.67	0.59	1.14	0.00	0.00	0.00
31.45	0.67	0.59	1.14	0.00	0.00	0.00
31.50	0.67	0.59	1.14	0.00	0.00	0.00
31.55	0.67	0.59	1.14	0.00	0.00	0.00
31.60	0.67	0.59	1.14	0.00	0.00	0.00
31.65	0.67	0.59	1.14	0.00	0.00	0.00
31.70	0.67	0.59	1.14	0.00	0.00	0.00
31.75	0.67	0.59	1.14	0.00	0.00	0.00
31.80	0.67	0.59	1.14	0.00	0.00	0.00
31.85	0.67	0.59	1.14	0.00	0.00	0.00
31.90	0.67	0.59	1.14	0.00	0.00	0.00
31.95	0.67	0.59	1.14	0.00	0.00	0.00
32.00	0.66	0.59	1.14	0.00	0.00	0.00
32.05	0.66	0.59	1.14	0.00	0.00	0.00
32.10	0.66	0.59	1.14	0.00	0.00	0.00
32.15	0.66	0.59	1.14	0.00	0.00	0.00
32.20	0.66	0.59	1.13	0.00	0.00	0.00
32.25	0.66	0.59	1.13	0.00	0.00	0.00
32.30	0.66	0.59	1.13	0.00	0.00	0.00
32.35	0.66	0.59	1.13	0.00	0.00	0.00
32.40	0.66	0.58	1.13	0.00	0.00	0.00
32.45	0.66	0.58	1.13	0.00	0.00	0.00
32.50	0.66	0.58	1.13	0.00	0.00	0.00
32.55	0.66	0.58	1.13	0.00	0.00	0.00
32.60	0.66	0.58	1.13	0.00	0.00	0.00
32.65	0.66	0.58	1.13	0.00	0.00	0.00
32.70	0.66	0.58	1.13	0.00	0.00	0.00
32.75	0.66	0.58	1.13	0.00	0.00	0.00
32.80	0.66	0.58	1.13	0.00	0.00	0.00
32.85	0.66	0.58	1.13	0.00	0.00	0.00
32.90	0.66	0.58	1.13	0.00	0.00	0.00
32.95	0.66	0.58	1.13	0.00	0.00	0.00
33.00	0.66	0.58	1.13	0.00	0.00	0.00
33.05	0.66	0.58	1.13	0.00	0.00	0.00
33.10	0.66	0.58	1.13	0.00	0.00	0.00
33.15	0.66	0.58	1.13	0.00	0.00	0.00
33.20	0.66	0.58	1.13	0.00	0.00	0.00
33.25	0.66	0.58	1.13	0.00	0.00	0.00
33.30	0.66	0.58	1.13	0.00	0.00	0.00
33.35	0.66	0.58	1.13	0.00	0.00	0.00
33.40	0.66	0.58	1.13	0.00	0.00	0.00
33.45	0.66	0.58	1.13	0.00	0.00	0.00
33.50	0.66	0.58	1.13	0.00	0.00	0.00

33.55	0.66	0.58	1.13	0.00	0.00	0.00
33.60	0.66	0.58	1.13	0.00	0.00	0.00
33.65	0.66	0.58	1.13	0.00	0.00	0.00
33.70	0.66	0.58	1.13	0.00	0.00	0.00
33.75	0.66	0.58	1.13	0.00	0.00	0.00
33.80	0.66	0.58	1.13	0.00	0.00	0.00
33.85	0.66	0.58	1.13	0.00	0.00	0.00
33.90	0.66	0.58	1.13	0.00	0.00	0.00
33.95	0.66	0.58	1.13	0.00	0.00	0.00
34.00	0.66	0.58	1.13	0.00	0.00	0.00
34.05	0.66	0.58	1.13	0.00	0.00	0.00
34.10	0.66	0.58	1.13	0.00	0.00	0.00
34.15	0.66	0.58	1.13	0.00	0.00	0.00
34.20	0.66	0.58	1.13	0.00	0.00	0.00
34.25	0.66	0.58	1.13	0.00	0.00	0.00
34.30	0.66	0.58	1.13	0.00	0.00	0.00
34.35	0.66	0.58	1.13	0.00	0.00	0.00
34.40	0.66	0.58	1.13	0.00	0.00	0.00
34.45	0.66	0.58	1.13	0.00	0.00	0.00
34.50	0.66	0.58	1.13	0.00	0.00	0.00
34.55	0.65	0.58	1.13	0.00	0.00	0.00
34.60	0.65	0.58	1.13	0.00	0.00	0.00
34.65	0.65	0.58	1.13	0.00	0.00	0.00
34.70	0.65	0.58	1.13	0.00	0.00	0.00
34.75	0.65	0.58	1.13	0.00	0.00	0.00
34.80	0.65	0.58	1.13	0.00	0.00	0.00
34.85	0.65	0.58	1.13	0.00	0.00	0.00
34.90	0.65	0.58	1.13	0.00	0.00	0.00
34.95	0.65	0.58	1.13	0.00	0.00	0.00
35.00	0.65	0.58	1.13	0.00	0.00	0.00
35.05	0.65	0.58	1.13	0.00	0.00	0.00
35.10	0.65	0.58	1.13	0.00	0.00	0.00
35.15	0.65	0.58	1.12	0.00	0.00	0.00
35.20	0.65	0.58	1.12	0.00	0.00	0.00
35.25	0.65	0.58	1.12	0.00	0.00	0.00
35.30	0.65	0.58	1.12	0.00	0.00	0.00
35.35	0.65	0.58	1.12	0.00	0.00	0.00
35.40	0.65	0.58	1.12	0.00	0.00	0.00
35.45	0.65	0.58	1.12	0.00	0.00	0.00
35.50	0.65	0.58	1.12	0.00	0.00	0.00
35.55	0.65	0.58	1.12	0.00	0.00	0.00
35.60	0.65	0.58	1.12	0.00	0.00	0.00
35.65	0.65	0.58	1.12	0.00	0.00	0.00
35.70	0.65	0.58	1.12	0.00	0.00	0.00
35.75	0.65	0.58	1.12	0.00	0.00	0.00
35.80	0.65	0.58	1.12	0.00	0.00	0.00
35.85	0.65	0.58	1.12	0.00	0.00	0.00
35.90	0.65	0.58	1.12	0.00	0.00	0.00
35.95	0.65	0.58	1.12	0.00	0.00	0.00
36.00	0.65	0.58	1.12	0.00	0.00	0.00
36.05	0.65	0.58	1.12	0.00	0.00	0.00
36.10	0.65	0.58	1.12	0.00	0.00	0.00
36.15	0.65	0.58	1.12	0.00	0.00	0.00
36.20	0.65	0.58	1.12	0.00	0.00	0.00
36.25	0.65	0.58	1.12	0.00	0.00	0.00
36.30	0.65	0.58	1.12	0.00	0.00	0.00
36.35	0.65	0.58	1.12	0.00	0.00	0.00
36.40	0.65	0.58	1.12	0.00	0.00	0.00
36.45	0.65	0.58	1.12	0.00	0.00	0.00
36.50	0.65	0.58	1.12	0.00	0.00	0.00
36.55	0.65	0.58	1.12	0.00	0.00	0.00
36.60	0.65	0.58	1.12	0.00	0.00	0.00
36.65	0.65	0.58	1.12	0.00	0.00	0.00

36.70	0.65	0.58	1.12	0.00	0.00	0.00
36.75	0.65	0.58	1.12	0.00	0.00	0.00
36.80	0.65	0.58	1.12	0.00	0.00	0.00
36.85	0.65	0.58	1.12	0.00	0.00	0.00
36.90	0.65	0.58	1.12	0.00	0.00	0.00
36.95	0.65	0.58	1.12	0.00	0.00	0.00
37.00	0.65	0.58	1.12	0.00	0.00	0.00
37.05	0.65	0.58	1.12	0.00	0.00	0.00
37.10	0.65	0.58	1.12	0.00	0.00	0.00
37.15	0.65	0.58	1.12	0.00	0.00	0.00
37.20	0.65	0.58	1.12	0.00	0.00	0.00
37.25	0.65	0.58	1.12	0.00	0.00	0.00
37.30	0.64	0.58	1.12	0.00	0.00	0.00
37.35	0.64	0.58	1.12	0.00	0.00	0.00
37.40	0.64	0.58	1.12	0.00	0.00	0.00
37.45	0.64	0.58	1.12	0.00	0.00	0.00
37.50	0.64	0.58	1.12	0.00	0.00	0.00
37.55	0.64	0.58	1.12	0.00	0.00	0.00
37.60	0.64	0.58	1.12	0.00	0.00	0.00
37.65	0.64	0.58	1.12	0.00	0.00	0.00
37.70	0.64	0.58	1.12	0.00	0.00	0.00
37.75	0.64	0.58	1.12	0.00	0.00	0.00
37.80	0.64	0.58	1.12	0.00	0.00	0.00
37.85	0.64	0.58	1.12	0.00	0.00	0.00
37.90	0.64	0.58	1.12	0.00	0.00	0.00
37.95	0.64	0.58	1.12	0.00	0.00	0.00
38.00	0.64	0.58	1.12	0.00	0.00	0.00
38.05	0.64	0.58	1.12	0.00	0.00	0.00
38.10	0.64	0.58	1.12	0.00	0.00	0.00
38.15	0.64	0.57	1.12	0.00	0.00	0.00
38.20	0.64	0.57	1.12	0.00	0.00	0.00
38.25	0.64	0.57	1.12	0.00	0.00	0.00
38.30	0.64	0.57	1.12	0.00	0.00	0.00
38.35	0.64	0.57	1.12	0.00	0.00	0.00
38.40	0.64	0.57	1.12	0.00	0.00	0.00
38.45	0.64	0.57	1.12	0.00	0.00	0.00
38.50	0.64	0.57	1.12	0.00	0.00	0.00
38.55	0.64	0.57	1.12	0.00	0.00	0.00
38.60	0.64	0.57	1.12	0.00	0.00	0.00
38.65	0.64	0.57	1.12	0.00	0.00	0.00
38.70	0.64	0.57	1.12	0.00	0.00	0.00
38.75	0.64	0.57	1.12	0.00	0.00	0.00
38.80	0.64	0.57	1.11	0.00	0.00	0.00
38.85	0.64	0.57	1.11	0.00	0.00	0.00
38.90	0.64	0.57	1.11	0.00	0.00	0.00
38.95	0.64	0.57	1.11	0.00	0.00	0.00
39.00	0.64	0.57	1.11	0.00	0.00	0.00
39.05	0.64	0.57	1.11	0.00	0.00	0.00
39.10	0.64	0.57	1.11	0.00	0.00	0.00
39.15	0.64	0.57	1.11	0.00	0.00	0.00
39.20	0.64	0.57	1.11	0.00	0.00	0.00
39.25	0.64	0.57	1.11	0.00	0.00	0.00
39.30	0.64	0.57	1.11	0.00	0.00	0.00
39.35	0.64	0.57	1.11	0.00	0.00	0.00
39.40	0.64	0.57	1.11	0.00	0.00	0.00
39.45	0.64	0.57	1.11	0.00	0.00	0.00
39.50	0.64	0.57	1.11	0.00	0.00	0.00
39.55	0.64	0.57	1.11	0.00	0.00	0.00
39.60	0.64	0.57	1.11	0.00	0.00	0.00
39.65	0.64	0.57	1.11	0.00	0.00	0.00
39.70	0.64	0.57	1.11	0.00	0.00	0.00
39.75	0.64	0.57	1.11	0.00	0.00	0.00
39.80	0.64	0.57	1.11	0.00	0.00	0.00

39.85	0.64	0.57	1.11	0.00	0.00	0.00
39.90	0.64	0.57	1.11	0.00	0.00	0.00
39.95	0.64	0.57	1.11	0.00	0.00	0.00
40.00	0.64	0.57	1.11	0.00	0.00	0.00
40.05	0.64	0.57	1.11	0.00	0.00	0.00
40.10	0.64	0.57	1.11	0.00	0.00	0.00
40.15	0.64	0.57	1.11	0.00	0.00	0.00
40.20	0.64	0.57	1.11	0.00	0.00	0.00
40.25	0.64	0.57	1.11	0.00	0.00	0.00
40.30	0.64	0.57	1.11	0.00	0.00	0.00
40.35	0.64	0.57	1.11	0.00	0.00	0.00
40.40	0.64	0.57	1.11	0.00	0.00	0.00
40.45	0.63	0.57	1.11	0.00	0.00	0.00
40.50	0.63	0.57	1.11	0.00	0.00	0.00
40.55	0.63	0.57	1.11	0.00	0.00	0.00
40.60	0.63	0.57	1.11	0.00	0.00	0.00
40.65	0.63	0.57	1.11	0.00	0.00	0.00
40.70	0.63	0.57	1.11	0.00	0.00	0.00
40.75	0.63	0.57	1.11	0.00	0.00	0.00
40.80	0.63	0.57	1.11	0.00	0.00	0.00
40.85	0.63	0.57	1.11	0.00	0.00	0.00
40.90	0.63	0.57	1.11	0.00	0.00	0.00
40.95	0.63	0.57	1.11	0.00	0.00	0.00
41.00	0.63	0.57	1.11	0.00	0.00	0.00
41.05	0.63	0.57	1.11	0.00	0.00	0.00
41.10	0.63	0.57	1.11	0.00	0.00	0.00
41.15	0.63	0.57	1.11	0.00	0.00	0.00
41.20	0.63	0.57	1.11	0.00	0.00	0.00
41.25	0.63	0.57	1.11	0.00	0.00	0.00
41.30	0.63	0.57	1.11	0.00	0.00	0.00
41.35	0.63	0.57	1.11	0.00	0.00	0.00
41.40	0.63	0.57	1.11	0.00	0.00	0.00
41.45	0.63	0.57	1.11	0.00	0.00	0.00
41.50	0.63	0.57	1.11	0.00	0.00	0.00
41.55	0.63	0.57	1.11	0.00	0.00	0.00
41.60	0.63	0.57	1.11	0.00	0.00	0.00
41.65	0.63	0.57	1.11	0.00	0.00	0.00
41.70	0.63	0.57	1.11	0.00	0.00	0.00
41.75	0.63	0.57	1.11	0.00	0.00	0.00
41.80	0.63	0.57	1.11	0.00	0.00	0.00
41.85	0.63	0.57	1.11	0.00	0.00	0.00
41.90	0.63	0.57	1.11	0.00	0.00	0.00
41.95	0.63	0.57	1.11	0.00	0.00	0.00
42.00	0.63	0.57	1.11	0.00	0.00	0.00
42.05	0.63	0.57	1.11	0.00	0.00	0.00
42.10	0.63	0.57	1.11	0.00	0.00	0.00
42.15	0.63	0.57	1.11	0.00	0.00	0.00
42.20	0.63	0.57	1.11	0.00	0.00	0.00
42.25	0.63	0.57	1.11	0.00	0.00	0.00
42.30	0.63	0.57	1.11	0.00	0.00	0.00
42.35	0.63	0.57	1.11	0.00	0.00	0.00
42.40	0.63	0.57	1.11	0.00	0.00	0.00
42.45	0.63	0.57	1.11	0.00	0.00	0.00
42.50	0.63	0.57	1.11	0.00	0.00	0.00
42.55	0.63	0.57	1.11	0.00	0.00	0.00
42.60	0.63	0.57	1.11	0.00	0.00	0.00
42.65	0.63	0.57	1.11	0.00	0.00	0.00
42.70	0.63	0.57	1.11	0.00	0.00	0.00
42.75	0.63	0.57	1.11	0.00	0.00	0.00
42.80	0.63	0.57	1.11	0.00	0.00	0.00
42.85	0.63	0.57	1.11	0.00	0.00	0.00
42.90	0.63	0.57	1.11	0.00	0.00	0.00
42.95	0.63	0.57	1.11	0.00	0.00	0.00

43.00	0.63	0.57	1.11	0.00	0.00	0.00
43.05	0.63	0.57	1.11	0.00	0.00	0.00
43.10	0.63	0.57	1.11	0.00	0.00	0.00
43.15	0.63	0.57	1.11	0.00	0.00	0.00
43.20	0.63	0.57	1.11	0.00	0.00	0.00
43.25	0.63	0.57	1.11	0.00	0.00	0.00
43.30	0.63	0.57	1.11	0.00	0.00	0.00
43.35	0.63	0.57	1.11	0.00	0.00	0.00
43.40	0.63	0.57	1.11	0.00	0.00	0.00
43.45	0.63	0.57	1.11	0.00	0.00	0.00
43.50	0.63	0.57	1.11	0.00	0.00	0.00
43.55	0.63	0.57	1.11	0.00	0.00	0.00
43.60	0.63	0.57	1.11	0.00	0.00	0.00
43.65	0.63	0.57	1.11	0.00	0.00	0.00
43.70	0.63	0.57	1.11	0.00	0.00	0.00
43.75	0.63	0.57	1.11	0.00	0.00	0.00
43.80	0.62	0.57	1.11	0.00	0.00	0.00
43.85	0.62	0.57	1.11	0.00	0.00	0.00
43.90	0.62	0.57	1.11	0.00	0.00	0.00
43.95	0.62	0.57	1.11	0.00	0.00	0.00
44.00	0.62	0.56	1.11	0.00	0.00	0.00
44.05	0.62	0.56	1.11	0.00	0.00	0.00
44.10	0.62	0.56	1.11	0.00	0.00	0.00
44.15	0.62	0.56	1.11	0.00	0.00	0.00
44.20	0.62	0.56	1.11	0.00	0.00	0.00
44.25	0.62	0.56	1.11	0.00	0.00	0.00
44.30	0.62	0.56	1.11	0.00	0.00	0.00
44.35	0.62	0.56	1.11	0.00	0.00	0.00
44.40	0.62	0.56	1.11	0.00	0.00	0.00
44.45	0.62	0.56	1.11	0.00	0.00	0.00
44.50	0.62	0.56	1.11	0.00	0.00	0.00
44.55	0.62	0.56	1.11	0.00	0.00	0.00
44.60	0.62	0.56	1.11	0.00	0.00	0.00
44.65	0.62	0.56	1.11	0.00	0.00	0.00
44.70	0.62	0.56	1.11	0.00	0.00	0.00
44.75	0.62	0.56	1.11	0.00	0.00	0.00
44.80	0.62	0.56	1.11	0.00	0.00	0.00
44.85	0.62	0.56	1.11	0.00	0.00	0.00
44.90	0.62	0.56	1.11	0.00	0.00	0.00
44.95	0.62	0.56	1.11	0.00	0.00	0.00
45.00	0.62	0.56	1.11	0.00	0.00	0.00
45.05	0.62	0.56	1.11	0.00	0.00	0.00
45.10	0.62	0.56	1.11	0.00	0.00	0.00
45.15	0.62	0.56	1.11	0.00	0.00	0.00
45.20	0.62	0.56	1.11	0.00	0.00	0.00
45.25	0.62	0.56	1.11	0.00	0.00	0.00
45.30	0.62	0.56	1.11	0.00	0.00	0.00
45.35	0.62	0.56	1.11	0.00	0.00	0.00
45.40	0.62	0.56	1.11	0.00	0.00	0.00
45.45	0.62	0.56	1.11	0.00	0.00	0.00
45.50	0.62	0.56	1.11	0.00	0.00	0.00
45.55	0.62	0.56	1.11	0.00	0.00	0.00
45.60	0.62	0.56	1.11	0.00	0.00	0.00
45.65	0.62	0.56	1.11	0.00	0.00	0.00
45.70	0.62	0.56	1.11	0.00	0.00	0.00
45.75	0.62	0.56	1.11	0.00	0.00	0.00
45.80	0.62	0.56	1.11	0.00	0.00	0.00
45.85	0.62	0.56	1.11	0.00	0.00	0.00
45.90	0.62	0.56	1.11	0.00	0.00	0.00
45.95	0.62	0.56	1.11	0.00	0.00	0.00
46.00	0.62	0.56	1.11	0.00	0.00	0.00
46.05	0.62	0.56	1.11	0.00	0.00	0.00
46.10	0.62	0.56	1.11	0.00	0.00	0.00

46.15	0.62	0.56	1.11	0.00	0.00	0.00
46.20	0.62	0.56	1.11	0.00	0.00	0.00
46.25	0.62	0.56	1.11	0.00	0.00	0.00
46.30	0.62	0.56	1.11	0.00	0.00	0.00
46.35	0.62	0.56	1.11	0.00	0.00	0.00
46.40	0.62	0.56	1.11	0.00	0.00	0.00
46.45	0.62	0.56	1.11	0.00	0.00	0.00
46.50	0.62	0.56	1.11	0.00	0.00	0.00
46.55	0.62	0.56	1.11	0.00	0.00	0.00
46.60	0.62	0.56	1.11	0.00	0.00	0.00
46.65	0.62	0.56	1.11	0.00	0.00	0.00
46.70	0.62	0.56	1.11	0.00	0.00	0.00
46.75	0.62	0.56	1.11	0.00	0.00	0.00
46.80	0.62	0.56	1.11	0.00	0.00	0.00
46.85	0.62	0.56	1.11	0.00	0.00	0.00
46.90	0.62	0.56	1.11	0.00	0.00	0.00
46.95	0.62	0.56	1.11	0.00	0.00	0.00
47.00	0.62	0.56	1.11	0.00	0.00	0.00
47.05	0.62	0.56	1.11	0.00	0.00	0.00
47.10	0.62	0.56	1.11	0.00	0.00	0.00
47.15	0.62	0.56	1.11	0.00	0.00	0.00
47.20	0.62	0.56	1.11	0.00	0.00	0.00
47.25	0.61	0.56	1.11	0.00	0.00	0.00
47.30	0.61	0.56	1.11	0.00	0.00	0.00
47.35	0.61	0.56	1.11	0.00	0.00	0.00
47.40	0.61	0.56	1.11	0.00	0.00	0.00
47.45	0.61	0.56	1.11	0.00	0.00	0.00
47.50	0.61	0.56	1.11	0.00	0.00	0.00
47.55	0.61	0.56	1.11	0.00	0.00	0.00
47.60	0.61	0.55	1.11	0.00	0.00	0.00
47.65	0.61	0.55	1.11	0.00	0.00	0.00
47.70	0.61	0.55	1.11	0.00	0.00	0.00
47.75	0.61	0.55	1.11	0.00	0.00	0.00
47.80	0.61	0.55	1.11	0.00	0.00	0.00
47.85	0.61	0.55	1.11	0.00	0.00	0.00
47.90	0.61	0.55	1.11	0.00	0.00	0.00
47.95	0.61	0.55	1.11	0.00	0.00	0.00
48.00	0.61	0.55	1.11	0.00	0.00	0.00
48.05	0.61	0.55	1.11	0.00	0.00	0.00
48.10	0.61	0.55	1.11	0.00	0.00	0.00
48.15	0.61	0.55	1.11	0.00	0.00	0.00
48.20	0.61	0.55	1.11	0.00	0.00	0.00
48.25	0.61	0.55	1.11	0.00	0.00	0.00
48.30	0.61	0.55	1.11	0.00	0.00	0.00
48.35	0.61	0.55	1.11	0.00	0.00	0.00
48.40	0.61	0.55	1.11	0.00	0.00	0.00
48.45	0.61	0.55	1.11	0.00	0.00	0.00
48.50	0.61	0.55	1.11	0.00	0.00	0.00
48.55	0.61	0.55	1.11	0.00	0.00	0.00
48.60	0.61	0.55	1.11	0.00	0.00	0.00
48.65	0.61	0.55	1.11	0.00	0.00	0.00
48.70	0.61	0.55	1.11	0.00	0.00	0.00
48.75	0.61	0.55	1.11	0.00	0.00	0.00
48.80	0.61	0.55	1.11	0.00	0.00	0.00
48.85	0.61	0.55	1.11	0.00	0.00	0.00
48.90	0.61	0.55	1.11	0.00	0.00	0.00
48.95	0.61	0.55	1.11	0.00	0.00	0.00
49.00	0.61	0.55	1.11	0.00	0.00	0.00
49.05	0.61	0.55	1.11	0.00	0.00	0.00
49.10	0.61	0.55	1.11	0.00	0.00	0.00
49.15	0.61	0.55	1.11	0.00	0.00	0.00
49.20	0.61	0.55	1.11	0.00	0.00	0.00
49.25	0.61	0.55	1.11	0.00	0.00	0.00

49.30	0.61	0.55	1.11	0.00	0.00	0.00
49.35	0.61	0.55	1.11	0.00	0.00	0.00
49.40	0.61	0.55	1.11	0.00	0.00	0.00
49.45	0.61	0.55	1.11	0.00	0.00	0.00
49.50	0.61	0.55	1.11	0.00	0.00	0.00
49.55	0.61	0.55	1.11	0.00	0.00	0.00
49.60	0.61	0.55	1.11	0.00	0.00	0.00
49.65	0.61	0.55	1.11	0.00	0.00	0.00
49.70	0.61	0.55	1.11	0.00	0.00	0.00
49.75	0.61	0.55	1.11	0.00	0.00	0.00
49.80	0.61	0.55	1.11	0.00	0.00	0.00
49.85	0.61	0.55	1.11	0.00	0.00	0.00
49.90	0.61	0.55	1.11	0.00	0.00	0.00
49.95	0.61	0.55	1.11	0.00	0.00	0.00
50.00	0.61	0.55	1.11	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)
CRRm Cyclic resistance ratio from soils
CSRsf Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat Settlement from saturated sands
S_dry Settlement from Unsaturated Sands
S_all Total Settlement from Saturated and Unsaturated Sands
NoLiq No-Liquefy Soils

RMA GeoScience
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APPENDIX E

REFERENCES

RMA GeoScience
Every Project Matters | www.rmacompanies.com

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9. Applied Technology Council (ATC) Hazards by Location https://hazards.atcouncil.org

Appendix F

Greenhouse Gas Emissions Assessment



Greenhouse Gas Emissions Assessment

Orchard and Cypress Residential Project

City of El Monte, California

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September 2019

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Appendix A: Greenhouse Gas Emissions Data

LIST OF ABBREVIATED TERMS

AB	Assembly Bill
CARB	California Air Resource Board
CCR	California Code of Regulations
CalEEMod	California Emissions Estimator Model
City	City of El Monte
CEQA	California Environmental Quality Act
CALGreen	California Green Building Standards
CPUC	California Public Utilities Commission
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CFC	Chlorofluorocarbon
CPP	Clean Power Plan
CCSP	Climate Change Scoping Plan
CTC	California Transportation Commission
cy	cubic yard
EECAP	Energy Efficiency Climate Action Plan
EMGP	Vision El Monte General Plan
EPA	Environmental Protection Agency
FCAA	Federal Clean Air Act
FR	Federal Register
GHG	greenhouse gas
HCFC	Hydrochlorofluorocarbon
HFC	Hydrofluorocarbon
HQTA	High Quality Transit Area
LCFS	Low Carbon Fuel Standard
CH_4	Methane
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
$MTCO_2e$	million tons of carbon dioxide equivalent
NHTSA	National Highway Traffic Safety Administration
NF_3	nitrogen trifluoride
N_2O	nitrous oxide
PFC	Perfluorocarbon
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Government
SF	square feet
SF_6	sulfur hexafluoride
TAC	toxic air contaminants

1 INTRODUCTION

This report documents the results of a Greenhouse Gas Emissions Assessment completed for the Orchard and Cypress Residential Project (Project). The purpose of this Greenhouse Gas Emissions Assessment is to evaluate the Project's potential construction and operational emissions and determine the Project's level of impact on the environment.

1.1 Project Location & Setting

The Project site is in the County of Los Angeles (County), in the City of El Monte (City), approximately 12 miles east of downtown Los Angeles; see **Exhibit 1: Regional Vicinity Map**. The Project site is centrally located in the City, near the downtown Main Street area, at 3630, 3640, and 3700 Cypress Avenue and 11312 Orchard Street. The Project site involves 5.69 gross-acres, comprised of four parcels (Assessor's Parcel Numbers (APN) 8568-026-002, -034, -035, and -053) north of Iris Lane, south of Orchard Street, and east of Cypress Avenue; see **Exhibit 2: Site Vicinity Map**.

Regional access to the Project site is provided via Interstate 10 (I-10), which is approximately 0.3 miles south of the Project site. Local access to the Project site is provided via two access driveways at Orchard Street and Cypress Avenue, at the site's northern and western portions.

The City of El Monte encompasses approximately 9.69 square miles in Los Angeles County's San Gabriel Valley region. The City is fully urbanized with of a mix of residential densities, although low-density residential uses predominate. The City also contains a mix of retail commercial, office, and industrial uses.

The Project site is located within the Northwest Industrial District in the central portion of the City. Historically, this District has served as a key manufacturing district and home to major defense industries. Residential neighborhoods (circa 1950s) surround these industrial uses. Specifically, Cypress Avenue, Orchard Street, and Iris Lane bound the Project site. The site is bordered by various land uses (i.e., multi- and single- family residential, commercial, and industrial uses), and vacant land. The Project site is approximately 0.25 mile north of the El Monte Downtown area. The Metrolink San Bernardino line railway is adjacent and south of the Project site.

1.2 Project Description

The Project proposes a residential community consisting of 110 three-story townhomes, at a density of 19.33 dwelling units per net acre (DU/net AC); see **Exhibit 3: Conceptual Site Plan**. The Project proposes to remove all existing on-site improvements and construct 110 townhomes in 22 buildings (approximately 200,991 square feet [SF]), with between three and six DU per building. The maximum proposed building height would be 36 feet (to roof ridge). Street dedications are required along Iris Lane and Orchard Street for 30-foot half-width streets, resulting in a Project site of 5.10 net-acres**.**

As depicted on **Exhibit 3**, the proposed Site Plan involves 22 building clusters, a majority along the Project's southwest and southeast boundaries. Seven buildings are proposed along the Project's northwest and northeast boundaries. Two main streets provide access throughout the community, with seven private streets for access to each of the buildings. Additionally, the Project proposes approximately 75,141 SF of common open space including approximately 70,590 SF of open space, including private open space (in the form of enclosed courtyards on approximately 84 of the 110 units), "usable" common open space, "other" landscaped common open space, walkways and "community trails," and a tot lot. No private open space is proposed; therefore, the Applicant has requested approval of a Variance to reduce

private open space requirements. A total of 275 parking spaces are proposed, including 220 within two-car garages with direct access to each DU.

Project Construction and Phasing

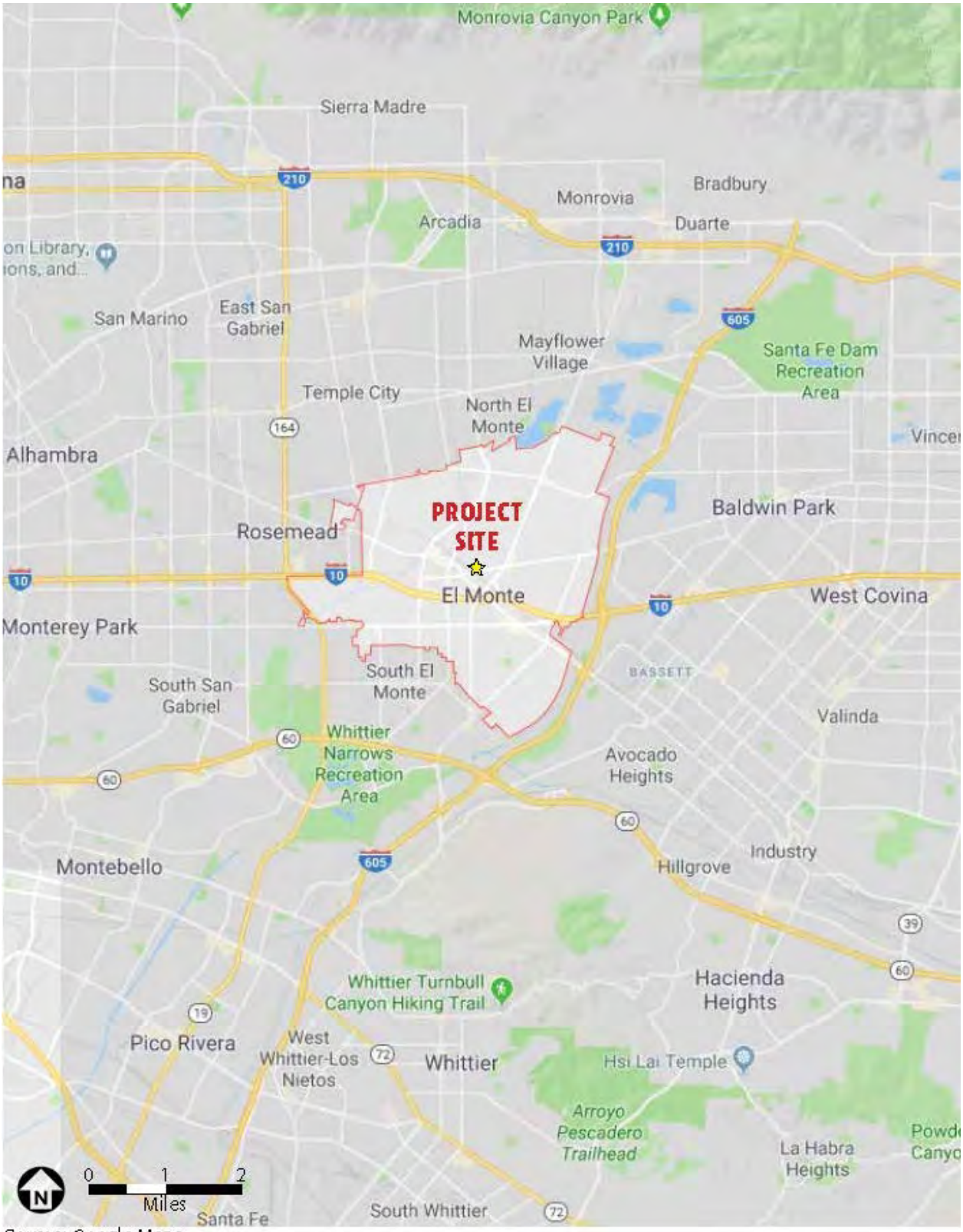
Project construction is anticipated to occur beginning in April 2021 and ending in December 2024, in the following sequence:

- Demolition,
- Site Preparation,
- Grading,
- Wet Utilities;
- Dry Utilities;
- Roadways;
- Building Construction, and
- Paving, Architectural Coating, and Landscaping.

Grading for the proposed improvements would require cut and fill to create building pads. Grading is estimated to require approximately 19,630 cubic yards (CY) of soil import. Final grading plans would be approved by the City before Grading Permit issuance. All infrastructure (i.e., storm drain, water, wastewater, dry utilities, and street improvements) would be installed during grading.

Project construction would occur beginning April 2021 and ending in December 2024. For purposes of this environmental analysis, opening year is assumed to be 2024.

Exhibit 1: Regional Vicinity



Source: Google Maps

Exhibit 2: Site Vicinity



Source: Near Map

Exhibit 3: Site Plan



Source: Near Map

2 ENVIRONMENTAL SETTING

2.1 Greenhouse Gases and Climate Change

Certain gases in the earth's atmosphere classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

The primary GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Examples of fluorinated gases include chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3); however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of GHGs exceeding natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the Earth's climate, known as global climate change or global warming.

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs), which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of a GHG molecule is dependent on multiple variables and cannot be pinpointed, more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms of carbon sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere[1]. **Table 1: Description of Greenhouse Gases**, describes the primary GHGs attributed to global climate change, including their physical properties.

[1] Intergovernmental Panel on Climate Change, *Carbon and Other Biogeochemical Cycles. In: Climate Change 2013: The Physical Science Basis*, *Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2013. https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_all_final.pdf.

Table 1: Description of Greenhouse Gases

Greenhouse Gas	Description
Carbon Dioxide (CO_2)	CO_2 is a colorless, odorless gas that is emitted naturally and through human activities. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, and industrial facilities. The atmospheric lifetime of CO_2 is variable because it is readily exchanged in the atmosphere. CO_2 is the most widely emitted GHG and is the reference gas (Global Warming Potential of 1) for determining Global Warming Potentials for other GHGs.
Nitrous Oxide (N_2O)	N_2O is largely attributable to agricultural practices and soil management. Primary human-related sources of N_2O include agricultural soil management, sewage treatment, combustion of fossil fuels, and adipic and nitric acid production. N_2O is produced from biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years. The Global Warming Potential of N_2O is 298.
Methane (CH_4)	CH_4, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Methane is the major component of natural gas, approximately 87 percent by volume. Human-related sources include fossil fuel production, animal husbandry, rice cultivation, biomass burning, and waste management. Natural sources of CH_4 include wetlands, gas hydrates, termites, oceans, freshwater bodies, non-wetland soils, and wildfires. The atmospheric lifetime of CH_4 is approximately 12 years and the Global Warming Potential is 25.
Hydrofluorocarbons (HFCs)	HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is increasing, as the continued phase out of CFCs and HCFCs gains momentum. The 100-year Global Warming Potential of HFCs range from 124 for HFC-152 to 14,800 for HFC-23.
Perfluorocarbons (PFCs)	PFCs have stable molecular structures and only break down by ultraviolet rays approximately 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. Two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Global Warming Potentials range from 6,500 to 9,200.
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited their production in 1987. Global Warming Potentials for CFCs range from 3,800 to 14,400.
Sulfur Hexafluoride (SF_6)	SF_6 is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas. The Global Warming Potential of SF_6 is 23,900.
Hydrochlorofluorocarbons (HCFCs)	HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, HCFCs are subject to a consumption cap and gradual phase out. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The 100-year Global Warming Potentials of HCFCs range from 90 for HCFC-123 to 1,800 for HCFC-142b.
Nitrogen Trifluoride (NF_3)	NF_3 was added to Health and Safety Code section 38505(g)(7) as a GHG of concern. This gas is used in electronics manufacture for semiconductors and liquid crystal displays. It has a high global warming potential of 17,200.

Source: Compiled from U.S. EPA, *Overview of Greenhouse Gases*, April 11, 2019 (https://www.epa.gov/ghgemissions/overview-greenhouse-gases); U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017*, April 11, 2019; Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis*, 2007; National Research Council, Advancing the Science of Climate Change, 2010; U.S. EPA, *Methane and Nitrous Oxide Emission from Natural Sources*, April 2010.

3 REGULATORY SETTING

3.1 Federal

To date, national standards have not been established for nationwide GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level. Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

Energy Independence and Security Act of 2007. The Energy Independence and Security Act of 2007 (December 2007), among other key measures, requires the following, which would aid in the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

U.S. Environmental Protection Agency Endangerment Finding. The U.S. Environmental Protection Agency's (EPA) authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Federal Clean Air Act (FCAA) and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, the EPA finalized an endangerment finding in December 2009. Based on scientific evidence, it found that six GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing FCAA and the EPA's assessment of the scientific evidence that form the basis for the EPA's regulatory actions.

Federal Vehicle Standards. In response to the U.S. Supreme Court ruling discussed above, Executive Order 13432 was issued in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, an Executive Memorandum was issued directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 in model year

2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking. On January 12, 2017, the EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks. It should be noted that the EPA is currently proposing to freeze the vehicle fuel efficiency standards at their planned 2020 level (37 mpg), canceling any future strengthening (currently 54.5 mpg by 2026).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6 to 23 percent over the 2010 baselines.

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion metric tons and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program.

In 2018, the President and the EPA have stated their intent to halt various federal regulatory activities to reduce GHG emission, including the phase two program. California and other states have stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures and have committed to cooperating with other countries to implement global climate change initiatives. The timing and consequences of these types of federal decisions and potential responses from California and other states are currently speculative.

Clean Power Plan and New Source Performance Standards for Electric Generating Units. On October 23, 2015, the EPA published a final rule (effective December 22, 2015) establishing the carbon pollution emission guidelines for existing stationary sources: electric utility generating units (80 Federal Register [FR] 64510–64660), also known as the Clean Power Plan (CPP). These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: one fossil-fuel-fired electric utility steam-generating unit and two stationary combustion turbines. Concurrently, the EPA published a final rule (effective October 23, 2015) establishing standards of performance for GHG emissions from new, modified, and reconstructed stationary sources: electric utility generating units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. The U.S. Supreme Court stayed implementation of the CPP pending resolution of several lawsuits. Additionally, in March 2017, the federal government directed the EPA Administrator to review the CPP to determine whether it is consistent with current executive policies concerning GHG emissions, climate change, and energy.

Presidential Executive Order 13783. Presidential Executive Order 13783, *Promoting Energy Independence and Economic Growth* issued on March 28, 2017, orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of CO_2, N_2O, and CH_4.

3.2 State of California

California Air Resources Board

The California Air Resources Board (CARB) is responsible for the coordination and oversight of state and local air pollution control programs in California. Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness about climate change and its potential for severe long-term adverse environmental, social, and economic effects. California is a significant emitter of CO_2 equivalents (CO_2e) in the world and produced 459 million gross metric tons of CO_2e in 2013. In California, the transportation sector is the largest emitter of GHGs, followed by industrial operations such as manufacturing and oil and gas extraction.

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation, such as the landmark Assembly Bill (AB) 32, *California Global Warming Solutions Act of 2006*, was specifically enacted to address GHG emissions. Other legislation, such as Title 24 building efficiency standards and Title 20 appliance energy standards, were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation related to GHG emissions reduction.

Assembly Bill 32 (California Global Warming Solutions Act of 2006). AB 32 instructs the CARB to develop and enforce regulations for the reporting and verification of statewide GHG emissions. AB 32 also directed CARB to set a GHG emissions limit based on 1990 levels, to be achieved by 2020. It set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

CARB Scoping Plan. CARB adopted the Scoping Plan to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that would be adopted to reduce California's GHG emissions. CARB determined that achieving the 1990 emissions level would require a reduction of GHG emissions of approximately 29 percent below what would otherwise occur in 2020 in the absence of new laws and regulations (referred to as "business-as-usual")[2]. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates early actions and additional GHG reduction measures by both CARB and the State's Climate Action Team, identifies additional measures to be pursued as regulations, and outlines the adopted role of a cap-and-trade program[3]. Additional development of these measures and adoption of the appropriate regulations occurred through the end of 2013. Key elements of the Scoping Plan include:

- Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards.

[2] CARB defines business-as-usual (BAU) in its Scoping Plan as emissions levels that would occur if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. Projections for each emission-generating sector were compiled and used to estimate emissions for 2020 based on 2002–2004 emissions intensities. Under CARB's definition of BAU, new growth is assumed to have the same carbon intensities as was typical from 2002 through 2004.

[3] The Climate Action Team, led by the secretary of the California Environmental Protection Agency, is a group of State agency secretaries and heads of agencies, boards, and departments. Team members work to coordinate statewide efforts to implement global warming emissions reduction programs and the State's Climate Adaptation Strategy.

- Achieving a statewide renewables energy mix of 33 percent by 2020.
- Developing a California cap-and-trade program that links with other programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions (adopted in 2011).
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets (several sustainable community strategies have been adopted).
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, heavy-duty truck measures, the Low Carbon Fuel Standard (amendments to the Pavley Standard adopted 2009; Advanced Clean Car standard adopted 2012), goods movement measures, and the Low Carbon Fuel Standard (adopted 2009).
- Creating targeted fees, including a public goods charge on water use, fees on gasses with high global warming potential, and a fee to fund the administrative costs of California's long-term commitment to AB 32 implementation.

In 2012, CARB released revised estimates of the expected 2020 emissions reductions. The revised analysis relied on emissions projections updated considering current economic forecasts that accounted for the economic downturn since 2008, reduction measures already approved and put in place relating to future fuel and energy demand, and other factors. This update reduced the projected 2020 emissions from 596 million metric tons of CO_2e ($MMTCO_2e$) to 545 $MMTCO_2e$. The reduction in forecasted 2020 emissions means that the revised business-as-usual reduction necessary to achieve AB 32's goal of reaching 1990 levels by 2020 is now 21.7 percent, down from 29 percent. CARB also provided a lower 2020 inventory forecast that incorporated state-led GHG emissions reduction measures already in place. When this lower forecast is considered, the necessary reduction from business-as-usual needed to achieve the goals of AB 32 is approximately 16 percent.

CARB adopted the first major update to the Scoping Plan on May 22, 2014. The updated Scoping Plan summarizes the most recent science related to climate change, including anticipated impacts to California and the levels of GHG emissions reductions necessary to likely avoid risking irreparable damage. It identifies the actions California has already taken to reduce GHG emissions and focuses on areas where further reductions could be achieved to help meet the 2020 target established by AB 32.

In January 2017, CARB released the 2017 Climate Change Scoping Plan Update (2017 Scoping Plan) for public review and comment. The Second Update sets forth CARB's strategy for achieving the State's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below). The Second Update was approved by CARB's Governing Board on December 14, 2017.

Senate Bill 32 (California Global Warming Solutions Act of 2006: Emissions Limit). Signed into law in September 2016, SB 32 codifies the 2030 GHG reduction target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

With SB 32, the Legislature passed companion legislation, AB 197, which provides additional direction for developing the Scoping Plan. On December 14, 2017, CARB adopted a second update to the 2017 Scoping Plan. The 2017 Scoping Plan details how the State will reduce GHG emissions to meet the 2030 target set

by Executive Order B-30-15 and codified by SB 32. Other objectives listed in the 2017 Scoping Plan are to provide direct GHG emissions reductions; support climate investment in disadvantaged communities; and support the Clean Power Plan and other Federal actions.

SB 375 (The Sustainable Communities and Climate Protection Act of 2008). Signed into law on September 30, 2008, SB 375 provides a process to coordinate land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction goals established by AB 32. SB 375 requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, aligns planning for transportation and housing, and creates specified incentives for the implementation of the strategies. The applicable sustainable community strategy in the Bay Area is Plan Bay Area 2040.

AB 1493 (Pavley Regulations and Fuel Efficiency Standards). AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the by the U.S. District Court for the District of Columbia in 2011. The regulations establish one set of emission standards for model years 2009–2016 and a second set of emissions standards for model years 2017 to 2025. By 2025, when all rules will be fully implemented, new automobiles will emit 34 percent fewer CO_2e emissions and 75 percent fewer smog-forming emissions.

SB 1368 (Emission Performance Standards). SB 1368 is the companion bill of AB 32, which directs the California Public Utilities Commission (CPUC) to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 limits carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. The new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. The CPUC adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, for 1,100 pounds of CO_2 per megawatt-hour.

SB 1078 and SBX1-2 (Renewable Electricity Standards). SB 1078 required California to generate 20 percent of its electricity from renewable energy by 2017. This goal was accelerated with SB 107, which changed the due date to 2010 instead of 2017. On November 17, 2008, Executive Order S-14-08 established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Executive Order S-21-09 also directed CARB to adopt a regulation by July 31, 2010, requiring the State's load serving entities to meet a 33 percent renewable energy target by 2020. CARB approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23. SB X1-2 codified the 33 percent by 2020 goal.

SB 350 (Clean Energy and Pollution Reduction Act of 2015). Signed into law on October 7, 2015, SB 350 implements the goals of Executive Order B-30-15. The objectives of SB 350 are to increase the procurement of electricity from renewable sources from 33 percent to 50 percent (with interim targets of 40 percent by 2024, and 45 percent by 2027) and to double the energy efficiency savings in electricity and natural gas end uses of retail customers through energy efficiency and conservation. SB 350 also reorganizes the Independent System Operator to develop more regional electricity transmission markets

and improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States.

AB 398 (Market-Based Compliance Mechanisms). Signed on July 25, 2017, AB 398 extended the duration of the Cap-and-Trade program from 2020 to 2030. AB 398 required CARB to update the Scoping Plan and for all GHG rules and regulations adopted by the State. It also designated CARB as the statewide regulatory body responsible for ensuring that California meets its statewide carbon pollution reduction targets, while retaining local air districts' responsibility and authority to curb toxic air contaminants and criteria pollutants from local sources that severely impact public health. AB 398 also decreased free carbon allowances over 40 percent by 2030 and prioritized Cap-and-Trade spending to various programs including reducing diesel emissions in impacted communities.

SB 150 (Regional Transportation Plans). Signed on October 10, 2017, SB 150 aligns local and regional GHG reduction targets with State targets (i.e., 40 percent below their 1990 levels by 2030). SB 150 creates a process to include communities in discussions on how to monitor their regions' progress on meeting these goals. The bill also requires the CARB to regularly report on that progress, as well as on the successes and the challenges regions experience associated with achieving their targets. SB 150 provides for accounting of climate change efforts and GHG reductions and identify effective reduction strategies.

SB 100 (California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases). Signed into Law in September 2018, SB 100 increased California's renewable electricity portfolio from 50 to 60 percent by 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

Executive Orders Related to GHG Emissions

California's Executive Branch has taken several actions to reduce GHGs using executive orders. Although not regulatory, they set the State's tone and guide the actions of state agencies.

Executive Order S-3-05. Executive Order S-3-05 was issued on June 1, 2005, which established the following GHG emissions reduction targets:

- By 2010, reduce greenhouse gas emissions to 2000 levels.
- By 2020, reduce greenhouse gas emissions to 1990 levels.
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07. Issued on January 18, 2007, Executive Order S-01-07 mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. The executive order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. CARB adopted the LCFS on April 23, 2009.

Executive Order S-13-08. Issued on November 14, 2008, Executive Order S-13-08 facilitated the California Natural Resources Agency development of the 2009 California Climate Adaptation Strategy. Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order S-14-08. Issued on November 17, 2008, Executive Order S-14-08 expands the State's Renewable Energy Standard to 33 percent renewable power by 2020. Additionally, Executive Order S-21-09 (signed on September 15, 2009) directs CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. CARB adopted the Renewable Electricity Standard on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly owned electricity retailers.

Executive Order S-21-09. Issued on July 17, 2009, Executive Order S-21-09 directs CARB to adopt regulations to increase California's RPS to 33 percent by 2020. This builds upon SB 1078 (2002), which established the California RPS program, requiring 20 percent renewable energy by 2017, and SB 107 (2006), which advanced the 20 percent deadline to 2010, a goal which was expanded to 33 percent by 2020 in the 2005 Energy Action Plan II.

Executive Order B-30-15. Issued on April 29, 2015, Executive Order B-30-15 established a California GHG reduction target of 40 percent below 1990 levels by 2030 and directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of $MMTCO_2e$. The 2030 target acts as an interim goal on the way to achieving reductions of 80 percent below 1990 levels by 2050, a goal set by Executive Order S-3-05. The executive order also requires the State's climate adaptation plan to be updated every three years and for the State to continue its climate change research program, among other provisions. With the enactment of SB 32 in 2016, the Legislature codified the goal of reducing GHG emissions by 2030 to 40 percent below 1990 levels.

Executive Order B-55-18. Issued on September 10, 2018, Executive Order B-55-18 establishes a goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the existing statewide targets of reducing GHG emissions. The executive order requires CARB to work with relevant state agencies to develop a framework for implementing this goal. It also requires CARB to update the Scoping Plan to identify and recommend measures to achieve carbon neutrality. The executive order also requires state agencies to develop sequestration targets in the Natural and Working Lands Climate Change Implementation Plan.

California Regulations and Building Codes

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat, even with rapid population growth.

Title 20 Appliance Efficiency Regulations. The appliance efficiency regulations (California Code of Regulations [CCR] Title 20, Sections 1601-1608) include standards for new appliances. Twenty-three categories of appliances are included in the scope of these regulations. These standards include minimum levels of operating efficiency, and other cost-effective measures, to promote the use of energy- and water-efficient appliances.

Title 24 Building Energy Efficiency Standards. California's Energy Efficiency Standards for Residential and Nonresidential Buildings (CCR Title 24, Part 6), was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2016 Building Energy Efficiency Standards approved on January 19, 2016 went into effect on January 1, 2017. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018 and will take effect on January 1, 2020. Under the 2019 standards, residential dwellings will be required to use approximately 53 percent less energy and nonresidential buildings will be required to use approximately 30 percent less energy than buildings under the 2016 standards.

Title 24 California Green Building Standards Code. The California Green Building Standards Code (CCR Title 24, Part 11 code) commonly referred to as CALGreen, is a statewide mandatory construction code developed and adopted by the California Building Standards Commission and the Department of Housing and Community Development. The CALGreen standards require new residential and nonresidential buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency/conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics. The most recent update to the 2016 CALGreen Code, went into effect January 1, 2017. Updates to the 2016 CALGreen Code will take effect on January 1, 2020 (2019 CALGreen). The 2019 CALGreen standards will continue to improve upon the existing standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The new 2019 CALGreen standards require residential buildings are required to be solar ready through photovoltaic (PV) systems (refer to Section 110.10 in the 2019 Building Energy Efficiency Standards for more details).

3.3 Regional

South Coast Air Quality Management District Thresholds

The South Coast Air Quality Management District (SCAQMD) formed a GHG California Environmental Quality Act (CEQA) Significance Threshold Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. As of the last Working Group meeting (Meeting 15) held in September 2010, the SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency.

With the tiered approach, a project is compared with the requirements of each tier sequentially and would not result in a significant impact if it complies with any tier. Tier 1 excludes projects that are specifically exempt from SB 97 from resulting in a significant impact. Tier 2 excludes projects that are consistent with a GHG reduction plan that has a certified final CEQA document and complies with AB 32 GHG reduction goals. Tier 3 excludes projects with annual emissions lower than a screening threshold. The SCAQMD is proposing a screening threshold of 10,000 metric tons of CO_2e ($MTCO_2e$) per year for industrial projects and 3,000 $MTCO_2e$ for non-industrial projects. SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact.

Tier 4 consists of three decision tree options. Under the Tier 4 first option, SCAQMD initially outlined that a project would be excluded if design features and/or mitigation measures resulted in emissions 30 percent lower than business as usual emissions. However, the Working Group did not provide a

recommendation for this approach. The Working Group folded the Tier 4 second option into the third option. Under the Tier 4 third option, a project would be excluded if it was below an efficiency-based threshold of 4.8 $MTCO_2e$ per service population per year. Tier 5 would exclude projects that implement offsite mitigation (GHG reduction projects) or purchase offsets to reduce GHG emission impacts to less than the proposed screening level.

GHG efficiency metrics are utilized as thresholds to assess the GHG efficiency of a project on a per capita basis or on a service population basis (the sum of the number of jobs and the number of residents provided by a project) such that the project would allow for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020 and 2035). GHG efficiency thresholds can be determined by dividing the GHG emissions inventory goal of the State, by the estimated 2035 population and employment. This method allows highly efficient projects with higher mass emissions to meet the overall reduction goals of AB 32, and is appropriate, because the threshold can be applied evenly to all project types (residential or commercial/retail only and mixed use).

Southern California Association of Governments

On April 7, 2016, the Southern California Association of Governments (SCAG) Regional Council adopted the *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS). The RTP/SCS charts a course for closely integrating land use and transportation so that the region can grow smartly and sustainably. The strategy was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The RTP/SCS is a long-range vision plan that balances future mobility and housing needs with economic, environmental, and public health goals. The SCAG region strives toward sustainability through integrated land use and transportation planning. The SCAG region must achieve specific federal air quality standards and is required by state law to lower regional GHG emissions.

3.4 Local

City of El Monte General Plan

The Public Health and Safety Element of the *Vision El Monte General Plan* (EMGP) (June 2011) contains an Air Quality section intended to help improve air quality throughout the City. The following air quality goals and polices from the Public Health and Safety Element apply to the proposed Project and help reduce Citywide GHG emissions.

Policy PHS-3.4 Transportation. Encourage alternative modes of travel to work and school by maximizing transit service, purchasing alternative fuel vehicles, completing all sidewalks, and creating a network of multiuse trails and bicycle paths.

Goal HW-12: Land use patterns reduce driving, enhance air quality, and improve respiratory health.

Policy HW-12.1 Walking, Cycling, and Transit Use. Promote land use patterns that reduce driving rates and promote walking, cycling and transit use.

4 SIGNIFICANCE CRITERIA AND METHODOLOGY

4.1 Thresholds and Significance Criteria

Based upon the criteria derived from State CEQA Guidelines Appendix G, a project normally would have a significant effect on the environment if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Addressing GHG emissions generation impacts requires an agency to determine what constitutes a significant impact. The amendments to the State CEQA Guidelines specifically allow lead agencies to determine thresholds of significance that illustrate the extent of an impact and are a basis from which to apply mitigation measures. This means that each agency is left to determine whether a project's GHG emissions would have a "significant" impact on the environment. The guidelines direct that agencies are to use "careful judgment" and "make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" a project's GHG emissions (14 California Code of Regulations Section 15064.4(a)).

The City of El Monte has not adopted project-specific significance thresholds. For the proposed Project, the SCAQMD's proposed 3,000 $MTCO_2e$ annual non-industrial screening threshold is used as the significance threshold, in addition to the qualitative thresholds of significance set forth above from State CEQA Guidelines Appendix G.

4.2 Methodology

The Project's construction and operational emissions were calculated using the California Emissions Estimator Model version 2016.3.2 (CalEEMod). Details of the modeling assumptions and emission factors are provided in **Appendix A: Greenhouse Gas Emissions Data**. For construction, CalEEMod calculates emissions from off-road equipment usage and on-road vehicle travel associated with haul, delivery, and construction worker trips. The Project's construction-related GHG emissions were forecasted based on the proposed construction schedule and applying the mobile-source and fugitive dust emissions factors derived from CalEEMod. The Project's construction-related GHG emissions would be generated from off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. The Project's operations-related GHG emissions would be generated by vehicular traffic, area sources (e.g., landscaping maintenance, consumer products), electrical generation, natural gas consumption, water supply and wastewater treatment, and solid waste.

5 POTENTIAL IMPACTS AND MITIGATION

5.1 Greenhouse Gas Emissions

Threshold 5.1 Would the Project generate greenhouse gas emissions, either directly or indirectly, that could have a significant impact on the environment?

Short-Term Construction Greenhouse Gas Emissions

The proposed Project would result in direct GHG emissions from construction-related activities. The approximate daily GHG emissions generated by construction equipment utilized to build the proposed Project are included in **Table 2: Construction-Related Greenhouse Gas Emissions**.

Table 2: Construction-Related Greenhouse Gas Emissions

Category	$MTCO_2e$
Total Construction Emissions	475
30-Year Amortized Construction	16

Source: CalEEMod version 2016.3.2. Refer to Appendix A for model outputs.

As shown in **Table 2**, Project construction-related activities would generate approximately 475 $MTCO_2e$ of GHG emissions over the course of construction. Construction GHG emissions are typically summed and amortized over the Project's lifetime (assumed to be 30 years), then added to the operational emissions.[4] The amortized Project emissions would be 16 $MTCO_2e$ per year. Once construction is complete, the generation of construction-related GHG emissions would cease.

Long-Term Operational Greenhouse Gas Emissions

Operational or long-term emissions would occur over the proposed Project's life. The Project's operational GHG emissions would result from direct emissions such as Project-generated vehicular traffic, on-site combustion of natural gas, and operation of any landscaping equipment. Operational GHG emissions would also result from indirect sources, such as off-site generation of electrical power, the energy required to convey water to the Project site and wastewater from the Project site, the emissions associated with solid waste generated from the Project site, and any fugitive refrigerants from air conditioning or refrigerators. The existing 150,000 square feet of industrial business park uses are currently generate GHG emissions. The Project's total operational GHG emissions and net emissions are summarized in **Table 3: Project Greenhouse Gas Emissions**. As shown, the project would generate approximately 1,560 $MTCO_2e$/year, which is a net decrease of 262 $MTCO_2e$/year over the existing emissions primarily due to a decrease in energy and water consumption and waste and wastewater generation. The project would not result in an increase in GHG emissions that exceed the SCAQMD's screening threshold of 3,000 $MTCO_2e$/yr. Therefore, project-related GHG emissions would be less than significant.

[4] The project lifetime is based on the standard 30-year assumption of the South Coast Air Quality Management District (South Coast Air Quality Management District, *Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #13,* August 26, 2009).

Table 3 indicates that most of the Project's emissions (approximately 93 percent) would be from energy and mobile sources. As noted above, energy and mobile sources are targeted by statewide measures such as continued implementation of the Renewable Portfolio Standard (the target is now set at 60 percent renewables by 2030) and extension of the Cap and Trade program (requires reductions from industrial sources, energy generation, and fossil fuels). The Cap and Trade program covers approximately 85 percent of California's GHG emissions as of January 2015. The statewide cap for GHG emissions from the capped sectors (i.e., electricity generation, industrial sources, petroleum refining, and cement production) began in 2013 and will decline approximately three percent each year, achieving GHG emission reductions throughout the program's duration. The passage of AB 398 in July 2017 extended the duration of the Cap and Trade program from 2020 to 2030.

Table 3: Project Greenhouse Gas Emissions

Emissions Source	$MTCO_2e$ per Year
Existing Emissions	
Area Source	0
Energy	604
Mobile	950
Waste	99
Water & Wastewater	169
Total Existing Emissions	**1,822**
Proposed Emissions	
Construction Amortized over 30 Years	16
Area Source	25
Energy	241
Mobile	1,207
Waste	25
Water & Wastewater	46
Total Project Emissions[1]	**1,560**
Net Emissions[1]	***-262***
SCAQMD Project Threshold	3,000
Threshold Exceeded?	**No**

Notes:
1. Totals may be slightly off due to rounding.

Source: CalEEMod version 2016.3.2. Refer to Appendix A for model data outputs.

Table 3 shows that the proposed Project would not exceed the SCAQMD GHG threshold of 3,000 $MTCO_2e$ per year and would result in a net decrease in annual GHG emissions. In addition, with continued implementation of various statewide measures, the Project's operational energy and mobile source emissions (approximately 93 percent of total Project emissions) would continue to decline in the future. Project-related GHG emissions would be less than significant and no mitigation is required.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

5.2 GREENHOUSE GAS REDUCTION PLAN COMPLIANCE

Threshold 5.2 Would the Project conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing greenhouse gas emissions?

There are currently no adopted local or regional GHG reduction plans applicable to the proposed Project. As such, the most applicable GHG reduction plans to the proposed Project include the SCAG RTP/SCS and CARB 2017 Scoping Plan discussed below.

2016-2040 RTP/SCS Consistency

On April 7, 2016, SCAG adopted the 2016-2040 RTP/SCS. The RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The RTP/SCS embodies a collective vision for the region's future and is developed with input from local governments, county transportation commissions, tribal governments, nonprofit organizations, businesses, and local stakeholders in the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. SCAG's RTP/SCS establishes GHG emissions goals for automobiles and light-duty trucks for 2020 and 2035 as well as an overall GHG target for the Project region consistent with both the target date of AB 32 and the post-2020 GHG reduction goals of Executive Orders 5-03-05 and B-30-15.

The plan accounts for operations and maintenance costs to ensure reliability, longevity, and cost effectiveness. The RTP/SCS is also supported by a combination of transportation and land use strategies that help the region achieve the State's GHG emissions reduction goals and Federal Clean Air Act (FCAA) requirements, preserve open space areas, improve public health and roadway safety, support our vital goods movement industry, and utilize resources more efficiently. GHG emissions resulting from development-related mobile sources are the most potent source of emissions, and therefore Project comparison to the RTP/SCS is an appropriate indicator of whether the Project would inhibit the post-2020 GHG reduction goals promulgated by the State. The Project's consistency with the RTP/SCS goals is analyzed in detail in **Table 4: 2016-2040 RTP/SCS Consistency**.

Table 4: 2016-2040 RTP/SCS Consistency

Actions and Strategies	Project Consistency Analysis
Land Use Actions and Strategies	
Encourage the use of range-limited battery electric and other alternative fueled vehicles through policies and programs, such as, but not limited to, neighborhood oriented development, complete streets, and Electric (and other alternative fuel) Vehicle Supply Equipment in public parking lots.	**Consistent.** The Project would not impair SCAG's ability to encourage the use of alternatively-fueled vehicles through various policies and programs. The Project includes the development of 110 townhomes and does not include public parking facilities.
Collaborate with the region's public health professionals to enhance how SCAG addresses public health issues in its regional planning, programming, and project development activities.	**Consistent.** The project consists of a residential development and would not impair SCAG's or the State's ability to collaborate with the region's public health professionals regarding the integration of public health issues in regional planning.
Support projects, programs, and policies that support active and healthy community environments that encourage safe walking, bicycling, and physical activity by children, including, but not limited to development of	**Consistent.** The project would include opportunities for healthy, physical activities for residents, including walking paths and landscaped open space areas.

Table 4: 2016-2040 RTP/SCS Consistency (continued)

Actions and Strategies	Project Consistency Analysis
complete streets, school siting policies, joint use agreements, and bicycle and pedestrian safety education.	
Support projects, programs, policies and regulations that encourage the development of complete communities, which includes a diversity of housing choices and educational opportunities, jobs for a variety of skills and education, recreation and culture, and a full-range of shopping, entertainment and services all within a relatively short distance.	**Consistent.** The Project consists of a residential development located within approximately 500 feet of Foothill Transit and LA Metro bus stops along Ramona Boulevard, and within 0.50-mile of educational, commercial, and institutional uses.
Transportation Network Actions and Strategies	
Cooperate with stakeholders, particularly county transportation commissions and the California Department of Transportation, to identify new funding sources and/or increased funding levels for the preservation and maintenance of the existing transportation network.	**Consistent.** While this action/strategy is not directly applicable, and while the Project would not impair the ability of SCAG, California Transportation Commissions (CTCs), or the County to cooperate with stakeholders to identify new funding sources and/or increase funding levels, the Project would support this action/strategy by connecting to the existing transportation network and improving footpath access on-site, with appropriate design considerations to ensure travel safety and reliability.
Explore and implement innovative strategies and projects that enhance mobility and air quality, including those that increase the walkability of communities and accessibility to transit via non-auto modes, including walking, bicycling, and neighborhood electric vehicles (NEVs) or other alternative fueled vehicles.	**Consistent.** The Project would include opportunities for healthy, physical activities for residents, including walking paths and landscaped open space areas.
Collaborate with local jurisdictions to provide a network of local community circulators that serve new Transit Oriented Development (TOD), HQTAs, and neighborhood commercial centers providing an incentive for residents and employees to make trips on transit.	**Consistent.** The Project would not impair the ability of SCAG, the CTCs, or the County to provide such a network of local community circulators that serve new TOD, High Quality Transit Areas (HQTAs), and neighborhood commercial centers.
Develop first-mile/last-mile strategies on a local level to provide an incentive for making trips by transit, bicycling, walking, or neighborhood electric vehicle or other ZEV options.	**Consistent.** The Project would not impair the CTCs' or the County's ability to develop first-mile/last-mile strategies. The Project site is located within approximately 500 feet of Foothill Transit and LA Metro bus stops along Ramona Boulevard.
Transportation Demand Management (TDM) Actions and Strategies	
Support work-based programs that encourage emission reduction strategies and incentivize active transportation commuting or ride-share modes.	**Consistent.** The Project would be located within approximately 500 feet of LA Metro and Foothill Transit bus stops, and future residents at the Project site would have ample opportunities for ride-share commuting via smartphone ride-share applications and other ride-sharing programs.
Encourage the development of telecommuting programs by employers through review and revision of policies that may discourage alternative work options.	**Consistent.** As a residential development project, the Project would not impair the County's or CTCs ability to encourage the development of telecommuting programs by employers.
Emphasize active transportation and alternative fueled vehicle projects as part of complying with the Complete Streets Act (AB 1358).	**Consistent.** As an infill residential development project, the Project would not impair the County's ability to develop infrastructure plans and education programs to promote active transportation options and other alternative fueled vehicles.

Table 4: 2016-2040 RTP/SCS Consistency (continued)	
Actions and Strategies	**Project Consistency Analysis**
Transportation System Management (TSM) Actions and Strategies	
Work with relevant state and local transportation authorities to increase the efficiency of the existing transportation system.	**Consistent.** The project would not impair the ability of SCAG, the County, or the State to work with relevant transportation authorities to increase the efficiency of the existing transportation system. Moreover, all proposed footpaths and roadways to be constructed would be designed to conform to the City's requirements.
Source: Southern California Association of Governments, *2016–2040 Regional Transportation Plan/Sustainable Communities Strategy*, April 2016.	

As shown in **Table 4**, the Project would be consistent with the stated goals of the RTP/SCS. Therefore, the Project would not result in any significant impacts or interfere with SCAG's ability to achieve the region's post-2020 mobile source GHG reduction targets.

California Air Resource Board Scoping Plan Consistency

The California State Legislature adopted AB 32 in 2006. AB 32 focuses on reducing GHGs (CO_2, CH_4, NO_X, HFCs, PFCs, and SF_6) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, CARB adopted the *Climate Change Scoping Plan* (CCSP) in 2008, which outlines actions recommended to obtain that goal. The CCSP provides a range of GHG reduction actions that include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as the cap-and-trade program, and an AB 32 implementation fee to fund the program. As shown in **Table 5: Project Consistency with Applicable CARB Scoping Plan Measures**, the Project is consistent with most of the strategies, while others are not applicable to the Project.

Table 5: Project Consistency with Applicable CARB Scoping Plan Measures			
Scoping Plan Sector	**Scoping Plan Measure**	**Implementing Regulations**	**Project Consistency Analysis**
Transportation	California Cap-and-Trade Program Linked to Western Climate Initiative	Regulation for the California Cap on GHG Emissions and Market-Based Compliance Mechanism October 20, 2015 (CCR 95800)	**Consistent.** The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers. However, the regulation indirectly affects people who use the products and services produced by these industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period.
	California Light-Duty Vehicle GHG Standards	Pavley I 2005 Regulations to Control GHG Emissions from Motor Vehicles	**Consistent**. This measure applies to all new vehicles starting with model year 2012. The Project would not conflict with its implementation as it would apply to all new passenger vehicles purchased in California.

Table 5: Project Consistency with Applicable CARB Scoping Plan Measures (continued)

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency Analysis
			Passenger vehicles, model year 2012 and later, associated with construction and operation of the Project would be required to comply with the Pavley emissions standards.
		2012 LEV III California GHG and Criteria Pollutant Exhaust and Evaporative Emission Standards	**Consistent.** The LEV III amendments provide reductions from new vehicles sold in California between 2017 and 2025. Passenger vehicles associated with the Project would comply with LEV III standards.
	Low Carbon Fuel Standard	2009 readopted in 2015. Regulations to Achieve GHG Emission Reductions Subarticle 7. Low Carbon Fuel Standard CCR 95480	**Consistent.** This measure applies to transportation fuels utilized by vehicles in California. The Project would not conflict with implementation of this measure. Motor vehicles associated with construction and operation of the Project would utilize low carbon transportation fuels as required under this measure.
	Regional Transportation-Related GHG Targets.	SB 375. Cal. Public Resources Code §§ 21155, 21155.1, 21155.2, 21159.28	**Consistent**. The Project would provide development in the region that is consistent with the growth projections in the RTP/SCS.
	Goods Movement	Goods Movement Action Plan January 2007	**Not applicable**. The Project does not propose any changes to maritime, rail, or intermodal facilities or forms of transportation.
	Medium/Heavy-Duty Vehicle	2010 Amendments to the Truck and Bus Regulation, the Drayage Truck Regulation and the Tractor-Trailer GHG Regulation	**Consistent**. This measure applies to medium and heavy-duty vehicles that operate in the State. The Project would not conflict with implementation of this measure. Medium and heavy-duty vehicles associated with construction and operation of the Project would be required to comply with the requirements of this regulation.
	High Speed Rail	Funded under SB 862	**Not applicable**. This is a statewide measure that cannot be implemented by a project applicant or Lead Agency.
Electricity and Natural Gas	Energy Efficiency	Title 20 Appliance Efficiency Regulation	**Consistent.** The Project would not conflict with implementation of this measure. The Project would comply with the latest energy efficiency standards.
		Title 24 Part 6 Energy Efficiency Standards for Residential and Non-Residential Building	
		Title 24 Part 11 California Green Building Code Standards	
	Renewable Portfolio Standard/Renewable Electricity Standard.	2010 Regulation to Implement the Renewable Electricity Standard (33% 2020)	**Consistent**. The Project would obtain electricity from the electric utility, Southern California Edison (SCE). SCE obtained 32 percent of its power supply from renewable sources in 2018. Therefore, the utility would provide power when needed on site that is composed of a greater percentage of renewable sources.
	Million Solar Roofs Program	SB 350 Clean Energy and Pollution Reduction Act of 2015 (50% 2030)	

Table 5: Project Consistency with Applicable CARB Scoping Plan Measures (continued)

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency Analysis
	Million Solar Roofs Program	Tax Incentive Program	**Consistent.** This measure is to increase solar throughout California, which is being done by various electricity providers and existing solar programs. The program provides incentives that are in place at the time of construction.
Water	Water	Title 24 Part 11 California Green Building Code Standards SBX 7-7—The Water Conservation Act of 2009 Model Water Efficient Landscape Ordinance	**Consistent.** The Project would comply with the CalGreen standards, which requires a 20 percent reduction in indoor water use. The Project would also comply with the City's water conservation and efficiency standards.
Green Buildings	Green Building Strategy	Title 24 Part 11 California Green Building Code Standards	**Consistent.** The State is to increase the use of green building practices. The Project would implement required green building strategies through existing regulation that requires the Project to comply with various CalGreen requirements.
Industry	Industrial Emissions	2010 CARB Mandatory Reporting Regulation	**Not applicable.** The Mandatory Reporting Regulation requires facilities and entities with more than 10,000 $MTCO_2e$ of combustion and process emissions, all facilities belonging to certain industries, and all electric power entities to submit an annual GHG emissions data report directly to CARB. As shown above, total Project GHG emissions would not exceed 10,000 $MTCO_2e$. Therefore, this regulation would not apply.
Recycling and Waste Management	Recycling and Waste	Title 24 Part 11 California Green Building Code Standards AB 341 Statewide 75 Percent Diversion Goal	**Consistent.** The Project would not conflict with implementation of these measures. The Project is required to achieve the recycling mandates via compliance with the CALGreen code. The City has consistently achieved its State recycling mandates.
Forests	Sustainable Forests	Cap and Trade Offset Projects	**Not applicable.** The Project is located within an urban area and does not contain forested lands.
High Global Warming Potential	High Global Warming Potential Gases	CARB Refrigerant Management Program CCR 95380	**Not applicable**. The regulations are applicable to refrigerants used by large air conditioning systems and large commercial and industrial refrigerators and cold storage system. The Project would not conflict with the refrigerant management regulations adopted by CARB.
Agriculture	Agriculture	Cap and Trade Offset Projects for Livestock and Rice Cultivation	**Not applicable**. The Project site is designated for urban development. No grazing, feedlot, or other agricultural activities that generate manure occur currently exist on-site or are proposed to be implemented by the Project.

Source: California Air Resources Board, *California's 2017 Climate Change Scoping Plan*, November 2017 and CARB, *Climate Change Scoping Plan*, December 2008.

The 2017 Scoping Plan identifies additional GHG reduction measures necessary to achieve the 2030 target. These measures build upon those identified in the first update to the CCSP in 2013. Although a number of these measures are currently established as policies and measures, some measures have not yet been formally proposed or adopted. It is expected that these actions to reduce GHG emissions will be adopted as required to achieve statewide GHG emissions targets.

Conclusion

In summary, the consistency analysis provided above demonstrates that the Project complies with the plans, policies, regulations and GHG reduction actions/strategies outlined in the 2040 RTP/SCS and the 2017 Scoping Plan. In addition, the Project would result in a net decrease in GHG emissions compared to existing conditions; refer to **Table 3**. Therefore, the Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing emissions of GHGs. A less than significant impact would occur in this regard.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

5.3 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately one day), GHGs have much longer atmospheric lifetimes of one year to several thousand years that allow them to be dispersed around the globe.

Cumulative Impacts and Mitigation Measures

It is generally the case that an individual project of the proposed Project's size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. The additive effect of Project-related GHG emissions would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change. In addition, the proposed Project as well as other cumulative related projects, would be subject to all applicable regulatory requirements, which would further reduce GHG emissions. As shown in **Table 3**, the proposed Project's GHG emissions would not exceed SCAQMD thresholds and are less than the existing industrial park. Additionally, as discussed above, the Project would be consistent with the RTP/SCS and 2017 Scoping Plan. As a result, the Project would not conflict with any GHG reduction plan. Therefore, the Project's cumulative contribution of GHG emissions would be less than significant and the Project's cumulative GHG impacts would also be less than cumulatively considerable.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

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Appendix A

Greenhouse Gas Emissions Data

Appendix G1

Phase I Environmental Site Assessment



Phase I Environmental Site Assessment

3700, 3640, 3630 Cypress Avenue and 11312 Orchard Street, and 11301-11309 Iris Lane, El Monte, California 91731

March 25, 2019

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DRAFT

Sign-off Sheet and Signatures of Environmental Professionals

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All information, conclusions, and recommendations provided by Stantec in this document regarding the Phase I ESA have been prepared under the supervision of and reviewed by the professionals whose signatures appear below.

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in § 312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Property. I have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

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Abbreviations

AAI	All Appropriate Inquiry
ACM	Asbestos-containing material
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulation
CREC	Controlled Recognized Environmental Conditions
ELUC	Environmental Land Use Control
EP	Environmental Professional
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
ft msl	Feet above mean sea level
HREC	Historical Recognized Environmental Conditions
LBP	Lead-based paint
LUST	Leaking Underground Storage Tank
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Conditions
SWMU	Solid Waste Management Unit
TSCA	Toxic Substance Control Act
USGS	United States Geological Survey
UST	Underground Storage Tank
VEC	Vapor Encroachment Condition
VOCs	Volatile Organic Compounds

1.0 SUMMARY

Stantec Consulting Services Inc. (Stantec) has completed a Phase I Environmental Site Assessment (ESA) report of the property located at 3700, 3640, 3630 Cypress Avenue; 11312 Orchard Street; and 11301-11309 Iris Lane, City of El Monte, County of Los Angeles, California, on behalf of KB Home Southern California (the "Client"). The work was performed according to Stantec's proposal and terms and conditions dated January 29, 2019 and accepted by the Client on the same date. KB Home Southern California (the "User") has been designated as the User of this report.

The Phase I ESA was conducted in conformance with the requirements of American Society for Testing and Materials (ASTM) Designation E 1527-13, and All Appropriate Inquiry (AAI) as defined by the US-EPA in Title 40 of the Code of Federal Regulations, Part 312, except as may have been modified by the scope of work, and terms and conditions, requested by the Client. Any exceptions to, or deletions from, the ASTM or AAI practice are described in Section 2.3.

The Property consists of approximately 5.2 acres of land developed with four occupied multi-tenant commercial/light industrial buildings with asphalt parking lots. Tenants include import/export warehouses, furniture warehouses, woodworking, print press, and storage/maintenance of forklifts and other various machines. Silo structures attached to ventilation ducts appeared on the roof of 3700 Cypress Avenue. Surrounding properties include residential structures and the City of El Monte Transportation Service Yard. A former oil well is reportedly located on the City of El Monte Transportation Service Yard property. A Property location map is illustrated on Figure 1. A Property map illustrating the main features of the Property is provided as Figure 2. Photographs taken during the site reconnaissance visit are provided in Appendix A.

During the site reconnaissance, Stantec observed a large concrete pad with four metal grates along the northern exterior of 11312-B Orchard Street. Four additional metal grates were observed adjacent to the concrete pad. The grates on the concrete pad appear to be a clarifier. According to historical records, the suite was formerly occupied by a commercial laundry/dry facility. A concrete pad with a vault that appeared to be formerly used for storm water retention was observed in the southeast exterior of the 3640 Cypress Avenue building. An exterior storage shed, and a former flammable storage area were observed along the southeastern exterior of vacant 3700-B Cypress Avenue building. According to the Property Owner representative the building was formerly occupied by a furniture warehouse.

Stantec also observed two groundwater monitoring wells in the asphalt parking lot east of the 11301-11309 Iris Lane multi-tenant commercial building and one monitoring well southeast of 3700 Cypress Avenue. The three groundwater monitoring wells were installed as part of the site assessment for the former Electra Food Machinery located at 11312 Orchard Street. The former Electra Food Machinery company received a No Further Action (NFA) letter from the Los Angeles Regional Water Quality Control related to the soil - gas and groundwater monitoring in 1997 and the groundwater monitoring well were transferred to the United States Environmental Protection Agency (EPA) to monitor the regional plume. The well covers did not appear to have been opened recently.

The current tenant of 3640 Cypress Avenue utilizes the building for door storage and woodworking. A paint spray booth was observed in the southwest portion of the interior of the building. Adjacent to the paint spray booth was various small containers (<5 gallons) of paints and paint thinners not secured and improperly stored.

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527 of 3700, 3640, 3630 Cypress Avenue; 11312 Orchard Street; and 11301-11309 Iris Lane, City of El Monte, County of Los Angeles, California, the Property. Any exceptions to, or deletions from, this practice are described in the Data Gaps section of this report. This assessment has revealed the following evidence of recognized environmental conditions (RECs) in connection with the Property:

- **Current and Historical Site Operations.** During the site reconnaissance, Stantec observed a large concrete pad with four metal grates (suspect clarifier) along the northern exterior of 11312-B Orchard Street associated with the former laundry/dry facility; an exterior storage shed and a former flammable storage area were observed along the southeastern exterior of vacant 3700-B Cypress Avenue building; and current tenants include a printing press (11305 Iris) and woodworking (3640 Cypress Avenue). According to a map dated April 29, 2002 for 3700 Cypress Avenue building new trench drains were installed for Jayar Manufacturing. The trenches are1 foot deep, 63 feet in length, and 15 feet apart. The trenches discharge into an existing clarifier. The location of the clarifier was not depicted on the map. These current and historical site operations observed are considered a REC that warrant further assessment to evaluate if a release has occurred from these structures to the underlying soil

- **Off-Site Oil Well.** According to the Los Angeles Department of Public Works, Solid Waste Management System database, the Property is within 300 feet of an inactive oil well, which is located west of the Property beyond Cypress Avenue on the City of El Monte Transportation Service Yard. Given the proximity of the Property to the inactive oil well, this agency may require methane mitigation systems for future site buildings.

- **Database Listings.** These listings were in connection with the disposal of oil wastes to approved disposal facilities; discharge of water to the sanitary sewer; and, the installation of groundwater monitoring wells on the Property in connection to with the site assessment of the former Electra Foods Machinery Inc. facility and the regional groundwater contamination in the area. Additionally, the Property address of 11312 Orchard Street was identified in the environmental database report as Electra Food Machinery Inc. in the drycleaner database as Anitsa Inc, Valet Services, DBA. No additional information was provided for this listing. The listing of the Property in the Drycleaner database and the prior soil gas-groundwater assessment is considered a REC. Stantec recommends a soil vapor survey to evaluate if the off-Site impacts to the underlying groundwater have generated a soil vapor issue of concern to residential development of the Property.

- **Contaminated Groundwater.** The Property is located over a National Priority List (NPL) Site identified as the San Gabriel Valley Superfund Site. Specifically, the Property is located within the El Monte Operable Unit of the San Gabriel Valley Superfund Site (Area 1), which is an 11-square-mile area of contaminated groundwater. It is one of four Superfund sites in the 170-square-mile

San Gabriel Valley. Groundwater in the area of the Property has been documented to be impacted with various volatile organic compounds (VOCs) including tetrachloroethene (PCE), trichloroethene (TCE), perchlorate, and carbon tetrachloride (CT).

Groundwater in the area of the Property is generally deeper than 100 feet. Off-gassing of VOCs from the contaminated groundwater could potentially affect soil vapor conditions at the Property. Therefore, the presence of documented contaminated groundwater in the area of the Property is considered a REC to the Property.

Stantec identified the following non-ASTM issues with the Property:

- **ACM and LBP.** Given the age of the existing building on the Property (circa 1950s), the presence of lead-based paint (LBP) and asbestos containing materials (ACMs) is considered likely. Stantec recommends conducting a comprehensive, pre-demolition LBP and ACM survey in accordance with the sampling protocol of the Asbestos Hazard Emergency Response Act (AHERA) prior to any activities with the potential to disturb building materials to determine whether ACM are present. Further, in the event ACM is detected, Stantec recommends proper removal and disposal of the materials identified prior to any activities with the potential to disturb them.

  Additionally, there are asphalt paved parking lots associated with the building. There is a potential for a stress absorbing fabric which is suspect for asbestos to be used within the asphalt area. The stress absorbing fabric in question is a felt underlayment that is commonly referred to as Petromat® and is sometimes used to increase the strength and longevity of asphalt surfaces. No Petromat® was observed in the four locations Stantec cored in the parking lots associated with the Property.

The preceding summary is intended for informational purposes only. Reading of the full body of this report is recommended.

2.0 INTRODUCTION

The objective of this Phase I ESA was to perform All Appropriate Inquiry (AAI) into the past ownership and uses of the Property consistent with good commercial or customary practice as outlined by the ASTM in "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process", Designation E1527-13. "All Appropriate Inquiry" (AAI) is the process for evaluating a property's environmental conditions for the purpose of qualifying for landowner liability protections under CERCLA. following final rule of Part 312 of Title 40, Code of Federal Regulations (40 CFR Part 312). The purpose of this Phase I ESA was to identify, to the extent feasible, adverse environmental conditions including recognized environmental conditions ("RECs") of the Property.

The ASTM E1527-13 standard indicates that the purpose of the Phase I ESA is to identify RECs, including historical recognized environmental conditions ("HRECs"), and controlled recognized environmental conditions ("CRECs") that may exist at a property. The term "recognized environmental conditions" means the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property:

1. Due to any release to the environment;
2. Under conditions indicative of a release to the environment; or
3. Under conditions that pose a material threat of a future release to the environment.

ASTM defines a "HREC" as a REC that has occurred in connection with a property but has been addressed to the satisfaction of the applicable regulatory authority and meets current unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (e.g., property use restrictions, activity and use limitations, institutional controls, or engineering controls). Before calling the past release a HREC, the environmental professional (EP) must determine whether the past release is a REC when the current Phase I ESA is conducted (e.g., if there has been a change in the regulations). If the EP considers the past release to be a REC at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the report as a REC.

ASTM defines a "CREC" as a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (e.g., as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), but with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (e.g., property use restrictions, activity and use limitations, institutional controls, or engineering controls).

As defined by ASTM, RECs can include hazardous substances or petroleum products present under conditions in compliance with laws if that presence represents a material threat of future release. The presence of hazardous substances or petroleum products is, however, not a REC if that presence is a *de minimis* condition. De minimis conditions are minor occurrences of contamination that generally do not present a material risk to human health and would not likely be subject to enforcement action if brought to the attention of governmental agencies.



This Phase I ESA was conducted in accordance with our proposal to KB Home dated January 29, 2019 and Client's authorization on the same date. The scope of work conducted during this Phase I ESA consisted of a visual reconnaissance of the Property, interviews with key individuals, and review of reasonably ascertainable documents. The scope of work did not include an assessment for environmental regulatory compliance of any facility ever operated at the Property (past or present), or sampling and analyzing of environmental media. Stantec was not contracted to perform an independent evaluation of the purchase or lease price of the Property and its relationship to current fair market value. The conclusions presented in this Phase I ESA report are professional opinions based on data described herein. The opinions are subject to the limitations described in Section 2.3.

ASTM E1527-13 notes that the availability of record information varies from source to source. The User or Environmental Professional is not obligated to identify, obtain, or review every possible source that might exist with respect to a property. Instead, ASTM identifies record information that is reasonably ascertainable from standard sources. "Reasonably ascertainable" means:

1. Information that is publicly available;
2. Information that is obtainable from its source within reasonable time and cost constraints; and
3. Information that is practicably reviewable.

2.1 PROPERTY DESCRIPTION

The Property consists of approximately 5.2 acres of land developed with four occupied multi-tenant commercial/light industrial buildings with asphalt parking lots. Tenants include import/export warehouses, furniture warehouses, woodworking, printing press, and storage/maintenance of forklifts and other various machines. Silo structures attached to ventilation ducts appeared on the roof of 3700 Cypress Avenue. Surrounding properties include residential structures and the City of El Monte Transportation Service Yard. A former oil well is reportedly located on the City of El Monte Transportation Service Yard property. A Property location map is illustrated on Figure 1. A Property map illustrating the main features of the Property is provided as Figure 2. Photographs taken during the site reconnaissance visit are provided in Appendix A.

The Assessor Parcel Numbers (APNs) associated with the Property include 8568-026-002; -034; -035; and -053. The Property Owner is identified as PI Properties No. 66, LLC.

2.2 SPECIAL TERMS, CONDITIONS, AND SIGNIFICANT ASSUMPTIONS

There were no special terms, conditions, or significant assumptions associated with this Phase I ESA.

2.3 EXCEPTIONS AND LIMITING CONDITIONS

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided and given the schedule and budget constraints established by the client. No other representations, warranties, or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including

no assurance that this work has uncovered all potential and actual liabilities and conditions associated with the Property.

This report provides an evaluation of selected environmental conditions associated with the Property that was assessed at the time the work was conducted and is based on information obtained by and/or provided to Stantec at that time. There are no assurances regarding the accuracy and completeness of this information. All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available, and the results of the work. They are not a certification of the property's environmental condition.

This report relates solely to the specific project for which Stantec was retained and the stated purpose for which this report was prepared and shall not be used or relied upon by client for any variation or extension of this project, any other project, or any other purpose.

This report has been prepared for the exclusive use of the client identified herein and any use of or reliance on this report by any third party is prohibited, except as may be consented to in writing by Stantec or as required by law. The provision of any such consent is at Stantec's sole and unfettered discretion and will only be authorized pursuant to the conditions of Stantec's standard form reliance letter. Stantec assumes no responsibility for losses, damages, liabilities, or claims, howsoever arising, from third party use of this report.

Project Specific limiting conditions are provided in Section 2.2.

The locations of any utilities, buildings and structures, and property boundaries illustrated in or described within this report, if any, including pole lines, conduits, water mains, sewers and other surface or sub-surface utilities and structures, are not guaranteed. Before starting site work, the exact location of all such utilities and structures must be confirmed by the client and the party performing the work, and Stantec assumes no liability resulting from damage to such utilities and structures.

The conclusions are based on the conditions encountered at the Property by Stantec at the time the work was conducted.

As the purpose of this report is to identify Property conditions which may pose an environmental risk; the identification of non-environmental risks to structures or people on the Property is beyond the scope of this assessment.

The findings, observations, and conclusions expressed by Stantec in this report are not an opinion concerning the compliance of any past or present owner or operator of the Property which is the subject of this report with any Federal, state, provincial or local law or regulation.

This report presents professional opinions and findings of a scientific and technical nature. It does not and shall not be construed to offer a legal opinion or representations as to the requirements of, nor compliance

with, environmental laws, rules, regulations or policies of Federal, state, provincial or local governmental agencies. It is recommended that issues raised by the report should be reviewed for the client by its legal counsel.

Stantec specifically disclaims any responsibility to update the conclusions in this report if new or different information later becomes available or if the conditions or activities on the property subsequently change.

2.4 PERSONNEL QUALIFICATIONS

This Phase I ESA was conducted by, or under the supervision of, an individual that meets the ASTM definition of an Environmental Professional (EP). The credentials of the EP and other key Stantec personnel involved in conducting this Phase I ESA are provided in Appendix B.

3.0 USER-PROVIDED INFORMATION

ASTM E1527-13 describes responsibilities of the User to complete certain tasks in connection with the performance of "All Appropriate Inquiries" into the Property. The ASTM standard requires that the Environmental Professional request information from the User on the results of those tasks because that information can assist in the identification of RECs, CRECs, HRECs, or de minimis conditions in connection with the Property. Towards that end, Stantec requested that the User provide the following documents and information:

Description of Information	**Provided (Yes / No)**	**Description and/or Key Findings**
User Questionnaire and/or Interview	Yes	The user was not aware of any environmental cleanup liens or activity use limitations associated with the Property. The user is not aware of any past use of the Property. The Property Owner is identified as PI Properties No. 66, LLC.
Environmental Liens or Activity Use Limitations	N/A	No environmental cleanup liens or activity use limitations were identified in the Preliminary Title Report prepared by First American Title Company dated December 27, 2018. A subsurface oil and gas leases were issued for the land lying below a depth of 500 feet from the surface in 1964 by Standard Oil.
Previous Environmental Permits or Reports Provided by User	N/A	The user is not aware of any previous reports or environmental permits available for the Property.
Purpose of the Phase I ESA	Yes	Due diligence.

Stantec requested information relevant to performance of this Phase I ESA with a written questionnaire submitted to the user of this report. A copy of the Users Questionnaire completed by Mr. David Lelie, Senior Project Manager for KB Homes, and is provided in Appendix C.

4.0 RECORDS REVIEW

The objective of consulting historical sources of information is to develop the history of the Property and surrounding area and evaluate if past uses may have resulted in RECs. Physical setting records are evaluated to determine if the physical setting may have contributed to adverse environmental conditions in connection with the Property. During the review of historical records, Stantec attempted to identify uses of the Property from the present to the first developed use of the Property. Stantec's research included the reasonably ascertainable and useful records described in this section.

4.1 PHYSICAL SETTING

A summary of the physical setting of the Property is provided in the table below with additional details in the following subsections

Topography:	The Property is relatively flat and lies at approximately 288 feet above mean sea level (amsl) with a general topographic gradient to the south (EDR, 2019).
Soil/Bedrock Data:	The Property and surrounding area are underlain by Quaternary aged gravels, sands, and silts of valleys and floodplains (Dibblee, 1999).
Estimated Depth to Groundwater/ Estimated Direction of Gradient:	According to information obtained for a facility located approximately 1 mile to the southwest, shallow groundwater within the site vicinity is anticipated to be encountered at approximately 175 feet amsl, or at approximately 113 feet beneath the site, and is flowing to the west.
NOTE: Site-specific groundwater flow direction and depth can only be determined by conducting site-specific testing, which Stantec has not conducted.	

4.1.1 Property Topography and Surface Water Flow

The Property is relatively flat and lies at approximately 288 feet above mean sea level (amsl) with a general topographic gradient to the south (EDR, 2019). Based on the topography, surface water on the Property flows over hardscaped surfaces into the curb and gutter drainage along Iris Lane, Cypress Avenue, and Orchard Street.

4.1.2 Regional and Property Geology

The Property is located in Los Angeles County. The area is located in the Transverse Ranges Geomorphic Province, which includes northwest-southeast trending mountain ranges and valleys that have been developed by the San Andreas Fault system (California Geological Survey [CGS], 2002). The stratigraphy underlying the Site consists primarily of recent-age gravel, sands, and silts deposited from the San Gabriel Mountains, located north of the Property (CDMG, 1962).

The closest mapped recently active fault is the Walnut Creek Fault located approximately 5 miles southeast of the Property (CGS, 2010). According to official maps of California, the Property is not located within an Alquist-Priolo (AP) Earthquake Fault Zone boundary or a liquefaction zone (CDMG, 2000).

4.1.3 Regional and Property Hydrogeology

The Site is located within the San Gabriel Valley Groundwater Basin. The basin is located within the eastern portion of Los Angeles County and includes most of San Gabriel Valley and part of the Santa Ana Valley. The basin is constrained by bedrock and faults on all sides. Several aquifers are present in the basin and water-bearing units consist of Holocene alluvium up to 4,100 feet in thickness and Pleistocene marine deposits up to 2,000 feet in thickness (Department of Water Resources [DWR], 2004). According to information obtained for a facility located approximately 1 mile to the southwest, shallow groundwater within the site vicinity is anticipated to be encountered at approximately 175 feet amsl, or at approximately 113 feet beneath the site, and is flowing to the west (State Water Resources Control Board [SWRCB], 2019).

4.2 FEDERAL, STATE AND TRIBAL ENVIRONMENTAL RECORDS

A regulatory agency database search report was obtained from Environmental Data Resources, Inc (EDR), a third-party environmental database search firm. A complete copy of the database search report, including the date the report was prepared, the date the information was last updated, and the definition of databases searched, is provided in Appendix D.

Stantec evaluated the information listed within the database relative to potential impact to the Property, assessing the potential for impacts based in part on the physical setting. As part of this process, inferences have been made regarding the likely groundwater flow direction at or near the Property. As described in 4.1.3, the inferred shallow groundwater flow direction is likely to be to the north. Observations about the Property and surrounding properties made during the Property reconnaissance are provided in more detail in Section 5.

4.2.1 Listings for Property

The Property address of 3700 Cypress Avenue was identified in the environmental database report as Jayar Manufacturing CO in the CA Los Angeles Co HMS, CA CIWQS, CA WDS, CA WIP, and CA HAZNET databases and as VT West in the CA HAZNET database. The Property address of 3630 Cypress Avenue was identified in the environmental database report as Ted's Decorating Inc. in the WIP database. The Property address of 11312 Orchard Street was identified in the environmental database report as Electra Food Machinery Inc. in the CA WIP database and Anitsa Inc, Valet Services, DBA in the CA Drycleaners database.

According to the HAZNET database listing, the Property performed fuel blending prior to energy recovery at another site in 2008 and disposed of approximately 1.5 tons of waste oil/mixed oil in 2003, 2004, 2005, 2010. The WIP database indicates the listing as "historical". The drycleaner database listing indicates that the facility uses a "laundry tumbler". No additional information is listed under the drycleaner database listing.

According to the CIWQS, CA WDS, and CA WIP databases, the Property has held historical permits to discharge water to the sanitary sewer system. Additionally, groundwater wells were installed at the Property in connection to a site assessment at 11312 Orchard Street and the regional groundwater contamination in the area of the Property. No further information regarding the listings was provided by EDR.

The Property is located over a National Priority List (NPL) Site, the San Gabriel Valley Superfund Site, Area 1. The San Gabriel Valley (Area 1) site is an 11-square-mile area of contaminated groundwater in Los Angeles, California. It is one of four Superfund sites in the 170-square-mile San Gabriel Valley. Multiple potentially responsible parties (PRPs) contaminated over 30 square miles of groundwater under the Valley with volatile organic compounds (VOCs) including tetrachloroethene (PCE), trichloroethene (TCE), perchlorate, and carbon tetrachloride (CT).

Additional records reviewed for the Property at the Los Angeles County Department of Public Works are described in Section 4.3.4 below.

4.2.2 Listings for Nearby Sites with Potential to Impact Property

Stantec assessed data presented in the environmental agency database search report to evaluate the potential for conditions on adjacent and nearby sites to pose a REC, CREC, or HREC for the Property. The evaluation included an opinion of the potential for contamination by hazardous substances or petroleum products to migrate to the Property from a nearby property, including by vapor migration or encroachment (i.e., potential for a vapor encroachment condition [VEC].

Based on this evaluation, the following individual facilities were identified as the most likely potential sources of impact to the Property. The basis for why each of the following listed databases creates a REC for the property is also provided.

Listed Facility Name/Address	**Database Listing**	**Distance/Direction from Property**	**REC? (YES / NO)**
Coastline Furniture MFG. 3700 Pine Avenue El Monte, CA 91731	CPS-SLIC, CA WIP	Approximately 103 feet east-northeast	No
The facility is listed under the cleanup program with the Los Angeles Regional Water Quality Control Board. No additional information is listed in the environmental database report for this listing. Additionally, no information is listed on the California State Water Resources Control Board online database (Geotracker) for this facility. Do to the depth of groundwater in the area of the Property, this listing is not considered a REC to the Property. Therefore, Stantec recommends no further investigation related to this listing.			
City of El Monte Maint & Transportation 3629 Cypress Avenue El Monte, CA 91731	CA UST, AC SWEEPS UST, CA HIST UST, CA FID UST, CA LOS ANGELES CO. HMS, CA WIP	Approximately 104 feet west-northwest	No
The facility is listed for having three 5,000-gallon underground storage tanks installed in 1979 and used for the storage of unleaded gasoline. No information is listed on the California State Water Resources Control Board online database (Geotracker) for this facility. Do to the depth of groundwater in the area			

Listed Facility Name/Address	Database Listing	Distance/Direction from Property	REC? (YES / NO)
of the Property, this listing is not considered a REC to the Property. Therefore, Stantec recommends no further investigation related to this listing.			
Former ABC Laundry & Cleaners 10803 East Garvey Avenue El Monte, CA 91733	CA CPS-SLIC, CA WIP	Approximately 265 feet southwest	No
The facility is listed under the cleanup program with the Los Angeles Regional Water Quality Control Board. No additional information is listed in the environmental database report for this listing. Additionally, no information is listed on the California State Water Resources Control Board online database (Geotracker) for this facility. Do to the depth of groundwater in the area of the Property, this listing is not considered a REC to the Property. Therefore, Stantec recommends no further investigation related to this listing.			
San Gabriel Valley (Area 1) Peck Road & Real El Monte, CA 91733	NPL, SEMS, US Eng CONTROLS, ROD, PRP, CONSENT, FINDS, ECHO	Beneath the Property and surrounding area	Yes
The listing is for the contaminated groundwater plume found within the San Gabriel Valley. Specifically, the Property overlies Area 1, or the El Monte Operable Unit. The groundwater in the area is contaminated with various VOCs, including PCE, TCE, CT, and other industrial solvents, originating from various point sources throughout the San Gabriel Valley. The groundwater plume that runs along the axis of the Rio Hondo Wash and the Salt Pit Wash in the San Gabriel ground water basin in El Monte, Los Angeles County, California. The plume also parallels the San Gabriel River to the east. It is approximately 4 miles long and 1.5 miles wide. Groundwater is contaminated with trichloroethylene (TCE), perchloroethylene PCE), and carbon tetrachloride (CTC. Many public wells in this area exceed the EPA Suggested No Adverse Response Levels (SNARL) for TCE and PCE. This site, along with the three other San Gabriel Valley sites, was added to the NPL in May 1984 because it involves a serious problem that required taking immediate remedial action. Remedial activities to treat the contaminated groundwater in this area are ongoing. Due to groundwater below the Property being contaminated with various solvents, and those solvents are known to off-gas from the water table, this listing poses a VEC to the Property. Stantec recommends performing a soil vapor investigation at the Property to characterize soil vapor conditions at the Property.			

The remaining listings in the database search report provided in Appendix D do not constitute a potential REC for the Property.

4.3 LOCAL/REGIONAL ENVIRONMENTAL RECORDS

Stantec checked the following sources to obtain information pertaining to Property use and/or indications of RECs in connection with the Property:

4.3.1 Division of Oil, Gas, and Geothermal Resources, Division 1

Agency Name Contact Information	Finding
Division of Oil, Gas, and Geothermal Resources, Division 1, Department of Conservation 5816 Corporate Avenue, Suite 200 Cypress, CA 90630 Online database: http://www.conservation.ca.gov/ dog/Pages/WellFinder.aspx	Stantec searched for oil wells on the Division of Oil, Gas, and Geothermal Resources (DOGGR) online database. There are no oil wells on the Property. The nearest oil well is a plugged oil well, identified as "Ferris 1", and operated by Chevron USA Inc., located approximately 250 feet west of the Property (on the City of El Monte Transportation Service Center).

4.3.2 California Regional Water Quality Control Board (CRWQCB)

Agency Name, Contact Information	Findings
California State Water Resources Control Board, Los Angeles (RWQCB) 320 W 4th Street, Suite 200 Los Angeles, CA 90013 (213) 576-6600	Stantec researched the online database Geotracker managed by this agency (geotracker.waterbarods.ca.gov). No records were found on the database website for the Property address or adjacent properties. On February 26, 2019, Stantec reviewed available hard copies for the Property address of 3700 Cypress Avenue. Records available consist of subsurface investigation reports for the Jayar Manufacturing Company that manufactured laminated plastic kitchen and bathroom countertops and sink products. Chemicals used and stored at the facility include four categories: those used in laminate plastic manufacturing (i.e. Stoddard solvent and urea resin); chemicals used in the Corian department (i.e. methanol); chemicals used in the Amflex department (i.e. acetone and polyester resin); and propane. Two shallow borings were drilled near the chemical storage areas to five feet bgs. Analytical results for the soil samples from both boring showed no detectable volatile organics present. Therefore, no further soil investigation was recommended.

California State Water Resources Control Board, Los Angeles (RWQCB) 320 W 4th Street, Suite 200 Los Angeles, CA 90013 (213) 576-6600	Stantec also reviewed the available hard copy records for the Property address of 11312 Orchard Street. According to a report summarizing soil remediation at Electra Foods Machinery, dated February 17, 1995, three areas of contamination were identified including: Area 1 – total petroleum hydrocarbons (TPH), toluene, ethylbenzene, total xylenes, and hexavalent chrome in the vicinity of an underground sump; Area 2 – hexavalent chromium impacted soil in the vicinity of boring B11; and Area 3 – Shallow TPH impacted soil in the vicinity of borings B2 and B5. The concrete sump was cleaned and removed on December 12 and 13, 1994. Impacted soil from the three areas was excavated and disposed of off-site. Confirmation soil samples were collected, and the excavations were backfilled upon receipt of results. A soil vapor probe was installed into the sump excavation backfill to 15 feet bgs. Aromatic and halogenated compounds were not detected in the soil gas sample suggesting that the sump is not a source of halogenated hydrocarbon contamination. According to a *Subsurface Soil-Gas Investigation Report*, prepared by The Reynolds Group dated August 1995, 15 vapor samples from 10 locations from 5 to 40 feet bgs were collected. Only one contaminant (111-TCA) was detected below the maximum contaminant levels (MCLs). Therefore, no further action was recommended. Additionally, a groundwater monitoring report prepared by The Reynolds Group dated August 18, 1995 stated that only one contaminant (tetrachloroethene) was detected in groundwater and all concentrations were below the maximum contaminant levels. Therefore, closure of further investigation and remediation was requested. Copies of the available records are provided in Appendix F.

4.3.3 Department of Toxic Substances Control (DTSC)

Agency Name **Contact Information**	**Finding**
Department of Toxic Substances Control (DTSC) 5796 Corporate Ave., Cypress, CA 90630	Stantec researched the online database Envirostor managed by this agency (envirostor.dtsc.ca.gov). No records were found on the database website for the Property address. Additionally, Stantec received a fax from this agency on January 29, 2019. That correspondence further indicated that this agency does not hold any records for the Property addresses.

4.3.4 Local Building and/or Planning Department Records

Agency Name, Contact Information	Findings
City of El Monte 11333 Valley Boulevard El Monte, CA 91737 Phone: 626-580-3612 Fax: 626-453-3612	On February 11, 2019, the City of El Monte provided available records for the Property addresses. Records included building permits and certificates of occupancy for 3630 Cypress, 3640 Cypress, 3700 Cypress, and 11312 Orchard Street. Business listed include service, manufacturing, and wholesale/storage. According to a Certificate of Occupancy dated January 7, 1969, 3640 Cypress Avenue was occupied by Aerospace Technology Corporation Western Division for the manufacturing of composites. According to a map dated April 29, 2002 for 3700 Cypress Avenue building new trench drains were installed for Jayar Manufacturing. The trenches are four 1' deep, 63' in length, and 15' apart. The trenches discharge into an existing clarifier. The location of the clarifier was not depicted on the map. Certificates of occupancy for 11312 Orchard Street lists occupants including C&W Chemical Company Inc. (Chemical and Abrasives Distributors) in September 1966 and Rainbow Textile Inc (Dye House) in June 1998. A notice of violation was issued by the City of El Monte to the Norman L Jackson Trust for 11312 Orchard Street dated April 17, 1995, stating a plumbing permit is requested for the installation of an underground clarifier and existing abandoned underground tank must be removed or filled with sand. Records provided are including in Appendix F.

4.3.5 Fire Department

Agency Name Contact Information	Finding
County of Los Angeles Fire Department Hazardous Materials Division 1320 N. Eastern Avenue Los Angeles, CA 90063 (323) 881-2411	On February 20, 2019, the County of Los Angeles Fire Department Hazardous Materials Division provided available records for the Property addresses of 3700 Cypress Avenue and 11312 Orchard Street. Records for 3700 Cypress Avenue showed that Jayar Mfg Co formerly occupied the building for manufacturing of countertop materials and was inactive since June 30, 2010. According to an inspection report dated July 29, 2008 Jayar Mfg. Co had two 55-gallon drums and one 5-gallon pail of hydraulic oil; two 55-gallon drums of resin solution, one 55-gallon drum of water-based sealant; three 55-gallon drums of acetone; one 55-gallon drum of bleach; one 55-gallon drum of W11; and one 55-gallon drum of EH3. According to the inspection report 4,000-gallons of waste water from manufacturing operations discharges to a settling tank, the water runs through filters, transfers to a 1,400-gallon tank and a 2,700-gallon tank, solid goes to a filter press, solid goes to the trash, and water to supply. EH3, W11, and bleach is added to the water two times a week. A notice of violation was issued in 2002 and 2008 for the hazardous materials storage area which was documented as messy and disorganized with unlabeled drums. Records for 11312 Orchard Street showed Valet Services (an industrial laundry facility) occupied the building until 2010. A chemical spill occurred on the Property on January 23, 2007 when a bleach solution was wrongfully pumped into the “Microsoft” tank which resulted in a foaming and approximately 10 gallons of foam overflowed releasing chlorine odor into the atmosphere. According to field notes from the fire department, tanks were observed inside a berm and included one tank of Nuphase I solution containing potassium silicate, potassium pyrophosphate; one tank of Nuphase II solution containing linear alcohol ethoxylate; two tanks containing Nuphase IV solution containing hydroperoxide; two tanks containing Microsoft phosphoric acid/ethanol/gluonic acid/ammonium chloride; and two brine tanks.

Agency Name Contact Information	Finding
County of Los Angeles Fire Department Hazardous Materials Division 1320 N. Eastern Avenue Los Angeles, CA 90063 (323) 881-2411	According to an inspection report dated May 22, 2002, the chemicals are directly fed from the tanks to the washers through chemical lines. There was one 600-gallon above ground storage tank (AST) containing laundry detergent; one 300-gallon AST containing laundry detergent additive; one 300-gallon AST containing bleach; two 300-gallon ASTs containing fabric softener (Microsoft); and two 55-gallon drums of hydraulic oil. There were four 100-lbs and three 400-lbs capacity washers and three 400-lbs capacity dryers. The waste water is discharged into a 3-phase clarifier that is monitored and sampled/analyzed by EconoLab. There was no map showing the location of these tanks; however, there is a concrete bermed around along the northern exterior of the building. Copies of the records reviewed are provided in Appendix F.

4.3.6 Los Angeles County Department of Public Works

Agency Name Contact Information	Finding
Los Angeles County Department of Public Works (DPW) Environmental Programs Division UST Program 900 South Fremont Avenue, 3rd Floor Alhambra, California Tel: (626) 458-3517 http://ladpw.org/epd/CleanLA/OpenFileReview.aspx	According to an email January 29, 2019 from Mr. David Coscia, Program Manager at Los Angeles County Public Health, this agency has a single file for the Property address of 3700 Cypress Avenue. This file was is for a stormwater discharge permit for the Property address, and no physical file was available for review. No other records were on file for the Property addresses with this agency. Stantec also research the Solid Waste Management System database managed by this agency (https://dpw.lacounty.gov/epd/swims/OnlineServices/search-methane-hazards-esri.aspx) to determine if methane mitigation is required for the Property. According to this database, the Property is within 300 feet of an oil well (see Section 4.3.1). Given the proximity of the Property to an inactive oil well, this agency may require methane mitigation systems for future site buildings.

4.4 HISTORICAL RECORDS REVIEW

4.4.1 Land Title Records/Deeds

No environmental cleanup liens or activity use limitations were identified in the Preliminary Title Report prepared by First American Title Company dated December 27, 2018. A subsurface oil and gas lease were issued for the land lying below a depth of 500 feet from the surface in 1964. A copy of the Preliminary Title Report is provided in Appendix C.

No other land title records were reviewed by Stantec as part of this assessment.

4.4.2 Aerial Photographs

Stantec reviewed historical aerial photographs provided by EDR. The general type of activity on a property and land use changes can often be discerned from the type and layout of structures visible in the photographs. However, specific elements of a facility's operation usually cannot be discerned from aerial photographs alone. The following table summarizes Stantec's observations of the reviewed historical aerial photographs.

Year	Scale	Observations, Property and Adjoining Properties
1928 1938	1=500'	The eastern portion of the Property appears to be vacant land. The western portion of the Property appears to be developed with a u-shaped dirt road with no clear structures present. The northerly adjacent Property also appears to be used as an orchard. Surrounding Properties are a mixture of agricultural, residential, and commercial use. A commercial facility with multiple vehicles and a long commercial structure is located to the west of the Property beyond Cypress Avenue. Ramona Boulevard is present to the south of the Property, and a railroad line is present to the south of the Property.
1948	1=500'	A single long commercial structure and two smaller commercial structures are located in the northeastern portion of the Property. Some activities are observable in the southwestern portion of the Property; however, due to the poor quality of the photograph, these activities are undiscernible. The surrounding properties to the north are to be developed as residences. Some commercial properties are now present to the southeast of the Property beyond Ramona Boulevard.
1952 1954	1"=500'	A vehicle fleet appears to be located in the southwestern portion of the Property. The remainder of the Property appears to be unchanged from the previous photograph.
1964	1"=500'	A long commercial structure is now present in the western portion of the Property. The remainder of the Property activities and layout appear to be unchanged from the previous photograph. The surrounding area to the Property appears to be largely developed with a mixture of residential and commercial uses.
1977 1979	1"=500'	Multiple commercial structures are now present in the southwestern portion of the Property. The surrounding area has been fully developed with a mixture of commercial and residential uses.

Year	Scale	Observations, Property and Adjoining Properties
1989 1994 2002 2005 2009 2012 2016	1”=500’	The Property and surrounding area appear similar to the previous photographs.

Name of aerial photograph source: EDR, 2019

4.4.3 City Directories

Stantec retained a third party to research available reverse city directories for the Property, in approximately five-year intervals. The following is a summary of Stantec’s review of the city directory listings:

Subject/Adjoining Property	Year	Listed Occupants
3630 Cypress Avenue – Property Address	2010 2014 2006 1999 1995 - 1985 1980 1976	NIPPONSLO INT CORP INOVIT INC BAMBO XXXX Teds Decorating Inc. GOLDEN WEST INDUSTRIES Dunhill Chair, A Division of Dunhill of California
3640 Cypress Avenue – Property Address	2014 1999	New Generation Decorative Doors X KAUFFMAN
3700 Cypress Avenue – Property Address	2006 - 1976	JAYAR MFG Co
11312 Orchard Street	1995 1985 - 1980	Rainbow Textile Inc Electra Food Machinery

Name of city directories and source: EDR, 2019

4.4.4 Historical Fire Insurance Maps

Fire insurance maps were developed for use by insurance companies to depict facilities, properties, and their uses for many locations throughout the United States. These maps provide information on the history of prior land use and are useful in assessing whether there may be potential environmental contamination on or near the Property. These maps, which have been periodically updated since the late 19th century, often provide valuable insight into historical Property uses.

Stantec contracted with a third party to search for copies of historical fire insurance maps covering the subject and immediately adjacent properties. The inquiry identified that no coverage exists in the area of the Property. The Sanborn® Map Search Report is presented in Appendix E.

4.4.5 Historical Topographic Maps

Stantec reviewed historical USGS 7.5-minute Topographic Maps of the Whittier, California Quadrangle (scale 1:24,000) to help identify past Property usage and areas of potential environmental concern. No RECs were noted during our review of the topographic maps. Copies of the historical maps are provided in Appendix E. The following table summarizes the maps reviewed and our observations.

Year	Scale	Observations, Property and Adjoining Properties
1894 1896 1900	1=62,500	The Property is mapped as undeveloped land. Major roadways are mapped in the surrounding area. A railroad line is depicted south of the Property.
1923 1926	1=24,000	The Property remains to appear undeveloped. The city of El Monte is shown approximately ¼-mile west of the Property. A railroad line identified as Pacific Electric is shown traversing the southern Property boundary, in the place of present-day Ramona Boulevard. The surrounding area of the Property is shown to be sparsely developed with small structures, likely residences.
1948 1953	1=62,500	Multiple small structures are shown in the northeastern portion of the Property. A railroad spur track is shown terminating at the southwestern Property boundary. The surrounding area appears to be developed with variously sized structures, likely a mixture of commercial and residential uses. Ramona Boulevard is now shown to the south of the Property.
1966 1972 1981 1991 1994	1=24,000	The Pacific Electric railroad line along the southern Property boundary is no longer present. The remainder of the map appears similar to the previous map.
2012	1=24,000	No details are depicted on the topographic map. Roadways appears to be in the current configurations. No structures are depicted on the Property or surrounding area.

Name of maps and source: EDR, 2019

4.4.6 Other Historical Sources

No other historical sources were researched.

5.0 SITE RECONNAISSANCE

A visit to the Property and its vicinity was conducted by Ms. Alicia Jansen, Associate Scientist with Stantec on February 7, 2019. Access to the Property was provided by Mr. Charles Zhao, representative of the Property Owner. Stantec was accompanied by Mr. Zhao during the Property visit. Figure 2 provides information about the Property and adjoining properties and the location of potential areas of environmental concern. Photographs collected during the Property visit are included in Appendix A.

5.1 SITE RECONNAISSANCE METHODOLOGY

The site reconnaissance focused on observation of current conditions and observable indications of past uses and conditions of the Property that may indicate the presence of RECs. The reconnaissance of the Property was conducted on foot and Stantec utilized the following methodology to observe the Property:

- Traverse the outer Property boundary.
- Traverse transects across the Property.
- Traverse the periphery of all structures on the Property.
- Visually observe accessible interior areas expected to be used by occupants or the public, maintenance and repair areas, utility areas, and a representative sample of occupied spaces.

Weather conditions during the visit to the Property were clear and sunny. There were no weather-related Property access restrictions encountered during the reconnaissance visit. Stantec was unable to access the interior of 11301 Iris Lane Units A and B and 3700 Cypress Unit B. However, according to the Property Owner representative, the 11301 Iris Lane Units A and B is used the space for warehouse/storage and 3700 Cypress Unit B is vacant. Therefore, the lack of access is not considered a significant data gap.

5.2 GENERAL DESCRIPTION

Property and Area Description:	The Property is located on the east of Iris Lane and Cypress Avenue, in the City of El Monte, County of Los Angeles, California. Surrounding properties include residential structures and the City of El Monte Transportation Service Yard. A former oil well is reportedly located on the City of El Monte Transportation Service Yard property.
Property Operations.	The Property is occupied multi-tenant commercial/light industrial buildings.
Structures, Roads, Other Improvements:	The Property is developed with four single story multi-tenant commercial/light industrial buildings with asphalt parking lots.
Property Size (acres):	5.2 acres
Estimated % of Property Covered by Buildings and/or Pavement:	100%
Observed Current Property Use/Operations:	The Property is occupied by import/export warehouses, furniture warehouses, woodworking, print press, and storage/maintenance of forklifts and other various machines.

Observed Evidence of Past Property Use(s):	Stantec observed a large concrete pad with four metal grates along the northern exterior of 11312-B Orchard Street. Four additional metal grates were observed adjacent to the concrete pad. The grates on the concrete pad appear to be a clarifier. According to historical records, the suite was formerly occupied by a commercial laundry/dye facility. Silo structures attached to ventilation ducts appeared on the roof of 3700 Cypress Avenue. These appear to be associated with a former dust collection system associated with former woodworking operations.
Sewage Disposal Method (and age):	City of El Monte.
Potable Water Source:	City of El Monte.
Electric Utility:	Southern California Edison.

5.3 HAZARDOUS SUBSTANCES AND PETROLEUM PRODUCTS

The following table summarizes Stantec's observations during the Property reconnaissance.

Observations	**Description/Location**
Hazardous Substances and Petroleum Products as Defined by CERCLA 42 U.S.C. § 9601(14):	The current tenant of 3640 Cypress Avenue utilizes the building for door storage and woodworking. A paint spray booth was observed in the southwest portion of the interior of the building. Adjacent to the paint spray booth was various small containers (<5 gallons) of paints and paint thinners not secured and improperly stored. The current tenant of 11305 Iris Lane utilizes the building for a print shop. Multiple print presses were observed in the tenant space which likely use small amounts of hydraulic fluid. One 55-gallon drum of non-toxic glue adhesive was observed.
Drums (≥ 5 gallons):	None observed.
Strong, Pungent, or Noxious Odors:	None detected.
Pools of Liquid:	None observed.
Unidentified Substance Containers:	None observed.
PCB-Containing Equipment:	Pole mounted transformers were observed along the eastern exterior of the parking lot. The ground surface in the vicinity of the pole mounted transformers was observed in good condition with no indication of staining and/or leaking.
Other Observed Evidence of Hazardous Substances or Petroleum Products:	An exterior storage shed, and a former flammable storage area were observed along the southeastern exterior of vacant 3700-B Cypress Avenue building. According to the Property Owner representative the building was formerly occupied by a furniture warehouse.

5.4 INTERIOR OBSERVATIONS

Stantec made the following observations during the Property reconnaissance of the building interiors at the Property and/or identified the following information during the interview or records review portions of the assessment:

Observations	Description
Heating/Cooling Method:	None observed.
Surface Stains or Corrosion:	None observed.
Floor Drains and Sumps:	Stantec observed trenching and a vault in the interior of 11312-B Orchard Street. Additionally, four additional metal grates were observed adjacent to the concrete pad. The grates on the concrete pad appear to be a clarifier. According to historical records, the suite was formerly occupied by a commercial laundry/dye facility.
Other Interior Observations:	None observed.

5.5 EXTERIOR OBSERVATIONS

Stantec made the following observations during the site reconnaissance of exterior areas of the Property and/or identified the following information during the interview or records review portions of the assessment:

Observations	Description
On-site Pits, Ponds, or Lagoons:	None observed.
Stained Soil or Pavement:	None observed.
Stressed Vegetation:	None observed.
Waste Streams and Waste Collection Areas:	Dumpsters were observed in the asphalt parking areas of each building. Miscellaneous household debris was observed along the northern fence line of 11312 Orchard Street.
Solid Waste Disposal:	No areas indicative of solid waste disposal was observed.
Potential Areas of Fill Placement:	No mounds, piles, or depressions suggesting the placement of fill material were observed on the Property.]
Wastewater:	No exterior wastewater discharge was observed.
Stormwater:	A concrete pad with a vault that appeared to be formerly used for storm water retention was observed in the southeast exterior of the 3640 Cypress Avenue building. No potential off-site sources of contamination flowing onto Property via stormwater were observed.
Wells:	Stantec also observed two groundwater monitoring wells in the asphalt parking lot east of the 11301-11309 Iris Lane multi-tenant commercial building and one monitoring well southeast of 3700 Cypress Avenue. The well covers did not appear to have

Observations	Description
	been opened recently. The wells appear to be associated with a former site assessment and are now incorporated in the El Monte Operable Unit of the San Gabriel Valley Superfund Site (Area 1) monitoring program.
Septic Systems:	No visible evidence of the existence of a septic system was observed.
Other Exterior Observations:	Stantec observed a large concrete pad with four metal grates along the northern exterior of 11312-B Orchard Street. Four additional metal grates were observed adjacent to the concrete pad. The grates on the concrete pad appear to be a clarifier. According to historical records, the suite was formerly occupied by a commercial laundry/dye facility.

5.6 UNDERGROUND STORAGE TANKS/STRUCTURES

Existing USTs:	No visible evidence (fill pipes, vent pipes, dispensers, surface patches), which would indicate the presence of USTs, was discovered during the site reconnaissance.
Former USTs:	A notice of violation was issued by the City of El Monte to the Norman L Jackson Trust for 11312 Orchard Street dated April 17, 1995, stating a plumbing permit is requested for the installation of an underground clarifier and existing abandoned underground tank must be removed or filled with sand. No additional information regarding the location of this abandoned underground tank was provided.
Other Underground Structures:	Stantec observed a trenching and a vault in the interior and a large concrete pad with four metal grates along the northern exterior of 11312-B Orchard Street. Four additional metal grates were observed adjacent to the concrete pad. The grates on the concrete pad appear to be a clarifier. According to historical records, the suite was formerly occupied by a commercial laundry/dye facility. According to a map dated April 29, 2002 for 3700 Cypress Avenue building new trench drains were installed for Jayar Manufacturing. The trenches are four 1" deep, 63' feet in length, and 15' apart. The trenches discharge int an existing clarifier. The location of the clarifier was not depicted on the map.

5.7 ABOVEGROUND STORAGE TANKS

Existing ASTs:	No visible evidence (fill pipes, vent pipes, dispensers, surface stains), which would indicate the presence of ASTs, was discovered during the site reconnaissance.
Former ASTs:	The former tenant of 11312 Orchard Street was listed as a commercial laundry until 2010. According to an inspection report dated May 22, 2002 for chemicals were directly fed from the tanks to the washers through chemical lines. There was one 600-gallon above ground storage tank (AST) containing laundry detergent; one 300-gallon AST containing laundry detergent additive; one 300-gallon AST containing bleach; two 300-gallon ASTs containing fabric softener (Microsoft); and two 55-gallon drums of hydraulic oil. There were four 100-lbs and three 400-lbs capacity washers and three 400-lbs capacity dryers. The waste water is discharged into a 3-phase clarifier that is monitored and sampled/analyzed by EconoLab. There was no map showing the location of these

	tanks; however, there is a concrete bermed around along the northern exterior of the building.

5.8 ADJOINING PROPERTIES

5.8.1 Current Uses of Adjoining Properties

As viewed from the Property and/or from public rights-of-way, Stantec made the following observations about use and activities on adjoining properties:

NORTH	Residential.
EAST	Residential.
SOUTH	Residential.
WEST	Residential and City of El Monte Transportation Service Yard.

5.8.2 Observed Evidence of Past Uses of Adjoining Properties

Observations of adjoining properties providing indications of past use and activities, if any, are described below.

NORTH	None observed.
EAST	None observed.
SOUTH	None observed.
WEST	None observed.

5.8.3 Pits, Ponds or Lagoons on Adjoining Properties

As viewed from the Property and/or from public rights-of-way, Stantec made the following observations about the presence of pits, ponds and lagoons on adjoining properties:

NORTH	None observed.
EAST	None observed.
SOUTH	None observed.
WEST	None observed.

5.9 OBSERVED PHYSICAL SETTING

Topography of the Property and Surrounding Area:	The Property is relatively flat and lies at approximately 288 feet above mean sea level (amsl) with a general topographic gradient to the south (EDR, 2019).

6.0 INTERVIEWS

Stantec conducted interviews with the following individuals:

Name and contact information	Relationship to Property	Key findings:
Mr. Charles Zhao Positive Investments, Inc. 626-321-4860	Commercial Property Manager	Mr. Zhao is not aware of any environmental issues with the Property or adjoining properties.

7.0 POTENTIAL FOR VAPOR ENCROACHMENT

Additionally, consideration of the migration of hazardous substances and petroleum products in all phases including solid, liquid, or vapor is required by the ASTM E1527-13 standard. As stated in Section 2.1 of ASTM E1527-13:

Vapor migration must be considered no differently than contaminated groundwater migration in the Phase I investigation. While E2600-10 provides and industry consensus methodology to assess vapor migration, use of E2600-10 methodology is not required to achieve compliance with AAI – an EP may use alternative methodology as deemed appropriate, but this must be documented in the Phase I report (i.e., it must be "capable of being reconstructed by an EP other than the EP responsible for the Phase I").

As presented below, analysis of the potential for onsite or offsite releases to have affected the Site via migration through soil, groundwater or soil vapor was performed with consideration given to media affected, distance from the Site, remedial actions taken, type of contaminants, subsurface conditions, and location of the source relative to groundwater gradient.

Based on the data described above, review of adjacent properties, and available environmental records, vapor intrusion at the Site is considered possible based on the following:

- **San Gabriel Valley Superfund Site, El Monte Operable Unit.** Groundwater beneath the Property has been designated part of the San Gabriel Valley Superfund Site and is documented to be impacted with various VOCs from various point sources throughout the San Gabriel area. Specifically, the Property is located within the El Monte Operable Unit of the San Gabriel Valley Superfund Site. Groundwater in the area of the Property is generally deeper than 100 feet. However, off-gassing of VOCs from the contaminated groundwater could potentially affect soil vapor conditions at the Property.

- **Current and Historical Site Operations.** During the site reconnaissance, Stantec observed a large concrete pad with four metal grates (suspect clarifier) along the northern exterior of 11312-B Orchard Street associated with the former laundry/dry facility; an exterior storage shed and a former flammable storage area were observed along the southeastern exterior of vacant 3700-B Cypress Avenue building; and current tenants include a printer press (11305 Iris) and woodworking (3640 Cypress Avenue).

  According to a map dated April 29, 2002 for 3700 Cypress Avenue building new trench drains were installed for Jayar Manufacturing. The trenches are four 1' deep, 63' feet in length, and 15' apart. The trenches discharge into an existing clarifier. The location of the clarifier was not depicted on the map.

  A notice of violation was issued by the City of El Monte to the Norman L Jackson Trust for 11312 Orchard Street dated April 17, 1995, stating a plumbing permit is requested for the installation of

an underground clarifier and existing abandoned underground tank must be removed or filled with sand.

- **Off-Site Oil Well.** According to the Los Angeles Department of Public Works, Solid Waste Management System database, the Property is within 300 feet of an inactive oil well, which is located west of the Property beyond Cypress Avenue on the City of El Monte Transportation Service Yard. Given the proximity of the Property to the inactive oil well, this agency may require methane mitigation systems for future site buildings.

Therefore, Stantec recommends a soil vapor survey be performed at the Property to characterize possible soil vapor impacts from on-site sources, or from off-gassing of groundwater beneath the Property.

8.0 EVALUATION

This section provides a summary overview of or Findings, Opinions, and Conclusions.

8.1 FINDINGS AND OPINIONS

Information gathered from interviews, reviews of existing data, and a property inspection was evaluated to determine if RECs are present in connection with the Property. Based on this information, Stantec made the following findings and developed the following opinions.

- The Property was identified in various databases in the environmental database report. These listings were in connection with the disposal of oil wastes to approved disposal facilities; discharge of water to the sanitary sewer; and, the installation of groundwater monitoring wells on the Property in connection to the regional groundwater contamination in the area. Additionally, the Property address of 11312 Orchard Street was identified in the environmental database report as Electra Food Machinery Inc. in the drycleaner database as Anitsa Inc, Valet Services, DBA. No additional information was provided for this listing. The listing of the Property in the Drycleaner database is considered a REC.

- The Property is located over a National Priority List (NPL) Site identified as the San Gabriel Valley Superfund Site. Specifically, the Property is located within the El Monte Operable Unit of the San Gabriel Valley Superfund Site (Area 1), which is an 11-square-mile area of contaminated groundwater. It is one of four Superfund sites in the 170-square-mile San Gabriel Valley. Groundwater in the area of the Property has been documented to be impacted with various volatile organic compounds (VOCs) including tetrachloroethene (PCE), trichloroethene (TCE), perchlorate, and carbon tetrachloride (CT).

  Groundwater in the area of the Property is generally deeper than 100 feet. Off-gassing of VOCs from the contaminated groundwater could potentially affect soil vapor conditions at the Property. Therefore, the presence of documented contaminated groundwater in the area of the Property is considered a REC to the Property.

- During the site reconnaissance, Stantec observed a large concrete pad with four metal grates (suspect clarifier) along the northern exterior of 11312-B Orchard Street associated with the former laundry/dry facility; an exterior storage shed and a former flammable storage area were observed along the southeastern exterior of vacant 3700-B Cypress Avenue building; and current tenants include a printer press (11305 Iris) and woodworking (3640 Cypress Avenue). According to a map dated April 29, 2002 for 3700 Cypress Avenue building new trench drains were installed for Jayar Manufacturing. The trenches are four 1 deep, 63’ in length, and 15’ apart. The trenches discharge into an existing clarifier. The location of the clarifier was not depicted on the map. A notice of violation was issued by the City of El Monte to the Norman L Jackson Trust for 11312 Orchard Street dated April 17, 1995, stating a plumbing permit is requested for the installation of an underground clarifier and existing abandoned underground tank must be removed or filled with sand.

  These current and historical site operations observed are considered a REC.

- An environmental records search was performed and identified sites within their respective ASTM E 1527-13 search radii of the Property that may represent RECs, HRECs, or de minimis conditions.

  Based on one or more of the following reasons: distance from the Property, position of sites with respect to assumed groundwater flow direction, the native soils, and regulatory status, none of the sites identified in the in the environmental records search report are expected to affect soil or groundwater quality at the Property. The environmental records search identified no RECs, HRECs or de minimis conditions at or near the Property.

- Given the age of the existing building on the Property (circa 1950s), the presence of lead-based paint (LBP) and asbestos containing materials (ACMs) is considered likely. Additionally, there are asphalt paved parking lots associated with the building. There is a potential for a stress absorbing fabric which is suspect for asbestos to be used within the asphalt area. The stress absorbing fabric in question is a felt underlayment that is commonly referred to as Petromat® and is sometimes used to increase the strength and longevity of asphalt surfaces. No Petromat® was observed in the four locations Stantec cored in the parking lots associated with the Property.

  Stantec recommends conducting a comprehensive, pre-demolition LBP and ACM survey in accordance with the sampling protocol of the Asbestos Hazard Emergency Response Act (AHERA) prior to any activities with the potential to disturb building materials to determine whether ACM are present. Further, in the event ACM is detected, Stantec recommends proper removal and disposal of the materials identified prior to any activities with the potential to disturb them.

8.2 DATA GAPS

The federal AAI final rule [40 CFR 312.10(a)] and ASTM E1527-13 identify a “data gap” as the lack or inability to obtain information required by the standards and practices of the rule despite good faith efforts by the Environmental Professional or the User.

Any data gaps resulting from the Phase I ESA described in this report are listed and discussed below.

Gap	Discussion
Deletions or Exceptions from Scope of Work Referenced in Section 1.4:	None
Weather-Related Restrictions to Site Reconnaissance:	None
Facility Access Restrictions to Site Reconnaissance:	Stantec was unable to access the interior of 11301 Iris Lane Units A and B. However, according to the Property Owner representative, the tenant uses the space for warehouse/storage. Therefore, the lack of access is not considered a significant data gap.
Other Site Reconnaissance Restrictions:	None
Data Gaps from Environmental Records Review:	None

Gap	Discussion
Data Gaps from Historical Records Review:	None
Data Gaps from Interviews:	None
Other Data Gaps:	None

8.3 CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527 of 3700, 3640, 3630 Cypress Avenue, 11312 Orchard Street, and 11301-11309 Iris Lane, City of El Monte, County of Los Angeles, California, the Property. Any exceptions to, or deletions from, this practice are described in the Data Gaps section of this report. This assessment has revealed the following evidence of recognized environmental conditions (RECs) in connection with the Property:

- **Current and Historical Site Operations.** During the site reconnaissance, Stantec observed a large concrete pad with four metal grates (suspect clarifier) along the northern exterior of 11312-B Orchard Street associated with the former laundry/dry facility; an exterior storage shed and a former flammable storage area were observed along the southeastern exterior of vacant 3700-B Cypress Avenue building; and current tenants include a printing press (11305 Iris) and woodworking (3640 Cypress Avenue). According to a map dated April 29, 2002 for 3700 Cypress Avenue building new trench drains were installed for Jayar Manufacturing. The trenches are1 foot deep, 63 feet in length, and 15 feet apart. The trenches discharge into an existing clarifier. The location of the clarifier was not depicted on the map. These current and historical site operations observed are considered a REC that warrant further assessment to evaluate if a release has occurred from these structures to the underlying soil

- **Off-Site Oil Well.** According to the Los Angeles Department of Public Works, Solid Waste Management System database, the Property is within 300 feet of an inactive oil well, which is located west of the Property beyond Cypress Avenue on the City of El Monte Transportation Service Yard. Given the proximity of the Property to the inactive oil well, this agency may require methane mitigation systems for future site buildings.

- **Database Listings.** These listings were in connection with the disposal of oil wastes to approved disposal facilities; discharge of water to the sanitary sewer; and, the installation of groundwater monitoring wells on the Property in connection to with the site assessment of the former Electra Foods Machinery Inc. facility and the regional groundwater contamination in the area. Additionally, the Property address of 11312 Orchard Street was identified in the environmental database report as Electra Food Machinery Inc. in the drycleaner database as Anitsa Inc, Valet Services, DBA. No additional information was provided for this listing. The listing of the Property in the Drycleaner database and the prior soil gas-groundwater assessment is considered a REC. Stantec

recommends a soil vapor survey to evaluate if the off-Site impacts to the underlying groundwater have generated a soil vapor issue of concern to residential development of the Property.

- **Contaminated Groundwater.** The Property is located over a National Priority List (NPL) Site identified as the San Gabriel Valley Superfund Site. Specifically, the Property is located within the El Monte Operable Unit of the San Gabriel Valley Superfund Site (Area 1), which is an 11-square-mile area of contaminated groundwater. It is one of four Superfund sites in the 170-square-mile San Gabriel Valley. Groundwater in the area of the Property has been documented to be impacted with various volatile organic compounds (VOCs) including tetrachloroethene (PCE), trichloroethene (TCE), perchlorate, and carbon tetrachloride (CT).

  Groundwater in the area of the Property is generally deeper than 100 feet. Off-gassing of VOCs from the contaminated groundwater could potentially affect soil vapor conditions at the Property. Therefore, the presence of documented contaminated groundwater in the area of the Property is considered a REC to the Property.

Stantec identified the following non-ASTM issues with the Property:

- **ACM and LBP.** Given the age of the existing building on the Property (circa 1950s), the presence of lead-based paint (LBP) and asbestos containing materials (ACMs) is considered likely. Stantec recommends conducting a comprehensive, pre-demolition LBP and ACM survey in accordance with the sampling protocol of the Asbestos Hazard Emergency Response Act (AHERA) prior to any activities with the potential to disturb building materials to determine whether ACM are present. Further, in the event ACM is detected, Stantec recommends proper removal and disposal of the materials identified prior to any activities with the potential to disturb them.

- Additionally, there are asphalt paved parking lots associated with the building. There is a potential for a stress absorbing fabric which is suspect for asbestos to be used within the asphalt area. The stress absorbing fabric in question is a felt underlayment that is commonly referred to as Petromat® and is sometimes used to increase the strength and longevity of asphalt surfaces. No Petromat® was observed in the four locations Stantec cored in the parking lots associated with the Property.

9.0 NON-SCOPE CONSIDERATIONS

The following ASTM E1527-13 non-scope services were performed as part of this Phase I ESA:

9.1 LEAD-BASED PAINT

Concern for lead-based paint (LBP) is primarily related to residential structures. The EPA's Final Rule on Disclosure of Lead-Based Paint in Housing (40 CFR Part 745) defines LBP as paint or other surface coatings that contain lead equal to or in excess of 1.0 milligram per square centimeter or 0.5 percent by weight.

The risk of lead toxicity in LBP varies based upon the condition of the paint and the year of its application. The U.S. Department of Housing and Urban Development (HUD) has identified the following risk factors:

- The age of the dwelling as follows: maximum risk is from paint applied before 1950.
- There is severe risk from paint applied before 1960.
- There is moderate risk from deteriorated paint applied before 1970.
- There is slight risk from the paint that is intact but applied before 1977.
- The condition of the painted surfaces.
- The presence of children and certain types of households in the building.
- Previously reported cases of lead poisoning in the building or area.

Construction Date	Residential (Yes/No)	Observed Condition of Painted Surfaces
Circa 1975	No	Given the age of the buildings (circa 1950s) the presence of LBP is considered likely.

9.2 ASBESTOS

Asbestos can be found in many applications, including sprayed-on or blanket-type insulation, pipe wraps, mastics, floor and ceiling tiles, wallboard, mortar, roofing materials, and a variety of other materials commonly used in construction. The greatest asbestos-related human health risks are associated with friable asbestos, which is ACM that can be reduced to powder by hand pressure. Friable asbestos can become airborne and inhaled, which has been associated with specific types of respiratory disease. The manufacturing and use of asbestos in most building products was curtailed during the late 1970s.

Stantec makes no warranty as to the possible existence or absence of inaccessible materials or to their evaluation with respect to asbestos content. Samples of suspect ACM should be collected for laboratory analysis of asbestos prior to any renovation or building demolition to be compliant with, EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) regulations.

Given the age of the existing building on the Property (circa 1950s), the presence of ACMs is considered possible. Stantec recommends conducting a comprehensive, pre-demolition ACM survey in accordance with the sampling protocol of the Asbestos Hazard Emergency Response Act (AHERA) prior to any

activities with the potential to disturb building materials to determine whether ACM are present. Further, in the event ACM is detected, Stantec recommends proper removal and disposal of the materials identified prior to any activities with the potential to disturb them.

- Additionally, there are asphalt paved parking lots associated with the building. There is a potential for a stress absorbing fabric which is suspect for asbestos to be used within the asphalt area. The stress absorbing fabric in question is a felt underlayment that is commonly referred to as Petromat® and is sometimes used to increase the strength and longevity of asphalt surfaces. Based on Stantec's previous investigations, the tack coating that is used to adhere the Petromat® to the asphalt is frequently composed of ACM. Stantec recommends that an assessment be completed to evaluate if any petromat exists with the asphalt an if present contains ACMs.

9.3 RADON

Radon is a colorless, tasteless radioactive gas with an EPA-specified action level of 4.0 PicoCuries per liter of air (pCi/L) for residential properties. Radon gas has a very short half-life of 3.8 days. The health risk potential of radon is primarily associated with its rate of accumulation within confined areas near or in the ground, such as basements, where vapors can readily transfer to indoor air from the ground through foundation cracks or other pathways. Large, adequately ventilated rooms generally present limited risk for radon exposure. The radon concentrations in buildings and homes depend on many factors, including soil types, temperature, barometric pressure, and building construction (EPA, 1993).

Stantec reviewed regional data published by the EPA on average indoor radon concentrations in the vicinity of the Property (http://www.epa.gov/radon/zonemap.html).

EPA Radon Zones (w/Average Measured Indoor Radon concentrations)		
Zone 1 – High (>4.0 pCi/L)	Zone 2 – Moderate (2 to 4 pCi/L)	Zone 3 – Low (<2 pCi/L)

The Property is located in Zone 2 and is considered to have medium potential for radon. According to EDR, none of the 3 tests conducted in zip code 91731 (area of the Property) were above 4 pCi/L. To determine Property-specific radon levels, a radon survey would have to be conducted; however, based on the data collected for the zip code further investigation of indoor radon issues does not appear to be warranted.

9.4 FLOOD ZONES

According to the Physical Setting summary portion of the EDR report, the Property is not located within a 500-year or 100-year flood plain.

10.0 REFERENCES

American Society for Testing and Materials, 2015, Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions, Designation E 2600-15.

American Society for Testing and Materials, 2013, Standard Practice for Environmental Site Assessments: Phase 1 Environmental Site Assessment Process, Designation: E 1527-13.

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOG), 2019, website http://www.consrv.ca.gov/dog/maps

____, Division of Oil, Gas, and Geothermal Resources Well Finder database, 2019, website https://maps.conservation.ca.gov/doggr/wellfinder/

Department of Toxic Substances and Control, 2019, website http://www.envirostor.dtsc.ca.gov/public/

Department of Water Resources (DWR), 2004, Groundwater Bulletin 118, updated February 27.

Environmental Data Resources, Inc. (EDR), 2019, EDR Radius Map with Geocheck, Inquiry Number 5547454.2s, dated January 29.

_____, Certified Sanborn Map Report, Inquiry Number 5547454.3, dated January 29, 2019.

_____, Historical Topographic Map Report, Inquiry Number 5547454.4, dated January 29, 2019.

_____, Aerial Photo Decade Package, Inquiry Number 5547454.8, dated January 30, 2019.

_____, City Directory Abstract, Inquiry Number 5547454.5, dated January 29, 2019.

State Water Resource Control Board's Geotracker, 2019, website https://geotracker.waterboards.ca.gov/

United States Geological Survey (USGS), 2012, Whittier Quadrangle, 7.5 Minute Topographic Map, Scale 1 inch = 2,400 feet

FIGURES

APPENDICES

Appendix A Photographs of the Property and Vicinity

Appendix B STANTEC RESUMES

Appendix C USER PROVIDED RECORDS

Appendix D ENVIRONMENTAL AGENCY DATABASE SEARCH REPORT

Appendix E HISTORICAL RECORDS

Appendix F AGENCY RECORDS

Appendix F Agency Records
March 25, 2019

Appendix G2

Phase II Environmental Site Assessment



Stantec Consulting Services Inc.
735 East Carnegie Drive Suite 280, San Bernardino CA 92408-3588

March 22, 2019
File: 185804357

Attention: Mr. David Lelie
KB Home Southern California
25152 Springfield Court Suite 180
Valencia, California 91335

Reference: Phase II Environmental Site Assessment Memo
3630, 3640, 3700 Cypress Avenue and 11312 Orchard Street
EL Monte, California 91731

Dear Mr. Lelie,

Stantec Consulting Services Inc. (Stantec) is pleased to provide a brief memo with the results of the recent Phase II environmental site assessment (ESA) at the above-referenced property located in El Monte, California (the "Property"). This memo presents the findings of the Phase II ESA performed at the Property by Stantec between February 28 and March 5, 2019 to evaluate multiple recognized environmental conditions (RECs) in connection with the Property that required further assessment based on the prior Phase I ESA. The RECs identified at the Property in the Phase I ESA included:

- Suspect Clarifier/Sump. Multiple suspect sump/clarifiers (two exteriors, and one interior) and associated trenching were identified at the Property address 11312 Orchard, Unit B in the interior and exterior of the northern warehouse area. Releases are known to occur from these structures. In additional the former Electra Food Machinery Inc. is listed in the drycleaner database as Anitsa Inc, Valet Services, DBA for this address.

- Former Chemical Storage Areas. A former flammables exterior storage area and a suspect chemical storage area were identified at the Property address of 3700 Cypress, Unit B. Releases are known to occur from these areas.

- Paint Spray Booth. This feature was identified at the Property address of 3640 Cypress. Releases are known to occur from these features.

- Printing Press Operations. Printing press machinery was observed at the Property address of 11305 Iris Lane. Although no hazardous materials were observed in this space, this machinery are known to leak hydraulic fluid.

- Off-Site Oil Well. The Property is located within 300 feet of a plugged oil well, which is located on the adjacent City of El Monte Transportation Service property to the west. There is a concern for oil well gases, including methane, can escape from former oil wells and exist in the subsurface at levels of concern.

- Contaminated Groundwater. The Property is located over a National Priority List (NPL) Site identified as the San Gabriel Valley Superfund Site. Groundwater in the area of the Property

has been documented to be impacted with various volatile organic compounds (VOCs) including tetrachloroethene (PCE), trichloroethene (TCE), perchlorate, and carbon tetrachloride (CT). Off-gassing of VOCs from the contaminated groundwater could potentially affect soil vapor conditions at the Property.

Field Investigation

To assess these identified RECs the following Phase II ESA was completed:

Between February 28th and March 5, 2019 Stantec provided the services of a field geologist to supervise and direct all on-site assessment activities. Stantec advanced a total of twenty-three (23) soil borings in the areas of concern listed above, to a maximum depth of fifteen (15) feet (Figure 2). Soil samples were collected, and soil vapor/ sub-slab probes were installed on February 28th and March 1st, 2019.

Per California Department of Toxic Substances Control (DTSC) guidance, Stantec returned to the Property on March 5, 2019, following a minimum of 48-hour equilibration period to perform soil vapor/ sub-slab sampling from the newly-installed vapor points.

Laboratory Service

The soil vapor samples were collected and analyzed on-site by a mobile or off-site fixed base laboratory for VOCs by method TO-15 SIM. In addition to the soil vapor survey, Stantec field screened the Property for the presence of methane. No methane was detected above background levels during the field screening.

Select soil samples were submitted for analysis of total petroleum hydrocarbons (TPH) by United States Environmental Protection Agency (USEPA) method 8015, VOCs by USEPA method 8260, California Title 22 metals by USEPA method 6010, and hexavalent chromium (Cr IV) by USEPA 7196. The remaining soil samples collected during this investigation will be placed on hold.

Analytical Results

Soil Vapor Results

Twenty soil vapor or sub-slab probes were installed just below the concrete foundation or asphalt parking lot to a maximum depth of 15 feet below ground surface (bgs) to evaluate soil vapor concentrations in shallow soil. The locations selected to address the RECs are shown on Figure 3, attached.

The laboratory reported low levels of volatile organic compounds (VOCs) in all soil vapor and sub-slab vapor samples. The VOCs reported included; chloroform, benzene, and tetrachloroethene (PCE)above the San Francisco Bay Region Water Quality Control Board's newly published Environmental Screening Levels (ESLs) (January 2019) based on an attenuation factor of 0.03 (Table 1). The reported concentrations are as follows:

- Chloroform ranged from less than the laboratory reporting limit to 1,000 ug/m^3 in soil vapor sample SV-2-15' located near the sump/clarifiers and associated trenching at 11312

Orchard, Unit B. Elevated concentrations of chloroform, above the background levels, were reported in all six soil vapor samples collected near the sump/clarifier.

- Low levels of Benzene ranged from less than the laboratory reporting limit to 7.6 ug/m^3 in soil vapor sample SV-11-5' located near the storm water vault in the southern corner of the Property.
- PCE ranged from less than the laboratory reporting limit to 180 ug/m^3 in soil vapor sample SV-6-15' located in the parking lot area of 11308 Orchard. SV-6 was one (1) of three (3) soil vapor probes installed away from on-site RECs to assess the regional San Gabriel Valley Superfund plume.

Soil Results

Ten soil borings were advanced to a maximum depth of 15 feet bgs to determine if there are any concentrations in shallow soil that may impact the subsurface at the Property (Figure 4). Low levels of diesel range organics (DRO), motor oil range organics (ORO), and arsenic were detected above the residential screening levels in two areas of the Property (Table 2 and 3).

- Low levels of DRO were detected above the residential screening levels in the shallow soil samples (HA-2 and HA-3) collected along the interior trench drains connected to the sump/clarifiers at the 11312 Orchard Street (Table 2).
- Concentration of DRO, motor oil range organics (ORO), and arsenic were detected above the residential screening levels in the shallow soil samples (SV-9 and SV-10) collected from the flammable exterior storage area located at 3700 Cypress Ave. The petroleum and arsenic impacts appear limited to the upper few feet of soil in this area, as the five (5) feet samples reported DRO, ORO, and arsenic below the residential screening levels.

Conclusion and Recommendation

The soil vapor concentrations for chloroform, benzene, and PCE are elevated near the sump/clarifier and only slightly above the newly published ESLs for the remaining areas of the Property. Given the fact that the Property is located over the San Gabriel Valley Superfund plume and these newly published ESLs, Stantec recommends that a risk assessment be performed to determine if vapor barriers with passive vents are required for new residential developments in these two areas of the Property. The final recommendations for vapor barriers with passive vents will be determined by the risk assessment, but to be conservative KB Home should assume for their developments cost that vapor barriers with passive vents will be required based on the newly published ESLs and the recent soil vapor results.

The sump/clarifier area of the Property located at 11312 Orchard reported elevated concentration of chloroform and PCE in the soil vapor and low levels of DRO in the soil samples. PCE and chloroform were not reported in the soil samples collected around the sump/clarifiers and drains, however, releases are known to occur from these structures, therefore, Stantec recommends that during removal of these structures, that over excavation followed by

confirmation soil sampling be performed. Based on the confirmation soil sampling, additional remedial actions may be recommended for this REC.

Soil boring SV-9 and SV-10 reported elevated DRO, ORO, and arsenic in the one (1) foot soil samples above the residential screening levels. Given that the five (5) soil sample reported all analytes below their corresponding residential screening levels, a limited and shallow excavation followed by confirmation soil sampling of this flammable exterior storage area is recommended.

Should you have any questions about the soil and soil vapor results or Stantec's recommendation, please contact the undersigned at your convenience.

Regards,

Stantec Consulting Services Inc.

Jim DeWoody
Senior Scientist
Phone: 909 335 6116 ext 82121
James.dewoody@Stantec.com

Kyle Emerson, PG
Managing Principal Geologist
Phone: 909 335 6116 ext 8220
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Attachment: Table 1 – Summary of Soil Vapor Analytical Results
Table 2 – Summary of Soil Analytical Results -TPH & VOCs
Table 3 – Summary of Soil Analytical Results -Metals

Figure 1 – Site Location Map
Figure 2 – Site Map
Figure 3 - Soil Vapor Analytical Results
Figure 4 – Soil Analytical Results

Reference: Phase II Environmental Site Assessment Memo

TABLES

TABLE 1
SUMMARY OF SOIL VAPOR ANALYTICAL RESULTS
KB Home - El Monte - Cypress Ave
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Volume [1]	Sample Date	DCFM (F12) (µg/m3)	Chloromethane (µg/m3)	Bromomethane (µg/m3)	TCFM (F11) (µg/m3)	TBA (µg/m3)	1,1,2-TCTFM (µg/m3)	Methylene chloride (µg/m3)	Carbon Disulfide (µg/m3)	2-Butanone (MEK) (µg/m3)	Chloroform (µg/m3)	1,1,1-TCA (µg/m3)	Benzene (µg/m3)	Carbon tetrachloride (µg/m3)	TCE (µg/m3)	Bromodichloromethane (µg/m3)	4-Methyl-2-pentanone (µg/m3)	Toluene (µg/m3)
Soil Vapor Samples																				
Residential Screening Level for Soil Vapor using RSL or HERO NOTE 3 and Attenuation Factor of 0.001 (µg/m^3) [2] [3]				100,000	94,000	NE	*1,300,000*	NE	NE	*1,000*	730,000	5,200,000	120	*1,000,000*	*97*	*67*	480	*76*	3,100,000	*310,000*
Residential Screening Level for Soil Vapor comparing RSL, HERO Note 3, or ESLs (µg/m^3) [2] [3]				*100,000*	*3,100*	*170*	*1,300,000*	*NE*	*NE*	*34*	*730,000*	*170,000*	*4.1*	*35,000*	*3.2*	*2.2*	*16*	*2.5*	*3,100,000*	*10,000*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	2313cc- 3 Vol Purge	3/5/2019	3.2 J	0.3 J	<3.2	2.8 J	<12	6.0 J	<2.8	7.6	5.5	26	0.4 J	3.2	<2.6	<4.4	<2.7	3.2 J	54
	SV-1-15	2358cc - 3 Vol Purge	3/5/2019	2.8 J	0.3 J	<1.6	4.1	<6.1	11	<1.4	1.0 J	3.6	860	1.4 J	0.5 J	<1.3	0.2 J	<2.7	0.4 J	4.0
	SV-2-5	2313cc- 3 Vol Purge	3/5/2019	2.7 J	0.3 J	<1.6	6.5	0.9 J	5.2	0.3 J	11	14	19	<3.1	4.2	0.4 J	0.5 J	<2.7	5.9	36
	SV-2-15	2358cc - 3 Vol Purge	3/5/2019	2.9 J	0.4 J	<1.6	3.7	<6.1	9.6	<1.4	32	8.6	1,000	1.4 J	3.2	0.3 J	0.5 J	<2.7	0.4 J	20
	SV-3-5	2313cc- 3 Vol Purge	3/5/2019	2.2 J	<0.8	<1.6	1.6 J	0.9 J	2.7 J	0.4 J	9.1	3.9	51	0.4 J	4.5	<1.3	<2.2	<2.7	5.6	34
	SV-3-15	2358cc - 3 Vol Purge	3/5/2019	2.3 J	0.3 J	<1.6	2.5	<6.1	5.8	<1.4	6.2	15	960	1.0 J	1.5	<1.3	<2.2	<2.7	14	12
11309 Iris Lane	SV-6-5	2313cc- 3 Vol Purge	3/5/2019	3.3 J	0.3 J	<1.6	4.7	1.1 J	18	0.2 J	8.8	13	<1.0	2.7	1.7	<1.3	0.3 J	<2.7	1.9 J	17
	SV-6-15	2358cc - 3 Vol Purge	3/5/2019	<4.0	0.4 J	<1.6	8.6	<6.1	34	<1.4	1.5	11	<1.0	9.7	0.6 J	<1.3	0.3 J	<2.7	0.4 J	3.1
3630 Cypress Ave. (Near Former Oil Well)	SV-7-5	2313cc- 3 Vol Purge	3/5/2019	4.1 J	<0.8	<1.6	2.6 J	<6.1	4.2 J	<1.4	0.3 J	4.5 J	<1.0	2.3 J	0.5 J	<1.3	<2.2	<2.7	<3.3	2.3 J
	SV-7-15	2358cc - 3 Vol Purge	3/5/2019	3.2 J	0.1 J	<1.6	2.6	1.0 J	5.3	0.2 J	1.1 J	14	<1.0	3.4	0.5 J	<1.3	<2.2	<2.7	1.6 J	5.4
3640 Cypress Ave. (Near Former Oil Well	SV-8-5	2313cc- 3 Vol Purge	3/5/2019	4.3 J	<1.7	<3.2	2.8 J	<12	6.2	<1.4	<2.5	5.7	<2.0	3.8	0.5 J	<2.6	<4.4	<5.4	4.6 J	6.6
	SV-8-15	2358cc - 3 Vol Purge	3/5/2019	3.8 J	0.3 J	<1.6	3.6	1.0 J	10	0.4 J	0.3 J	14	<1.0	7.7	0.8	<1.3	<2.2	<2.7	1.0 J	3.1
3700 Cypress Ave. (Flammable Storage Are)	SV-9-5	2313cc- 3 Vol Purge	3/5/2019	<4.0	0.3 J	<1.6	1.5 J	3.1 J	2.1 J	0.2 J	10	6.6	0.5 J	21	3.4	<1.3	0.3 J	0.3 J	4.8	34
	SV-9-15	2358cc - 3 Vol Purge	3/5/2019	3.5 J	1.6 J	<3.2	2.7 J	<12	4.8 J	0.4 J	12	5.5	<2.0	73	2.1	<2.6	0.4 J	<5.4	<6.6	20
	SV-9-15 REP	2358cc - 3 Vol Purge	3/5/2019	3.8 J	1.1 J	<1.6	2.8 J	<6.1	6.0 J	<2.8	7.6	2.8	<2.0	89	1.2 J	<2.6	<4.4	<5.4	<6.6	14
	SV-10-5	2313cc- 3 Vol Purge	3/5/2019	2.2 J	0.9	0.3 J	1.9 J	3.0 J	2.6 J	1.1 J	5.4	9.4	0.7 J	30	3.4	0.3 J	<2.2	0.5 J	1.7 J	14
	SV-10-15	2358cc - 3 Vol Purge	3/5/2019	2.2 J	0.4 J	<1.6	2.9	2.2 J	6.4	0.3 J	0.7 J	8.8	<1.0	86	1.3	<1.3	<2.2	<2.7	0.7	7.3
South Corner of Site (Stormwater Vault)	SV-11-5	2313cc- 3 Vol Purge	3/5/2019	2.1 J	0.4 J	<1.6	1.7 J	1.5 J	1.0 J	0.3 J	20.0	5.1	1.5 J	2.3	7.6	<1.3	0.5 J	0.6 J	2.9	74
	SV-11-15	2358cc - 3 Vol Purge	3/5/2019	2.0 J	0.4 J	<1.6	1.5 J	<6.1	1.0 J	0.4 J	1.9	8.4	<1.0	5.3	0.8	<1.3	<2.2	<2.7	0.3 J	5.2

Boring Location	Sample ID	Sample Volume [1]	Sample Date	DCFM (F12) (µg/m3)	Chloromethane (µg/m3)	Bromomethane (µg/m3)	TCFM (F11) (µg/m3)	TBA (µg/m3)	1,1,2-TCTFM (µg/m3)	Methylene chloride (µg/m3)	Carbon Disulfide (µg/m3)	2-Butanone (µg/m3)	Chloroform (µg/m3)	1,1,1-TCA (µg/m3)	Benzene (µg/m3)	Carbon tetrachloride (µg/m3)	TCE (µg/m3)	Bromodichloromethane (µg/m3)	4-Methyl-2-pentanone (µg/m3)	Toluene (µg/m3)
Sub-slab Vapor Samples																				
Residential Screening Level for Soil Vapor with ESLs (µg/m^3) [4]				*NE*	*3,100*	*170*	*NE*	*NE*	*NE*	*34*	*NE*	*170,000*	*4.1*	*35,000*	*3.2*	*2.2*	*16*	*2.5*	*NE*	*10,000*
11305 Iris Lane	SV-4	121cc- 3 Vol Purge	3/5/2019	4.9 J	0.6 J	<3.2	2.4 J	46	4.0 J	1.3 J	1.1 J	67	<2.0	34	8.3	<2.6	0.4 J	<5.4	17	24
Paint Spray Booth	SV-5	121cc- 3 Vol Purge	3/5/2019	2.9 J	1.1 J	<3.2	3.7 J	2.9 J	1.1 J	0.5 J	0.8 J	18	0.5 J	1.2 J	1.7	<2.6	<4.4	<5.4	3.1 J	3.7 J

TABLE 1
SUMMARY OF SOIL VAPOR ANALYTICAL RESULTS
KB Home - El Monte - Cypress Ave
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Volume [1]	Sample Date	2-Hexanone (µg/m3)	PCE (µg/m3)	Chlorobenzene (µg/m3)	Ethylbenzene (µg/m3)	m.p-Xylene (µg/m3)	Styrene (µg/m3)	o-Xylene (µg/m3)	4-Ethyltoluene (µg/m3)	1,3,5-TMB (µg/m3)	1,2,4-TMB (µg/m3)	1,4-DCB (µg/m3)	Naphthalene (µg/m3)	Hexachlorobutadiene (µg/m3)	Other VOCs	Methane (%)
Soil Vapor Samples																		
Residential Screening Level for Soil Vapor using RSL or HERO NOTE 3 and Attenuation Factor of 0.001 (µg/m^3) [2] [3]				31,000	*460*	52,000	1,100	100,000	*940,000*	100,000	*NE*	63,000	63,000	260	83	130	*various*	*NE*
Residential Screening Level for Soil Vapor comparing RSL, HERO Note 3, or ESLs (µg/m^3) [2] [3]				*31,000*	*15*	*1,700*	*37*	*3,500*	*31,000*	*3,500*	*NE*	*63,000*	*63,000*	*8.5*	*2.8*	*4.3*	*various*	*5.0*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	13	<3.7	30	110	1.9 J	33	2.4 J	2.2 J	8.1	1.1 J	1.0 J	<21	< *various*	0.0
	SV-1-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	53	<1.9	1.4 J	8.0	0.9 J	2.5	0.3 J	0.4 J	3.3	1.1 J	0.7 J	<11	< *various*	0.0
	SV-2-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	9.4	0.7 J	8.0	25	1.3 J	8.1	0.8 J	1.0 J	3.3	0.3 J	0.3 J	<11	< *various*	0.0
	SV-2-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	39	<1.9	2.9	21	1.3 J	6.5	0.3 J	1.0 J	3.3	0.9 J	0.3 J	<11	< *various*	0.0
	SV-3-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	7.3	<1.9	6.3	21	2.1	6.9	1.1 J	0.9 J	4.1	0.9 J	0.6 J	<11	< *various*	0.0
	SV-3-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	31	<1.9	4.4	15	3.8	4.7	1.1 J	0.9 J	4.2	1.7 J	1.1 J	<11	< *various*	0.0
11309 Iris Lane	SV-6-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	54	<1.9	6.7	22	1.6 J	6.9	1.2 J	1.5 J	4.9	0.3 J	0.5 J	0.9 J	< *various*	0.0
	SV-6-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	180	<1.9	1.2 J	5.0	2.4	1.8	0.4 J	0.4 J	2.0	1.6 J	0.7 J	<11	< *various*	0.0
3630 Cypress Ave. (Near Former Oil Well)	SV-7-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	6.1	<3.7	0.7 J	3.1 J	1.0 J	1.3 J	<4.0	0.5 J	1.9 J	0.7 J	0.6 J	<21	< *various*	0.0
	SV-7-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	16	<1.9	2.6	9.8	2.9	3.8	1.1 J	1.2 J	5.6	1.2 J	0.9 J	<11	< *various*	0.0
3640 Cypress Ave. (Near Former Oil Well	SV-8-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	14	<3.7	2.8	14	1.7	3.6	1.8 J	3.2 J	12	1.6 J	1.7 J	<21	< *various*	0.0
	SV-8-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	39	<1.9	1.2 J	3.4	3.0	1.3	0.4 J	0.5 J	2.1	1.6 J	1.0 J	<11	< *various*	0.0
3700 Cypress Ave. (Flammable Storage Are)	SV-9-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	5.0	1.0 J	9.7	30	14	9.4	2.0	2.4	8.1	0.5 J	0.8 J	<11	< *various*	0.0
	SV-9-15	2358cc - 3 Vol Purge	3/5/2019	<6.6	30	<3.7	5.5	21	8.4	5.8	1.3 J	1.2 J	6.1	2.2 J	1.0 J	<21	< *various*	0.0
	SV-9-15 REP	2358cc - 3 Vol Purge	3/5/2019	<6.6	37	<3.7	4.0	16	7.1	4.6	1.3 J	0.9 J	4.4	1.6 J	0.6 J	<21	< *various*	0.0
	SV-10-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	11	<1.9	2.6	5.3	<1.7	1.9	0.2 J	0.2 J	0.5 J	<2.4	<2.1	<11	< *various*	0.0
	SV-10-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	47	0.5	2.9	9.6	5.7	3.2	1.0 J	0.7 J	3.1	1.0 J	0.3 J	<11	< *various*	0.0
South Corner of Site (Stormwater Vault)	SV-11-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	3.9	<1.9	27	76	27	26	<2.0	<2.0	<2.0	<2.4	<2.1	<11	< *various*	0.0
	SV-11-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	9.4	<1.9	4.3	19	2.2	8.5	1.1 J	2.8	22	1.2 J	0.7 J	<11	< *various*	0.0

Boring Location	Sample ID	Sample Volume [1]	Sample Date	2-Hexanone (µg/m3)	PCE (µg/m3)	Chlorobenzene (µg/m3)	Ethylbenzene (µg/m3)	m.p-Xylene (µg/m3)	Styrene (µg/m3)	o-Xylene (µg/m3)	4-Ethyltoluene (µg/m3)	1,3,5-TMB (µg/m3)	1,2,4-TMB (µg/m3)	1,4-DCB (µg/m3)	Naphthalene (µg/m3)	Hexachlorobutadiene (µg/m3)	Other VOCs	Methane (%)
Sub-slab Vapor Samples																		
Residential Screening Level for Soil Vapor with ESLs (µg/m^3) [4]				*NE*	*15*	*1,700*	*37*	*3,500*	*31,000*	*3,500*	*NE*	*NE*	*NE*	*8.5*	*2.8*	*4.3*	*various*	*5.0*
11305 Iris Lane	SV-4	121cc- 3 Vol Purge	3/5/2019	9.4	15	<1.9	6.2	21	1.5	9.8	7.2	13	38	<4.9	2.4 J	<21	< *various*	0.0
Paint Spray Booth	SV-5	121cc- 3 Vol Purge	3/5/2019	<3.3	21	<1.9	4.0	18	1.6 J	5.5	0.7 J	0.8 J	2.8 J	<4.9	0.5 J	<21	< *various*	0.0

Notes:
(1) - Sample collected via 1L summa canister.
(2) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) using an Attenuation Factor of 0.001 and Cancer Risk of 1e-06 and a Hazard Quotient of 1.
(3) - Residential DTSC HERO HHRA Note #3 (June 2018) using an Attenuation Factor of 0.001 and Cancer Risk of 1e-06 and a Hazard Quotient of 1. (DTSC CAL EPA, October 2011 Final Guidance for the Evaluation and Mitigation of Substance Vapor Intrusion to Indoor Air).
(4) - SFRWQCB ESLs - Sub slab/ Soil Gas (µg/m3) January 2019
"<" - Results reported below Laboratory Reporting Limit.
CA EPA - California Environmental Protection Agency
DTSC - Department of Toxic Substance Control
HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment
Orange shading indicates value above the ESLs (0.03 attenuation factor) residential screening level.
Red shading indicates value above the RSLs or HERO Note 3 (0.001 attenuation factor) residential screening level.

PCE - Tetrachloroethene
1,2,4 - 1,2,4-Trimethylbenzene
1,3,5 - 1,3,5-Trimethylbenzene
DCFM - Dichlorodifluoromethane (F12)
TCFM - Trichlorodifluoromethane (F11)
TBA - Trichlorodifluoromethane (F11)
1,1,2-TCTFM- Tertiary-butyl alcohol
TCDFM - Trichlorodifluoromethane

µg/m3 - Micrograms per Cubic Meter
NE - Not Established
EPA - United States Environmental Protection Agency
ESLs - Environmental Screening Levels
SFRWQCB - San Francisco Bay Regional Water Quality Control Board

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS -TPH VOCs
KB Home El Monte -Cypress Ave., CALIFORNIA

Boring Location	Sample ID	Sample Depth	Sample Date	TPH (8015B) (mg/Kg)						
				GRO	DRO	ORO	Ethylbenzene	p/m-Xylene	o-Xylene	Various
Residential US EPA RSL (mg/kg) (1)				*82*	*96*	*2,500*	*5.8*	*550*	*650*	*Various*
Residential DTSC HERO Note No. 3 (mg/kg) (1)				*NE*	*NE*	*NE*	*NE*	*NE*	*NE*	*Various*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	5	2/28/2019	<1.0	27	31	6.1	32	13	<various
	SV-1-10	10		<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-2-5	5	2/28/2019	<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-2-10	10		<1.0	46	<10	<5.0	<10	<5.0	<various
	SV-3-5	5	2/28/2019	<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-3-10	10		<1.0	<10	<10	<5.0	<10	<5.0	<various
	HA-2-2	2	2/28/2019	<1.0	110	220	<5.0	<10	<10	<various
	HA-3-2	2	2/28/2019	<1.0	100	220	<5.0	<10	<10	<various
11305 Iris Lane	SV-4-1	1	2/28/2019	<1.0	40	65	NA	NA	NA	<various
	HA-1-1	1	2/28/2019	<1.0	26	57	NA	NA	NA	<various
Paint Spray Booth	SV-5-1	1	2/28/2019	<1.0	59	120	<5.0	<10	<10	<various
3700 Cypress Ave. (Flammable Storage Are)	SV-9-1	1	3/1/2019	<1.0	84	160	<5.0	<10	<10	<various
	SV-9-5	5	3/1/2019	<1.0	<10	<10	<5.0	<10	<10	<various
	SV-10-1	1	3/1/2019	<1.0	2,300	7,500	<5.0	<10	<10	<various
	SV-10-5	5	3/1/2019	<1.0	<10	<10	<5.0	<10	<10	<various

Notes:

(1) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) and the Residential CAL EPA DTSC HERO Note #3 (June 2018).

CA EPA - California Environmental Protection Agency

DTSC - Department of Toxic Substance Control

HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment

mg/Kg - milligrams per kilograms

US EPA - United States Environmental Protection Agency

NA - Not Analyzed

NE - Not Established

VOC - Volatile Organic Compounds

Red shading indicates value above the residential screening level.

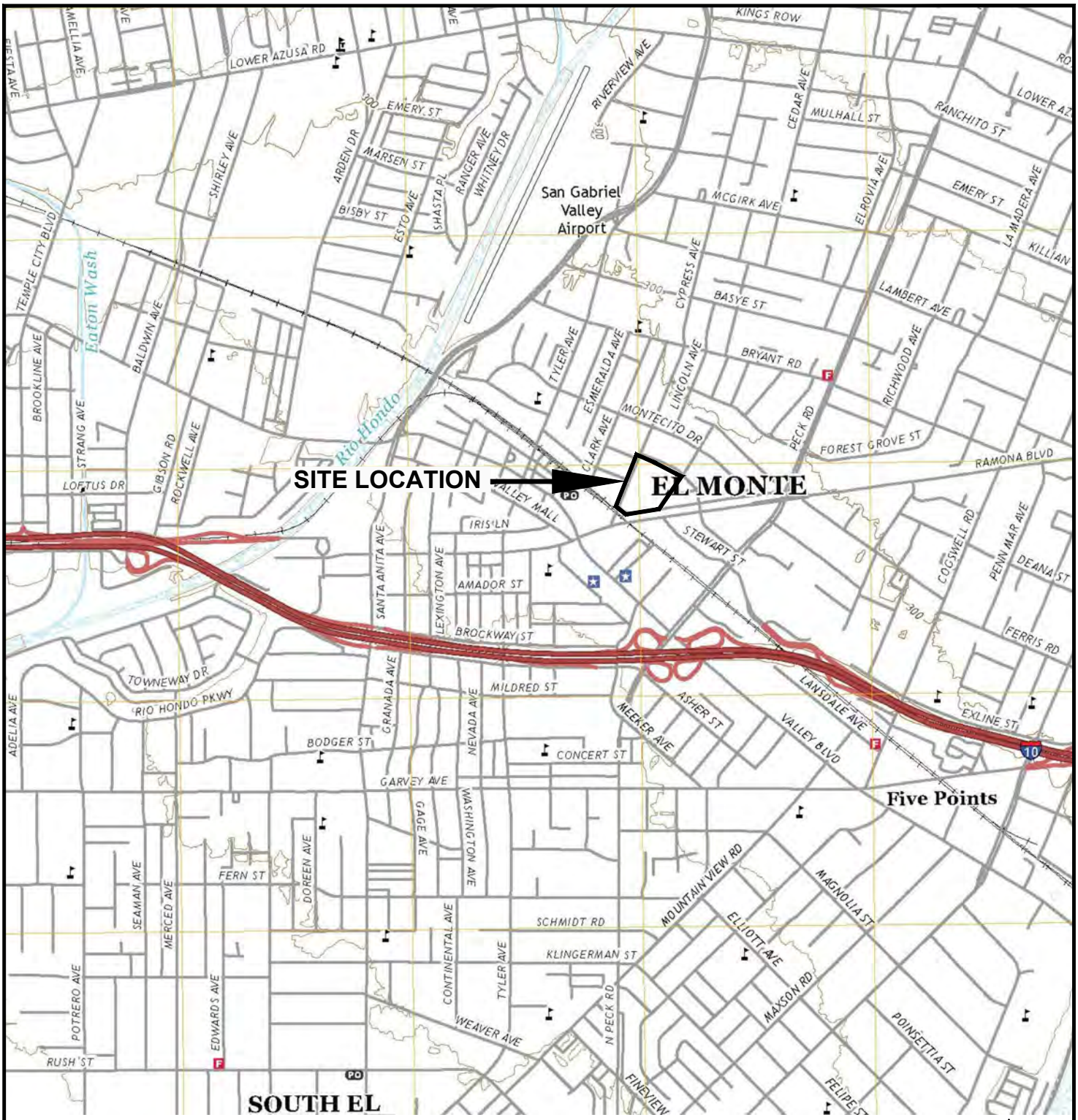
TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS - METALS
KB Home - EL Monte -Cypress Ave.
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Depth	Sample Date	Metals (6010B) (mg/Kg)																	
				Antimony	Arsenic [2]	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Residential US EPA RSL (mg/kg) [1]				*470*	*0.68*	*15,000*	*2,300*	*2,100*	*NE*	*0.3*	*230*	*3,100*	*400*	*11*	*390*	*NE*	*390*	*5,800*	*0.78*	*390*	*23,000*
Residential DTSC HERO Note No. 3 (mg/kg) [1]				*NE*	*0.11*	*NE*	*210*	*5.2*	*NE*	*NE*	*NE*	*NE*	*80*	*1.0*	*NE*	*490*	*NE*	*1,500*	*NE*	*390*	*NE*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	5	2/28/2019	<2.0	1.3	93	<1.0	<1.0	12	<1.0	6.8	13	1.4	<0.10	<1.0	9.7	<1.0	<1.0	<1.0	21	34
	SV-1-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SV-2-5	5	2/28/2019	<2.0	2.6	130	<1.0	<1.0	19	<1.0	6.8	52	4.9	<0.10	<1.0	13	<1.0	<1.0	<1.0	25	140
	SV-2-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SV-3-5	5	2/28/2019	<2.0	1.7	110	<1.0	<1.0	13	<1.0	7.1	18	6.5	<0.10	<1.0	11	<1.0	<1.0	<1.0	24	56
	SV-3-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HA-2-2	2	2/28/2019	<2.0	2.7	90	<1.0	<1.0	17	<1.0	8.9	46	48	0.13	<1.0	16	<1.0	<1.0	<1.0	23	320
	HA-3-2	2	2/28/2019	<2.0	3.3	94	<1.0	<1.0	21	<1.0	8.4	33	25	<0.10	<1.0	17	<1.0	<1.0	<1.0	27	130
11305 Iris Lane	SV-4-1	1	2/28/2019	<2.0	1.1	66	<1.0	<1.0	13	<1.0	6.5	13	8.8	<0.10	<1.0	8.8	<1.0	<1.0	<1.0	23	37
	HA-1-1	1	2/28/2019	<2.0	1.3	75	<1.0	<1.0	11	NA	8.0	13	6.7	<0.10	<1.0	11	<1.0	<1.0	<1.0	26	28
Paint Spray Booth	SV-5-1	1	2/28/2019	<2.0	1.2	340	<1.0	<1.0	14	<1.0	9.6	21	8.3	<0.10	<1.0	12	<1.0	<1.0	<1.0	33	40
3700 Cypress Ave. (Flammable Storage Are)	SV-9-1	1	3/1/2019	<2.0	45	110	<1.0	<1.0	14	NA	7.6	24	22	<0.10	<1.0	11	<1.0	<1.0	<1.0	24	85
	SV-9-5	5	3/1/2019	<2.0	2.7	110	<1.0	<1.0	16	NA	8.7	21	3.6	<0.10	<1.0	12	<1.0	<1.0	<1.0	30	40
	SV-10-1	1	3/1/2019	<2.0	24	64	<1.0	<1.0	12	NA	6.7	63	23	<0.10	<1.0	11	<1.0	<1.0	<1.0	21	33
	SV-10-5	5	3/1/2019	<2.0	2.8	83	<1.0	<1.0	14	NA	8.4	17	2.9	0.17	<1.0	11	<1.0	<1.0	<1.0	29	36

Notes:
(1) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) and the Residential CAL EPA DTSC HERO Note #3 (June 2018).
(2) - Background range for Arsenic is 11 mg/kg within Southern California.
CA EPA - California Environmental Protection Agency
DTSC - Department of Toxic Substance Control
HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment

NA - Not Analyzed
NE - Not Established
mg/Kg - milligrams per kilograms
US EPA - United States Environmental Protection Agency
Red shading indicates value above the residential screening level.

FIGURES





QUADRANGLE LOCATION

0 2000 4000

APPROXIMATE SCALE (FEET)

N

SOURCE:
USGS 7.5 MINUTE
TOPOGRAPHIC MAP–
EL MONTE, CA QUADRANGLE, 2018

Stantec
735 E. CARNEGIE DRIVE, SUITE 280
SAN BERNARDINO, CALIFORNIA 92408
PHONE: (909) 335-6116 FAX:(909) 335-6120

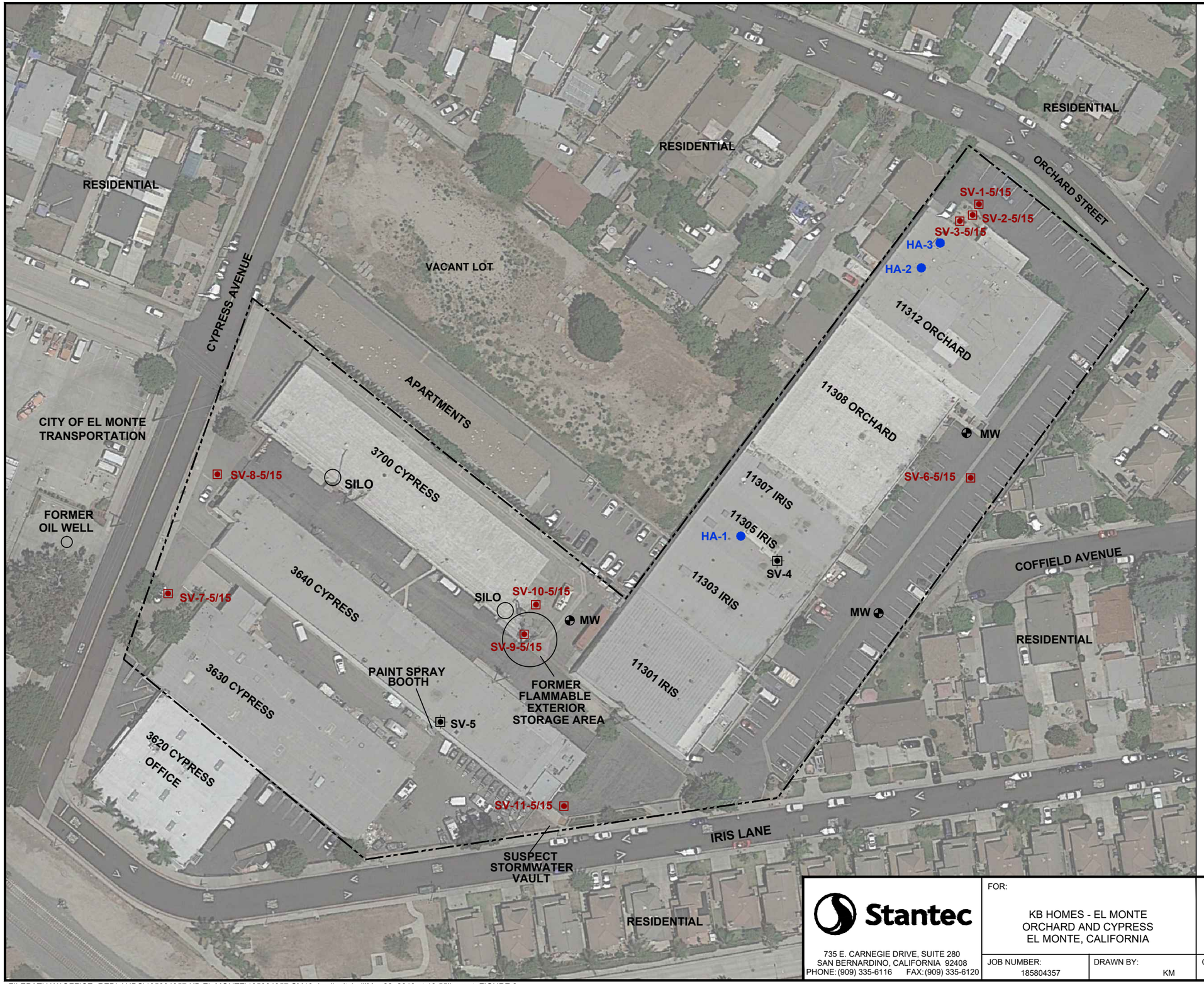
FOR:
KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SITE LOCATION MAP

FIGURE:
1

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SLM19.dwg|kmitchell|Mar 20, 2019 at 13:06|Layout: FIGURE 1



LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

0 80 160

APPROXIMATE SCALE (FEET)

N

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735 E. CARNEGIE DRIVE, SUITE 280
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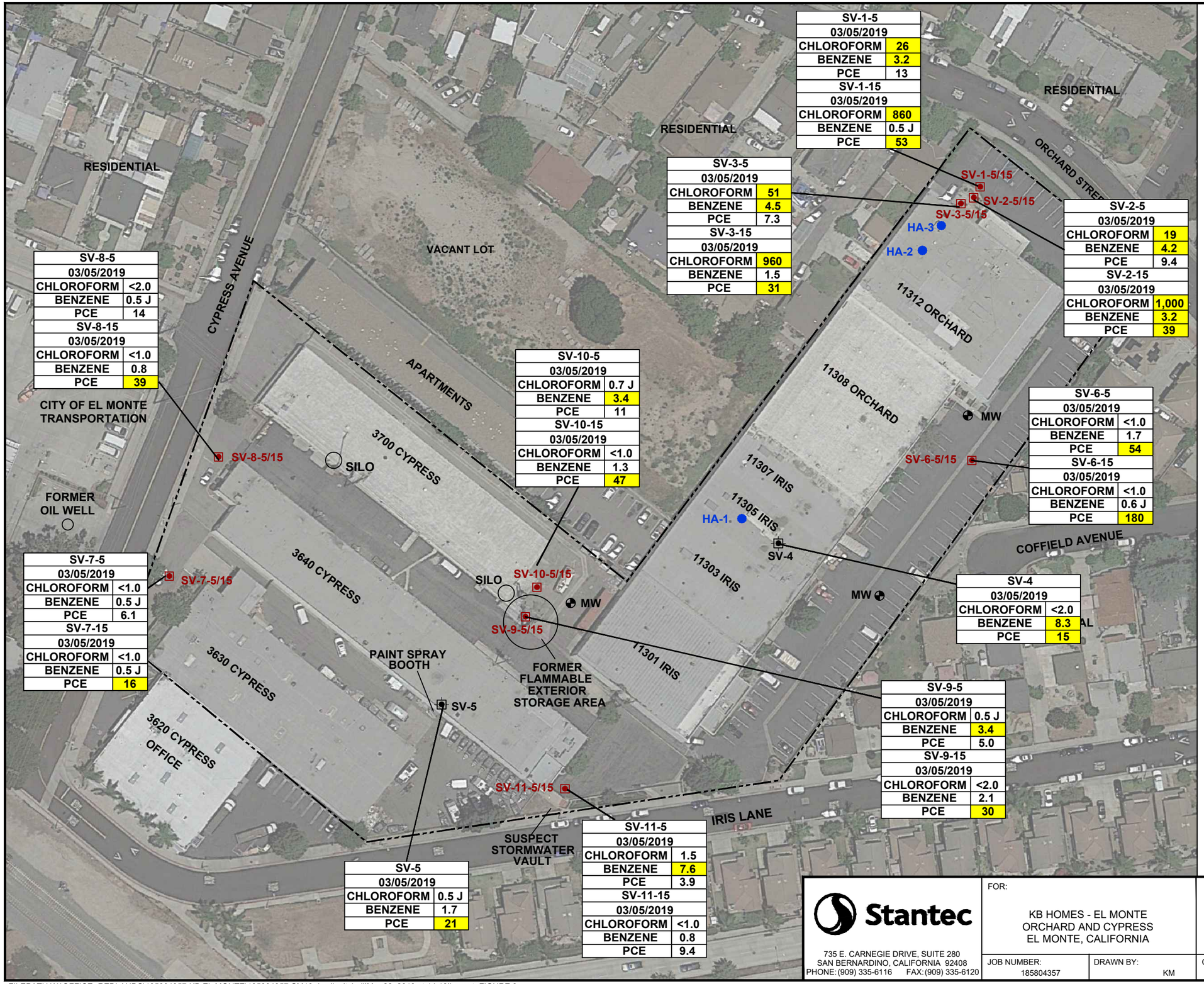
FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SITE MAP

FIGURE: 2

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SM19.dwg|kmitchell|Mar 22, 2019 at 13:55|Layout: FIGURE 2



SV-8-5	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	0.5 J
PCE	14
SV-8-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.8
PCE	39

SV-7-5	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.5 J
PCE	6.1
SV-7-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.5 J
PCE	16

SV-10-5	
03/05/2019	
CHLOROFORM	0.7 J
BENZENE	3.4
PCE	11
SV-10-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	1.3
PCE	47

SV-1-5	
03/05/2019	
CHLOROFORM	26
BENZENE	3.2
PCE	13
SV-1-15	
03/05/2019	
CHLOROFORM	860
BENZENE	0.5 J
PCE	53

SV-3-5	
03/05/2019	
CHLOROFORM	51
BENZENE	4.5
PCE	7.3
SV-3-15	
03/05/2019	
CHLOROFORM	960
BENZENE	1.5
PCE	31

SV-2-5	
03/05/2019	
CHLOROFORM	19
BENZENE	4.2
PCE	9.4
SV-2-15	
03/05/2019	
CHLOROFORM	1,000
BENZENE	3.2
PCE	39

SV-6-5	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	1.7
PCE	54
SV-6-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.6 J
PCE	180

SV-4	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	8.3
PCE	15

SV-9-5	
03/05/2019	
CHLOROFORM	0.5 J
BENZENE	3.4
PCE	5.0
SV-9-15	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	2.1
PCE	30

SV-5	
03/05/2019	
CHLOROFORM	0.5 J
BENZENE	1.7
PCE	21

SV-11-5	
03/05/2019	
CHLOROFORM	1.5
BENZENE	7.6
PCE	3.9
SV-11-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.8
PCE	9.4

LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

SV-4	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	8.3
PCE	15

SAMPLE ID
SAMPLE DATE

ALL RESULTS IN MICROGRAMS PER CUBIC METER (ug/m ^{3})

PCE = TETRACHLOROETHENE

J = ESTIMATED VALUE

RESULT ABOVE RESIDENTIAL SCREENING LEVEL

< = CONCENTRATION LESS THAN THE INDICATED LABORATORY REPORTING LIMIT

0 80 160

APPROXIMATE SCALE (FEET)

N

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SAN BERNARDINO, CALIFORNIA 92408
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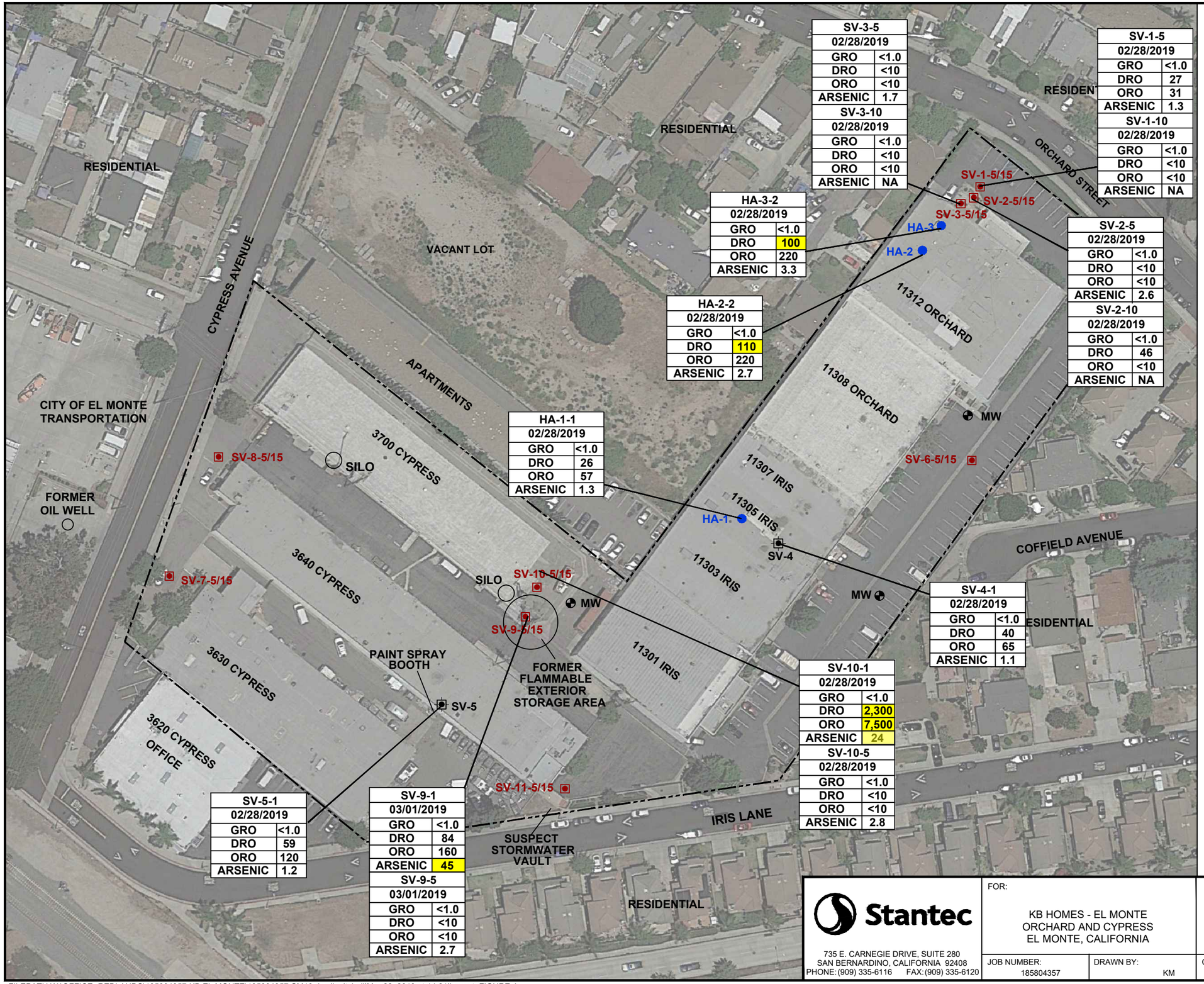
FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SOIL VAPOR ANALYTICAL RESULTS

FIGURE: 3

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SM19.dwg|kmitchell|Mar 22, 2019 at 14:13|Layout: FIGURE 3



SV-3-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	1.7

SV-3-10	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	NA

SV-1-5	
02/28/2019	
GRO	<1.0
DRO	27
ORO	31
ARSENIC	1.3

SV-1-10	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	NA

HA-3-2	
02/28/2019	
GRO	<1.0
DRO	100
ORO	220
ARSENIC	3.3

SV-2-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.6

SV-2-10	
02/28/2019	
GRO	<1.0
DRO	46
ORO	<10
ARSENIC	NA

HA-2-2	
02/28/2019	
GRO	<1.0
DRO	110
ORO	220
ARSENIC	2.7

HA-1-1	
02/28/2019	
GRO	<1.0
DRO	26
ORO	57
ARSENIC	1.3

SV-4-1	
02/28/2019	
GRO	<1.0
DRO	40
ORO	65
ARSENIC	1.1

SV-10-1	
02/28/2019	
GRO	<1.0
DRO	2,300
ORO	7,500
ARSENIC	24

SV-10-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.8

SV-5-1	
02/28/2019	
GRO	<1.0
DRO	59
ORO	120
ARSENIC	1.2

SV-9-1	
03/01/2019	
GRO	<1.0
DRO	84
ORO	160
ARSENIC	45

SV-9-5	
03/01/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.7

LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

HA-3-2	SAMPLE ID
02/28/2019	SAMPLE DATE
GRO	<1.0
DRO	100
ORO	220
ARSENIC	3.3

ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

GRO- GASOLINE RANGE ORGANICS
DRO- DIESEL RANGE ORGANICS
ORO- OIL RANGE ORGANICS
NA- NOT ANALYZED

RESULT ABOVE RESIDENTIAL SCREENING LEVEL

< = CONCENTRATION LESS THAN THE INDICATED LABORATORY REPORTING LIMIT

0 80 160

APPROXIMATE SCALE (FEET)

N

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FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SOIL BORING ANALYTICAL RESULTS

FIGURE: 4

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

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Phase II Environmental Site Assessment Report- Revised

3630, 3640, 3700 Cypress Avenue and
11312 Orchard Street, El Monte,
California 91731

February 6, 2020

Prepared for:

KB Home Southern California
25152 Springfield Court Suite 180
Valencia, California 91335

Prepared by:

Stantec Consulting Services Inc.
735 East Carnegie Drive, Suite 280
San Bernardino, California 92408

Project No.: 185804357

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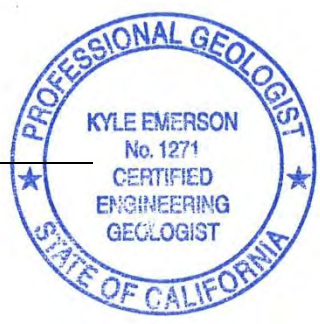
Author: _____

Alicia Jansen
Associate Scientist

Reviewer: _____

Jim Dewoody
Senior Scientist

Approved by _____
(signature)



Kyle Emerson, CEG
Managing Principal Geologist

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Executive Summary

This report documents the methodology and results of a Phase II Environmental Site Assessment (ESA) investigation completed by Stantec Consulting Services, Inc. (Stantec) for KB Home Southern California (KB) at the property addressed as 3630, 3640, 3700 Cypress Avenue and 11312 Orchard Street, located in the City of El Monte, County of Los Angeles, California (the "Property", Figure 1).

The Property consists of approximately 5.2 acres of land developed with four occupied multi-tenant commercial/light industrial buildings with asphalt parking lots. Tenants include import/export warehouses, furniture warehouses, woodworking, print press, and storage/maintenance of forklifts and other various machines. Silo structures attached to ventilation ducts appeared on the roof of 3700 Cypress Avenue. Surrounding properties include residential structures and the City of El Monte Transportation Service Yard. A former oil well is reportedly located on the adjacent parcel to the south. A Property map illustrating the main features of the Property is provided as Figure 2.

Stantec performed a Phase I ESA for the Property in January 2019 (Revised in January 2020). The following recognized environmental conditions (RECs) were identified in the assessment:

- **Suspect Clarifier/Sump**. Multiple suspect sump/clarifiers (two exteriors, and one interior) and associated trenching were identified at the Property address 11312 Orchard, Unit B in the interior and exterior of the northern warehouse area. Releases are known to occur from these structures. In additional the former Electra Food Machinery Inc. is listed in the drycleaner database as Anitsa Inc, Valet Services, DBA for this address.

- **Former Chemical Storage Areas.** A former flammables exterior storage area and a suspect chemical storage area were identified at the Property address of 3700 Cypress, Unit B. Releases are known to occur from these areas.

- **Paint Spray Booth.** This feature was identified at the Property address of 3640 Cypress. Releases are known to occur from these features.

- **Printing Press Operations.** Printing press machinery was observed at the Property address of 11305 Iris Lane. Although no hazardous materials were observed in this space, this machinery are known to leak hydraulic fluid.

- **Former Off-Site Oil Well.** According to the Division of Oil, Gas, and Geothermal Resources (DOGGR) well finder database there are no oil wells on plotted on the Property and the nearest oil well is a plugged oil well, identified as "Ferris 1" API 040370564, and operated by Chevron USA Inc., is plotted approximately 250 feet west on the City of El Monte Transportation Service Center. California Geologic Energy Management Division (CalGEM) replaced DOGGR effective January 1, 2020. Upon review of the CalGEM well record the "Ferris 1" well is described as "located from the intersection of the centerline of Iris Lane and Cypress Avenue, 149' northeast along the centerline of Cypress Avenue, thence 276' southeast at right angles" which places the plugged oil well near the southeast edge of the Property. A geophysical survey was performed in the southeast portion of the Property and the surrounding off-site areas using ground penetrating radar and a magnetometer on January 17, 2020. The geophysical survey was performed in the parking

lot areas and all open spaces within the building located in the southeast corner of the Property. No oil wells were identified in the southeast corner of the Property during the geophysical survey; however, a potential oil well was located approximately 15 feet south of the southern property line on the adjacent parcel. The off-site oil well was located at approximately the same dimensions as stated in the DOGGR well record, but on the adjacent parcel to the south of the Property (Appendix C).

- **Contaminated Groundwater.** The Property is located over a National Priority List (NPL) Site identified as the San Gabriel Valley Superfund Site. Groundwater in the area of the Property has been documented to be impacted with various volatile organic compounds (VOCs) including tetrachloroethene (PCE), trichloroethene (TCE), perchlorate, and carbon tetrachloride (CT). Off-gassing of VOCs from the contaminated groundwater could potentially affect soil vapor conditions at the Property.

Based on the Phase I ESA findings, Stantec recommended performing an investigation at the Property to address the identified RECs.

Between February 28 and March 5, 2019, Stantec personnel oversaw the advancement of twenty-three (23) direct push soil borings (SV-01 through SV-23) in the areas of concern listed above to a depth of fifteen (15) feet below ground surface (bgs). The locations of the soil borings are shown Figure 3. These activities included the following:

Soils encountered during this investigation consisted largely of silty sand. Groundwater was not encountered during this investigation. No staining or hydrocarbons odors were observed in any of the borings advanced during this investigation.

Laboratory analytical test results from this assessment are presented on the laboratory data sheets attached as Appendix A. A summary of the analytical data from this assessment is provided in Tables 1 through 3. The laboratory test results from this phase of investigation are discussed below and were compared to the more conservative value between the Department of Toxic Substances Control (DTSC) Human and Ecologic Risk Office (HERO) Note 3 screening level for residential sites (DTSC, 2019), and the USEPA regional screening levels (RSLs) for residential sites (USEPA, 2019) using an attenuation factor of 0.03.

Soil Vapor Results

Twenty soil vapor or sub-slab probes were installed just below the concrete foundation or asphalt parking lot to a maximum depth of 15 feet below ground surface (bgs) to evaluate soil vapor concentrations in shallow soil. The locations selected to address the RECs are shown on Figure 3, attached.

The laboratory reported low levels of volatile organic compounds (VOCs) in all soil vapor and sub-slab vapor samples. The VOCs reported included; chloroform, benzene, and tetrachloroethene (PCE)above the San Francisco Bay Region Water Quality Control Board's newly published Environmental Screening Levels (ESLs) (January 2019) based on an attenuation factor of 0.03 (Table 1). The reported concentrations are as follows:

- Chloroform ranged from less than the laboratory reporting limit to 1,000 ug/m^3 in soil vapor sample SV-2-15' located near the sump/clarifiers and associated trenching at 11312 Orchard, Unit B. Elevated concentrations of chloroform, above the background levels, were reported in all six soil vapor samples collected near the sump/clarifier.

- Low levels of Benzene ranged from less than the laboratory reporting limit to 7.6 ug/m^3 in soil vapor sample SV-11-5' located near the storm water vault in the southern corner of the Property.

- PCE ranged from less than the laboratory reporting limit to 180 ug/m^3 in soil vapor sample SV-6-15' located in the parking lot area of 11308 Orchard. SV-6 was one (1) of three (3) soil vapor probes installed away from on-site RECs to assess the regional San Gabriel Valley Superfund plume.

Soil Results

Ten soil borings were advanced to a maximum depth of 15 feet bgs to determine if there are any concentrations in shallow soil that may impact the subsurface at the Property (Figure 4). Low levels of diesel range organics (DRO), motor oil range organics (ORO), and arsenic were detected above the residential screening levels in two areas of the Property (Table 2 and 3).

- Low levels of DRO were detected above the residential screening levels in the shallow soil samples (HA-2 and HA-3) collected along the interior trench drains connected to the sump/clarifiers at the 11312 Orchard Street (Table 2).

- Concentration of DRO, motor oil range organics (ORO), and arsenic were detected above the residential screening levels in the shallow soil samples (SV-9 and SV-10) collected from the flammable exterior storage area located at 3700 Cypress Ave. The petroleum and arsenic impacts appear limited to the upper few feet of soil in this area, as the 5-feet bgs interval samples reported DRO, ORO, and arsenic below the residential screening levels.

Conclusions and Recommendations

The soil vapor concentrations for chloroform, benzene, and PCE are elevated near the sump/clarifier and only slightly above the newly published ESLs for the remaining areas of the Property. Given the fact that the Property is located over the San Gabriel Valley Superfund plume and these newly published ESLs, Stantec recommends that a risk assessment be performed to determine if vapor barriers with passive vents are required for new residential developments in these two areas of the Property. The final recommendations for vapor barriers with passive vents will be determined by the risk assessment, but to be conservative KB Home should assume for their developments cost that vapor barriers with passive vents will be required based on the newly published ESLs and the recent soil vapor results.

The sump/clarifier area of the Property located at 11312 Orchard reported elevated concentration of chloroform and PCE in the soil vapor and low levels of DRO in the soil samples. PCE and chloroform were not reported in the soil samples collected around the sump/clarifiers and drains, however, releases are known to occur from these structures, therefore, Stantec recommends that during removal of these structures, that over excavation followed by confirmation soil sampling be performed. Based on the confirmation soil sampling, additional remedial actions may be recommended for this REC.

Soil borings SV-9 and SV-10 reported elevated DRO, ORO, and arsenic in the soil samples collected at the 1-foot bgs interval above the residential screening levels. Given that the 5-foot bgs interval soil samples reported all analytes below their corresponding residential screening levels, a limited and shallow excavation followed by confirmation soil sampling of this flammable exterior storage area is recommended.



1.0 INTRODUCTION

This report documents the methodology and results of a Phase II Environmental Site Assessment (ESA) investigation completed by Stantec Consulting Services, Inc. (Stantec) for KB Home Southern California (KB) at the property addressed as 3630, 3640, 3700 Cypress Avenue and 11312 Orchard Street, located in the City of El Monte, County of Los Angeles, California (the "Property", Figure 1).

The completed work was conducted in accordance with Stantec's *Proposal to Perform Phase II Environmental Site Assessment*, dated February 5, 2019. The scope of work and the results of the investigation are described in subsequent sections.

1.1 PROPERTY DESCRIPTION AND OPERATIONS

The Property consists of approximately 5.2 acres of land developed with four occupied multi-tenant commercial/light industrial buildings with asphalt parking lots. Tenants include import/export warehouses, furniture warehouses, woodworking, print press, and storage/maintenance of forklifts and other various machines. Silo structures attached to ventilation ducts appeared on the roof of 3700 Cypress Avenue. Surrounding properties include residential structures and the City of El Monte Transportation Service Yard. A former oil well is reportedly located on the adjacent parcel to the south. A Property map illustrating the main features of the Property is provided as Figure 2.

1.2 PROPERTY GEOLOGY

The Property is located in Los Angeles County. The area is located in the Transverse Ranges Geomorphic Province, which includes northwest-southeast trending mountain ranges and valleys that have been developed by the San Andreas Fault system (California Geological Survey [CGS], 2002). The stratigraphy underlying the Site consists primarily of recent-age gravel, sands, and silts deposited from the San Gabriel Mountains, located north of the Property (CDMG, 1962).

The closest mapped recently active fault is the Walnut Creek Fault located approximately 5 miles southeast of the Property (CGS, 2010). According to official maps of California, the Property is not located within an Alquist-Priolo (AP) Earthquake Fault Zone boundary or a liquefaction zone (CDMG, 2000).

1.3 PROPERTY HYDROGEOLOGY

The Site is located within the San Gabriel Valley Groundwater Basin. The basin is located within the eastern portion of Los Angeles County and includes most of San Gabriel Valley and part of the Santa Ana Valley. The basin is constrained by bedrock and faults on all sides. Several aquifers are present in the basin and water-bearing units consist of Holocene alluvium up to 4,100 feet in thickness and Pleistocene marine deposits up to 2,000 feet in thickness (Department of Water Resources [DWR], 2004). According to information obtained for a facility located approximately 1 mile to the southwest, shallow groundwater within the site vicinity is anticipated to be encountered at approximately 175 feet amsl, or at approximately 113 feet beneath the site, and is flowing to the west (State Water Resources Control Board [SWRCB], 2019).

2.0 BACKGROUND

Stantec performed a Phase I ESA for the Property in January 2019 (Revised in January 2020). The following recognized environmental conditions (RECs) were identified in the assessment:

- **Suspect Clarifier/Sump**. Multiple suspect sump/clarifiers (two exteriors, and one interior) and associated trenching were identified at the Property address 11312 Orchard, Unit B in the interior and exterior of the northern warehouse area. Releases are known to occur from these structures. In additional the former Electra Food Machinery Inc. is listed in the drycleaner database as Anitsa Inc, Valet Services, DBA for this address.

- **Former Chemical Storage Areas.** A former flammables exterior storage area and a suspect chemical storage area were identified at the Property address of 3700 Cypress, Unit B. Releases are known to occur from these areas.

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- **Former Off-Site Oil Well.** According to the Division of Oil, Gas, and Geothermal Resources (DOGGR) well finder database there are no oil wells on plotted on the Property and the nearest oil well is a plugged oil well, identified as “Ferris 1” API 040370564, and operated by Chevron USA Inc., is plotted approximately 250 feet west on the City of El Monte Transportation Service Center. California Geologic Energy Management Division (CalGEM) replaced DOGGR effective January 1, 2020. Upon review of the CalGEM well record the “Ferris 1” well is described as “located from the intersection of the centerline of Iris Lane and Cypress Avenue, 149’ northeast along the centerline of Cypress Avenue, thence 276’ southeast at right angles” which places the plugged oil well near the southeast edge of the Property. A geophysical survey was performed in the southeast portion of the Property and the surrounding off-site areas using ground penetrating radar and a magnetometer on January 17, 2020. The geophysical survey was performed in the parking lot areas and all open spaces within the building located in the southeast corner of the Property. No oil wells were identified in the southeast corner of the Property during the geophysical survey; however, a potential oil well was located approximately 15 feet south of the southern property line on the adjacent parcel. The off-site oil well was located at approximately the same dimensions as stated in the DOGGR well record, but on the adjacent parcel to the south of the Property (Appendix C).

- **Contaminated Groundwater.** The Property is located over a National Priority List (NPL) Site identified as the San Gabriel Valley Superfund Site. Groundwater in the area of the Property has been documented to be impacted with various volatile organic compounds (VOCs) including tetrachloroethene (PCE), trichloroethene (TCE), perchlorate, and carbon tetrachloride (CT). Off-gassing of VOCs from the contaminated groundwater could potentially affect soil vapor conditions at the Property.

Based on the Phase I ESA findings, Stantec recommended performing an investigation at the Property to address the identified RECs. The remainder of this report present the methodology and results of the implemented scope of work at the Property to address the identified issues.

3.0 FIELD INVESTIGATION

3.1 PRE-DRILLING ACTIVITIES

Prior to the commencement of fieldwork activities, Stantec made the following preparations:

- Stantec visited the Property to mark the proposed boring locations. Subsequent to the marking, underground Service Alert (USA) was notified at least 72-hours prior to the commencement drilling activities; and,
- In accordance with federal Occupational Safety and Health Administration (OSHA) regulations (29 CFR, Section 1910.120), Stantec developed a site-specific Health and Safety Plan (HASP) for the Property. All Stantec personnel and subcontractors associated with the project were required to be familiar with, and comply with, all provisions of the HASP.

3.2 INVESTIGATION

Stantec provided the services of a field geologist between February 28 and March 5, 2019 to supervise and direct all assessment activities performed during this investigation. All work was conducted under the direct supervision of a State of California professional and included the following:

- Twenty-three (23) direct push soil borings (SV-01 through SV-23) in the areas of concern listed above to a depth of fifteen (15) feet below ground surface (bgs).

All boring locations are depicted on Figure 3.

3.2.1 Soil Boring Procedures

Prior to boring advancement, a hand auger was used for utility clearance purposes to a depth of five feet bgs. Once the five-foot depth has been reached, advancement of the borings was attempted using a Geoprobe direct push rig. During advancement, sampling of subsurface soils was performed starting at a depth of approximately five feet bgs. All the direct push borings were advanced and sampled using a Geoprobe 6610DT rig equipped with 4-foot-long by 1.25-inch inner diameter sampler with acetate sample liners to the terminal depth of the borehole.

At each sampling interval, the sampler was driven into undisturbed soil using a hydraulic ram on the Geoprobe rig. Upon advancement of the sampler through the desired sampling depth interval, the sample liner was retrieved from the boring. The drilling and sampling sequence were then repeated for the entire depth of the boring.

The soils from each of the direct push borings were visually examined by Stantec field personnel who classified the soils in accordance with the unified soil classification system (USCS).

3.2.2 Soil Vapor Probe Installation

At the completion of drilling, soil borings were converted to single- and multi-depth soil vapor monitoring points. Borings SV-01 through SV-11 were completed with soil vapor points at the five- and fifteen-foot depth intervals. Subsurface soil vapor probe installation was performed in accordance with the July 2015 Department of Toxic Substances Control (DTSC) "Advisory - Active Soil Gas Investigations" (DTSC Advisory).

Each sample probe was constructed with a 10-inch Penn-Plax sampling screen set at the prescribed sampling intervals. Each of the sampling screens was constructed with a permeable Penn-Plax vapor tip connected to 1/4-inch outer diameter Nylaflow tubing that was lowered to the bottom of the borehole and backfilled with filter sand, until approximately 12-inches of filter pack was placed. A transition seal consisting of approximately 12-inches of dry bentonite was then placed above the filter pack, followed by an annular seal consisting of hydrated bentonite until the next sampling interval was reached. The sequence was then repeated to install the second monitoring point, if necessary, and/ or completely backfill the borehole. At the surface, the exposed nylon tubing was capped with tight fitting plastic endcaps and labeled to indicate sampling depth. After placement of the soil vapor sample probes on February 28 and March 1, 2019, subsurface conditions were allowed to equilibrate a minimum of 48-hours prior to leak testing and sample collection on March 5, 2019.

3.2.3 Soil Vapor Sampling

Soil vapor samples were collected on March 5, 2019 in accordance with the methods and procedures outlined by the DTSC and CalEPA Advisory – Active Soil Gas Investigations, dated July 2015, a minimum of 48-hours after installation - in order to allow for equilibration.

Prior to sampling, a shut-in test was conducted on the sampling train to ensure all connections and fittings were airtight. The shut-in test was performed on the sampling train by applying a vacuum of 100 inches of water to the sampling train and monitoring magnehelic gauges for a pressure drop for one minute. If loss of vacuum was observed, the fittings were adjusted as needed until no vacuum loss was observed during subsequent shut-in tests.

After the sampling equipment passed the shut-in test, the probes were purged to remove internal air from the sample train (calculated from the internal volume of the tubing and probe tip); the void space of the sand pack around the probe tip; and the void space of the dry bentonite (in the annular space). Three internal volumes were purged from each sampling location at a rate less than 200 ml/min.

Immediately following purging the internal volumes, the soil vapor samples were collected by the laboratory technician by connecting a glass syringe to the sampling port with Teflon® or Nylaflow® tubing. A tracer compound Isopropanol was placed above the surface seal and along the sampling train to evaluate the integrity of the seal. No tracer compounds were detected in the soil vapor samples collected during this investigation.

3.2.4 Methane Field Screening

In addition to the soil vapor survey, Stantec field screened the Property for the presence of methane using a GEM 2000 methane meter. No methane was detected above background levels in any of the soil vapor probe locations during the field screening.

3.2.5 Field Equipment Cleaning Procedures

To maintain quality control during drilling operations, all drill rods and reusable soil sampling equipment was decontaminated using a triple bucket rinse. Prior to drilling at a given location or sampling interval, all equipment coming in direct contact with soil samples was scrubbed with an Alconox scrub solution followed by a clean tap water rinse and then a final distilled water rinse. The disposable acetate soil sample liners were used for one sampling interval and then discarded. All decontamination water was contained in drums pending characterization and off-site disposal to an appropriate facility.

4.0 LABORATORY TESTING PROGRAM

The soil vapor samples were collected and analyzed on-site by a mobile or off-site fixed base laboratory for VOCs by method TO-15 SIM.

Select soil samples from the shallower intervals (i.e. 1-foot, 2-feet, 5-feet, and 10-feet) were submitted for analysis of total petroleum hydrocarbons (TPH) by United States Environmental Protection Agency (USEPA) method 8015, VOCs by USEPA method 8260, California Title 22 metals by USEPA method 6010, and hexavalent chromium (Cr IV) by USEPA 7196. The remaining deeper soil samples collected during this investigation will be placed on hold pending the results of the shallower soil samples.

5.0 INVESTIGATION RESULTS

5.1 FIELD OBSERVATIONS

Between February 28 and March 5, 2019, Stantec personnel oversaw the advancement of twenty-three (23) direct push soil borings (SV-01 through SV-23) in the areas of concern listed above to a depth of fifteen (15) feet below ground surface (bgs). Soils encountered during this investigation consisted largely of silty sand. Groundwater was not encountered during this investigation. No staining or hydrocarbons odors were observed in any of the borings advanced during this investigation.

5.2 ANALYTICAL RESULTS

Laboratory analytical test results from this assessment are presented on the laboratory data sheets attached as Appendix A. A summary of the analytical data from this assessment is provided in Tables 1 through Table 3. The laboratory test results from this phase of investigation are discussed below and were compared to the more conservative value between the Department of Toxic Substances Control (DTSC) Human and Ecologic Risk Office (HERO) Note 3 screening level for residential sites (DTSC, 2019), and the USEPA regional screening levels (RSLs) for residential sites (USEPA, 2019) using an attenuation factor of 0.03.

5.2.1 Soil Vapor Results

Twenty soil vapor or sub-slab probes were installed just below the concrete foundation or asphalt parking lot to a maximum depth of 15 feet below ground surface (bgs) to evaluate soil vapor concentrations in shallow soil. The locations selected to address the RECs are shown on Figure 3, attached.

The laboratory reported low levels of volatile organic compounds (VOCs) in all soil vapor and sub-slab vapor samples. The VOCs reported included; chloroform, benzene, and tetrachloroethene (PCE)above the San Francisco Bay Region Water Quality Control Board's newly published Environmental Screening Levels (ESLs) (January 2019) based on an attenuation factor of 0.03 (Table 1). The reported concentrations are as follows:

- Chloroform ranged from less than the laboratory reporting limit to 1,000 ug/m^3 in soil vapor sample SV-2-15' located near the sump/clarifiers and associated trenching at 11312 Orchard, Unit B. Elevated concentrations of chloroform, above the laboratory reporting limits, were reported in all six soil vapor samples collected near the sump/clarifier.

- Low levels of Benzene ranged from less than the laboratory reporting limit to 7.6 ug/m^3 in soil vapor sample SV-11-5' located near the storm water vault in the southern corner of the Property.

- PCE ranged from less than the laboratory reporting limit to 180 ug/m^3 in soil vapor sample SV-6-15' located in the parking lot area of 11308 Orchard. SV-6 through SV-8 probes were installed away from on-site RECs to assess the regional San Gabriel Valley Superfund plume.

5.2.2 Soil Results

Ten soil borings were advanced to a maximum depth of 15 feet bgs to determine if there are any concentrations in shallow soil that may impact the subsurface at the Property (Figure 4). Low levels of diesel range organics (DRO), motor oil range organics (ORO), and arsenic were detected above the residential screening levels in two areas of the Property (Table 2 and 3).

- Low levels of DRO were detected above the residential screening levels in the shallow soil samples (HA-2 and HA-3) collected along the interior trench drains connected to the sump/clarifiers at the 11312 Orchard Street (Table 2).
- Concentration of DRO, motor oil range organics (ORO), and arsenic were detected above the residential screening levels in the shallow soil samples (SV-9 and SV-10) collected from the flammable exterior storage area located at 3700 Cypress Ave. The petroleum and arsenic impacts appear limited to the upper few feet of soil in this area, as the 5-foot interval samples reported DRO, ORO, and arsenic below the residential screening levels.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The soil vapor concentrations for chloroform, benzene, and PCE are elevated near the sump/clarifier and only slightly above the newly published ESLs for the remaining areas of the Property. Given the fact that the Property is located over the San Gabriel Valley Superfund plume and these newly published ESLs, Stantec recommends that a risk assessment be performed to determine if vapor barriers with passive vents are required for new residential developments in these two areas of the Property. The final recommendations for vapor barriers with passive vents will be determined by the risk assessment, but to be conservative KB Home should assume for their developments cost that vapor barriers with passive vents will be required based on the newly published ESLs and the recent soil vapor results.

The sump/clarifier area of the Property located at 11312 Orchard reported elevated concentration of chloroform and PCE in the soil vapor and low levels of DRO in the soil samples. PCE and chloroform were not reported in the soil samples collected around the sump/clarifiers and drains, however, releases are known to occur from these structures, therefore, Stantec recommends that during removal of these structures, that over excavation followed by confirmation soil sampling be performed. Based on the confirmation soil sampling, additional remedial actions may be recommended for this REC.

Soil boring SV-9 and SV-10 reported elevated DRO, ORO, and arsenic in the one (1) foot soil samples above the residential screening levels. Given that the5-feet bgs interval soil samples reported all analytes below their corresponding residential screening levels, a limited and shallow excavation followed by confirmation soil sampling of this flammable exterior storage area is recommended.

7.0 LIMITATIONS

The conclusions presented in this report are professional opinions based on data described in this report. The opinions of this report have been arrived at in accordance with currently accepted hydrogeologic and engineering standards and practices applicable to this location and are subject to the following inherent limitations. Stantec makes no other warranty, either expressed or implied, concerning the conclusions and professional advice that is contained within the body of this report.

Inherent in most projects performed in a heterogeneous subsurface environment, continuing excavation and assessments may reveal findings that are different than those presented herein. This facet of the environmental profession should be considered when formulating professional opinions on the limited data collected on these projects.

This report has been issued with the clear understanding that it is the responsibility of the owner, or their representative, to make appropriate notifications to regulatory agencies. It is specifically not the responsibility of Stantec to conduct appropriate notifications as specified by current County and State regulations.

The information presented in this report is valid as of the date our exploration was performed. Site conditions may degrade with time; consequently, the findings presented herein are subject to change.

8.0 REFERENCES

American Society for Testing and Materials, 2015, Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions, Designation E 2600-15.

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References
February 6, 2020

TABLES

TABLE 1
SUMMARY OF SOIL VAPOR ANALYTICAL RESULTS
KB Home - El Monte - Cypress Ave
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Volume [1]	Sample Date	DCFM (F12) (µg/m3)	Chloromethane (µg/m3)	Bromomethane (µg/m3)	TCFM (F11) (µg/m3)	TBA (µg/m3)	1,1,2-TCTFM (µg/m3)	Methylene chloride (µg/m3)	Carbon Disulfide (µg/m3)	2-Butanone (MEK) (µg/m3)	Chloroform (µg/m3)	1,1,1-TCA (µg/m3)	Benzene (µg/m3)	Carbon tetrachloride (µg/m3)	TCE (µg/m3)	Bromodichloromethane (µg/m3)	4-Methyl-2-pentanone (µg/m3)	Toluene (µg/m3)
Soil Vapor Samples																				
Residential Screening Level for Soil Vapor using RSL or HERO NOTE 3 and Attenuation Factor of 0.001 (µg/m^3) [2] [3]				100,000	94,000	NE	*1,300,000*	NE	NE	*1,000*	730,000	5,200,000	120	*1,000,000*	*97*	*67*	480	*76*	3,100,000	*310,000*
Residential Screening Level for Soil Vapor comparing RSL, HERO Note 3, or ESLs (µg/m^3) [2] [3]				*100,000*	*3,100*	*170*	*1,300,000*	*NE*	*NE*	*34*	*730,000*	*170,000*	*4.1*	*35,000*	*3.2*	*2.2*	*16*	*2.5*	*3,100,000*	*10,000*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	2313cc- 3 Vol Purge	3/5/2019	3.2 J	0.3 J	<3.2	2.8 J	<12	6.0 J	<2.8	7.6	5.5	26	0.4 J	3.2	<2.6	<4.4	<2.7	3.2 J	54
	SV-1-15	2358cc - 3 Vol Purge	3/5/2019	2.8 J	0.3 J	<1.6	4.1	<6.1	11	<1.4	1.0 J	3.6	860	1.4 J	0.5 J	<1.3	0.2 J	<2.7	0.4 J	4.0
	SV-2-5	2313cc- 3 Vol Purge	3/5/2019	2.7 J	0.3 J	<1.6	6.5	0.9 J	5.2	0.3 J	11	14	19	<3.1	4.2	0.4 J	0.5 J	<2.7	5.9	36
	SV-2-15	2358cc - 3 Vol Purge	3/5/2019	2.9 J	0.4 J	<1.6	3.7	<6.1	9.6	<1.4	32	8.6	1,000	1.4 J	3.2	0.3 J	0.5 J	<2.7	0.4 J	20
	SV-3-5	2313cc- 3 Vol Purge	3/5/2019	2.2 J	<0.8	<1.6	1.6 J	0.9 J	2.7 J	0.4 J	9.1	3.9	51	0.4 J	4.5	<1.3	<2.2	<2.7	5.6	34
	SV-3-15	2358cc - 3 Vol Purge	3/5/2019	2.3 J	0.3 J	<1.6	2.5	<6.1	5.8	<1.4	6.2	15	960	1.0 J	1.5	<1.3	<2.2	<2.7	14	12
11309 Iris Lane	SV-6-5	2313cc- 3 Vol Purge	3/5/2019	3.3 J	0.3 J	<1.6	4.7	1.1 J	18	0.2 J	8.8	13	<1.0	2.7	1.7	<1.3	0.3 J	<2.7	1.9 J	17
	SV-6-15	2358cc - 3 Vol Purge	3/5/2019	<4.0	0.4 J	<1.6	8.6	<6.1	34	<1.4	1.5	11	<1.0	9.7	0.6 J	<1.3	0.3 J	<2.7	0.4 J	3.1
3630 Cypress Ave. (Near Former Oil Well)	SV-7-5	2313cc- 3 Vol Purge	3/5/2019	4.1 J	<0.8	<1.6	2.6 J	<6.1	4.2 J	<1.4	0.3 J	4.5 J	<1.0	2.3 J	0.5 J	<1.3	<2.2	<2.7	<3.3	2.3 J
	SV-7-15	2358cc - 3 Vol Purge	3/5/2019	3.2 J	0.1 J	<1.6	2.6	1.0 J	5.3	0.2 J	1.1 J	14	<1.0	3.4	0.5 J	<1.3	<2.2	<2.7	1.6 J	5.4
3640 Cypress Ave. (Near Former Oil Well	SV-8-5	2313cc- 3 Vol Purge	3/5/2019	4.3 J	<1.7	<3.2	2.8 J	<12	6.2	<1.4	<2.5	5.7	<2.0	3.8	0.5 J	<2.6	<4.4	<5.4	4.6 J	6.6
	SV-8-15	2358cc - 3 Vol Purge	3/5/2019	3.8 J	0.3 J	<1.6	3.6	1.0 J	10	0.4 J	0.3 J	14	<1.0	7.7	0.8	<1.3	<2.2	<2.7	1.0 J	3.1
3700 Cypress Ave. (Flammable Storage Are)	SV-9-5	2313cc- 3 Vol Purge	3/5/2019	<4.0	0.3 J	<1.6	1.5 J	3.1 J	2.1 J	0.2 J	10	6.6	0.5 J	21	3.4	<1.3	0.3 J	0.3 J	4.8	34
	SV-9-15	2358cc - 3 Vol Purge	3/5/2019	3.5 J	1.6 J	<3.2	2.7 J	<12	4.8 J	0.4 J	12	5.5	<2.0	73	2.1	<2.6	0.4 J	<5.4	<6.6	20
	SV-9-15 REP	2358cc - 3 Vol Purge	3/5/2019	3.8 J	1.1 J	<1.6	2.8 J	<6.1	6.0 J	<2.8	7.6	2.8	<2.0	89	1.2 J	<2.6	<4.4	<5.4	<6.6	14
	SV-10-5	2313cc- 3 Vol Purge	3/5/2019	2.2 J	0.9	0.3 J	1.9 J	3.0 J	2.6 J	1.1 J	5.4	9.4	0.7 J	30	3.4	0.3 J	<2.2	0.5 J	1.7 J	14
	SV-10-15	2358cc - 3 Vol Purge	3/5/2019	2.2 J	0.4 J	<1.6	2.9	2.2 J	6.4	0.3 J	0.7 J	8.8	<1.0	86	1.3	<1.3	<2.2	<2.7	0.7	7.3
South Corner of Site (Stormwater Vault)	SV-11-5	2313cc- 3 Vol Purge	3/5/2019	2.1 J	0.4 J	<1.6	1.7 J	1.5 J	1.0 J	0.3 J	20.0	5.1	1.5 J	2.3	7.6	<1.3	0.5 J	0.6 J	2.9	74
	SV-11-15	2358cc - 3 Vol Purge	3/5/2019	2.0 J	0.4 J	<1.6	1.5 J	<6.1	1.0 J	0.4 J	1.9	8.4	<1.0	5.3	0.8	<1.3	<2.2	<2.7	0.3 J	5.2

Boring Location	Sample ID	Sample Volume [1]	Sample Date	DCFM (F12) (µg/m3)	Chloromethane (µg/m3)	Bromomethane (µg/m3)	TCFM (F11) (µg/m3)	TBA (µg/m3)	1,1,2-TCTFM (µg/m3)	Methylene chloride (µg/m3)	Carbon Disulfide (µg/m3)	2-Butanone (µg/m3)	Chloroform (µg/m3)	1,1,1-TCA (µg/m3)	Benzene (µg/m3)	Carbon tetrachloride (µg/m3)	TCE (µg/m3)	Bromodichloromethane (µg/m3)	4-Methyl-2-pentanone (µg/m3)	Toluene (µg/m3)
Sub-slab Vapor Samples																				
Residential Screening Level for Soil Vapor with ESLs (µg/m^3) [4]				*NE*	*3,100*	*170*	*NE*	*NE*	*NE*	*34*	*NE*	*170,000*	*4.1*	*35,000*	*3.2*	*2.2*	*16*	*2.5*	*NE*	*10,000*
11305 Iris Lane	SV-4	121cc- 3 Vol Purge	3/5/2019	4.9 J	0.6 J	<3.2	2.4 J	46	4.0 J	1.3 J	1.1 J	67	<2.0	34	8.3	<2.6	0.4 J	<5.4	17	24
Paint Spray Booth	SV-5	121cc- 3 Vol Purge	3/5/2019	2.9 J	1.1 J	<3.2	3.7 J	2.9 J	1.1 J	0.5 J	0.8 J	18	0.5 J	1.2 J	1.7	<2.6	<4.4	<5.4	3.1 J	3.7 J

TABLE 1
SUMMARY OF SOIL VAPOR ANALYTICAL RESULTS
KB Home - El Monte - Cypress Ave
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Volume [1]	Sample Date	2-Hexanone (µg/m3)	PCE (µg/m3)	Chlorobenzene (µg/m3)	Ethylbenzene (µg/m3)	m.p-Xylene (µg/m3)	Styrene (µg/m3)	o-Xylene (µg/m3)	4-Ethyltoluene (µg/m3)	1,3,5-TMB (µg/m3)	1,2,4-TMB (µg/m3)	1,4-DCB (µg/m3)	Naphthalene (µg/m3)	Hexachlorobutadiene (µg/m3)	Other VOCs	Methane (%)
Soil Vapor Samples																		
Residential Screening Level for Soil Vapor using RSL or HERO NOTE 3 and Attenuation Factor of 0.001 (µg/m^3) [2] [3]				31,000	*460*	52,000	1,100	100,000	*940,000*	100,000	*NE*	63,000	63,000	260	83	130	*various*	*NE*
Residential Screening Level for Soil Vapor comparing RSL, HERO Note 3, or ESLs (µg/m^3) [2] [3]				*31,000*	*15*	*1,700*	*37*	*3,500*	*31,000*	*3,500*	*NE*	*63,000*	*63,000*	*8.5*	*2.8*	*4.3*	*various*	*5.0*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	13	<3.7	30	110	1.9 J	33	2.4 J	2.2 J	8.1	1.1 J	1.0 J	<21	< *various*	0.0
	SV-1-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	53	<1.9	1.4 J	8.0	0.9 J	2.5	0.3 J	0.4 J	3.3	1.1 J	0.7 J	<11	< *various*	0.0
	SV-2-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	9.4	0.7 J	8.0	25	1.3 J	8.1	0.8 J	1.0 J	3.3	0.3 J	0.3 J	<11	< *various*	0.0
	SV-2-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	39	<1.9	2.9	21	1.3 J	6.5	0.3 J	1.0 J	3.3	0.9 J	0.3 J	<11	< *various*	0.0
	SV-3-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	7.3	<1.9	6.3	21	2.1	6.9	1.1 J	0.9 J	4.1	0.9 J	0.6 J	<11	< *various*	0.0
	SV-3-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	31	<1.9	4.4	15	3.8	4.7	1.1 J	0.9 J	4.2	1.7 J	1.1 J	<11	< *various*	0.0
11309 Iris Lane	SV-6-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	54	<1.9	6.7	22	1.6 J	6.9	1.2 J	1.5 J	4.9	0.3 J	0.5 J	0.9 J	< *various*	0.0
	SV-6-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	180	<1.9	1.2 J	5.0	2.4	1.8	0.4 J	0.4 J	2.0	1.6 J	0.7 J	<11	< *various*	0.0
3630 Cypress Ave. (Near Former Oil Well)	SV-7-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	6.1	<3.7	0.7 J	3.1 J	1.0 J	1.3 J	<4.0	0.5 J	1.9 J	0.7 J	0.6 J	<21	< *various*	0.0
	SV-7-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	16	<1.9	2.6	9.8	2.9	3.8	1.1 J	1.2 J	5.6	1.2 J	0.9 J	<11	< *various*	0.0
3640 Cypress Ave. (Near Former Oil Well	SV-8-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	14	<3.7	2.8	14	1.7	3.6	1.8 J	3.2 J	12	1.6 J	1.7 J	<21	< *various*	0.0
	SV-8-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	39	<1.9	1.2 J	3.4	3.0	1.3	0.4 J	0.5 J	2.1	1.6 J	1.0 J	<11	< *various*	0.0
3700 Cypress Ave. (Flammable Storage Are)	SV-9-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	5.0	1.0 J	9.7	30	14	9.4	2.0	2.4	8.1	0.5 J	0.8 J	<11	< *various*	0.0
	SV-9-15	2358cc - 3 Vol Purge	3/5/2019	<6.6	30	<3.7	5.5	21	8.4	5.8	1.3 J	1.2 J	6.1	2.2 J	1.0 J	<21	< *various*	0.0
	SV-9-15 REP	2358cc - 3 Vol Purge	3/5/2019	<6.6	37	<3.7	4.0	16	7.1	4.6	1.3 J	0.9 J	4.4	1.6 J	0.6 J	<21	< *various*	0.0
	SV-10-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	11	<1.9	2.6	5.3	<1.7	1.9	0.2 J	0.2 J	0.5 J	<2.4	<2.1	<11	< *various*	0.0
	SV-10-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	47	0.5	2.9	9.6	5.7	3.2	1.0 J	0.7 J	3.1	1.0 J	0.3 J	<11	< *various*	0.0
South Corner of Site (Stormwater Vault)	SV-11-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	3.9	<1.9	27	76	27	26	<2.0	<2.0	<2.0	<2.4	<2.1	<11	< *various*	0.0
	SV-11-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	9.4	<1.9	4.3	19	2.2	8.5	1.1 J	2.8	22	1.2 J	0.7 J	<11	< *various*	0.0

Boring Location	Sample ID	Sample Volume [1]	Sample Date	2-Hexanone (µg/m3)	PCE (µg/m3)	Chlorobenzene (µg/m3)	Ethylbenzene (µg/m3)	m.p-Xylene (µg/m3)	Styrene (µg/m3)	o-Xylene (µg/m3)	4-Ethyltoluene (µg/m3)	1,3,5-TMB (µg/m3)	1,2,4-TMB (µg/m3)	1,4-DCB (µg/m3)	Naphthalene (µg/m3)	Hexachlorobutadiene (µg/m3)	Other VOCs	Methane (%)
Sub-slab Vapor Samples																		
Residential Screening Level for Soil Vapor with ESLs (µg/m^3) [4]				*NE*	*15*	*1,700*	*37*	*3,500*	*31,000*	*3,500*	*NE*	*NE*	*NE*	*8.5*	*2.8*	*4.3*	*various*	*5.0*
11305 Iris Lane	SV-4	121cc- 3 Vol Purge	3/5/2019	9.4	15	<1.9	6.2	21	1.5	9.8	7.2	13	38	<4.9	2.4 J	<21	< *various*	0.0
Paint Spray Booth	SV-5	121cc- 3 Vol Purge	3/5/2019	<3.3	21	<1.9	4.0	18	1.6 J	5.5	0.7 J	0.8 J	2.8 J	<4.9	0.5 J	<21	< *various*	0.0

Notes:
(1) - Sample collected via 1L summa canister.
(2) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) using an Attenuation Factor of 0.001 and Cancer Risk of 1e-06 and a Hazard Quotient of 1.
(3) - Residential DTSC HERO HHRA Note #3 (June 2018) using an Attenuation Factor of 0.001 and Cancer Risk of 1e-06 and a Hazard Quotient of 1. (DTSC CAL EPA, October 2011 Final Guidance for the Evaluation and Mitigation of Substance Vapor Intrusion to Indoor Air).
(4) - SFRWQCB ESLs - Sub slab/ Soil Gas (µg/m3) January 2019
"<" - Results reported below Laboratory Reporting Limit.
CA EPA - California Environmental Protection Agency
DTSC - Department of Toxic Substance Control
HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment
Orange shading indicates value above the ESLs (0.03 attenuation factor) residential screening level.
Red shading indicates value above the RSLs or HERO Note 3 (0.001 attenuation factor) residential screening level.

PCE - Tetrachloroethene
1,2,4 - 1,2,4-Trimethylbenzene
1,3,5 - 1,3,5-Trimethylbenzene
DCFM - Dichlorodifluoromethane (F12)
TCFM - Trichlorodifluoromethane (F11)
TBA - Trichlorodifluoromethane (F11)
1,1,2-TCTFM- Tertiary-butyl alcohol
TCDFM - Trichlorodifluoromethane

µg/m3 - Micrograms per Cubic Meter
NE - Not Established
EPA - United States Environmental Protection Agency
ESLs - Environmental Screening Levels
SFRWQCB - San Francisco Bay Regional Water Quality Control Board

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS -TPH VOCs
KB Home El Monte -Cypress Ave., CALIFORNIA

Boring Location	Sample ID	Sample Depth	Sample Date	TPH (8015B) (mg/Kg)						
				GRO	DRO	ORO	Ethylbenzene	p/m-Xylene	o-Xylene	Various
Residential US EPA RSL (mg/kg) (1)				*82*	*96*	*2,500*	*5.8*	*550*	*650*	*Various*
Residential DTSC HERO Note No. 3 (mg/kg) (1)				*NE*	*NE*	*NE*	*NE*	*NE*	*NE*	*Various*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	5	2/28/2019	<1.0	27	31	6.1	32	13	<various
	SV-1-10	10		<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-2-5	5	2/28/2019	<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-2-10	10		<1.0	46	<10	<5.0	<10	<5.0	<various
	SV-3-5	5	2/28/2019	<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-3-10	10		<1.0	<10	<10	<5.0	<10	<5.0	<various
	HA-2-2	2	2/28/2019	<1.0	110	220	<5.0	<10	<10	<various
	HA-3-2	2	2/28/2019	<1.0	100	220	<5.0	<10	<10	<various
11305 Iris Lane	SV-4-1	1	2/28/2019	<1.0	40	65	NA	NA	NA	<various
	HA-1-1	1	2/28/2019	<1.0	26	57	NA	NA	NA	<various
Paint Spray Booth	SV-5-1	1	2/28/2019	<1.0	59	120	<5.0	<10	<10	<various
3700 Cypress Ave. (Flammable Storage Are)	SV-9-1	1	3/1/2019	<1.0	84	160	<5.0	<10	<10	<various
	SV-9-5	5	3/1/2019	<1.0	<10	<10	<5.0	<10	<10	<various
	SV-10-1	1	3/1/2019	<1.0	2,300	7,500	<5.0	<10	<10	<various
	SV-10-5	5	3/1/2019	<1.0	<10	<10	<5.0	<10	<10	<various

Notes:

(1) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) and the Residential CAL EPA DTSC HERO Note #3 (June 2018).

CA EPA - California Environmental Protection Agency

DTSC - Department of Toxic Substance Control

HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment

mg/Kg - milligrams per kilograms

US EPA - United States Environmental Protection Agency

NA - Not Analyzed

NE - Not Established

VOC - Volatile Organic Compounds

Red shading indicates value above the residential screening level.

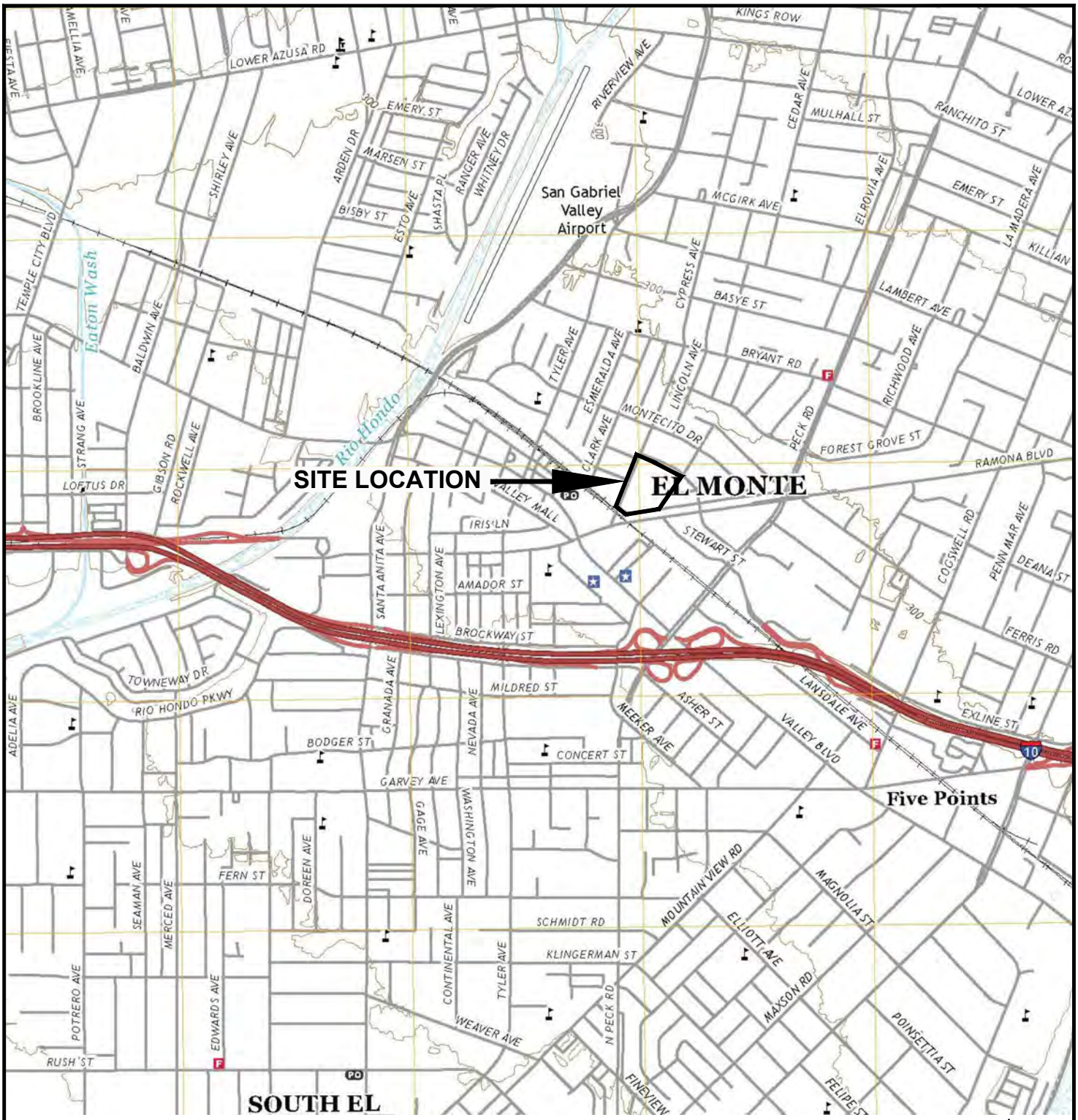
TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS - METALS
KB Home - EL Monte -Cypress Ave.
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Depth	Sample Date	Metals (6010B) (mg/Kg)																	
				Antimony	Arsenic [2]	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Residential US EPA RSL (mg/kg) [1]				*470*	*0.68*	*15,000*	*2,300*	*2,100*	*NE*	*0.3*	*230*	*3,100*	*400*	*11*	*390*	*NE*	*390*	*5,800*	*0.78*	*390*	*23,000*
Residential DTSC HERO Note No. 3 (mg/kg) [1]				*NE*	*0.11*	*NE*	*210*	*5.2*	*NE*	*NE*	*NE*	*NE*	*80*	*1.0*	*NE*	*490*	*NE*	*1,500*	*NE*	*390*	*NE*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	5	2/28/2019	<2.0	1.3	93	<1.0	<1.0	12	<1.0	6.8	13	1.4	<0.10	<1.0	9.7	<1.0	<1.0	<1.0	21	34
	SV-1-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SV-2-5	5	2/28/2019	<2.0	2.6	130	<1.0	<1.0	19	<1.0	6.8	52	4.9	<0.10	<1.0	13	<1.0	<1.0	<1.0	25	140
	SV-2-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SV-3-5	5	2/28/2019	<2.0	1.7	110	<1.0	<1.0	13	<1.0	7.1	18	6.5	<0.10	<1.0	11	<1.0	<1.0	<1.0	24	56
	SV-3-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HA-2-2	2	2/28/2019	<2.0	2.7	90	<1.0	<1.0	17	<1.0	8.9	46	48	0.13	<1.0	16	<1.0	<1.0	<1.0	23	320
	HA-3-2	2	2/28/2019	<2.0	3.3	94	<1.0	<1.0	21	<1.0	8.4	33	25	<0.10	<1.0	17	<1.0	<1.0	<1.0	27	130
11305 Iris Lane	SV-4-1	1	2/28/2019	<2.0	1.1	66	<1.0	<1.0	13	<1.0	6.5	13	8.8	<0.10	<1.0	8.8	<1.0	<1.0	<1.0	23	37
	HA-1-1	1	2/28/2019	<2.0	1.3	75	<1.0	<1.0	11	NA	8.0	13	6.7	<0.10	<1.0	11	<1.0	<1.0	<1.0	26	28
Paint Spray Booth	SV-5-1	1	2/28/2019	<2.0	1.2	340	<1.0	<1.0	14	<1.0	9.6	21	8.3	<0.10	<1.0	12	<1.0	<1.0	<1.0	33	40
3700 Cypress Ave. (Flammable Storage Are)	SV-9-1	1	3/1/2019	<2.0	45	110	<1.0	<1.0	14	NA	7.6	24	22	<0.10	<1.0	11	<1.0	<1.0	<1.0	24	85
	SV-9-5	5	3/1/2019	<2.0	2.7	110	<1.0	<1.0	16	NA	8.7	21	3.6	<0.10	<1.0	12	<1.0	<1.0	<1.0	30	40
	SV-10-1	1	3/1/2019	<2.0	24	64	<1.0	<1.0	12	NA	6.7	63	23	<0.10	<1.0	11	<1.0	<1.0	<1.0	21	33
	SV-10-5	5	3/1/2019	<2.0	2.8	83	<1.0	<1.0	14	NA	8.4	17	2.9	0.17	<1.0	11	<1.0	<1.0	<1.0	29	36

Notes:
(1) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) and the Residential CAL EPA DTSC HERO Note #3 (June 2018).
(2) - Background range for Arsenic is 11 mg/kg within Southern California.
CA EPA - California Environmental Protection Agency
DTSC - Department of Toxic Substance Control
HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment

NA - Not Analyzed
NE - Not Established
mg/Kg - milligrams per kilograms
US EPA - United States Environmental Protection Agency
Red shading indicates value above the residential screening level.

FIGURES





QUADRANGLE LOCATION

0 2000 4000

APPROXIMATE SCALE (FEET)

N

SOURCE:
USGS 7.5 MINUTE
TOPOGRAPHIC MAP–
EL MONTE, CA QUADRANGLE, 2018

Stantec
735 E. CARNEGIE DRIVE, SUITE 280
SAN BERNARDINO, CALIFORNIA 92408
PHONE: (909) 335-6116 FAX:(909) 335-6120

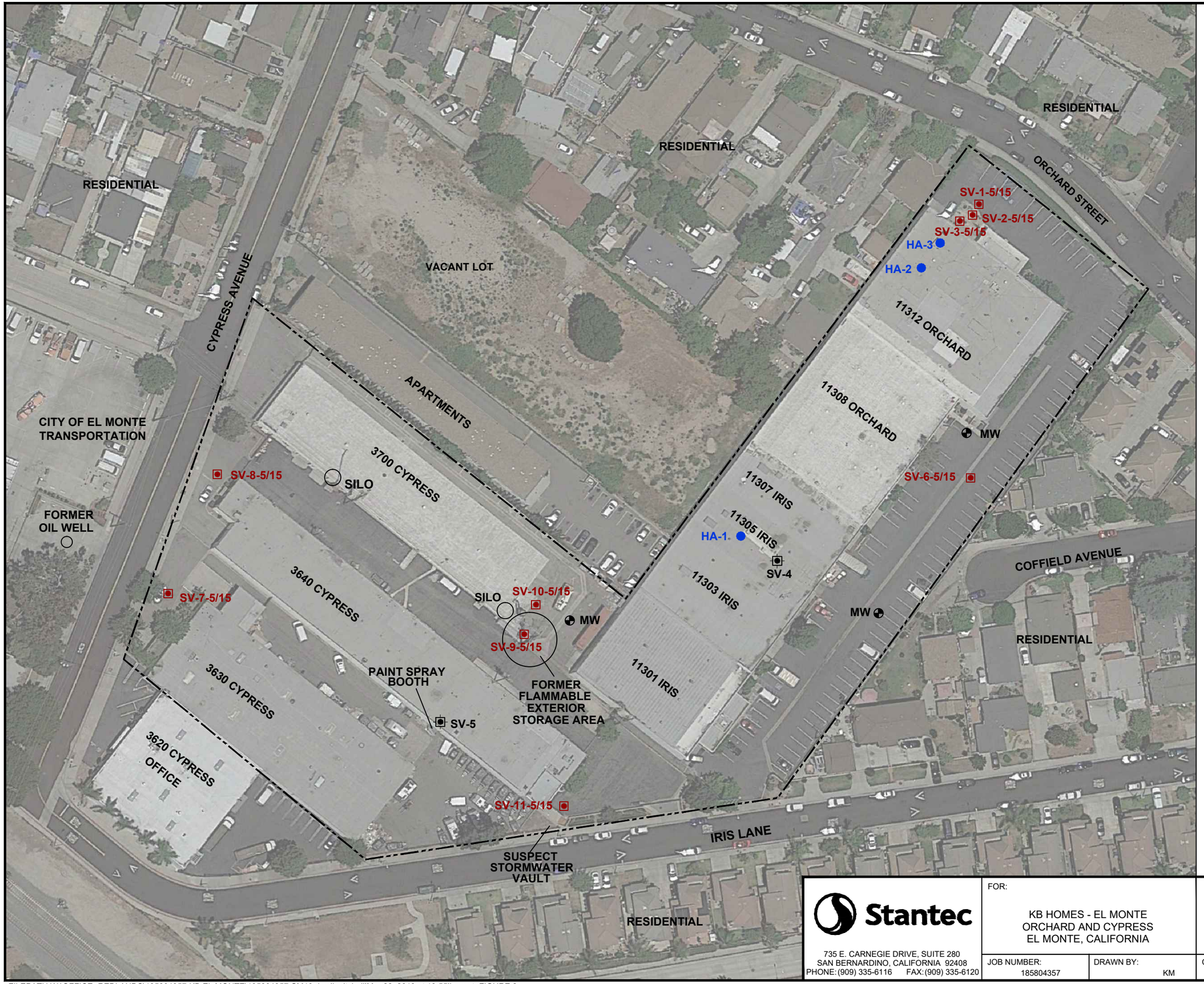
FOR:
KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SITE LOCATION MAP

FIGURE:
1

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SLM19.dwg|kmitchell|Mar 20, 2019 at 13:06|Layout: FIGURE 1



LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

0 80 160

APPROXIMATE SCALE (FEET)

N

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735 E. CARNEGIE DRIVE, SUITE 280
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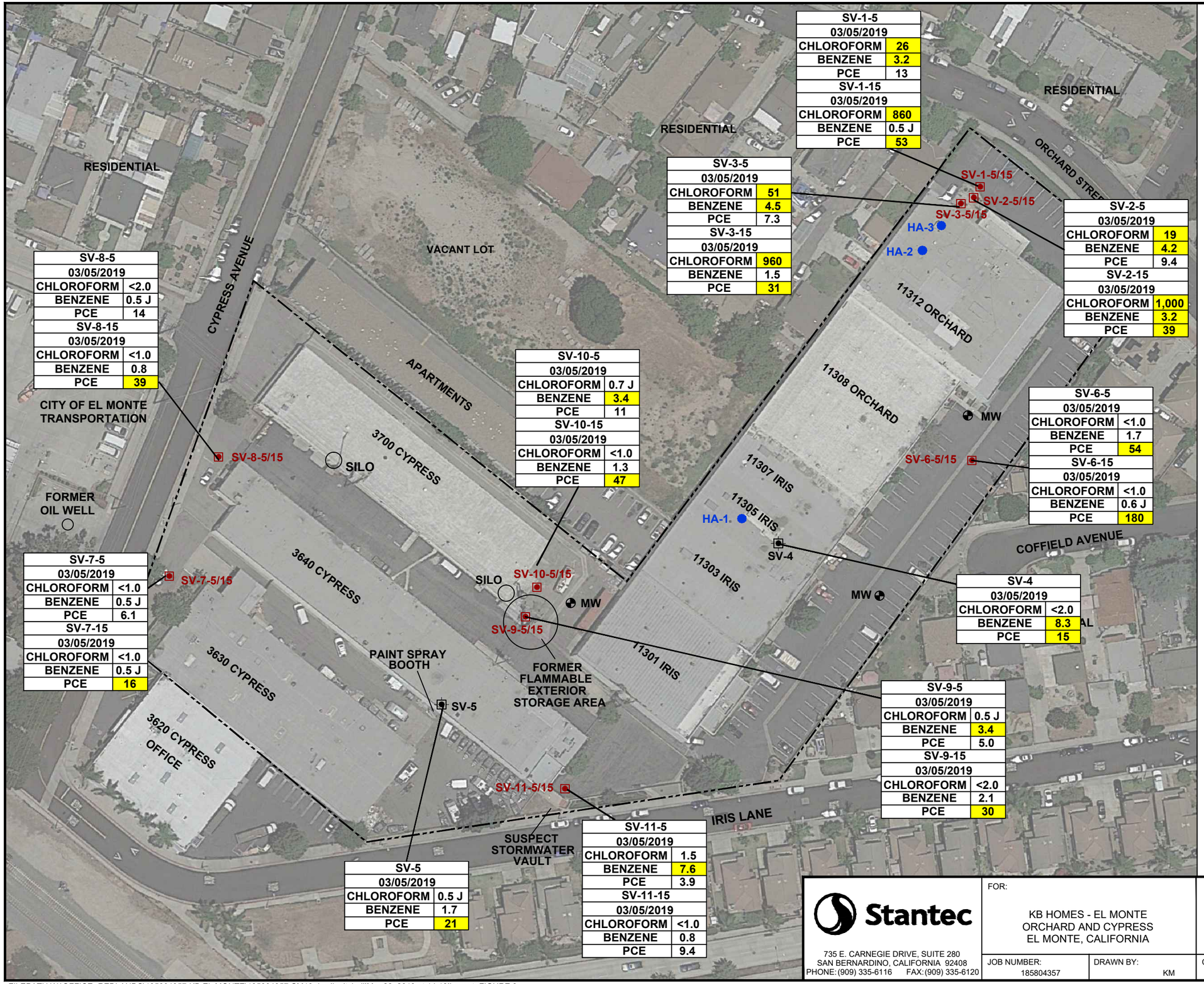
FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SITE MAP

FIGURE: 2

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SM19.dwg|kmitchell|Mar 22, 2019 at 13:55|Layout: FIGURE 2



SV-8-5	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	0.5 J
PCE	14
SV-8-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.8
PCE	39

SV-7-5	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.5 J
PCE	6.1
SV-7-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.5 J
PCE	16

SV-10-5	
03/05/2019	
CHLOROFORM	0.7 J
BENZENE	3.4
PCE	11
SV-10-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	1.3
PCE	47

SV-1-5	
03/05/2019	
CHLOROFORM	26
BENZENE	3.2
PCE	13
SV-1-15	
03/05/2019	
CHLOROFORM	860
BENZENE	0.5 J
PCE	53

SV-3-5	
03/05/2019	
CHLOROFORM	51
BENZENE	4.5
PCE	7.3
SV-3-15	
03/05/2019	
CHLOROFORM	960
BENZENE	1.5
PCE	31

SV-2-5	
03/05/2019	
CHLOROFORM	19
BENZENE	4.2
PCE	9.4
SV-2-15	
03/05/2019	
CHLOROFORM	1,000
BENZENE	3.2
PCE	39

SV-6-5	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	1.7
PCE	54
SV-6-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.6 J
PCE	180

SV-4	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	8.3
PCE	15

SV-9-5	
03/05/2019	
CHLOROFORM	0.5 J
BENZENE	3.4
PCE	5.0
SV-9-15	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	2.1
PCE	30

SV-5	
03/05/2019	
CHLOROFORM	0.5 J
BENZENE	1.7
PCE	21

SV-11-5	
03/05/2019	
CHLOROFORM	1.5
BENZENE	7.6
PCE	3.9
SV-11-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.8
PCE	9.4

LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

SV-4	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	8.3
PCE	15

SAMPLE ID
SAMPLE DATE

ALL RESULTS IN MICROGRAMS PER CUBIC METER (ug/m ^{3})

PCE = TETRACHLOROETHENE

J = ESTIMATED VALUE

RESULT ABOVE RESIDENTIAL SCREENING LEVEL

< = CONCENTRATION LESS THAN THE INDICATED LABORATORY REPORTING LIMIT

0 80 160

APPROXIMATE SCALE (FEET)

N

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735 E. CARNEGIE DRIVE, SUITE 280
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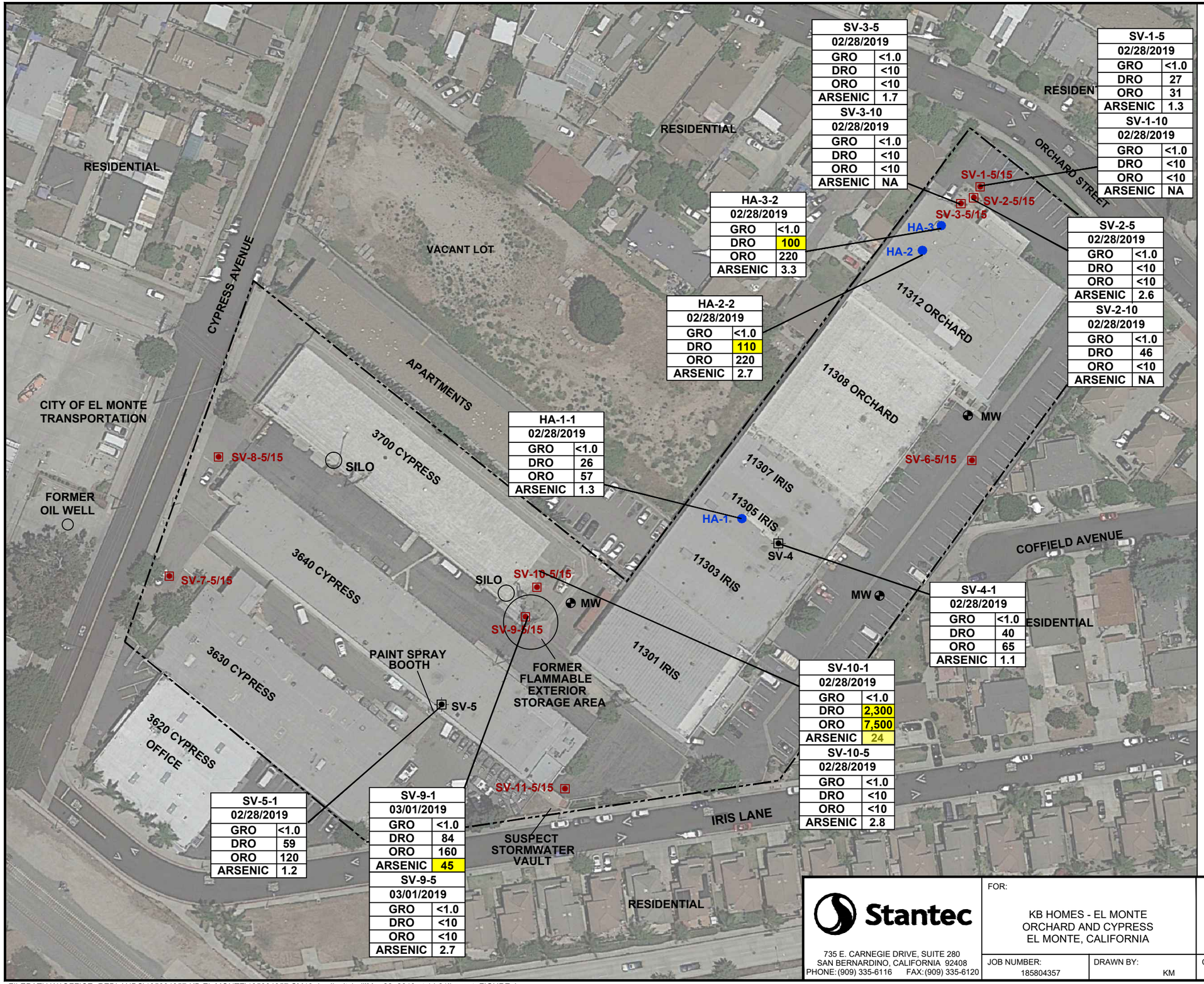
FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SOIL VAPOR ANALYTICAL RESULTS

FIGURE: 3

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SM19.dwg|kmitchell|Mar 22, 2019 at 14:13|Layout: FIGURE 3



SV-3-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	1.7

SV-3-10	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	NA

SV-1-5	
02/28/2019	
GRO	<1.0
DRO	27
ORO	31
ARSENIC	1.3

SV-1-10	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	NA

HA-3-2	
02/28/2019	
GRO	<1.0
DRO	100
ORO	220
ARSENIC	3.3

SV-2-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.6

SV-2-10	
02/28/2019	
GRO	<1.0
DRO	46
ORO	<10
ARSENIC	NA

HA-2-2	
02/28/2019	
GRO	<1.0
DRO	110
ORO	220
ARSENIC	2.7

HA-1-1	
02/28/2019	
GRO	<1.0
DRO	26
ORO	57
ARSENIC	1.3

SV-4-1	
02/28/2019	
GRO	<1.0
DRO	40
ORO	65
ARSENIC	1.1

SV-10-1	
02/28/2019	
GRO	<1.0
DRO	2,300
ORO	7,500
ARSENIC	24

SV-10-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.8

SV-5-1	
02/28/2019	
GRO	<1.0
DRO	59
ORO	120
ARSENIC	1.2

SV-9-1	
03/01/2019	
GRO	<1.0
DRO	84
ORO	160
ARSENIC	45

SV-9-5	
03/01/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.7

LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

HA-3-2	SAMPLE ID
02/28/2019	SAMPLE DATE
GRO	<1.0
DRO	100
ORO	220
ARSENIC	3.3

ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

GRO- GASOLINE RANGE ORGANICS
DRO- DIESEL RANGE ORGANICS
ORO- OIL RANGE ORGANICS
NA- NOT ANALYZED

RESULT ABOVE RESIDENTIAL SCREENING LEVEL

< = CONCENTRATION LESS THAN THE INDICATED LABORATORY REPORTING LIMIT

0 80 160

APPROXIMATE SCALE (FEET)

N

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FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SOIL BORING ANALYTICAL RESULTS

FIGURE: 4

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SM19.dwg|kmitchell|Mar 22, 2019 at 14:21|Layout: FIGURE 4

APPENDIX A

Laboratory Data Sheets

March 08, 2019

Jim Dewoody
Stantec
735 E. Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax:(909) 335-6120

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003

Re: ATL Work Order Number : 1900817
Client Reference : KB- El Monte, 185804357

Enclosed are the results for sample(s) received on March 01, 2019 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,



Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.

Certificate of Analysis

Stantec		Project Number :	KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280		Report To :	Jim Dewoody
San Bernardino , CA 92408		Reported :	03/08/2019

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SV-1-5	1900817-01	Soil	2/28/19 7:29	3/01/19 11:44
SV-1-10	1900817-02	Soil	2/28/19 7:48	3/01/19 11:44
SV-2-5	1900817-04	Soil	2/28/19 8:45	3/01/19 11:44
SV-2-10	1900817-05	Soil	2/28/19 8:49	3/01/19 11:44
SV-3-5	1900817-07	Soil	2/28/19 9:30	3/01/19 11:44
SV-3-10	1900817-08	Soil	2/28/19 9:35	3/01/19 11:44
SV-4-1	1900817-10	Soil	2/28/19 10:33	3/01/19 11:44
HA-1-1	1900817-11	Soil	2/28/19 11:16	3/01/19 11:44
SV-5-1	1900817-12	Soil	2/28/19 12:12	3/01/19 11:44
HA-2-2	1900817-13	Soil	2/28/19 13:15	3/01/19 11:44
HA-3-2	1900817-15	Soil	2/28/19 13:37	3/01/19 11:44

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-1-5

Lab ID: 1900817-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Arsenic	**1.3**	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Barium	**93**	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Beryllium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Cadmium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Chromium	**12**	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Cobalt	**6.8**	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Copper	**13**	2.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Lead	**1.4**	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Molybdenum	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Nickel	**9.7**	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Selenium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Silver	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Thallium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Vanadium	**21**	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	
Zinc	**34**	1.0	1	B9C0063	03/05/2019	03/05/19 13:55	

Hexavalent Chromium by EPA 7196A/3060A

Analyst: LV

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Hexavalent Chromium	ND	1.0	1	B9C0138	03/06/2019	03/06/19 18:14	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B9C0068	03/05/2019	03/06/19 15:25	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0043	03/04/2019	03/04/19 19:33	
Surrogate: 4-Bromofluorobenzene	*88.5 %*	*45 - 149*		B9C0043	03/04/2019	*03/04/19 19:33*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
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Client Sample ID SV-1-5

Lab ID: 1900817-01

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**27**	10	1	B9C0102	03/05/2019	03/06/19 04:55	
ORO	**31**	10	1	B9C0102	03/05/2019	03/06/19 04:55	
Surrogate: p-Terphenyl	*136 %*	*58 - 172*		B9C0102	03/05/2019	*03/06/19 04:55*	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,1,1-Trichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,1,2,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,1,2-Trichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,1-Dichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,1-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,1-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,2,3-Trichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,2,3-Trichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,2,4-Trichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,2,4-Trimethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,2-Dibromo-3-chloropropane	ND	10	1	B9C0090	03/05/2019	03/05/19 22:41	
1,2-Dibromoethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,2-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,2-Dichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,2-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,3,5-Trimethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,3-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,3-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
1,4-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
2,2-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
2-Chlorotoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
4-Chlorotoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
4-Isopropyltoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Benzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Bromobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Bromochloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Bromodichloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Bromoform	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	

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Client Sample ID SV-1-5

Lab ID: 1900817-01

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromomethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Carbon disulfide	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Carbon tetrachloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Chlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Chloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Chloroform	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Chloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
cis-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
cis-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Di-isopropyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Dibromochloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Dibromomethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Dichlorodifluoromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Ethyl Acetate	ND	50	1	B9C0090	03/05/2019	03/05/19 22:41	
Ethyl Ether	ND	50	1	B9C0090	03/05/2019	03/05/19 22:41	
Ethyl tert-butyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Ethylbenzene	**6.1**	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Freon-113	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Hexachlorobutadiene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Isopropylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
m,p-Xylene	**32**	10	1	B9C0090	03/05/2019	03/05/19 22:41	
Methylene chloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
MTBE	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
n-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
n-Propylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Naphthalene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
o-Xylene	**13**	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
sec-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Styrene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
tert-Amyl methyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
tert-Butanol	ND	100	1	B9C0090	03/05/2019	03/05/19 22:41	
tert-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Tetrachloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Toluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
trans-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
trans-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Trichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
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Client Sample ID SV-1-5

Lab ID: 1900817-01

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Trichlorofluoromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Vinyl acetate	ND	50	1	B9C0090	03/05/2019	03/05/19 22:41	
Vinyl chloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 22:41	
Surrogate: 1,2-Dichloroethane-d4	*99.6 %*	*60 - 145*		B9C0090	03/05/2019	*03/05/19 22:41*	
Surrogate: 4-Bromofluorobenzene	*94.7 %*	*68 - 121*		B9C0090	03/05/2019	*03/05/19 22:41*	
Surrogate: Dibromofluoromethane	*102 %*	*65 - 137*		B9C0090	03/05/2019	*03/05/19 22:41*	
Surrogate: Toluene-d8	*98.6 %*	*82 - 119*		B9C0090	03/05/2019	*03/05/19 22:41*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-1-10
Lab ID: 1900817-02

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0043	03/04/2019	03/04/19 19:51	
Surrogate: 4-Bromofluorobenzene	*98.9 %*	*45 - 149*		B9C0043	03/04/2019	*03/04/19 19:51*	

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	ND	10	1	B9C0102	03/05/2019	03/06/19 02:57	
ORO	ND	10	1	B9C0102	03/05/2019	03/06/19 02:57	
Surrogate: p-Terphenyl	*167 %*	*58 - 172*		B9C0102	03/05/2019	*03/06/19 02:57*	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,1,1-Trichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,1,2,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,1,2-Trichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,1-Dichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,1-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,1-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,2,3-Trichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,2,3-Trichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,2,4-Trichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,2,4-Trimethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,2-Dibromo-3-chloropropane	ND	10	1	B9C0090	03/05/2019	03/05/19 23:00	
1,2-Dibromoethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,2-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,2-Dichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,2-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,3,5-Trimethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,3-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,3-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
1,4-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
2,2-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
2-Chlorotoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	

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735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
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Lab ID: 1900817-02

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
4-Chlorotoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
4-Isopropyltoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Benzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Bromobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Bromochloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Bromodichloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Bromoform	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Bromomethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Carbon disulfide	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Carbon tetrachloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Chlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Chloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Chloroform	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Chloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
cis-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
cis-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Di-isopropyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Dibromochloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Dibromomethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Dichlorodifluoromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Ethyl Acetate	ND	50	1	B9C0090	03/05/2019	03/05/19 23:00	
Ethyl Ether	ND	50	1	B9C0090	03/05/2019	03/05/19 23:00	
Ethyl tert-butyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Ethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Freon-113	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Hexachlorobutadiene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Isopropylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
m,p-Xylene	ND	10	1	B9C0090	03/05/2019	03/05/19 23:00	
Methylene chloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
MTBE	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
n-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
n-Propylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Naphthalene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
o-Xylene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
sec-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Styrene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
tert-Amyl methyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	

Certificate of Analysis

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Lab ID: 1900817-02

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
tert-Butanol	ND	100	1	B9C0090	03/05/2019	03/05/19 23:00	
tert-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Tetrachloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Toluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
trans-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
trans-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Trichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Trichlorofluoromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Vinyl acetate	ND	50	1	B9C0090	03/05/2019	03/05/19 23:00	
Vinyl chloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:00	
Surrogate: 1,2-Dichloroethane-d4	*100 %*	*60 - 145*		B9C0090	03/05/2019	*03/05/19 23:00*	
Surrogate: 4-Bromofluorobenzene	*92.8 %*	*68 - 121*		B9C0090	03/05/2019	*03/05/19 23:00*	
Surrogate: Dibromofluoromethane	*103 %*	*65 - 137*		B9C0090	03/05/2019	*03/05/19 23:00*	
Surrogate: Toluene-d8	*98.7 %*	*82 - 119*		B9C0090	03/05/2019	*03/05/19 23:00*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-2-5

Lab ID: 1900817-04

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Arsenic	**2.6**	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Barium	**130**	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Beryllium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Cadmium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Chromium	**19**	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Cobalt	**6.8**	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Copper	**52**	2.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Lead	**4.9**	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Molybdenum	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Nickel	**13**	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Selenium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Silver	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Thallium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Vanadium	**25**	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	
Zinc	**140**	1.0	1	B9C0063	03/05/2019	03/05/19 13:58	

Hexavalent Chromium by EPA 7196A/3060A

Analyst: LV

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Hexavalent Chromium	ND	1.0	1	B9C0138	03/06/2019	03/06/19 18:14	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B9C0068	03/05/2019	03/06/19 15:36	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0043	03/04/2019	03/04/19 20:10	
Surrogate: 4-Bromofluorobenzene	*101 %*	*45 - 149*		B9C0043	03/04/2019	*03/04/19 20:10*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
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Lab ID: 1900817-04

Diesel Range Organics by EPA 8015B — **Analyst: HT**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	ND	10	1	B9C0102	03/05/2019	03/06/19 04:04	
ORO	ND	10	1	B9C0102	03/05/2019	03/06/19 04:04	
Surrogate: p-Terphenyl	*106 %*	*58 - 172*		B9C0102	03/05/2019	*03/06/19 04:04*	

Volatile Organic Compounds by EPA 8260B — **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,1,1-Trichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,1,2,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,1,2-Trichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,1-Dichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,1-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,1-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,2,3-Trichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,2,3-Trichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,2,4-Trichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,2,4-Trimethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,2-Dibromo-3-chloropropane	ND	10	1	B9C0090	03/05/2019	03/05/19 23:19	
1,2-Dibromoethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,2-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,2-Dichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,2-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,3,5-Trimethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,3-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,3-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
1,4-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
2,2-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
2-Chlorotoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
4-Chlorotoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
4-Isopropyltoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Benzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Bromobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Bromochloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Bromodichloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Bromoform	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	

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Lab ID: 1900817-04

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromomethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Carbon disulfide	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Carbon tetrachloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Chlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Chloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Chloroform	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Chloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
cis-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
cis-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Di-isopropyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Dibromochloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Dibromomethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Dichlorodifluoromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Ethyl Acetate	ND	50	1	B9C0090	03/05/2019	03/05/19 23:19	
Ethyl Ether	ND	50	1	B9C0090	03/05/2019	03/05/19 23:19	
Ethyl tert-butyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Ethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Freon-113	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Hexachlorobutadiene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Isopropylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
m,p-Xylene	ND	10	1	B9C0090	03/05/2019	03/05/19 23:19	
Methylene chloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
MTBE	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
n-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
n-Propylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Naphthalene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
o-Xylene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
sec-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Styrene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
tert-Amyl methyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
tert-Butanol	ND	100	1	B9C0090	03/05/2019	03/05/19 23:19	
tert-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Tetrachloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Toluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
trans-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
trans-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Trichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	

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Lab ID: 1900817-04

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Trichlorofluoromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Vinyl acetate	ND	50	1	B9C0090	03/05/2019	03/05/19 23:19	
Vinyl chloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:19	
Surrogate: 1,2-Dichloroethane-d4	*100 %*	*60 - 145*		B9C0090	03/05/2019	*03/05/19 23:19*	
Surrogate: 4-Bromofluorobenzene	*95.6 %*	*68 - 121*		B9C0090	03/05/2019	*03/05/19 23:19*	
Surrogate: Dibromofluoromethane	*104 %*	*65 - 137*		B9C0090	03/05/2019	*03/05/19 23:19*	
Surrogate: Toluene-d8	*103 %*	*82 - 119*		B9C0090	03/05/2019	*03/05/19 23:19*	

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Stantec	Project Number : KB- El Monte, 185804357
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San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-2-10
Lab ID: 1900817-05

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0043	03/04/2019	03/04/19 20:28	
Surrogate: 4-Bromofluorobenzene	*68.7 %*	*45 - 149*		B9C0043	03/04/2019	*03/04/19 20:28*	

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**46**	10	1	B9C0102	03/05/2019	03/06/19 03:13	
ORO	ND	10	1	B9C0102	03/05/2019	03/06/19 03:13	
Surrogate: p-Terphenyl	*102 %*	*58 - 172*		B9C0102	03/05/2019	*03/06/19 03:13*	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,1,1-Trichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,1,2,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,1,2-Trichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,1-Dichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,1-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,1-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,2,3-Trichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,2,3-Trichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,2,4-Trichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,2,4-Trimethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,2-Dibromo-3-chloropropane	ND	10	1	B9C0090	03/05/2019	03/05/19 23:38	
1,2-Dibromoethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,2-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,2-Dichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,2-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,3,5-Trimethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,3-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,3-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
1,4-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
2,2-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
2-Chlorotoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	

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Lab ID: 1900817-05

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
4-Chlorotoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
4-Isopropyltoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Benzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Bromobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Bromochloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Bromodichloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Bromoform	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Bromomethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Carbon disulfide	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Carbon tetrachloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Chlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Chloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Chloroform	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Chloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
cis-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
cis-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Di-isopropyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Dibromochloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Dibromomethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Dichlorodifluoromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Ethyl Acetate	ND	50	1	B9C0090	03/05/2019	03/05/19 23:38	
Ethyl Ether	ND	50	1	B9C0090	03/05/2019	03/05/19 23:38	
Ethyl tert-butyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Ethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Freon-113	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Hexachlorobutadiene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Isopropylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
m,p-Xylene	ND	10	1	B9C0090	03/05/2019	03/05/19 23:38	
Methylene chloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
MTBE	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
n-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
n-Propylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Naphthalene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
o-Xylene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
sec-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Styrene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
tert-Amyl methyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	

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Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
tert-Butanol	ND	100	1	B9C0090	03/05/2019	03/05/19 23:38	
tert-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Tetrachloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Toluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
trans-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
trans-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Trichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Trichlorofluoromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Vinyl acetate	ND	50	1	B9C0090	03/05/2019	03/05/19 23:38	
Vinyl chloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:38	
Surrogate: 1,2-Dichloroethane-d4	*103 %*	*60 - 145*		B9C0090	03/05/2019	*03/05/19 23:38*	
Surrogate: 4-Bromofluorobenzene	*94.9 %*	*68 - 121*		B9C0090	03/05/2019	*03/05/19 23:38*	
Surrogate: Dibromofluoromethane	*104 %*	*65 - 137*		B9C0090	03/05/2019	*03/05/19 23:38*	
Surrogate: Toluene-d8	*103 %*	*82 - 119*		B9C0090	03/05/2019	*03/05/19 23:38*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
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San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-3-5

Lab ID: 1900817-07

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Arsenic	**1.7**	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Barium	**110**	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Beryllium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Cadmium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Chromium	**13**	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Cobalt	**7.1**	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Copper	**18**	2.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Lead	**6.5**	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Molybdenum	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Nickel	**11**	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Selenium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Silver	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Thallium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Vanadium	**24**	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	
Zinc	**56**	1.0	1	B9C0063	03/05/2019	03/05/19 13:59	

Hexavalent Chromium by EPA 7196A/3060A

Analyst: LV

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Hexavalent Chromium	ND	1.0	1	B9C0138	03/06/2019	03/06/19 18:14	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B9C0068	03/05/2019	03/06/19 15:38	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0043	03/04/2019	03/04/19 20:47	
Surrogate: 4-Bromofluorobenzene	*104 %*	*45 - 149*		B9C0043	03/04/2019	*03/04/19 20:47*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-3-5

Lab ID: 1900817-07

Diesel Range Organics by EPA 8015B — **Analyst: HT**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	ND	10	1	B9C0102	03/05/2019	03/06/19 03:47	
ORO	ND	10	1	B9C0102	03/05/2019	03/06/19 03:47	
Surrogate: p-Terphenyl	*141 %*	*58 - 172*		B9C0102	03/05/2019	*03/06/19 03:47*	

Volatile Organic Compounds by EPA 8260B — **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,1,1-Trichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,1,2,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,1,2-Trichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,1-Dichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,1-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,1-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,2,3-Trichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,2,3-Trichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,2,4-Trichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,2,4-Trimethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,2-Dibromo-3-chloropropane	ND	10	1	B9C0090	03/05/2019	03/05/19 23:57	
1,2-Dibromoethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,2-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,2-Dichloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,2-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,3,5-Trimethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,3-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,3-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
1,4-Dichlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
2,2-Dichloropropane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
2-Chlorotoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
4-Chlorotoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
4-Isopropyltoluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Benzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Bromobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Bromochloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Bromodichloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Bromoform	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-3-5

Lab ID: 1900817-07

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromomethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Carbon disulfide	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Carbon tetrachloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Chlorobenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Chloroethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Chloroform	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Chloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
cis-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
cis-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Di-isopropyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Dibromochloromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Dibromomethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Dichlorodifluoromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Ethyl Acetate	ND	50	1	B9C0090	03/05/2019	03/05/19 23:57	
Ethyl Ether	ND	50	1	B9C0090	03/05/2019	03/05/19 23:57	
Ethyl tert-butyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Ethylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Freon-113	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Hexachlorobutadiene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Isopropylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
m,p-Xylene	ND	10	1	B9C0090	03/05/2019	03/05/19 23:57	
Methylene chloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
MTBE	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
n-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
n-Propylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Naphthalene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
o-Xylene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
sec-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Styrene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
tert-Amyl methyl ether	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
tert-Butanol	ND	100	1	B9C0090	03/05/2019	03/05/19 23:57	
tert-Butylbenzene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Tetrachloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Toluene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
trans-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
trans-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Trichloroethene	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-3-5

Lab ID: 1900817-07

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Trichlorofluoromethane	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Vinyl acetate	ND	50	1	B9C0090	03/05/2019	03/05/19 23:57	
Vinyl chloride	ND	5.0	1	B9C0090	03/05/2019	03/05/19 23:57	
Surrogate: 1,2-Dichloroethane-d4	*103 %*	*60 - 145*		B9C0090	03/05/2019	*03/05/19 23:57*	
Surrogate: 4-Bromofluorobenzene	*94.0 %*	*68 - 121*		B9C0090	03/05/2019	*03/05/19 23:57*	
Surrogate: Dibromofluoromethane	*105 %*	*65 - 137*		B9C0090	03/05/2019	*03/05/19 23:57*	
Surrogate: Toluene-d8	*102 %*	*82 - 119*		B9C0090	03/05/2019	*03/05/19 23:57*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-3-10
Lab ID: 1900817-08

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0076	03/05/2019	03/05/19 15:26	
Surrogate: 4-Bromofluorobenzene	*99.0 %*	*45 - 149*		B9C0076	03/05/2019	*03/05/19 15:26*	

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	ND	10	1	B9C0102	03/05/2019	03/06/19 03:30	
ORO	ND	10	1	B9C0102	03/05/2019	03/06/19 03:30	
Surrogate: p-Terphenyl	*86.3 %*	*58 - 172*		B9C0102	03/05/2019	*03/06/19 03:30*	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,1,1-Trichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,1,2,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,1,2-Trichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,1-Dichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,1-Dichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,1-Dichloropropene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,2,3-Trichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,2,3-Trichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,2,4-Trichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,2,4-Trimethylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,2-Dibromo-3-chloropropane	ND	10	1	B9C0090	03/06/2019	03/06/19 00:16	
1,2-Dibromoethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,2-Dichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,2-Dichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,2-Dichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,3,5-Trimethylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,3-Dichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,3-Dichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
1,4-Dichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
2,2-Dichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
2-Chlorotoluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-3-10

Lab ID: 1900817-08

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
4-Chlorotoluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
4-Isopropyltoluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Benzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Bromobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Bromochloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Bromodichloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Bromoform	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Bromomethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Carbon disulfide	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Carbon tetrachloride	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Chlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Chloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Chloroform	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Chloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
cis-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
cis-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Di-isopropyl ether	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Dibromochloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Dibromomethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Dichlorodifluoromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Ethyl Acetate	ND	50	1	B9C0090	03/06/2019	03/06/19 00:16	
Ethyl Ether	ND	50	1	B9C0090	03/06/2019	03/06/19 00:16	
Ethyl tert-butyl ether	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Ethylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Freon-113	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Hexachlorobutadiene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Isopropylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
m,p-Xylene	ND	10	1	B9C0090	03/06/2019	03/06/19 00:16	
Methylene chloride	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
MTBE	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
n-Butylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
n-Propylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Naphthalene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
o-Xylene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
sec-Butylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Styrene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
tert-Amyl methyl ether	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
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San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-3-10

Lab ID: 1900817-08

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
tert-Butanol	ND	100	1	B9C0090	03/06/2019	03/06/19 00:16	
tert-Butylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Tetrachloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Toluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
trans-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
trans-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Trichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Trichlorofluoromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Vinyl acetate	ND	50	1	B9C0090	03/06/2019	03/06/19 00:16	
Vinyl chloride	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:16	
Surrogate: 1,2-Dichloroethane-d4	*99.6 %*	*60 - 145*		B9C0090	03/06/2019	*03/06/19 00:16*	
Surrogate: 4-Bromofluorobenzene	*93.8 %*	*68 - 121*		B9C0090	03/06/2019	*03/06/19 00:16*	
Surrogate: Dibromofluoromethane	*99.0 %*	*65 - 137*		B9C0090	03/06/2019	*03/06/19 00:16*	
Surrogate: Toluene-d8	*99.7 %*	*82 - 119*		B9C0090	03/06/2019	*03/06/19 00:16*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-4-1

Lab ID: 1900817-10

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Arsenic	**1.1**	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Barium	**66**	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Beryllium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Cadmium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Chromium	**13**	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Cobalt	**6.5**	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Copper	**13**	2.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Lead	**8.8**	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Molybdenum	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Nickel	**8.8**	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Selenium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Silver	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Thallium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Vanadium	**23**	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	
Zinc	**37**	1.0	1	B9C0063	03/05/2019	03/05/19 14:05	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B9C0068	03/05/2019	03/06/19 15:40	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0043	03/04/2019	03/04/19 21:24	
Surrogate: 4-Bromofluorobenzene	*97.1 %*	*45 - 149*		B9C0043	03/04/2019	*03/04/19 21:24*	

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**40**	10	1	B9C0102	03/05/2019	03/06/19 05:12	
ORO	**65**	10	1	B9C0102	03/05/2019	03/06/19 05:12	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-4-1

Lab ID: 1900817-10

Diesel Range Organics by EPA 8015B **Analyst: HT**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*142 %*	*58 - 172*		B9C0102	03/05/2019	*03/06/19 05:12*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID HA-1-1

Lab ID: 1900817-11

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Arsenic	**1.3**	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Barium	**75**	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Beryllium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Cadmium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Chromium	**11**	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Cobalt	**8.0**	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Copper	**13**	2.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Lead	**6.7**	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Molybdenum	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Nickel	**11**	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Selenium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Silver	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Thallium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Vanadium	**26**	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	
Zinc	**28**	1.0	1	B9C0063	03/05/2019	03/05/19 14:07	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B9C0068	03/05/2019	03/06/19 15:42	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0043	03/04/2019	03/04/19 21:43	
Surrogate: 4-Bromofluorobenzene	*103 %*	*45 - 149*		B9C0043	03/04/2019	*03/04/19 21:43*	

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**26**	10	1	B9C0102	03/05/2019	03/06/19 05:29	
ORO	**57**	10	1	B9C0102	03/05/2019	03/06/19 05:29	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID HA-1-1

Lab ID: 1900817-11

Diesel Range Organics by EPA 8015B **Analyst: HT**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*154 %*	*58 - 172*		B9C0102	03/05/2019	*03/06/19 05:29*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-5-1

Lab ID: 1900817-12

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Arsenic	**1.2**	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Barium	**340**	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Beryllium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Cadmium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Chromium	**14**	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Cobalt	**9.6**	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Copper	**21**	2.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Lead	**8.3**	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Molybdenum	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Nickel	**12**	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Selenium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Silver	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Thallium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Vanadium	**33**	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	
Zinc	**40**	1.0	1	B9C0063	03/05/2019	03/05/19 14:08	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B9C0068	03/05/2019	03/06/19 15:43	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0043	03/04/2019	03/04/19 22:01	
Surrogate: 4-Bromofluorobenzene	*106 %*	*45 - 149*		B9C0043	03/04/2019	*03/04/19 22:01*	

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**59**	10	1	B9C0102	03/05/2019	03/06/19 05:46	
ORO	**120**	10	1	B9C0102	03/05/2019	03/06/19 05:46	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-5-1

Lab ID: 1900817-12

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*155 %*	*58 - 172*		B9C0102	03/05/2019	*03/06/19 05:46*	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,1,1-Trichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,1,2,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,1,2-Trichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,1-Dichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,1-Dichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,1-Dichloropropene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,2,3-Trichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,2,3-Trichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,2,4-Trichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,2,4-Trimethylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,2-Dibromo-3-chloropropane	ND	10	1	B9C0090	03/06/2019	03/06/19 00:35	
1,2-Dibromoethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,2-Dichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,2-Dichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,2-Dichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,3,5-Trimethylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,3-Dichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,3-Dichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
1,4-Dichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
2,2-Dichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
2-Chlorotoluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
4-Chlorotoluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
4-Isopropyltoluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Benzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Bromobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Bromochloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Bromodichloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Bromoform	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Bromomethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Carbon disulfide	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-5-1

Lab ID: 1900817-12

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Carbon tetrachloride	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Chlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Chloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Chloroform	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Chloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
cis-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
cis-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Di-isopropyl ether	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Dibromochloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Dibromomethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Dichlorodifluoromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Ethyl Acetate	ND	50	1	B9C0090	03/06/2019	03/06/19 00:35	
Ethyl Ether	ND	50	1	B9C0090	03/06/2019	03/06/19 00:35	
Ethyl tert-butyl ether	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Ethylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Freon-113	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Hexachlorobutadiene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Isopropylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
m,p-Xylene	ND	10	1	B9C0090	03/06/2019	03/06/19 00:35	
Methylene chloride	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
MTBE	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
n-Butylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
n-Propylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Naphthalene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
o-Xylene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
sec-Butylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Styrene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
tert-Amyl methyl ether	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
tert-Butanol	ND	100	1	B9C0090	03/06/2019	03/06/19 00:35	
tert-Butylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Tetrachloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Toluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
trans-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
trans-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Trichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Trichlorofluoromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Vinyl acetate	ND	50	1	B9C0090	03/06/2019	03/06/19 00:35	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID SV-5-1

Lab ID: 1900817-12

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte		Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Vinyl chloride		ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:35	
Surrogate: 1,2-Dichloroethane-d4	*103 %*		*60 - 145*		B9C0090	03/06/2019	*03/06/19 00:35*	
Surrogate: 4-Bromofluorobenzene	*96.2 %*		*68 - 121*		B9C0090	03/06/2019	*03/06/19 00:35*	
Surrogate: Dibromofluoromethane	*104 %*		*65 - 137*		B9C0090	03/06/2019	*03/06/19 00:35*	
Surrogate: Toluene-d8	*99.7 %*		*82 - 119*		B9C0090	03/06/2019	*03/06/19 00:35*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID HA-2-2

Lab ID: 1900817-13

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Arsenic	**2.7**	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Barium	**90**	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Beryllium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Cadmium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Chromium	**17**	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Cobalt	**8.9**	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Copper	**46**	2.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Lead	**48**	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Molybdenum	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Nickel	**16**	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Selenium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Silver	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Thallium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Vanadium	**23**	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	
Zinc	**320**	1.0	1	B9C0063	03/05/2019	03/05/19 14:09	

Hexavalent Chromium by EPA 7196A/3060A

Analyst: LV

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Hexavalent Chromium	ND	1.0	1	B9C0138	03/06/2019	03/06/19 18:14	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.13**	0.10	1	B9C0068	03/05/2019	03/06/19 15:45	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0043	03/04/2019	03/04/19 22:20	
Surrogate: 4-Bromofluorobenzene	*102 %*	*45 - 149*		B9C0043	03/04/2019	*03/04/19 22:20*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID HA-2-2

Lab ID: 1900817-13

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**110**	10	1	B9C0102	03/05/2019	03/06/19 06:03	
ORO	**220**	10	1	B9C0102	03/05/2019	03/06/19 06:03	
Surrogate: p-Terphenyl	*88.0 %*	*58 - 172*		B9C0102	03/05/2019	*03/06/19 06:03*	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,1,1-Trichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,1,2,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,1,2-Trichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,1-Dichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,1-Dichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,1-Dichloropropene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,2,3-Trichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,2,3-Trichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,2,4-Trichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,2,4-Trimethylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,2-Dibromo-3-chloropropane	ND	10	1	B9C0090	03/06/2019	03/06/19 00:55	
1,2-Dibromoethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,2-Dichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,2-Dichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,2-Dichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,3,5-Trimethylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,3-Dichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,3-Dichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
1,4-Dichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
2,2-Dichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
2-Chlorotoluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
4-Chlorotoluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
4-Isopropyltoluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Benzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Bromobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Bromochloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Bromodichloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Bromoform	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID HA-2-2

Lab ID: 1900817-13

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromomethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Carbon disulfide	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Carbon tetrachloride	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Chlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Chloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Chloroform	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Chloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
cis-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
cis-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Di-isopropyl ether	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Dibromochloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Dibromomethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Dichlorodifluoromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Ethyl Acetate	ND	50	1	B9C0090	03/06/2019	03/06/19 00:55	
Ethyl Ether	ND	50	1	B9C0090	03/06/2019	03/06/19 00:55	
Ethyl tert-butyl ether	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Ethylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Freon-113	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Hexachlorobutadiene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Isopropylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
m,p-Xylene	ND	10	1	B9C0090	03/06/2019	03/06/19 00:55	
Methylene chloride	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
MTBE	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
n-Butylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
n-Propylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Naphthalene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
o-Xylene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
sec-Butylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Styrene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
tert-Amyl methyl ether	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
tert-Butanol	ND	100	1	B9C0090	03/06/2019	03/06/19 00:55	
tert-Butylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Tetrachloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Toluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
trans-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
trans-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Trichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID HA-2-2

Lab ID: 1900817-13

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Trichlorofluoromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Vinyl acetate	ND	50	1	B9C0090	03/06/2019	03/06/19 00:55	
Vinyl chloride	ND	5.0	1	B9C0090	03/06/2019	03/06/19 00:55	
Surrogate: 1,2-Dichloroethane-d4	*97.1 %*	*60 - 145*		B9C0090	03/06/2019	*03/06/19 00:55*	
Surrogate: 4-Bromofluorobenzene	*92.3 %*	*68 - 121*		B9C0090	03/06/2019	*03/06/19 00:55*	
Surrogate: Dibromofluoromethane	*99.9 %*	*65 - 137*		B9C0090	03/06/2019	*03/06/19 00:55*	
Surrogate: Toluene-d8	*98.2 %*	*82 - 119*		B9C0090	03/06/2019	*03/06/19 00:55*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID HA-3-2
Lab ID: 1900817-15

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Arsenic	**3.3**	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Barium	**94**	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Beryllium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Cadmium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Chromium	**21**	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Cobalt	**8.4**	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Copper	**33**	2.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Lead	**25**	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Molybdenum	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Nickel	**17**	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Selenium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Silver	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Thallium	ND	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Vanadium	**27**	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	
Zinc	**130**	1.0	1	B9C0063	03/05/2019	03/05/19 14:10	

Hexavalent Chromium by EPA 7196A/3060A

Analyst: LV

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Hexavalent Chromium	ND	1.0	1	B9C0138	03/06/2019	03/06/19 18:14	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B9C0068	03/05/2019	03/06/19 15:47	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0076	03/05/2019	03/05/19 15:45	
Surrogate: 4-Bromofluorobenzene	*98.0 %*	*45 - 149*		B9C0076	03/05/2019	*03/05/19 15:45*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
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Client Sample ID HA-3-2

Lab ID: 1900817-15

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**100**	10	1	B9C0102	03/05/2019	03/06/19 06:20	
ORO	**220**	10	1	B9C0102	03/05/2019	03/06/19 06:20	
Surrogate: p-Terphenyl	*136 %*	*58 - 172*		B9C0102	03/05/2019	*03/06/19 06:20*	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,1,1-Trichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,1,2,2-Tetrachloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,1,2-Trichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,1-Dichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,1-Dichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,1-Dichloropropene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,2,3-Trichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,2,3-Trichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,2,4-Trichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,2,4-Trimethylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,2-Dibromo-3-chloropropane	ND	10	1	B9C0090	03/06/2019	03/06/19 01:13	
1,2-Dibromoethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,2-Dichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,2-Dichloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,2-Dichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,3,5-Trimethylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,3-Dichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,3-Dichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
1,4-Dichlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
2,2-Dichloropropane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
2-Chlorotoluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
4-Chlorotoluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
4-Isopropyltoluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Benzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Bromobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Bromochloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Bromodichloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Bromoform	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID HA-3-2

Lab ID: 1900817-15

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Bromomethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Carbon disulfide	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Carbon tetrachloride	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Chlorobenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Chloroethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Chloroform	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Chloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
cis-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
cis-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Di-isopropyl ether	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Dibromochloromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Dibromomethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Dichlorodifluoromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Ethyl Acetate	ND	50	1	B9C0090	03/06/2019	03/06/19 01:13	
Ethyl Ether	ND	50	1	B9C0090	03/06/2019	03/06/19 01:13	
Ethyl tert-butyl ether	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Ethylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Freon-113	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Hexachlorobutadiene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Isopropylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
m,p-Xylene	ND	10	1	B9C0090	03/06/2019	03/06/19 01:13	
Methylene chloride	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
MTBE	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
n-Butylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
n-Propylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Naphthalene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
o-Xylene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
sec-Butylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Styrene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
tert-Amyl methyl ether	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
tert-Butanol	ND	100	1	B9C0090	03/06/2019	03/06/19 01:13	
tert-Butylbenzene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Tetrachloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Toluene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
trans-1,2-Dichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
trans-1,3-Dichloropropene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Trichloroethene	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Client Sample ID HA-3-2

Lab ID: 1900817-15

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Trichlorofluoromethane	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Vinyl acetate	ND	50	1	B9C0090	03/06/2019	03/06/19 01:13	
Vinyl chloride	ND	5.0	1	B9C0090	03/06/2019	03/06/19 01:13	
Surrogate: 1,2-Dichloroethane-d4	*102 %*	*60 - 145*		B9C0090	03/06/2019	*03/06/19 01:13*	
Surrogate: 4-Bromofluorobenzene	*94.2 %*	*68 - 121*		B9C0090	03/06/2019	*03/06/19 01:13*	
Surrogate: Dibromofluoromethane	*105 %*	*65 - 137*		B9C0090	03/06/2019	*03/06/19 01:13*	
Surrogate: Toluene-d8	*102 %*	*82 - 119*		B9C0090	03/06/2019	*03/06/19 01:13*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0063 - EPA 3050B_S										
Blank (B9C0063-BLK1)						Prepared: 3/5/2019 Analyzed: 3/5/2019				
Antimony	ND	2.0	0.51							
Arsenic	ND	1.0	0.12							
Barium	ND	1.0	0.12							
Beryllium	ND	1.0	0.03							
Cadmium	ND	1.0	0.14							
Chromium	ND	1.0	0.26							
Cobalt	ND	1.0	0.07							
Copper	ND	2.0	0.19							
Lead	ND	1.0	0.18							
Molybdenum	ND	1.0	0.12							
Nickel	ND	1.0	0.18							
Selenium	ND	1.0	0.40							
Silver	ND	1.0	0.12							
Thallium	ND	1.0	0.38							
Vanadium	ND	1.0	0.06							
Zinc	ND	1.0	0.15							
LCS (B9C0063-BS1)						Prepared: 3/5/2019 Analyzed: 3/5/2019				
Antimony	41.1042	2.0	0.51	50.0000		82.2	80 - 120			
Arsenic	41.9883	1.0	0.12	50.0000		84.0	80 - 120			
Barium	44.2258	1.0	0.12	50.0000		88.5	80 - 120			
Beryllium	40.9531	1.0	0.03	50.0000		81.9	80 - 120			
Cadmium	43.3348	1.0	0.14	50.0000		86.7	80 - 120			
Chromium	44.0340	1.0	0.26	50.0000		88.1	80 - 120			
Cobalt	43.7166	1.0	0.07	50.0000		87.4	80 - 120			
Copper	41.3822	2.0	0.19	50.0000		82.8	80 - 120			
Lead	42.4741	1.0	0.18	50.0000		84.9	80 - 120			
Molybdenum	42.4546	1.0	0.12	50.0000		84.9	80 - 120			
Nickel	43.4747	1.0	0.18	50.0000		86.9	80 - 120			
Selenium	41.5068	1.0	0.40	50.0000		83.0	80 - 120			
Silver	40.4978	1.0	0.12	50.0000		81.0	80 - 120			
Thallium	42.4588	1.0	0.38	50.0000		84.9	80 - 120			
Vanadium	43.2966	1.0	0.06	50.0000		86.6	80 - 120			
Zinc	43.6672	1.0	0.15	50.0000		87.3	80 - 120			
Matrix Spike (B9C0063-MS1)			**Source: 1900817-01**			Prepared: 3/5/2019 Analyzed: 3/5/2019				
Antimony	63.9417	2.0	0.51	124.378	ND	51.4	21 - 102			
Arsenic	92.3646	1.0	0.12	124.378	1.28851	73.2	49 - 96			
Barium	214.892	1.0	0.12	124.378	93.4636	97.6	26 - 121			
Beryllium	84.8224	1.0	0.03	124.378	ND	68.2	51 - 96			

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0063 - EPA 3050B_S (continued)										
Matrix Spike (B9C0063-MS1) - Continued			**Source: 1900817-01**			Prepared: 3/5/2019 Analyzed: 3/5/2019				
Cadmium	86.8248	1.0	0.14	124.378	ND	69.8	46 - 93			
Chromium	106.915	1.0	0.26	124.378	11.6185	76.6	44 - 107			
Cobalt	99.6129	1.0	0.07	124.378	6.78444	74.6	49 - 100			
Copper	114.645	2.0	0.19	124.378	13.0237	81.7	46 - 115			
Lead	86.1007	1.0	0.18	124.378	1.42676	68.1	29 - 126			
Molybdenum	90.7190	1.0	0.12	124.378	ND	72.9	48 - 99			
Nickel	98.0494	1.0	0.18	124.378	9.71589	71.0	37 - 108			
Selenium	85.2420	1.0	0.40	124.378	ND	68.5	48 - 95			
Silver	92.1179	1.0	0.12	124.378	ND	74.1	53 - 99			
Thallium	71.9406	1.0	0.38	124.378	ND	57.8	38 - 93			
Vanadium	121.588	1.0	0.06	124.378	21.0741	80.8	48 - 104			
Zinc	131.168	1.0	0.15	124.378	33.7390	78.3	24 - 111			
Matrix Spike Dup (B9C0063-MSD1)			**Source: 1900817-01**			Prepared: 3/5/2019 Analyzed: 3/5/2019				
Antimony	62.0976	2.0	0.51	124.378	ND	49.9	21 - 102	2.93	20	
Arsenic	86.7317	1.0	0.12	124.378	1.28851	68.7	49 - 96	6.29	20	
Barium	198.924	1.0	0.12	124.378	93.4636	84.8	26 - 121	7.72	20	
Beryllium	83.4925	1.0	0.03	124.378	ND	67.1	51 - 96	1.58	20	
Cadmium	79.8600	1.0	0.14	124.378	ND	64.2	46 - 93	8.36	20	
Chromium	100.862	1.0	0.26	124.378	11.6185	71.8	44 - 107	5.83	20	
Cobalt	94.5607	1.0	0.07	124.378	6.78444	70.6	49 - 100	5.20	20	
Copper	114.789	2.0	0.19	124.378	13.0237	81.8	46 - 115	0.126	20	
Lead	81.1439	1.0	0.18	124.378	1.42676	64.1	29 - 126	5.93	20	
Molybdenum	87.6974	1.0	0.12	124.378	ND	70.5	48 - 99	3.39	20	
Nickel	98.7987	1.0	0.18	124.378	9.71589	71.6	37 - 108	0.761	20	
Selenium	80.6945	1.0	0.40	124.378	ND	64.9	48 - 95	5.48	20	
Silver	90.6524	1.0	0.12	124.378	ND	72.9	53 - 99	1.60	20	
Thallium	68.9406	1.0	0.38	124.378	ND	55.4	38 - 93	4.26	20	
Vanadium	115.515	1.0	0.06	124.378	21.0741	75.9	48 - 104	5.12	20	
Zinc	120.245	1.0	0.15	124.378	33.7390	69.6	24 - 111	8.69	20	

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Hexavalent Chromium by EPA 7196A/3060A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0138 - EPA 3060A_S (WC)										
Blank (B9C0138-BLK1)					Prepared: 3/6/2019 Analyzed: 3/6/2019					
Hexavalent Chromium	ND	1.0	0.94							
LCS (B9C0138-BS1)					Prepared: 3/6/2019 Analyzed: 3/6/2019					
Hexavalent Chromium	47.9000	1.0	0.94	50.0000		95.8	80 - 120			
Matrix Spike (B9C0138-MS1)			**Source: 1900817-01**		Prepared: 3/6/2019 Analyzed: 3/6/2019					
Hexavalent Chromium	42.2000	1.0	0.94	50.0000	ND	84.4	75 - 125			
Matrix Spike (B9C0138-MS2)			**Source: 1900817-01**		Prepared: 3/6/2019 Analyzed: 3/6/2019					
Hexavalent Chromium	1505.00	50	47	1608.00	ND	93.6	75 - 125			
Matrix Spike Dup (B9C0138-MSD1)			**Source: 1900817-01**		Prepared: 3/6/2019 Analyzed: 3/6/2019					
Hexavalent Chromium	44.3000	1.0	0.94	50.0000	ND	88.6	75 - 125	4.86	20	

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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0068 - EPA 7471_S										
Blank (B9C0068-BLK1)					Prepared: 3/5/2019 Analyzed: 3/6/2019					
Mercury	ND	0.10	0.007							
LCS (B9C0068-BS1)					Prepared: 3/5/2019 Analyzed: 3/6/2019					
Mercury	0.911905	0.10	0.007	0.833333		109	80 - 120			
Matrix Spike (B9C0068-MS1)			**Source: 1900817-01**		Prepared: 3/5/2019 Analyzed: 3/6/2019					
Mercury	1.02475	0.10	0.007	0.819672	0.079500	115	70 - 130			
Matrix Spike Dup (B9C0068-MSD1)			**Source: 1900817-01**		Prepared: 3/5/2019 Analyzed: 3/6/2019					
Mercury	0.994866	0.10	0.007	0.819672	0.079500	112	70 - 130	2.96	20	

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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0068 - EPA 7471_S									
Post Spike (B9C0068-PS1)			**Source: 1900817-01**		Prepared: 3/5/2019 Analyzed: 3/6/2019				
Mercury	0.007913		5.00000E-3	0.000954	139	85 - 115			M1

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Gasoline Range Organics by EPA 8015B (Modified) - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0043 - GCVOA_S										
Blank (B9C0043-BLK1)					Prepared: 3/4/2019 Analyzed: 3/4/2019					
Gasoline Range Organics	ND	1.0	0.20							
Surrogate: 4-Bromofluorobenzene	*0.1936*			*0.200000*		*96.8*	*45 - 149*			
LCS (B9C0043-BS1)					Prepared: 3/4/2019 Analyzed: 3/4/2019					
Gasoline Range Organics	4.70400	1.0	0.20	5.00000		94.1	70 - 130			
Surrogate: 4-Bromofluorobenzene	*0.2000*			*0.200000*		*100*	*45 - 149*			
Duplicate (B9C0043-DUP1)			**Source: 1900815-15**		Prepared: 3/4/2019 Analyzed: 3/4/2019					
Gasoline Range Organics	ND	1.0	0.20		ND				20	
Surrogate: 4-Bromofluorobenzene	*0.1980*			*0.200000*		*99.0*	*45 - 149*			
Matrix Spike (B9C0043-MS1)			**Source: 1900815-15**		Prepared: 3/4/2019 Analyzed: 3/4/2019					
Gasoline Range Organics	4.46600	1.0	0.20	5.00000	ND	89.3	24 - 129			
Surrogate: 4-Bromofluorobenzene	*0.1981*			*0.200000*		*99.0*	*45 - 149*			
Matrix Spike Dup (B9C0043-MSD1)			**Source: 1900815-15**		Prepared: 3/4/2019 Analyzed: 3/4/2019					
Gasoline Range Organics	4.27400	1.0	0.20	5.00000	ND	85.5	24 - 129	4.39	20	
Surrogate: 4-Bromofluorobenzene	*0.2011*			*0.200000*		*101*	*45 - 149*			

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Gasoline Range Organics by EPA 8015B (Modified) - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0076 - GCVOA_S										
Blank (B9C0076-BLK1)					Prepared: 3/5/2019 Analyzed: 3/5/2019					
Gasoline Range Organics	ND	1.0	0.20							
Surrogate: 4-Bromofluorobenzene	*0.2084*			*0.200000*		*104*	*45 - 149*			
LCS (B9C0076-BS1)					Prepared: 3/5/2019 Analyzed: 3/5/2019					
Gasoline Range Organics	4.43800	1.0	0.20	5.00000		88.8	70 - 130			
Surrogate: 4-Bromofluorobenzene	*0.1988*			*0.200000*		*99.4*	*45 - 149*			
LCS Dup (B9C0076-BSD1)					Prepared: 3/5/2019 Analyzed: 3/5/2019					
Gasoline Range Organics	4.43100	1.0	0.20	5.00000		88.6	70 - 130	0.158	20	
Surrogate: 4-Bromofluorobenzene	*0.1964*			*0.200000*		*98.2*	*45 - 149*			
Duplicate (B9C0076-DUP1)			**Source: 1900815-17**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
Gasoline Range Organics	ND	1.0	0.20		ND				20	
Surrogate: 4-Bromofluorobenzene	*0.1998*			*0.200000*		*99.9*	*45 - 149*			
Matrix Spike (B9C0076-MS1)			**Source: 1900815-17**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
Gasoline Range Organics	4.28100	1.0	0.20	5.00000	ND	85.6	24 - 129			
Surrogate: 4-Bromofluorobenzene	*0.2004*			*0.200000*		*100*	*45 - 149*			
Matrix Spike Dup (B9C0076-MSD1)			**Source: 1900815-17**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
Gasoline Range Organics	4.11700	1.0	0.20	5.00000	ND	82.3	24 - 129	3.91	20	
Surrogate: 4-Bromofluorobenzene	*0.2000*			*0.200000*		*100*	*45 - 149*			

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Diesel Range Organics by EPA 8015B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0102 - GCSEMI_DRO_S										
Blank (B9C0102-BLK1)						Prepared: 3/5/2019 Analyzed: 3/6/2019				
DRO	ND	10	10							
ORO	ND	10	10							
Surrogate: p-Terphenyl	*109.6*			*80.0000*		*137*	*58 - 172*			
LCS (B9C0102-BS1)						Prepared: 3/5/2019 Analyzed: 3/6/2019				
DRO	1243.90	10	10	1000.00		124	71 - 165			
Surrogate: p-Terphenyl	*109.0*			*80.0000*		*136*	*58 - 172*			
Matrix Spike (B9C0102-MS1)			**Source: 1900817-01**			Prepared: 3/5/2019 Analyzed: 3/6/2019				
DRO	1396.16	10	10	1000.00	26.8300	137	61 - 171			
Surrogate: p-Terphenyl	*106.4*			*80.0000*		*133*	*58 - 172*			
Matrix Spike Dup (B9C0102-MSD1)			**Source: 1900817-01**			Prepared: 3/5/2019 Analyzed: 3/6/2019				
DRO	1368.19	10	10	1000.00	26.8300	134	61 - 171	2.02	20	
Surrogate: p-Terphenyl	*108.8*			*80.0000*		*136*	*58 - 172*			

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Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0090 - MSVOA_S										
Blank (B9C0090-BLK1)					Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,1,1,2-Tetrachloroethane	ND	5.0	0.96							
1,1,1-Trichloroethane	ND	5.0	1.1							
1,1,2,2-Tetrachloroethane	ND	5.0	0.62							
1,1,2-Trichloroethane	ND	5.0	1.6							
1,1-Dichloroethane	ND	5.0	0.81							
1,1-Dichloroethene	ND	5.0	2.6							
1,1-Dichloropropene	ND	5.0	2.3							
1,2,3-Trichloropropane	ND	5.0	0.54							
1,2,3-Trichlorobenzene	ND	5.0	1.2							
1,2,4-Trichlorobenzene	ND	5.0	1.1							
1,2,4-Trimethylbenzene	ND	5.0	1.5							
1,2-Dibromo-3-chloropropane	ND	10	1.6							
1,2-Dibromoethane	ND	5.0	3.2							
1,2-Dichlorobenzene	ND	5.0	1.1							
1,2-Dichloroethane	ND	5.0	1.2							
1,2-Dichloropropane	ND	5.0	1.8							
1,3,5-Trimethylbenzene	ND	5.0	1.7							
1,3-Dichlorobenzene	ND	5.0	1.3							
1,3-Dichloropropane	ND	5.0	1.1							
1,4-Dichlorobenzene	ND	5.0	1.2							
2,2-Dichloropropane	ND	5.0	1.2							
2-Chlorotoluene	ND	5.0	1.6							
4-Chlorotoluene	ND	5.0	1.5							
4-Isopropyltoluene	ND	5.0	2.3							
Benzene	ND	5.0	0.64							
Bromobenzene	ND	5.0	1.1							
Bromochloromethane	ND	5.0	0.64							
Bromodichloromethane	ND	5.0	1.2							
Bromoform	ND	5.0	0.80							
Bromomethane	ND	5.0	2.5							
Carbon disulfide	ND	5.0	3.5							
Carbon tetrachloride	ND	5.0	1.2							
Chlorobenzene	ND	5.0	1.0							
Chloroethane	ND	5.0	1.1							
Chloroform	ND	5.0	0.82							
Chloromethane	ND	5.0	1.4							
cis-1,2-Dichloroethene	ND	5.0	0.67							
cis-1,3-Dichloropropene	ND	5.0	1.9							
Di-isopropyl ether	ND	5.0	0.55							
Dibromochloromethane	ND	5.0	1.0							
Dibromomethane	ND	5.0	1.6							

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0090 - MSVOA_S (continued)										
Blank (B9C0090-BLK1) - Continued					Prepared: 3/5/2019 Analyzed: 3/5/2019					
Dichlorodifluoromethane	ND	5.0	2.2							
Ethyl Acetate	ND	50	8.1							
Ethyl Ether	ND	50	6.1							
Ethyl tert-butyl ether	ND	5.0	0.67							
Ethylbenzene	ND	5.0	0.91							
Freon-113	ND	5.0	2.8							
Hexachlorobutadiene	ND	5.0	2.5							
Isopropylbenzene	ND	5.0	1.8							
m,p-Xylene	ND	10	1.5							
Methylene chloride	ND	5.0	2.3							
MTBE	ND	5.0	0.63							
n-Butylbenzene	ND	5.0	2.4							
n-Propylbenzene	ND	5.0	2.2							
Naphthalene	ND	5.0	0.97							
o-Xylene	ND	5.0	0.87							
sec-Butylbenzene	ND	5.0	2.3							
Styrene	ND	5.0	1.5							
tert-Amyl methyl ether	ND	5.0	0.59							
tert-Butanol	ND	100	19							
tert-Butylbenzene	ND	5.0	2.0							
Tetrachloroethene	ND	5.0	1.6							
Toluene	ND	5.0	0.94							
trans-1,2-Dichloroethene	ND	5.0	0.59							
trans-1,3-Dichloropropene	ND	5.0	2.1							
Trichloroethene	ND	5.0	3.1							
Trichlorofluoromethane	ND	5.0	1.4							
Vinyl acetate	ND	50	9.8							
Vinyl chloride	ND	5.0	1.7							
Surrogate: 1,2-Dichloroethane-d4	*46.41*			*50.0000*		*92.8*	*60 - 145*			
Surrogate: 4-Bromofluorobenzene	*48.13*			*50.0000*		*96.3*	*68 - 121*			
Surrogate: Dibromofluoromethan	*49.49*			*50.0000*		*99.0*	*65 - 137*			
Surrogate: Toluene-d8	*49.90*			*50.0000*		*99.8*	*82 - 119*			
LCS (B9C0090-BS1)					Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,1,1,2-Tetrachloroethane	45.7200	5.0	0.96	50.0000		91.4	82 - 114			
1,1,1-Trichloroethane	44.3600	5.0	1.1	50.0000		88.7	70 - 121			
1,1,2,2-Tetrachloroethane	45.8400	5.0	0.62	50.0000		91.7	65 - 116			
1,1,2-Trichloroethane	44.1100	5.0	1.6	50.0000		88.2	73 - 114			
1,1-Dichloroethane	45.0800	5.0	0.81	50.0000		90.2	69 - 117			
1,1-Dichloroethene	41.2800	5.0	2.6	50.0000		82.6	57 - 128			
1,1-Dichloropropene	46.9800	5.0	2.3	50.0000		94.0	76 - 122			

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0090 - MSVOA_S (continued)										
LCS (B9C0090-BS1) - Continued					Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,2,3-Trichloropropane	46.9600	5.0	0.54	50.0000		93.9	65 - 116			
1,2,3-Trichlorobenzene	52.2400	5.0	1.2	50.0000		104	72 - 130			
1,2,4-Trichlorobenzene	54.4800	5.0	1.1	50.0000		109	74 - 141			
1,2,4-Trimethylbenzene	45.8300	5.0	1.5	50.0000		91.7	81 - 126			
1,2-Dibromo-3-chloropropane	45.3400	10	1.6	50.0000		90.7	63 - 126			
1,2-Dibromoethane	43.8500	5.0	3.2	50.0000		87.7	75 - 113			
1,2-Dichlorobenzene	48.4200	5.0	1.1	50.0000		96.8	83 - 114			
1,2-Dichloroethane	44.5900	5.0	1.2	50.0000		89.2	73 - 115			
1,2-Dichloropropane	45.4600	5.0	1.8	50.0000		90.9	75 - 117			
1,3,5-Trimethylbenzene	45.4300	5.0	1.7	50.0000		90.9	80 - 126			
1,3-Dichlorobenzene	48.8000	5.0	1.3	50.0000		97.6	83 - 113			
1,3-Dichloropropane	46.0100	5.0	1.1	50.0000		92.0	79 - 108			
1,4-Dichlorobenzene	48.5200	5.0	1.2	50.0000		97.0	82 - 114			
2,2-Dichloropropane	44.9300	5.0	1.2	50.0000		89.9	66 - 135			
2-Chlorotoluene	44.7900	5.0	1.6	50.0000		89.6	79 - 117			
4-Chlorotoluene	44.7800	5.0	1.5	50.0000		89.6	77 - 118			
4-Isopropyltoluene	47.1400	5.0	2.3	50.0000		94.3	81 - 129			
Benzene	89.8600	5.0	0.64	100.000		89.9	78 - 112			
Bromobenzene	44.4300	5.0	1.1	50.0000		88.9	79 - 111			
Bromochloromethane	43.5900	5.0	0.64	50.0000		87.2	69 - 116			
Bromodichloromethane	43.8900	5.0	1.2	50.0000		87.8	79 - 111			
Bromoform	45.5900	5.0	0.80	50.0000		91.2	75 - 119			
Bromomethane	46.3500	5.0	2.5	50.0000		92.7	31 - 168			
Carbon disulfide	36.3700	5.0	3.5	50.0000		72.7	54 - 141			
Carbon tetrachloride	44.3000	5.0	1.2	50.0000		88.6	74 - 125			
Chlorobenzene	46.2000	5.0	1.0	50.0000		92.4	83 - 112			
Chloroethane	41.6800	5.0	1.1	50.0000		83.4	53 - 144			
Chloroform	44.4300	5.0	0.82	50.0000		88.9	69 - 118			
Chloromethane	34.7600	5.0	1.4	50.0000		69.5	46 - 137			
cis-1,2-Dichloroethene	44.8100	5.0	0.67	50.0000		89.6	68 - 118			
cis-1,3-Dichloropropene	51.7300	5.0	1.9	50.0000		103	77 - 121			
Di-isopropyl ether	46.1900	5.0	0.55	50.0000		92.4	60 - 129			
Dibromochloromethane	44.8200	5.0	1.0	50.0000		89.6	80 - 111			
Dibromomethane	43.8400	5.0	1.6	50.0000		87.7	78 - 108			
Dichlorodifluoromethane	25.9000	5.0	2.2	50.0000		51.8	41 - 146			
Ethyl Acetate	476.210	50	8.1	500.000		95.2	52 - 130			
Ethyl Ether	447.740	50	6.1	500.000		89.5	54 - 138			
Ethyl tert-butyl ether	48.2300	5.0	0.67	50.0000		96.5	52 - 141			
Ethylbenzene	90.8100	5.0	0.91	100.000		90.8	82 - 121			
Freon-113	41.8700	5.0	2.8	50.0000		83.7	59 - 139			
Hexachlorobutadiene	45.4200	5.0	2.5	50.0000		90.8	69 - 143			
Isopropylbenzene	49.2400	5.0	1.8	50.0000		98.5	78 - 124			

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Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0090 - MSVOA_S (continued)										
LCS (B9C0090-BS1) - Continued					Prepared: 3/5/2019 Analyzed: 3/5/2019					
m,p-Xylene	93.7200	10	1.5	100.000		93.7	85 - 118			
Methylene chloride	42.7700	5.0	2.3	50.0000		85.5	44 - 146			
MTBE	45.0400	5.0	0.63	50.0000		90.1	61 - 122			
n-Butylbenzene	47.4400	5.0	2.4	50.0000		94.9	78 - 135			
n-Propylbenzene	45.4400	5.0	2.2	50.0000		90.9	78 - 127			
Naphthalene	48.0200	5.0	0.97	50.0000		96.0	68 - 129			
o-Xylene	94.1600	5.0	0.87	100.000		94.2	86 - 118			
sec-Butylbenzene	46.1900	5.0	2.3	50.0000		92.4	80 - 127			
Styrene	46.6300	5.0	1.5	50.0000		93.3	85 - 117			
tert-Amyl methyl ether	47.0800	5.0	0.59	50.0000		94.2	48 - 135			
tert-Butanol	85.8900	100	19	250.000		34.4	0 - 175			
tert-Butylbenzene	46.3500	5.0	2.0	50.0000		92.7	81 - 122			
Tetrachloroethene	47.7100	5.0	1.6	50.0000		95.4	77 - 122			
Toluene	91.3600	5.0	0.94	100.000		91.4	79 - 114			
trans-1,2-Dichloroethene	43.3300	5.0	0.59	50.0000		86.7	66 - 125			
trans-1,3-Dichloropropene	44.5600	5.0	2.1	50.0000		89.1	76 - 120			
Trichloroethene	46.2100	5.0	3.1	50.0000		92.4	79 - 117			
Trichlorofluoromethane	41.1700	5.0	1.4	50.0000		82.3	55 - 133			
Vinyl acetate	413.450	50	9.8	500.000		82.7	52 - 141			
Vinyl chloride	37.4300	5.0	1.7	50.0000		74.9	58 - 132			
Surrogate: 1,2-Dichloroethane-d4	*45.99*			*50.0000*		*92.0*	*60 - 145*			
Surrogate: 4-Bromofluorobenzene	*49.23*			*50.0000*		*98.5*	*68 - 121*			
Surrogate: Dibromofluoromethan	*48.71*			*50.0000*		*97.4*	*65 - 137*			
Surrogate: Toluene-d8	*49.12*			*50.0000*		*98.2*	*82 - 119*			
LCS Dup (B9C0090-BSD1)					Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,1,1,2-Tetrachloroethane	48.3300	5.0	0.96	50.0000		96.7	82 - 114	5.55	20	
1,1,1-Trichloroethane	43.3500	5.0	1.1	50.0000		86.7	70 - 121	2.30	20	
1,1,2,2-Tetrachloroethane	49.2400	5.0	0.62	50.0000		98.5	65 - 116	7.15	20	
1,1,2-Trichloroethane	46.8100	5.0	1.6	50.0000		93.6	73 - 114	5.94	20	
1,1-Dichloroethane	44.3000	5.0	0.81	50.0000		88.6	69 - 117	1.75	20	
1,1-Dichloroethene	40.5400	5.0	2.6	50.0000		81.1	57 - 128	1.81	20	
1,1-Dichloropropene	45.8900	5.0	2.3	50.0000		91.8	76 - 122	2.35	20	
1,2,3-Trichloropropane	50.2200	5.0	0.54	50.0000		100	65 - 116	6.71	20	
1,2,3-Trichlorobenzene	53.3800	5.0	1.2	50.0000		107	72 - 130	2.16	20	
1,2,4-Trichlorobenzene	55.8600	5.0	1.1	50.0000		112	74 - 141	2.50	20	
1,2,4-Trimethylbenzene	48.1800	5.0	1.5	50.0000		96.4	81 - 126	5.00	20	
1,2-Dibromo-3-chloropropane	47.0000	10	1.6	50.0000		94.0	63 - 126	3.60	20	
1,2-Dibromoethane	46.8500	5.0	3.2	50.0000		93.7	75 - 113	6.62	20	
1,2-Dichlorobenzene	51.1500	5.0	1.1	50.0000		102	83 - 114	5.48	20	
1,2-Dichloroethane	45.2100	5.0	1.2	50.0000		90.4	73 - 115	1.38	20	

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0090 - MSVOA_S (continued)										
LCS Dup (B9C0090-BSD1) - Continued					Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,2-Dichloropropane	47.5300	5.0	1.8	50.0000		95.1	75 - 117	4.45	20	
1,3,5-Trimethylbenzene	48.0400	5.0	1.7	50.0000		96.1	80 - 126	5.58	20	
1,3-Dichlorobenzene	51.2800	5.0	1.3	50.0000		103	83 - 113	4.96	20	
1,3-Dichloropropane	48.8300	5.0	1.1	50.0000		97.7	79 - 108	5.95	20	
1,4-Dichlorobenzene	50.9300	5.0	1.2	50.0000		102	82 - 114	4.85	20	
2,2-Dichloropropane	43.8900	5.0	1.2	50.0000		87.8	66 - 135	2.34	20	
2-Chlorotoluene	47.2500	5.0	1.6	50.0000		94.5	79 - 117	5.35	20	
4-Chlorotoluene	47.1100	5.0	1.5	50.0000		94.2	77 - 118	5.07	20	
4-Isopropyltoluene	49.0600	5.0	2.3	50.0000		98.1	81 - 129	3.99	20	
Benzene	88.8000	5.0	0.64	100.000		88.8	78 - 112	1.19	20	
Bromobenzene	46.9200	5.0	1.1	50.0000		93.8	79 - 111	5.45	20	
Bromochloromethane	44.1600	5.0	0.64	50.0000		88.3	69 - 116	1.30	20	
Bromodichloromethane	46.0200	5.0	1.2	50.0000		92.0	79 - 111	4.74	20	
Bromoform	47.6400	5.0	0.80	50.0000		95.3	75 - 119	4.40	20	
Bromomethane	43.1700	5.0	2.5	50.0000		86.3	31 - 168	7.10	20	
Carbon disulfide	35.9500	5.0	3.5	50.0000		71.9	54 - 141	1.16	20	
Carbon tetrachloride	43.2500	5.0	1.2	50.0000		86.5	74 - 125	2.40	20	
Chlorobenzene	48.3900	5.0	1.0	50.0000		96.8	83 - 112	4.63	20	
Chloroethane	41.6500	5.0	1.1	50.0000		83.3	53 - 144	0.0720	20	
Chloroform	45.1300	5.0	0.82	50.0000		90.3	69 - 118	1.56	20	
Chloromethane	35.7900	5.0	1.4	50.0000		71.6	46 - 137	2.92	20	
cis-1,2-Dichloroethene	44.5300	5.0	0.67	50.0000		89.1	68 - 118	0.627	20	
cis-1,3-Dichloropropene	54.6500	5.0	1.9	50.0000		109	77 - 121	5.49	20	
Di-isopropyl ether	47.4300	5.0	0.55	50.0000		94.9	60 - 129	2.65	20	
Dibromochloromethane	47.8700	5.0	1.0	50.0000		95.7	80 - 111	6.58	20	
Dibromomethane	45.8900	5.0	1.6	50.0000		91.8	78 - 108	4.57	20	
Dichlorodifluoromethane	24.8900	5.0	2.2	50.0000		49.8	41 - 146	3.98	20	
Ethyl Acetate	501.910	50	8.1	500.000		100	52 - 130	5.25	20	
Ethyl Ether	460.160	50	6.1	500.000		92.0	54 - 138	2.74	20	
Ethyl tert-butyl ether	50.4500	5.0	0.67	50.0000		101	52 - 141	4.50	20	
Ethylbenzene	94.3700	5.0	0.91	100.000		94.4	82 - 121	3.84	20	
Freon-113	41.6000	5.0	2.8	50.0000		83.2	59 - 139	0.647	20	
Hexachlorobutadiene	46.9400	5.0	2.5	50.0000		93.9	69 - 143	3.29	20	
Isopropylbenzene	51.9400	5.0	1.8	50.0000		104	78 - 124	5.34	20	
m,p-Xylene	98.1300	10	1.5	100.000		98.1	85 - 118	4.60	20	
Methylene chloride	40.8000	5.0	2.3	50.0000		81.6	44 - 146	4.71	20	
MTBE	46.2400	5.0	0.63	50.0000		92.5	61 - 122	2.63	20	
n-Butylbenzene	49.3900	5.0	2.4	50.0000		98.8	78 - 135	4.03	20	
n-Propylbenzene	47.6100	5.0	2.2	50.0000		95.2	78 - 127	4.66	20	
Naphthalene	50.5900	5.0	0.97	50.0000		101	68 - 129	5.21	20	
o-Xylene	99.2600	5.0	0.87	100.000		99.3	86 - 118	5.27	20	
sec-Butylbenzene	48.1900	5.0	2.3	50.0000		96.4	80 - 127	4.24	20	

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0090 - MSVOA_S (continued)										
LCS Dup (B9C0090-BSD1) - Continued					Prepared: 3/5/2019 Analyzed: 3/5/2019					
Styrene	49.4800	5.0	1.5	50.0000		99.0	85 - 117	5.93	20	
tert-Amyl methyl ether	50.3600	5.0	0.59	50.0000		101	48 - 135	6.73	20	
tert-Butanol	129.430	100	19	250.000		51.8	0 - 175	40.4	20	R
tert-Butylbenzene	48.3900	5.0	2.0	50.0000		96.8	81 - 122	4.31	20	
Tetrachloroethene	48.9600	5.0	1.6	50.0000		97.9	77 - 122	2.59	20	
Toluene	93.9700	5.0	0.94	100.000		94.0	79 - 114	2.82	20	
trans-1,2-Dichloroethene	41.1000	5.0	0.59	50.0000		82.2	66 - 125	5.28	20	
trans-1,3-Dichloropropene	46.7100	5.0	2.1	50.0000		93.4	76 - 120	4.71	20	
Trichloroethene	46.6000	5.0	3.1	50.0000		93.2	79 - 117	0.840	20	
Trichlorofluoromethane	39.6900	5.0	1.4	50.0000		79.4	55 - 133	3.66	20	
Vinyl acetate	418.110	50	9.8	500.000		83.6	52 - 141	1.12	20	
Vinyl chloride	38.0000	5.0	1.7	50.0000		76.0	58 - 132	1.51	20	
Surrogate: 1,2-Dichloroethane-d4	*46.88*			*50.0000*		*93.8*	*60 - 145*			
Surrogate: 4-Bromofluorobenzene	*50.72*			*50.0000*		*101*	*68 - 121*			
Surrogate: Dibromofluoromethan	*48.71*			*50.0000*		*97.4*	*65 - 137*			
Surrogate: Toluene-d8	*50.34*			*50.0000*		*101*	*82 - 119*			
Duplicate (B9C0090-DUP1)			**Source: 1900815-27**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,1,1,2-Tetrachloroethane	ND	5.0	0.96		ND				20	
1,1,1-Trichloroethane	ND	5.0	1.1		ND				20	
1,1,2,2-Tetrachloroethane	ND	5.0	0.62		ND				20	
1,1,2-Trichloroethane	ND	5.0	1.6		ND				20	
1,1-Dichloroethane	ND	5.0	0.81		ND				20	
1,1-Dichloroethene	ND	5.0	2.6		ND				20	
1,1-Dichloropropene	ND	5.0	2.3		ND				20	
1,2,3-Trichloropropane	ND	5.0	0.54		ND				20	
1,2,3-Trichlorobenzene	ND	5.0	1.2		ND				20	
1,2,4-Trichlorobenzene	ND	5.0	1.1		ND				20	
1,2,4-Trimethylbenzene	ND	5.0	1.5		ND				20	
1,2-Dibromo-3-chloropropane	ND	10	1.6		ND				20	
1,2-Dibromoethane	ND	5.0	3.2		ND				20	
1,2-Dichlorobenzene	ND	5.0	1.1		ND				20	
1,2-Dichloroethane	ND	5.0	1.2		ND				20	
1,2-Dichloropropane	ND	5.0	1.8		ND				20	
1,3,5-Trimethylbenzene	ND	5.0	1.7		ND				20	
1,3-Dichlorobenzene	ND	5.0	1.3		ND				20	
1,3-Dichloropropane	ND	5.0	1.1		ND				20	
1,4-Dichlorobenzene	ND	5.0	1.2		ND				20	
2,2-Dichloropropane	ND	5.0	1.2		ND				20	
2-Chlorotoluene	ND	5.0	1.6		ND				20	
4-Chlorotoluene	ND	5.0	1.5		ND				20	

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0090 - MSVOA_S (continued)										
Duplicate (B9C0090-DUP1) - Continued			**Source: 1900815-27**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
4-Isopropyltoluene	ND	5.0	2.3		ND				20	
Benzene	ND	5.0	0.64		ND				20	
Bromobenzene	ND	5.0	1.1		ND				20	
Bromochloromethane	ND	5.0	0.64		ND				20	
Bromodichloromethane	ND	5.0	1.2		ND				20	
Bromoform	ND	5.0	0.80		ND				20	
Bromomethane	ND	5.0	2.5		ND				20	
Carbon disulfide	ND	5.0	3.5		ND				20	
Carbon tetrachloride	ND	5.0	1.2		ND				20	
Chlorobenzene	ND	5.0	1.0		ND				20	
Chloroethane	ND	5.0	1.1		ND				20	
Chloroform	ND	5.0	0.82		ND				20	
Chloromethane	ND	5.0	1.4		ND				20	
cis-1,2-Dichloroethene	ND	5.0	0.67		ND				20	
cis-1,3-Dichloropropene	ND	5.0	1.9		ND				20	
Di-isopropyl ether	ND	5.0	0.55		ND				20	
Dibromochloromethane	ND	5.0	1.0		ND				20	
Dibromomethane	ND	5.0	1.6		ND				20	
Dichlorodifluoromethane	ND	5.0	2.2		ND				20	
Ethyl Acetate	ND	50	8.1		ND				20	
Ethyl Ether	ND	50	6.1		ND				20	
Ethyl tert-butyl ether	ND	5.0	0.67		ND				20	
Ethylbenzene	ND	5.0	0.91		ND				20	
Freon-113	ND	5.0	2.8		ND				20	
Hexachlorobutadiene	ND	5.0	2.5		ND				20	
Isopropylbenzene	ND	5.0	1.8		ND				20	
m,p-Xylene	ND	10	1.5		ND				20	
Methylene chloride	ND	5.0	2.3		ND				20	
MTBE	ND	5.0	0.63		ND				20	
n-Butylbenzene	ND	5.0	2.4		ND				20	
n-Propylbenzene	ND	5.0	2.2		ND				20	
Naphthalene	ND	5.0	0.97		ND				20	
o-Xylene	ND	5.0	0.87		ND				20	
sec-Butylbenzene	ND	5.0	2.3		ND				20	
Styrene	ND	5.0	1.5		ND				20	
tert-Amyl methyl ether	ND	5.0	0.59		ND				20	
tert-Butanol	ND	100	19		ND				20	
tert-Butylbenzene	ND	5.0	2.0		ND				20	
Tetrachloroethene	ND	5.0	1.6		ND				20	
Toluene	ND	5.0	0.94		ND				20	
trans-1,2-Dichloroethene	ND	5.0	0.59		ND				20	
trans-1,3-Dichloropropene	ND	5.0	2.1		ND				20	

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0090 - MSVOA_S (continued)										
Duplicate (B9C0090-DUP1) - Continued			**Source: 1900815-27**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
Trichloroethene	ND	5.0	3.1		ND				20	
Trichlorofluoromethane	ND	5.0	1.4		ND				20	
Vinyl acetate	ND	50	9.8		ND				20	
Vinyl chloride	ND	5.0	1.7		ND				20	
Surrogate: 1,2-Dichloroethane-d4	*48.33*			*50.0000*		*96.7*	*60 - 145*			
Surrogate: 4-Bromofluorobenzene	*48.05*			*50.0000*		*96.1*	*68 - 121*			
Surrogate: Dibromofluoromethan	*50.51*			*50.0000*		*101*	*65 - 137*			
Surrogate: Toluene-d8	*50.86*			*50.0000*		*102*	*82 - 119*			
Matrix Spike (B9C0090-MS1)			**Source: 1900815-27**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,1,1,2-Tetrachloroethane	45.2300	5.0	0.96	50.0000	ND	90.5	45 - 121			
1,1,1-Trichloroethane	45.0500	5.0	1.1	50.0000	ND	90.1	43 - 127			
1,1,2,2-Tetrachloroethane	45.5700	5.0	0.62	50.0000	ND	91.1	32 - 128			
1,1,2-Trichloroethane	44.7600	5.0	1.6	50.0000	ND	89.5	45 - 121			
1,1-Dichloroethane	45.2300	5.0	0.81	50.0000	ND	90.5	46 - 119			
1,1-Dichloroethene	42.8500	5.0	2.6	50.0000	ND	85.7	40 - 130			
1,1-Dichloropropene	47.5300	5.0	2.3	50.0000	ND	95.1	45 - 130			
1,2,3-Trichloropropane	47.5300	5.0	0.54	50.0000	ND	95.1	42 - 124			
1,2,3-Trichlorobenzene	39.7800	5.0	1.2	50.0000	ND	79.6	4 - 135			
1,2,4-Trichlorobenzene	42.4800	5.0	1.1	50.0000	ND	85.0	8 - 141			
1,2,4-Trimethylbenzene	44.9000	5.0	1.5	50.0000	ND	89.8	30 - 136			
1,2-Dibromo-3-chloropropane	42.6300	10	1.6	50.0000	ND	85.3	38 - 132			
1,2-Dibromoethane	43.3500	5.0	3.2	50.0000	ND	86.7	45 - 121			
1,2-Dichlorobenzene	43.2500	5.0	1.1	50.0000	ND	86.5	30 - 125			
1,2-Dichloroethane	42.3700	5.0	1.2	50.0000	ND	84.7	51 - 115			
1,2-Dichloropropane	45.2300	5.0	1.8	50.0000	ND	90.5	50 - 118			
1,3,5-Trimethylbenzene	45.9800	5.0	1.7	50.0000	ND	92.0	29 - 137			
1,3-Dichlorobenzene	44.3600	5.0	1.3	50.0000	ND	88.7	30 - 124			
1,3-Dichloropropane	45.9400	5.0	1.1	50.0000	ND	91.9	49 - 116			
1,4-Dichlorobenzene	44.1800	5.0	1.2	50.0000	ND	88.4	31 - 124			
2,2-Dichloropropane	44.0500	5.0	1.2	50.0000	ND	88.1	41 - 134			
2-Chlorotoluene	44.3200	5.0	1.6	50.0000	ND	88.6	32 - 127			
4-Chlorotoluene	42.8900	5.0	1.5	50.0000	ND	85.8	34 - 124			
4-Isopropyltoluene	46.2800	5.0	2.3	50.0000	ND	92.6	26 - 141			
Benzene	87.1700	5.0	0.64	100.000	ND	87.2	48 - 117			
Bromobenzene	42.2800	5.0	1.1	50.0000	ND	84.6	40 - 117			
Bromochloromethane	41.6700	5.0	0.64	50.0000	ND	83.3	48 - 117			
Bromodichloromethane	44.1000	5.0	1.2	50.0000	ND	88.2	49 - 115			
Bromoform	43.6500	5.0	0.80	50.0000	ND	87.3	42 - 127			
Bromomethane	41.5500	5.0	2.5	50.0000	ND	83.1	19 - 157			
Carbon disulfide	37.3600	5.0	3.5	50.0000	ND	74.7	34 - 138			

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0090 - MSVOA_S (continued)										
Matrix Spike (B9C0090-MS1) - Continued			**Source: 1900815-27**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
Carbon tetrachloride	44.5900	5.0	1.2	50.0000	ND	89.2	43 - 130			
Chlorobenzene	45.0900	5.0	1.0	50.0000	ND	90.2	41 - 122			
Chloroethane	43.0200	5.0	1.1	50.0000	ND	86.0	32 - 145			
Chloroform	43.7600	5.0	0.82	50.0000	ND	87.5	46 - 118			
Chloromethane	36.3600	5.0	1.4	50.0000	ND	72.7	34 - 132			
cis-1,2-Dichloroethene	43.2000	5.0	0.67	50.0000	ND	86.4	44 - 119			
cis-1,3-Dichloropropene	49.9000	5.0	1.9	50.0000	ND	99.8	44 - 126			
Di-isopropyl ether	46.3800	5.0	0.55	50.0000	ND	92.8	42 - 126			
Dibromochloromethane	45.1200	5.0	1.0	50.0000	ND	90.2	46 - 119			
Dibromomethane	43.2000	5.0	1.6	50.0000	ND	86.4	52 - 114			
Dichlorodifluoromethane	27.0800	5.0	2.2	50.0000	ND	54.2	22 - 147			
Ethyl Acetate	345.060	50	8.1	500.000	ND	69.0	9 - 140			
Ethyl Ether	444.990	50	6.1	500.000	ND	89.0	45 - 131			
Ethyl tert-butyl ether	49.7400	5.0	0.67	50.0000	ND	99.5	33 - 138			
Ethylbenzene	90.7400	5.0	0.91	100.000	ND	90.7	38 - 131			
Freon-113	44.5400	5.0	2.8	50.0000	ND	89.1	38 - 140			
Hexachlorobutadiene	40.1700	5.0	2.5	50.0000	ND	80.3	4 - 141			
Isopropylbenzene	51.1800	5.0	1.8	50.0000	ND	102	35 - 133			
m,p-Xylene	93.4600	10	1.5	100.000	ND	93.5	38 - 130			
Methylene chloride	35.0600	5.0	2.3	50.0000	ND	70.1	26 - 137			
MTBE	45.1700	5.0	0.63	50.0000	ND	90.3	45 - 121			
n-Butylbenzene	46.2200	5.0	2.4	50.0000	ND	92.4	18 - 144			
n-Propylbenzene	45.8000	5.0	2.2	50.0000	ND	91.6	30 - 137			
Naphthalene	38.5200	5.0	0.97	50.0000	ND	77.0	14 - 137			
o-Xylene	92.9800	5.0	0.87	100.000	ND	93.0	41 - 129			
sec-Butylbenzene	46.4600	5.0	2.3	50.0000	ND	92.9	24 - 140			
Styrene	44.5600	5.0	1.5	50.0000	ND	89.1	41 - 125			
tert-Amyl methyl ether	47.9100	5.0	0.59	50.0000	ND	95.8	31 - 133			
tert-Butanol	167.120	100	19	250.000	ND	66.8	0 - 201			
tert-Butylbenzene	47.2100	5.0	2.0	50.0000	ND	94.4	30 - 134			
Tetrachloroethene	47.0100	5.0	1.6	50.0000	ND	94.0	37 - 130			
Toluene	90.2000	5.0	0.94	100.000	ND	90.2	45 - 122			
trans-1,2-Dichloroethene	42.5200	5.0	0.59	50.0000	ND	85.0	46 - 122			
trans-1,3-Dichloropropene	42.5200	5.0	2.1	50.0000	ND	85.0	44 - 124			
Trichloroethene	45.5700	5.0	3.1	50.0000	ND	91.1	36 - 142			
Trichlorofluoromethane	42.0900	5.0	1.4	50.0000	ND	84.2	37 - 135			
Vinyl acetate	113.110	50	9.8	500.000	ND	22.6	0 - 136			
Vinyl chloride	41.3700	5.0	1.7	50.0000	ND	82.7	42 - 131			
Surrogate: 1,2-Dichloroethane-d4	*47.40*			*50.0000*		*94.8*	*60 - 145*			
Surrogate: 4-Bromofluorobenzene	*49.92*			*50.0000*		*99.8*	*68 - 121*			
Surrogate: Dibromofluoromethan	*49.26*			*50.0000*		*98.5*	*65 - 137*			

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)		Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0090 - MSVOA_S (continued)										
Matrix Spike (B9C0090-MS1) - Continued			**Source: 1900815-27**			Prepared: 3/5/2019 Analyzed: 3/5/2019				
Surrogate: Toluene-d8	*50.34*			*50.0000*		*101*	*82 - 119*			
Matrix Spike Dup (B9C0090-MSD1)			**Source: 1900815-27**			Prepared: 3/5/2019 Analyzed: 3/5/2019				
1,1,1,2-Tetrachloroethane	42.7100	5.0	0.96	50.0000	ND	85.4	45 - 121	5.73	20	
1,1,1-Trichloroethane	42.8000	5.0	1.1	50.0000	ND	85.6	43 - 127	5.12	20	
1,1,2,2-Tetrachloroethane	45.9700	5.0	0.62	50.0000	ND	91.9	32 - 128	0.874	20	
1,1,2-Trichloroethane	41.4200	5.0	1.6	50.0000	ND	82.8	45 - 121	7.75	20	
1,1-Dichloroethane	43.8800	5.0	0.81	50.0000	ND	87.8	46 - 119	3.03	20	
1,1-Dichloroethene	41.0500	5.0	2.6	50.0000	ND	82.1	40 - 130	4.29	20	
1,1-Dichloropropene	45.0100	5.0	2.3	50.0000	ND	90.0	45 - 130	5.45	20	
1,2,3-Trichloropropane	45.9400	5.0	0.54	50.0000	ND	91.9	42 - 124	3.40	20	
1,2,3-Trichlorobenzene	40.7500	5.0	1.2	50.0000	ND	81.5	4 - 135	2.41	20	
1,2,4-Trichlorobenzene	42.4100	5.0	1.1	50.0000	ND	84.8	8 - 141	0.165	20	
1,2,4-Trimethylbenzene	42.4000	5.0	1.5	50.0000	ND	84.8	30 - 136	5.73	20	
1,2-Dibromo-3-chloropropane	43.6800	10	1.6	50.0000	ND	87.4	38 - 132	2.43	20	
1,2-Dibromoethane	40.4000	5.0	3.2	50.0000	ND	80.8	45 - 121	7.04	20	
1,2-Dichlorobenzene	42.8900	5.0	1.1	50.0000	ND	85.8	30 - 125	0.836	20	
1,2-Dichloroethane	41.9300	5.0	1.2	50.0000	ND	83.9	51 - 115	1.04	20	
1,2-Dichloropropane	42.8000	5.0	1.8	50.0000	ND	85.6	50 - 118	5.52	20	
1,3,5-Trimethylbenzene	42.7000	5.0	1.7	50.0000	ND	85.4	29 - 137	7.40	20	
1,3-Dichlorobenzene	43.1900	5.0	1.3	50.0000	ND	86.4	30 - 124	2.67	20	
1,3-Dichloropropane	43.2800	5.0	1.1	50.0000	ND	86.6	49 - 116	5.96	20	
1,4-Dichlorobenzene	42.5700	5.0	1.2	50.0000	ND	85.1	31 - 124	3.71	20	
2,2-Dichloropropane	43.6200	5.0	1.2	50.0000	ND	87.2	41 - 134	0.981	20	
2-Chlorotoluene	41.5400	5.0	1.6	50.0000	ND	83.1	32 - 127	6.48	20	
4-Chlorotoluene	40.8700	5.0	1.5	50.0000	ND	81.7	34 - 124	4.82	20	
4-Isopropyltoluene	43.0000	5.0	2.3	50.0000	ND	86.0	26 - 141	7.35	20	
Benzene	84.9400	5.0	0.64	100.000	ND	84.9	48 - 117	2.59	20	
Bromobenzene	40.3200	5.0	1.1	50.0000	ND	80.6	40 - 117	4.75	20	
Bromochloromethane	41.4400	5.0	0.64	50.0000	ND	82.9	48 - 117	0.553	20	
Bromodichloromethane	40.6000	5.0	1.2	50.0000	ND	81.2	49 - 115	8.26	20	
Bromoform	43.1200	5.0	0.80	50.0000	ND	86.2	42 - 127	1.22	20	
Bromomethane	40.3700	5.0	2.5	50.0000	ND	80.7	19 - 157	2.88	20	
Carbon disulfide	35.9600	5.0	3.5	50.0000	ND	71.9	34 - 138	3.82	20	
Carbon tetrachloride	42.1100	5.0	1.2	50.0000	ND	84.2	43 - 130	5.72	20	
Chlorobenzene	41.6400	5.0	1.0	50.0000	ND	83.3	41 - 122	7.96	20	
Chloroethane	41.9300	5.0	1.1	50.0000	ND	83.9	32 - 145	2.57	20	
Chloroform	42.9000	5.0	0.82	50.0000	ND	85.8	46 - 118	1.98	20	
Chloromethane	34.8600	5.0	1.4	50.0000	ND	69.7	34 - 132	4.21	20	
cis-1,2-Dichloroethene	43.0100	5.0	0.67	50.0000	ND	86.0	44 - 119	0.441	20	
cis-1,3-Dichloropropene	46.8600	5.0	1.9	50.0000	ND	93.7	44 - 126	6.28	20	
Di-isopropyl ether	45.6000	5.0	0.55	50.0000	ND	91.2	42 - 126	1.70	20	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/08/2019

Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0090 - MSVOA_S (continued)										
Matrix Spike Dup (B9C0090-MSD1) - Continued			**Source: 1900815-27**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
Dibromochloromethane	41.9900	5.0	1.0	50.0000	ND	84.0	46 - 119	7.19	20	
Dibromomethane	41.1900	5.0	1.6	50.0000	ND	82.4	52 - 114	4.76	20	
Dichlorodifluoromethane	25.9800	5.0	2.2	50.0000	ND	52.0	22 - 147	4.15	20	
Ethyl Acetate	295.680	50	8.1	500.000	ND	59.1	9 - 140	15.4	20	
Ethyl Ether	454.830	50	6.1	500.000	ND	91.0	45 - 131	2.19	20	
Ethyl tert-butyl ether	47.2200	5.0	0.67	50.0000	ND	94.4	33 - 138	5.20	20	
Ethylbenzene	84.2400	5.0	0.91	100.000	ND	84.2	38 - 131	7.43	20	
Freon-113	41.6000	5.0	2.8	50.0000	ND	83.2	38 - 140	6.83	20	
Hexachlorobutadiene	39.9500	5.0	2.5	50.0000	ND	79.9	4 - 141	0.549	20	
Isopropylbenzene	46.1900	5.0	1.8	50.0000	ND	92.4	35 - 133	10.2	20	
m,p-Xylene	87.4100	10	1.5	100.000	ND	87.4	38 - 130	6.69	20	
Methylene chloride	37.3200	5.0	2.3	50.0000	ND	74.6	26 - 137	6.24	20	
MTBE	44.1600	5.0	0.63	50.0000	ND	88.3	45 - 121	2.26	20	
n-Butylbenzene	43.0400	5.0	2.4	50.0000	ND	86.1	18 - 144	7.13	20	
n-Propylbenzene	42.2100	5.0	2.2	50.0000	ND	84.4	30 - 137	8.16	20	
Naphthalene	39.7600	5.0	0.97	50.0000	ND	79.5	14 - 137	3.17	20	
o-Xylene	87.7900	5.0	0.87	100.000	ND	87.8	41 - 129	5.74	20	
sec-Butylbenzene	43.1200	5.0	2.3	50.0000	ND	86.2	24 - 140	7.46	20	
Styrene	42.3200	5.0	1.5	50.0000	ND	84.6	41 - 125	5.16	20	
tert-Amyl methyl ether	45.4100	5.0	0.59	50.0000	ND	90.8	31 - 133	5.36	20	
tert-Butanol	226.450	100	19	250.000	ND	90.6	0 - 201	30.1	20	R
tert-Butylbenzene	43.7300	5.0	2.0	50.0000	ND	87.5	30 - 134	7.65	20	
Tetrachloroethene	44.2500	5.0	1.6	50.0000	ND	88.5	37 - 130	6.05	20	
Toluene	84.9600	5.0	0.94	100.000	ND	85.0	45 - 122	5.98	20	
trans-1,2-Dichloroethene	41.5000	5.0	0.59	50.0000	ND	83.0	46 - 122	2.43	20	
trans-1,3-Dichloropropene	39.8900	5.0	2.1	50.0000	ND	79.8	44 - 124	6.38	20	
Trichloroethene	43.0100	5.0	3.1	50.0000	ND	86.0	36 - 142	5.78	20	
Trichlorofluoromethane	39.3500	5.0	1.4	50.0000	ND	78.7	37 - 135	6.73	20	
Vinyl acetate	55.3900	50	9.8	500.000	ND	11.1	0 - 136	68.5	20	R
Vinyl chloride	39.0200	5.0	1.7	50.0000	ND	78.0	42 - 131	5.85	20	
Surrogate: 1,2-Dichloroethane-d4	*47.76*			*50.0000*		*95.5*	*60 - 145*			
Surrogate: 4-Bromofluorobenzene	*50.67*			*50.0000*		*101*	*68 - 121*			
Surrogate: Dibromofluoromethan	*50.73*			*50.0000*		*101*	*65 - 137*			
Surrogate: Toluene-d8	*51.06*			*50.0000*		*102*	*82 - 119*			

Certificate of Analysis

Stantec		Project Number :	KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280		Report To :	Jim Dewoody
San Bernardino , CA 92408		Reported :	03/08/2019

Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

Stantec CHAIN OF CUSTODY

Laboratory Project Number: 1900817

Page 1 of ___

Client Name/Address:	Project Manager:
Stantec Consulting Services Inc. 735 E. Carnegie Drive, Suite 280 San Bernardino, CA 92408 909-335-6116	Jim Dewoody
	E-Mail Address: james.dewoody@stantec.com
	Sampler Name: M. Bohn
Laboratory (circle): ATL 3275 Walnut Ave. Signal Hill, CA 562-989-4040	Stantec Project Number: 185804357
	Project: KB - El Monte

	Sample Description/Identification	Sample Matrix	Preservative (see below)	# of Cont.	Sample Date	Sample Time	Filtered Sample	TPH GRO/DRO/ORO (8015B)	VOCs (8260B)	Title 22 (6010B)	Cr6 (7196)	PCBs (8082)	HOLD					Special Instructions
01	SV-1-5	Soil	1	1	2/28/19	0729		X	X	X	X							
02	SV-1-10					0748		X	X									
03	SV-1-15					0751							X					
04	SV-2-5					0845		X	X	X	X							
05	SV-2-10					0849		X	X									
06	SV-2-15					0853							X					
07	SV-3-5					0930		X	X	X	X							
08	SV-3-10					0935		X	X									
09	SV-3-15					0939							X					
10	SV-4-1					1033		X		X								
11	HA-1-1					1116		X		X								
12	SV-5-1					1212		X	X	X								
13	HA-2-2					1315		X	X	X	X							
14	HA-2-5					1328							X					
15	HA-3-2	Soil	1	1	2/28/19	1337		X	X	X	X							

Analysis Required

Turn Around Time:
- Normal TAT: X
- 72 Hour:
- 48 Hour
- 24 Hour
- Same Day:
- Other:

Sample Temp °C: _____

Sample Preservative: 1=ICE - 2=HCl - 3=H_2SO_4 - 4=HNO_3 - 5=NaOH - 6=Other: _____

Special Instructions:

Relinquished By	Date	Time	Received By + Company Name:	Date	Time
	2/28/19	1600	Stantec	2/28/19	1600
Relinquished By + Company Name:	Date	Time	Received By + Company Name:	Date	Time
	3/1/19	1144	ATK	3/1/19	1144
Relinquished By + Company Name:	Date	Time	Received By + Company Name:	Date	Time
	3/1/19	1550		3/1/19	1550

Stantec

CHAIN OF CUSTODY

Laboratory Project Number: 1900817

Client Name/Address:	Project Manager:
Stantec Consulting Services Inc. 735 E. Carnegie Drive, Suite 280 San Bernardino, CA 92408 909-335-6116	Jim Dewoody E-Mail Address: james.dewoody@stantec.com Sampler Name: M. Bohn Stantec Project Number: 185804357 Project: KB - El Monte
Laboratory (circle): ATL 3275 Walnut Ave. Signal Hill, CA 562-989-4040	

Sample Description/Identification	Sample Matrix	Preservative (see below)	# of Cont.	Sample Date	Sample Time	Filtered Sample	TPH GRO/DRO/ORO (8015B)	VOCs (8260B)	Title 22 (6010B)	Cr6 (7196)	PCBs (8082)	HOLD					Special Instructions
HA-3-5	Soil	1	1	2/28/19	1345							X					

Analysis Required

Turn Around Time:
- Normal TAT: X
- 72 Hour:
- 48 Hour
- 24 Hour
- Same Day:
- Other:

Sample Temp °C:

Sample Preservative: 1=ICE - 2=HCl - 3=H_2SO_4 - 4=HNO_3 - 5=NaOH - 6=Other:

Special Instructions:

Relinquished By:	Date	Time	Received By + Company Name:	Date	Time
	2/28/19	1600		2/28/19	1600
Relinquished By + Company Name:	Date	Time	Received By + Company Name:	Date	Time
	3/1/19	1144		3/1/19	1144
Relinquished By + Company Name:	Date	Time	Received By + Company Name:	Date	Time
	3/1/19	1550		3/1/19	1550

March 11, 2019

Jim Dewoody
Stantec
735 E. Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax:(909) 335-6120

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003

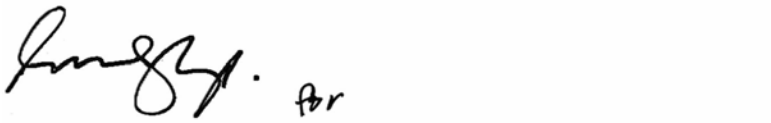
Re: ATL Work Order Number : 1900834

Client Reference : KB- El Monte, 185804357

Enclosed are the results for sample(s) received on March 04, 2019 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,



Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.

Certificate of Analysis

Stantec		Project Number :	KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280		Report To :	Jim Dewoody
San Bernardino , CA 92408		Reported :	03/11/2019

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SV-9-1	1900834-01	Soil	3/01/19 12:32	3/04/19 10:05
SV-9-5	1900834-03	Soil	3/01/19 12:42	3/04/19 10:05
SV-10-1	1900834-06	Soil	3/01/19 13:20	3/04/19 10:05
SV-10-5	1900834-08	Soil	3/01/19 13:34	3/04/19 10:05

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/11/2019

Client Sample ID SV-9-1

Lab ID: 1900834-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Arsenic	**45**	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Barium	**110**	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Beryllium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Cadmium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Chromium	**14**	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Cobalt	**7.6**	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Copper	**24**	2.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Lead	**22**	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Molybdenum	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Nickel	**11**	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Selenium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Silver	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Thallium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Vanadium	**24**	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	
Zinc	**85**	1.0	1	B9C0066	03/05/2019	03/06/19 16:01	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B9C0071	03/05/2019	03/06/19 11:19	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0076	03/05/2019	03/05/19 16:41	
Surrogate: 4-Bromofluorobenzene	*102 %*	*45 - 149*		B9C0076	03/05/2019	*03/05/19 16:41*	

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**84**	10	1	B9C0140	03/06/2019	03/06/19 22:51	
ORO	**160**	10	1	B9C0140	03/06/2019	03/06/19 22:51	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/11/2019

Client Sample ID SV-9-1

Lab ID: 1900834-01

Diesel Range Organics by EPA 8015B — **Analyst: HT**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*92.3 %*	*58 - 172*		B9C0140	03/06/2019	*03/06/19 22:51*	

Volatile Organic Compounds by EPA 8260B — **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,1,1-Trichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,1,2,2-Tetrachloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,1,2-Trichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,1-Dichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,1-Dichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,1-Dichloropropene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,2,3-Trichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,2,3-Trichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,2,4-Trichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,2,4-Trimethylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,2-Dibromo-3-chloropropane	ND	10	1	B9C0078	03/05/2019	03/05/19 18:15	
1,2-Dibromoethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,2-Dichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,2-Dichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,2-Dichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,3,5-Trimethylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,3-Dichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,3-Dichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
1,4-Dichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
2,2-Dichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
2-Chlorotoluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
4-Chlorotoluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
4-Isopropyltoluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Benzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Bromobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Bromochloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Bromodichloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Bromoform	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Bromomethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Carbon disulfide	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/11/2019

Client Sample ID SV-9-1

Lab ID: 1900834-01

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Carbon tetrachloride	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Chlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Chloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Chloroform	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Chloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
cis-1,2-Dichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
cis-1,3-Dichloropropene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Di-isopropyl ether	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Dibromochloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Dibromomethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Dichlorodifluoromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Ethyl Acetate	ND	50	1	B9C0078	03/05/2019	03/05/19 18:15	
Ethyl Ether	ND	50	1	B9C0078	03/05/2019	03/05/19 18:15	
Ethyl tert-butyl ether	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Ethylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Freon-113	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Hexachlorobutadiene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Isopropylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
m,p-Xylene	ND	10	1	B9C0078	03/05/2019	03/05/19 18:15	
Methylene chloride	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
MTBE	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
n-Butylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
n-Propylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Naphthalene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
o-Xylene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
sec-Butylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Styrene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
tert-Amyl methyl ether	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
tert-Butanol	ND	100	1	B9C0078	03/05/2019	03/05/19 18:15	
tert-Butylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Tetrachloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Toluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
trans-1,2-Dichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
trans-1,3-Dichloropropene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Trichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Trichlorofluoromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Vinyl acetate	ND	50	1	B9C0078	03/05/2019	03/05/19 18:15	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/11/2019

Client Sample ID SV-9-1

Lab ID: 1900834-01

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte		Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Vinyl chloride		ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:15	
Surrogate: 1,2-Dichloroethane-d4	*97.8 %*		*60 - 145*		B9C0078	03/05/2019	*03/05/19 18:15*	
Surrogate: 4-Bromofluorobenzene	*94.6 %*		*68 - 121*		B9C0078	03/05/2019	*03/05/19 18:15*	
Surrogate: Dibromofluoromethane	*101 %*		*65 - 137*		B9C0078	03/05/2019	*03/05/19 18:15*	
Surrogate: Toluene-d8	*97.9 %*		*82 - 119*		B9C0078	03/05/2019	*03/05/19 18:15*	

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Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/11/2019

Client Sample ID SV-9-5

Lab ID: 1900834-03

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Arsenic	**2.7**	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Barium	**110**	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Beryllium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Cadmium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Chromium	**16**	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Cobalt	**8.7**	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Copper	**21**	2.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Lead	**3.6**	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Molybdenum	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Nickel	**12**	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Selenium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Silver	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Thallium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Vanadium	**30**	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	
Zinc	**40**	1.0	1	B9C0066	03/05/2019	03/06/19 16:02	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B9C0071	03/05/2019	03/06/19 11:21	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0076	03/05/2019	03/05/19 16:59	
Surrogate: 4-Bromofluorobenzene	*104 %*	*45 - 149*		B9C0076	03/05/2019	*03/05/19 16:59*	

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	ND	10	1	B9C0140	03/06/2019	03/06/19 22:00	
ORO	ND	10	1	B9C0140	03/06/2019	03/06/19 22:00	

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Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/11/2019

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Lab ID: 1900834-03

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*104 %*	*58 - 172*		B9C0140	03/06/2019	*03/06/19 22:00*	

Volatile Organic Compounds by EPA 8260B

Analyst: VW

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,1,1-Trichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,1,2,2-Tetrachloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,1,2-Trichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,1-Dichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,1-Dichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,1-Dichloropropene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,2,3-Trichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,2,3-Trichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,2,4-Trichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,2,4-Trimethylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,2-Dibromo-3-chloropropane	ND	10	1	B9C0078	03/05/2019	03/05/19 18:34	
1,2-Dibromoethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,2-Dichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,2-Dichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,2-Dichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,3,5-Trimethylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,3-Dichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,3-Dichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
1,4-Dichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
2,2-Dichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
2-Chlorotoluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
4-Chlorotoluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
4-Isopropyltoluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Benzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Bromobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Bromochloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Bromodichloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Bromoform	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Bromomethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Carbon disulfide	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/11/2019

Client Sample ID SV-9-5

Lab ID: 1900834-03

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Carbon tetrachloride	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Chlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Chloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Chloroform	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Chloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
cis-1,2-Dichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
cis-1,3-Dichloropropene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Di-isopropyl ether	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Dibromochloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Dibromomethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Dichlorodifluoromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Ethyl Acetate	ND	50	1	B9C0078	03/05/2019	03/05/19 18:34	
Ethyl Ether	ND	50	1	B9C0078	03/05/2019	03/05/19 18:34	
Ethyl tert-butyl ether	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Ethylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Freon-113	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Hexachlorobutadiene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Isopropylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
m,p-Xylene	ND	10	1	B9C0078	03/05/2019	03/05/19 18:34	
Methylene chloride	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
MTBE	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
n-Butylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
n-Propylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Naphthalene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
o-Xylene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
sec-Butylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Styrene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
tert-Amyl methyl ether	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
tert-Butanol	ND	100	1	B9C0078	03/05/2019	03/05/19 18:34	
tert-Butylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Tetrachloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Toluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
trans-1,2-Dichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
trans-1,3-Dichloropropene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Trichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Trichlorofluoromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Vinyl acetate	ND	50	1	B9C0078	03/05/2019	03/05/19 18:34	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/11/2019

Client Sample ID SV-9-5

Lab ID: 1900834-03

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte		Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Vinyl chloride		ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:34	
Surrogate: 1,2-Dichloroethane-d4	*97.3 %*		*60 - 145*		B9C0078	03/05/2019	*03/05/19 18:34*	
Surrogate: 4-Bromofluorobenzene	*92.5 %*		*68 - 121*		B9C0078	03/05/2019	*03/05/19 18:34*	
Surrogate: Dibromofluoromethane	*101 %*		*65 - 137*		B9C0078	03/05/2019	*03/05/19 18:34*	
Surrogate: Toluene-d8	*97.5 %*		*82 - 119*		B9C0078	03/05/2019	*03/05/19 18:34*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/11/2019

Client Sample ID SV-10-1

Lab ID: 1900834-06

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Arsenic	**24**	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Barium	**64**	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Beryllium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Cadmium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Chromium	**12**	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Cobalt	**6.7**	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Copper	**63**	2.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Lead	**23**	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Molybdenum	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Nickel	**11**	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Selenium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Silver	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Thallium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Vanadium	**21**	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	
Zinc	**33**	1.0	1	B9C0066	03/05/2019	03/06/19 16:03	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B9C0071	03/05/2019	03/06/19 11:23	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0076	03/05/2019	03/05/19 17:18	
Surrogate: 4-Bromofluorobenzene	*86.0 %*	*45 - 149*		B9C0076	03/05/2019	*03/05/19 17:18*	

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**2300**	50	5	B9C0140	03/06/2019	03/07/19 00:15	
ORO	**7500**	50	5	B9C0140	03/06/2019	03/07/19 00:15	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
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San Bernardino , CA 92408	Reported : 03/11/2019

Client Sample ID SV-10-1

Lab ID: 1900834-06

Diesel Range Organics by EPA 8015B — **Analyst: HT**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*126 %*	*58 - 172*		B9C0140	03/06/2019	*03/07/19 00:15*	

Volatile Organic Compounds by EPA 8260B — **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,1,1-Trichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,1,2,2-Tetrachloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,1,2-Trichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,1-Dichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,1-Dichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,1-Dichloropropene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,2,3-Trichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,2,3-Trichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,2,4-Trichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,2,4-Trimethylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,2-Dibromo-3-chloropropane	ND	10	1	B9C0078	03/05/2019	03/05/19 18:53	
1,2-Dibromoethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,2-Dichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,2-Dichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,2-Dichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,3,5-Trimethylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,3-Dichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,3-Dichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
1,4-Dichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
2,2-Dichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
2-Chlorotoluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
4-Chlorotoluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
4-Isopropyltoluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Benzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Bromobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Bromochloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Bromodichloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Bromoform	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Bromomethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Carbon disulfide	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	

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Stantec	Project Number : KB- El Monte, 185804357
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San Bernardino , CA 92408	Reported : 03/11/2019

Client Sample ID SV-10-1

Lab ID: 1900834-06

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Carbon tetrachloride	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Chlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Chloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Chloroform	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Chloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
cis-1,2-Dichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
cis-1,3-Dichloropropene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Di-isopropyl ether	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Dibromochloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Dibromomethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Dichlorodifluoromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Ethyl Acetate	ND	50	1	B9C0078	03/05/2019	03/05/19 18:53	
Ethyl Ether	ND	50	1	B9C0078	03/05/2019	03/05/19 18:53	
Ethyl tert-butyl ether	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Ethylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Freon-113	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Hexachlorobutadiene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Isopropylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
m,p-Xylene	ND	10	1	B9C0078	03/05/2019	03/05/19 18:53	
Methylene chloride	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
MTBE	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
n-Butylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
n-Propylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Naphthalene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
o-Xylene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
sec-Butylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Styrene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
tert-Amyl methyl ether	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
tert-Butanol	ND	100	1	B9C0078	03/05/2019	03/05/19 18:53	
tert-Butylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Tetrachloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Toluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
trans-1,2-Dichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
trans-1,3-Dichloropropene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Trichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Trichlorofluoromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Vinyl acetate	ND	50	1	B9C0078	03/05/2019	03/05/19 18:53	

Certificate of Analysis

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Lab ID: 1900834-06

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte		Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Vinyl chloride		ND	5.0	1	B9C0078	03/05/2019	03/05/19 18:53	
Surrogate: 1,2-Dichloroethane-d4	*103 %*		*60 - 145*		B9C0078	03/05/2019	*03/05/19 18:53*	
Surrogate: 4-Bromofluorobenzene	*90.2 %*		*68 - 121*		B9C0078	03/05/2019	*03/05/19 18:53*	
Surrogate: Dibromofluoromethane	*106 %*		*65 - 137*		B9C0078	03/05/2019	*03/05/19 18:53*	
Surrogate: Toluene-d8	*98.6 %*		*82 - 119*		B9C0078	03/05/2019	*03/05/19 18:53*	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
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San Bernardino , CA 92408	Reported : 03/11/2019

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Lab ID: 1900834-08

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Arsenic	**2.8**	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Barium	**83**	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Beryllium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Cadmium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Chromium	**14**	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Cobalt	**8.4**	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Copper	**17**	2.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Lead	**2.9**	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Molybdenum	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Nickel	**11**	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Selenium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Silver	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Thallium	ND	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Vanadium	**29**	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	
Zinc	**36**	1.0	1	B9C0066	03/05/2019	03/06/19 16:09	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.17**	0.10	1	B9C0071	03/05/2019	03/06/19 11:25	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: JBL

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B9C0076	03/05/2019	03/05/19 17:36	
Surrogate: 4-Bromofluorobenzene	*102 %*	*45 - 149*		B9C0076	03/05/2019	*03/05/19 17:36*	

Diesel Range Organics by EPA 8015B

Analyst: HT

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	ND	10	1	B9C0140	03/06/2019	03/06/19 22:17	
ORO	ND	10	1	B9C0140	03/06/2019	03/06/19 22:17	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
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San Bernardino , CA 92408	Reported : 03/11/2019

Client Sample ID SV-10-5

Lab ID: 1900834-08

Diesel Range Organics by EPA 8015B — **Analyst: HT**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*115 %*	*58 - 172*		B9C0140	03/06/2019	*03/06/19 22:17*	

Volatile Organic Compounds by EPA 8260B — **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,1,1-Trichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,1,2,2-Tetrachloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,1,2-Trichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,1-Dichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,1-Dichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,1-Dichloropropene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,2,3-Trichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,2,3-Trichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,2,4-Trichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,2,4-Trimethylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,2-Dibromo-3-chloropropane	ND	10	1	B9C0078	03/05/2019	03/05/19 19:12	
1,2-Dibromoethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,2-Dichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,2-Dichloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,2-Dichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,3,5-Trimethylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,3-Dichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,3-Dichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
1,4-Dichlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
2,2-Dichloropropane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
2-Chlorotoluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
4-Chlorotoluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
4-Isopropyltoluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Benzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Bromobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Bromochloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Bromodichloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Bromoform	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Bromomethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Carbon disulfide	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	

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Lab ID: 1900834-08

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Carbon tetrachloride	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Chlorobenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Chloroethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Chloroform	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Chloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
cis-1,2-Dichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
cis-1,3-Dichloropropene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Di-isopropyl ether	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Dibromochloromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Dibromomethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Dichlorodifluoromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Ethyl Acetate	ND	50	1	B9C0078	03/05/2019	03/05/19 19:12	
Ethyl Ether	ND	50	1	B9C0078	03/05/2019	03/05/19 19:12	
Ethyl tert-butyl ether	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Ethylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Freon-113	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Hexachlorobutadiene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Isopropylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
m,p-Xylene	ND	10	1	B9C0078	03/05/2019	03/05/19 19:12	
Methylene chloride	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
MTBE	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
n-Butylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
n-Propylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Naphthalene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
o-Xylene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
sec-Butylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Styrene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
tert-Amyl methyl ether	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
tert-Butanol	ND	100	1	B9C0078	03/05/2019	03/05/19 19:12	
tert-Butylbenzene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Tetrachloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Toluene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
trans-1,2-Dichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
trans-1,3-Dichloropropene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Trichloroethene	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Trichlorofluoromethane	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Vinyl acetate	ND	50	1	B9C0078	03/05/2019	03/05/19 19:12	

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Client Sample ID SV-10-5

Lab ID: 1900834-08

Volatile Organic Compounds by EPA 8260B **Analyst: VW**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Vinyl chloride	ND	5.0	1	B9C0078	03/05/2019	03/05/19 19:12	
Surrogate: 1,2-Dichloroethane-d4	*98.7 %*	*60 - 145*		B9C0078	03/05/2019	*03/05/19 19:12*	
Surrogate: 4-Bromofluorobenzene	*95.0 %*	*68 - 121*		B9C0078	03/05/2019	*03/05/19 19:12*	
Surrogate: Dibromofluoromethane	*103 %*	*65 - 137*		B9C0078	03/05/2019	*03/05/19 19:12*	
Surrogate: Toluene-d8	*101 %*	*82 - 119*		B9C0078	03/05/2019	*03/05/19 19:12*	

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QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0066 - EPA 3050B_S										
Blank (B9C0066-BLK1)					Prepared: 3/5/2019 Analyzed: 3/6/2019					
Antimony	ND	2.0	0.51							
Arsenic	ND	1.0	0.12							
Barium	ND	1.0	0.12							
Beryllium	ND	1.0	0.03							
Cadmium	ND	1.0	0.14							
Chromium	ND	1.0	0.26							
Cobalt	ND	1.0	0.07							
Copper	ND	2.0	0.19							
Lead	ND	1.0	0.18							
Molybdenum	ND	1.0	0.12							
Nickel	ND	1.0	0.18							
Selenium	ND	1.0	0.40							
Silver	ND	1.0	0.12							
Thallium	ND	1.0	0.38							
Vanadium	ND	1.0	0.06							
Zinc	ND	1.0	0.15							
LCS (B9C0066-BS1)					Prepared: 3/5/2019 Analyzed: 3/6/2019					
Antimony	43.9846	2.0	0.51	50.0000		88.0	80 - 120			
Arsenic	43.5498	1.0	0.12	50.0000		87.1	80 - 120			
Barium	45.6185	1.0	0.12	50.0000		91.2	80 - 120			
Beryllium	42.1534	1.0	0.03	50.0000		84.3	80 - 120			
Cadmium	43.0470	1.0	0.14	50.0000		86.1	80 - 120			
Chromium	48.4071	1.0	0.26	50.0000		96.8	80 - 120			
Cobalt	45.6193	1.0	0.07	50.0000		91.2	80 - 120			
Copper	42.6029	2.0	0.19	50.0000		85.2	80 - 120			
Lead	41.6124	1.0	0.18	50.0000		83.2	80 - 120			
Molybdenum	42.8440	1.0	0.12	50.0000		85.7	80 - 120			
Nickel	45.5669	1.0	0.18	50.0000		91.1	80 - 120			
Selenium	41.7106	1.0	0.40	50.0000		83.4	80 - 120			
Silver	44.3423	1.0	0.12	50.0000		88.7	80 - 120			
Thallium	42.1108	1.0	0.38	50.0000		84.2	80 - 120			
Vanadium	46.1629	1.0	0.06	50.0000		92.3	80 - 120			
Zinc	43.4495	1.0	0.15	50.0000		86.9	80 - 120			
Matrix Spike (B9C0066-MS1)				**Source: 1900825-52**	Prepared: 3/5/2019 Analyzed: 3/6/2019					
Antimony	60.5432	2.0	0.51	124.378	ND	48.7	21 - 102			
Arsenic	92.6452	1.0	0.12	124.378	3.97127	71.3	49 - 96			
Barium	190.671	1.0	0.12	124.378	176.148	11.7	26 - 121			M1
Beryllium	82.9277	1.0	0.03	124.378	0.351490	66.4	51 - 96			

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Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0066 - EPA 3050B_S (continued)										
Matrix Spike (B9C0066-MS1) - Continued			**Source: 1900825-52**		Prepared: 3/5/2019 Analyzed: 3/6/2019					
Cadmium	79.2372	1.0	0.14	124.378	2.03834	62.1	46 - 93			
Chromium	108.793	1.0	0.26	124.378	16.1987	74.4	44 - 107			
Cobalt	87.6881	1.0	0.07	124.378	5.34187	66.2	49 - 100			
Copper	101.760	2.0	0.19	124.378	15.8736	69.1	46 - 115			
Lead	79.9738	1.0	0.18	124.378	2.46490	62.3	29 - 126			
Molybdenum	82.1963	1.0	0.12	124.378	0.966569	65.3	48 - 99			
Nickel	106.744	1.0	0.18	124.378	24.7486	65.9	37 - 108			
Selenium	85.2546	1.0	0.40	124.378	0.675849	68.0	48 - 95			
Silver	91.6125	1.0	0.12	124.378	ND	73.7	53 - 99			
Thallium	78.5231	1.0	0.38	124.378	0.578546	62.7	38 - 93			
Vanadium	133.036	1.0	0.06	124.378	41.0622	73.9	48 - 104			
Zinc	124.671	1.0	0.15	124.378	48.0279	61.6	24 - 111			
Matrix Spike Dup (B9C0066-MSD1)			**Source: 1900825-52**		Prepared: 3/5/2019 Analyzed: 3/6/2019					
Antimony	59.0029	2.0	0.51	125.000	ND	47.2	21 - 102	2.58	20	
Arsenic	91.7778	1.0	0.12	125.000	3.97127	70.2	49 - 96	0.941	20	
Barium	205.855	1.0	0.12	125.000	176.148	23.8	26 - 121	7.66	20	M1
Beryllium	83.5848	1.0	0.03	125.000	0.351490	66.6	51 - 96	0.789	20	
Cadmium	78.6657	1.0	0.14	125.000	2.03834	61.3	46 - 93	0.724	20	
Chromium	111.518	1.0	0.26	125.000	16.1987	76.3	44 - 107	2.47	20	
Cobalt	87.2151	1.0	0.07	125.000	5.34187	65.5	49 - 100	0.541	20	
Copper	102.341	2.0	0.19	125.000	15.8736	69.2	46 - 115	0.570	20	
Lead	77.9392	1.0	0.18	125.000	2.46490	60.4	29 - 126	2.58	20	
Molybdenum	80.6114	1.0	0.12	125.000	0.966569	63.7	48 - 99	1.95	20	
Nickel	106.992	1.0	0.18	125.000	24.7486	65.8	37 - 108	0.232	20	
Selenium	83.0816	1.0	0.40	125.000	0.675849	65.9	48 - 95	2.58	20	
Silver	92.5394	1.0	0.12	125.000	ND	74.0	53 - 99	1.01	20	
Thallium	76.5239	1.0	0.38	125.000	0.578546	60.8	38 - 93	2.58	20	
Vanadium	135.712	1.0	0.06	125.000	41.0622	75.7	48 - 104	1.99	20	
Zinc	123.615	1.0	0.15	125.000	48.0279	60.5	24 - 111	0.851	20	

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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0071 - EPA 7471_S										
Blank (B9C0071-BLK1)					Prepared: 3/5/2019 Analyzed: 3/6/2019					
Mercury	ND	0.10	0.007							
LCS (B9C0071-BS1)					Prepared: 3/5/2019 Analyzed: 3/6/2019					
Mercury	0.901068	0.10	0.007	0.833333		108	80 - 120			
Matrix Spike (B9C0071-MS1)			**Source: 1900825-52**		Prepared: 3/5/2019 Analyzed: 3/6/2019					
Mercury	0.955132	0.10	0.007	0.833333	0.023795	112	70 - 130			
Matrix Spike Dup (B9C0071-MSD1)			**Source: 1900825-52**		Prepared: 3/5/2019 Analyzed: 3/6/2019					
Mercury	0.952667	0.10	0.007	0.833333	0.023795	111	70 - 130	0.258	20	

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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0071 - EPA 7471_S									
Post Spike (B9C0071-PS1)			**Source: 1900825-52**		Prepared: 3/5/2019 Analyzed: 3/6/2019				
Mercury	0.006319		5.00000E-3	0.000286	121	85 - 115			M1

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Gasoline Range Organics by EPA 8015B (Modified) - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0076 - GCVOA_S										
Blank (B9C0076-BLK1)					Prepared: 3/5/2019 Analyzed: 3/5/2019					
Gasoline Range Organics	ND	1.0	0.20							
Surrogate: 4-Bromofluorobenzene	*0.2084*			*0.200000*		*104*	*45 - 149*			
LCS (B9C0076-BS1)					Prepared: 3/5/2019 Analyzed: 3/5/2019					
Gasoline Range Organics	4.43800	1.0	0.20	5.00000		88.8	70 - 130			
Surrogate: 4-Bromofluorobenzene	*0.1988*			*0.200000*		*99.4*	*45 - 149*			
LCS Dup (B9C0076-BSD1)					Prepared: 3/5/2019 Analyzed: 3/5/2019					
Gasoline Range Organics	4.43100	1.0	0.20	5.00000		88.6	70 - 130	0.158	20	
Surrogate: 4-Bromofluorobenzene	*0.1964*			*0.200000*		*98.2*	*45 - 149*			
Duplicate (B9C0076-DUP1)			**Source: 1900815-17**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
Gasoline Range Organics	ND	1.0	0.20		ND				20	
Surrogate: 4-Bromofluorobenzene	*0.1998*			*0.200000*		*99.9*	*45 - 149*			
Matrix Spike (B9C0076-MS1)			**Source: 1900815-17**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
Gasoline Range Organics	4.28100	1.0	0.20	5.00000	ND	85.6	24 - 129			
Surrogate: 4-Bromofluorobenzene	*0.2004*			*0.200000*		*100*	*45 - 149*			
Matrix Spike Dup (B9C0076-MSD1)			**Source: 1900815-17**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
Gasoline Range Organics	4.11700	1.0	0.20	5.00000	ND	82.3	24 - 129	3.91	20	
Surrogate: 4-Bromofluorobenzene	*0.2000*			*0.200000*		*100*	*45 - 149*			

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Diesel Range Organics by EPA 8015B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0140 - GCSEMI_DRO_S										
Blank (B9C0140-BLK1)						Prepared: 3/6/2019 Analyzed: 3/6/2019				
DRO	ND	10	10							
ORO	ND	10	10							
Surrogate: p-Terphenyl	*97.57*			*80.0000*		*122*	*58 - 172*			
LCS (B9C0140-BS1)						Prepared: 3/6/2019 Analyzed: 3/6/2019				
DRO	1156.34	10	10	1000.00		116	71 - 165			
Surrogate: p-Terphenyl	*93.51*			*80.0000*		*117*	*58 - 172*			
Duplicate (B9C0140-DUP1)			**Source: 1900818-02**			Prepared: 3/6/2019 Analyzed: 3/6/2019				
DRO	256.270	10	10		78.5500			106	20	R2
Surrogate: p-Terphenyl	*89.31*			*80.0000*		*112*	*58 - 172*			
Matrix Spike (B9C0140-MS1)			**Source: 1900818-02**			Prepared: 3/6/2019 Analyzed: 3/6/2019				
DRO	928.970	10	10	1000.00	78.5500	85.0	61 - 171			
Surrogate: p-Terphenyl	*51.81*			*80.0000*		*64.8*	*58 - 172*			
Matrix Spike Dup (B9C0140-MSD1)			**Source: 1900818-02**			Prepared: 3/6/2019 Analyzed: 3/6/2019				
DRO	994.970	10	10	1000.00	78.5500	91.6	61 - 171	6.86	20	
Surrogate: p-Terphenyl	*60.03*			*80.0000*		*75.0*	*58 - 172*			

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Volatile Organic Compounds by EPA 8260B - Quality Control

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0078 - MSVOA_S										
Blank (B9C0078-BLK1)					Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,1,1,2-Tetrachloroethane	ND	5.0	0.96							
1,1,1-Trichloroethane	ND	5.0	1.1							
1,1,2,2-Tetrachloroethane	ND	5.0	0.62							
1,1,2-Trichloroethane	ND	5.0	1.6							
1,1-Dichloroethane	ND	5.0	0.81							
1,1-Dichloroethene	ND	5.0	2.6							
1,1-Dichloropropene	ND	5.0	2.3							
1,2,3-Trichloropropane	ND	5.0	0.54							
1,2,3-Trichlorobenzene	ND	5.0	1.2							
1,2,4-Trichlorobenzene	ND	5.0	1.1							
1,2,4-Trimethylbenzene	ND	5.0	1.5							
1,2-Dibromo-3-chloropropane	ND	10	1.6							
1,2-Dibromoethane	ND	5.0	3.2							
1,2-Dichlorobenzene	ND	5.0	1.1							
1,2-Dichloroethane	ND	5.0	1.2							
1,2-Dichloropropane	ND	5.0	1.8							
1,3,5-Trimethylbenzene	ND	5.0	1.7							
1,3-Dichlorobenzene	ND	5.0	1.3							
1,3-Dichloropropane	ND	5.0	1.1							
1,4-Dichlorobenzene	ND	5.0	1.2							
2,2-Dichloropropane	ND	5.0	1.2							
2-Chlorotoluene	ND	5.0	1.6							
4-Chlorotoluene	ND	5.0	1.5							
4-Isopropyltoluene	ND	5.0	2.3							
Benzene	ND	5.0	0.64							
Bromobenzene	ND	5.0	1.1							
Bromochloromethane	ND	5.0	0.64							
Bromodichloromethane	ND	5.0	1.2							
Bromoform	ND	5.0	0.80							
Bromomethane	ND	5.0	2.5							
Carbon disulfide	ND	5.0	3.5							
Carbon tetrachloride	ND	5.0	1.2							
Chlorobenzene	ND	5.0	1.0							
Chloroethane	ND	5.0	1.1							
Chloroform	ND	5.0	0.82							
Chloromethane	ND	5.0	1.4							
cis-1,2-Dichloroethene	ND	5.0	0.67							
cis-1,3-Dichloropropene	ND	5.0	1.9							
Di-isopropyl ether	ND	5.0	0.55							
Dibromochloromethane	ND	5.0	1.0							
Dibromomethane	ND	5.0	1.6							

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0078 - MSVOA_S (continued)										
Blank (B9C0078-BLK1) - Continued					Prepared: 3/5/2019 Analyzed: 3/5/2019					
Dichlorodifluoromethane	ND	5.0	2.2							
Ethyl Acetate	ND	50	8.1							
Ethyl Ether	ND	50	6.1							
Ethyl tert-butyl ether	ND	5.0	0.67							
Ethylbenzene	ND	5.0	0.91							
Freon-113	ND	5.0	2.8							
Hexachlorobutadiene	ND	5.0	2.5							
Isopropylbenzene	ND	5.0	1.8							
m,p-Xylene	ND	10	1.5							
Methylene chloride	ND	5.0	2.3							
MTBE	ND	5.0	0.63							
n-Butylbenzene	ND	5.0	2.4							
n-Propylbenzene	ND	5.0	2.2							
Naphthalene	ND	5.0	0.97							
o-Xylene	ND	5.0	0.87							
sec-Butylbenzene	ND	5.0	2.3							
Styrene	ND	5.0	1.5							
tert-Amyl methyl ether	ND	5.0	0.59							
tert-Butanol	ND	100	19							
tert-Butylbenzene	ND	5.0	2.0							
Tetrachloroethene	ND	5.0	1.6							
Toluene	ND	5.0	0.94							
trans-1,2-Dichloroethene	ND	5.0	0.59							
trans-1,3-Dichloropropene	ND	5.0	2.1							
Trichloroethene	ND	5.0	3.1							
Trichlorofluoromethane	ND	5.0	1.4							
Vinyl acetate	ND	50	9.8							
Vinyl chloride	ND	5.0	1.7							
Surrogate: 1,2-Dichloroethane-d4	*48.20*			*50.0000*		*96.4*	*60 - 145*			
Surrogate: 4-Bromofluorobenzene	*50.02*			*50.0000*		*100*	*68 - 121*			
Surrogate: Dibromofluoromethan	*52.78*			*50.0000*		*106*	*65 - 137*			
Surrogate: Toluene-d8	*52.21*			*50.0000*		*104*	*82 - 119*			
LCS (B9C0078-BS1)					Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,1,1,2-Tetrachloroethane	47.6500	5.0	0.96	50.0000		95.3	82 - 114			
1,1,1-Trichloroethane	50.1000	5.0	1.1	50.0000		100	70 - 121			
1,1,2,2-Tetrachloroethane	46.5200	5.0	0.62	50.0000		93.0	65 - 116			
1,1,2-Trichloroethane	44.5900	5.0	1.6	50.0000		89.2	73 - 114			
1,1-Dichloroethane	51.5700	5.0	0.81	50.0000		103	69 - 117			
1,1-Dichloroethene	47.8300	5.0	2.6	50.0000		95.7	57 - 128			
1,1-Dichloropropene	54.0600	5.0	2.3	50.0000		108	76 - 122			

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0078 - MSVOA_S (continued)										
LCS (B9C0078-BS1) - Continued					Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,2,3-Trichloropropane	47.1100	5.0	0.54	50.0000		94.2	65 - 116			
1,2,3-Trichlorobenzene	54.2000	5.0	1.2	50.0000		108	72 - 130			
1,2,4-Trichlorobenzene	58.8000	5.0	1.1	50.0000		118	74 - 141			
1,2,4-Trimethylbenzene	51.4500	5.0	1.5	50.0000		103	81 - 126			
1,2-Dibromo-3-chloropropane	46.3700	10	1.6	50.0000		92.7	63 - 126			
1,2-Dibromoethane	45.1800	5.0	3.2	50.0000		90.4	75 - 113			
1,2-Dichlorobenzene	51.9200	5.0	1.1	50.0000		104	83 - 114			
1,2-Dichloroethane	43.7700	5.0	1.2	50.0000		87.5	73 - 115			
1,2-Dichloropropane	49.0700	5.0	1.8	50.0000		98.1	75 - 117			
1,3,5-Trimethylbenzene	52.3200	5.0	1.7	50.0000		105	80 - 126			
1,3-Dichlorobenzene	52.9600	5.0	1.3	50.0000		106	83 - 113			
1,3-Dichloropropane	47.8000	5.0	1.1	50.0000		95.6	79 - 108			
1,4-Dichlorobenzene	52.3400	5.0	1.2	50.0000		105	82 - 114			
2,2-Dichloropropane	52.8800	5.0	1.2	50.0000		106	66 - 135			
2-Chlorotoluene	49.7400	5.0	1.6	50.0000		99.5	79 - 117			
4-Chlorotoluene	49.2200	5.0	1.5	50.0000		98.4	77 - 118			
4-Isopropyltoluene	54.3700	5.0	2.3	50.0000		109	81 - 129			
Benzene	98.3500	5.0	0.64	100.000		98.4	78 - 112			
Bromobenzene	47.0200	5.0	1.1	50.0000		94.0	79 - 111			
Bromochloromethane	46.5400	5.0	0.64	50.0000		93.1	69 - 116			
Bromodichloromethane	44.9700	5.0	1.2	50.0000		89.9	79 - 111			
Bromoform	45.1900	5.0	0.80	50.0000		90.4	75 - 119			
Bromomethane	52.5900	5.0	2.5	50.0000		105	31 - 168			
Carbon disulfide	43.0500	5.0	3.5	50.0000		86.1	54 - 141			
Carbon tetrachloride	48.6400	5.0	1.2	50.0000		97.3	74 - 125			
Chlorobenzene	49.6700	5.0	1.0	50.0000		99.3	83 - 112			
Chloroethane	47.3400	5.0	1.1	50.0000		94.7	53 - 144			
Chloroform	48.3000	5.0	0.82	50.0000		96.6	69 - 118			
Chloromethane	40.0000	5.0	1.4	50.0000		80.0	46 - 137			
cis-1,2-Dichloroethene	50.1900	5.0	0.67	50.0000		100	68 - 118			
cis-1,3-Dichloropropene	56.6900	5.0	1.9	50.0000		113	77 - 121			
Di-isopropyl ether	52.9500	5.0	0.55	50.0000		106	60 - 129			
Dibromochloromethane	45.5500	5.0	1.0	50.0000		91.1	80 - 111			
Dibromomethane	45.0100	5.0	1.6	50.0000		90.0	78 - 108			
Dichlorodifluoromethane	30.6600	5.0	2.2	50.0000		61.3	41 - 146			
Ethyl Acetate	513.050	50	8.1	500.000		103	52 - 130			
Ethyl Ether	505.310	50	6.1	500.000		101	54 - 138			
Ethyl tert-butyl ether	54.2100	5.0	0.67	50.0000		108	52 - 141			
Ethylbenzene	99.8600	5.0	0.91	100.000		99.9	82 - 121			
Freon-113	47.6100	5.0	2.8	50.0000		95.2	59 - 139			
Hexachlorobutadiene	51.1000	5.0	2.5	50.0000		102	69 - 143			
Isopropylbenzene	56.3100	5.0	1.8	50.0000		113	78 - 124			

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0078 - MSVOA_S (continued)										
LCS (B9C0078-BS1) - Continued					Prepared: 3/5/2019 Analyzed: 3/5/2019					
m,p-Xylene	105.270	10	1.5	100.000		105	85 - 118			
Methylene chloride	47.6400	5.0	2.3	50.0000		95.3	44 - 146			
MTBE	49.3000	5.0	0.63	50.0000		98.6	61 - 122			
n-Butylbenzene	54.6900	5.0	2.4	50.0000		109	78 - 135			
n-Propylbenzene	51.5300	5.0	2.2	50.0000		103	78 - 127			
Naphthalene	50.5200	5.0	0.97	50.0000		101	68 - 129			
o-Xylene	103.550	5.0	0.87	100.000		104	86 - 118			
sec-Butylbenzene	53.2800	5.0	2.3	50.0000		107	80 - 127			
Styrene	51.2100	5.0	1.5	50.0000		102	85 - 117			
tert-Amyl methyl ether	51.7800	5.0	0.59	50.0000		104	48 - 135			
tert-Butanol	193.570	100	19	250.000		77.4	0 - 175			
tert-Butylbenzene	53.1900	5.0	2.0	50.0000		106	81 - 122			
Tetrachloroethene	54.7300	5.0	1.6	50.0000		109	77 - 122			
Toluene	100.860	5.0	0.94	100.000		101	79 - 114			
trans-1,2-Dichloroethene	49.2100	5.0	0.59	50.0000		98.4	66 - 125			
trans-1,3-Dichloropropene	45.8500	5.0	2.1	50.0000		91.7	76 - 120			
Trichloroethene	52.9400	5.0	3.1	50.0000		106	79 - 117			
Trichlorofluoromethane	42.0700	5.0	1.4	50.0000		84.1	55 - 133			
Vinyl acetate	448.640	50	9.8	500.000		89.7	52 - 141			
Vinyl chloride	45.3800	5.0	1.7	50.0000		90.8	58 - 132			
Surrogate: 1,2-Dichloroethane-d4	*45.83*			*50.0000*		*91.7*	*60 - 145*			
Surrogate: 4-Bromofluorobenzene	*51.03*			*50.0000*		*102*	*68 - 121*			
Surrogate: Dibromofluoromethan	*50.40*			*50.0000*		*101*	*65 - 137*			
Surrogate: Toluene-d8	*50.61*			*50.0000*		*101*	*82 - 119*			
LCS Dup (B9C0078-BSD1)					Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,1,1,2-Tetrachloroethane	51.7400	5.0	0.96	50.0000		103	82 - 114	8.23	20	
1,1,1-Trichloroethane	52.5000	5.0	1.1	50.0000		105	70 - 121	4.68	20	
1,1,2,2-Tetrachloroethane	52.6000	5.0	0.62	50.0000		105	65 - 116	12.3	20	
1,1,2-Trichloroethane	51.4200	5.0	1.6	50.0000		103	73 - 114	14.2	20	
1,1-Dichloroethane	51.9700	5.0	0.81	50.0000		104	69 - 117	0.773	20	
1,1-Dichloroethene	46.7300	5.0	2.6	50.0000		93.5	57 - 128	2.33	20	
1,1-Dichloropropene	54.6800	5.0	2.3	50.0000		109	76 - 122	1.14	20	
1,2,3-Trichloropropane	53.4700	5.0	0.54	50.0000		107	65 - 116	12.6	20	
1,2,3-Trichlorobenzene	57.3600	5.0	1.2	50.0000		115	72 - 130	5.67	20	
1,2,4-Trichlorobenzene	60.4300	5.0	1.1	50.0000		121	74 - 141	2.73	20	
1,2,4-Trimethylbenzene	52.7900	5.0	1.5	50.0000		106	81 - 126	2.57	20	
1,2-Dibromo-3-chloropropane	51.8100	10	1.6	50.0000		104	63 - 126	11.1	20	
1,2-Dibromoethane	51.1100	5.0	3.2	50.0000		102	75 - 113	12.3	20	
1,2-Dichlorobenzene	54.8500	5.0	1.1	50.0000		110	83 - 114	5.49	20	
1,2-Dichloroethane	48.6300	5.0	1.2	50.0000		97.3	73 - 115	10.5	20	

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0078 - MSVOA_S (continued)										
LCS Dup (B9C0078-BSD1) - Continued					Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,2-Dichloropropane	52.1100	5.0	1.8	50.0000		104	75 - 117	6.01	20	
1,3,5-Trimethylbenzene	53.8300	5.0	1.7	50.0000		108	80 - 126	2.85	20	
1,3-Dichlorobenzene	55.2900	5.0	1.3	50.0000		111	83 - 113	4.30	20	
1,3-Dichloropropane	53.1200	5.0	1.1	50.0000		106	79 - 108	10.5	20	
1,4-Dichlorobenzene	54.4600	5.0	1.2	50.0000		109	82 - 114	3.97	20	
2,2-Dichloropropane	53.9900	5.0	1.2	50.0000		108	66 - 135	2.08	20	
2-Chlorotoluene	51.6200	5.0	1.6	50.0000		103	79 - 117	3.71	20	
4-Chlorotoluene	51.3700	5.0	1.5	50.0000		103	77 - 118	4.27	20	
4-Isopropyltoluene	55.5600	5.0	2.3	50.0000		111	81 - 129	2.17	20	
Benzene	100.800	5.0	0.64	100.000		101	78 - 112	2.46	20	
Bromobenzene	50.2000	5.0	1.1	50.0000		100	79 - 111	6.54	20	
Bromochloromethane	50.5400	5.0	0.64	50.0000		101	69 - 116	8.24	20	
Bromodichloromethane	49.7800	5.0	1.2	50.0000		99.6	79 - 111	10.2	20	
Bromoform	51.5000	5.0	0.80	50.0000		103	75 - 119	13.1	20	
Bromomethane	49.0600	5.0	2.5	50.0000		98.1	31 - 168	6.95	20	
Carbon disulfide	41.9300	5.0	3.5	50.0000		83.9	54 - 141	2.64	20	
Carbon tetrachloride	49.2700	5.0	1.2	50.0000		98.5	74 - 125	1.29	20	
Chlorobenzene	53.0300	5.0	1.0	50.0000		106	83 - 112	6.54	20	
Chloroethane	48.3600	5.0	1.1	50.0000		96.7	53 - 144	2.13	20	
Chloroform	52.2600	5.0	0.82	50.0000		105	69 - 118	7.88	20	
Chloromethane	40.5900	5.0	1.4	50.0000		81.2	46 - 137	1.46	20	
cis-1,2-Dichloroethene	52.5800	5.0	0.67	50.0000		105	68 - 118	4.65	20	
cis-1,3-Dichloropropene	61.9800	5.0	1.9	50.0000		124	77 - 121	8.92	20	L4
Di-isopropyl ether	57.3600	5.0	0.55	50.0000		115	60 - 129	8.00	20	
Dibromochloromethane	51.2200	5.0	1.0	50.0000		102	80 - 111	11.7	20	
Dibromomethane	49.8400	5.0	1.6	50.0000		99.7	78 - 108	10.2	20	
Dichlorodifluoromethane	29.8800	5.0	2.2	50.0000		59.8	41 - 146	2.58	20	
Ethyl Acetate	632.250	50	8.1	500.000		126	52 - 130	20.8	20	R
Ethyl Ether	518.450	50	6.1	500.000		104	54 - 138	2.57	20	
Ethyl tert-butyl ether	57.1600	5.0	0.67	50.0000		114	52 - 141	5.30	20	
Ethylbenzene	105.880	5.0	0.91	100.000		106	82 - 121	5.85	20	
Freon-113	48.3200	5.0	2.8	50.0000		96.6	59 - 139	1.48	20	
Hexachlorobutadiene	51.6900	5.0	2.5	50.0000		103	69 - 143	1.15	20	
Isopropylbenzene	58.8000	5.0	1.8	50.0000		118	78 - 124	4.33	20	
m,p-Xylene	110.350	10	1.5	100.000		110	85 - 118	4.71	20	
Methylene chloride	48.8800	5.0	2.3	50.0000		97.8	44 - 146	2.57	20	
MTBE	54.4800	5.0	0.63	50.0000		109	61 - 122	9.98	20	
n-Butylbenzene	56.0900	5.0	2.4	50.0000		112	78 - 135	2.53	20	
n-Propylbenzene	53.5400	5.0	2.2	50.0000		107	78 - 127	3.83	20	
Naphthalene	55.6000	5.0	0.97	50.0000		111	68 - 129	9.57	20	
o-Xylene	109.670	5.0	0.87	100.000		110	86 - 118	5.74	20	
sec-Butylbenzene	54.8800	5.0	2.3	50.0000		110	80 - 127	2.96	20	

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0078 - MSVOA_S (continued)										
LCS Dup (B9C0078-BSD1) - Continued					Prepared: 3/5/2019 Analyzed: 3/5/2019					
Styrene	54.4000	5.0	1.5	50.0000		109	85 - 117	6.04	20	
tert-Amyl methyl ether	55.5900	5.0	0.59	50.0000		111	48 - 135	7.10	20	
tert-Butanol	146.890	100	19	250.000		58.8	0 - 175	27.4	20	R
tert-Butylbenzene	55.0900	5.0	2.0	50.0000		110	81 - 122	3.51	20	
Tetrachloroethene	56.9100	5.0	1.6	50.0000		114	77 - 122	3.91	20	
Toluene	105.530	5.0	0.94	100.000		106	79 - 114	4.53	20	
trans-1,2-Dichloroethene	49.1000	5.0	0.59	50.0000		98.2	66 - 125	0.224	20	
trans-1,3-Dichloropropene	51.4500	5.0	2.1	50.0000		103	76 - 120	11.5	20	
Trichloroethene	54.1800	5.0	3.1	50.0000		108	79 - 117	2.32	20	
Trichlorofluoromethane	43.2600	5.0	1.4	50.0000		86.5	55 - 133	2.79	20	
Vinyl acetate	507.550	50	9.8	500.000		102	52 - 141	12.3	20	
Vinyl chloride	44.4100	5.0	1.7	50.0000		88.8	58 - 132	2.16	20	
Surrogate: 1,2-Dichloroethane-d4	*47.86*			*50.0000*		*95.7*	*60 - 145*			
Surrogate: 4-Bromofluorobenzene	*51.42*			*50.0000*		*103*	*68 - 121*			
Surrogate: Dibromofluoromethan	*51.25*			*50.0000*		*102*	*65 - 137*			
Surrogate: Toluene-d8	*50.69*			*50.0000*		*101*	*82 - 119*			
Duplicate (B9C0078-DUP1)			**Source: 1900815-10**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,1,1,2-Tetrachloroethane	ND	5.0	0.96		ND				20	
1,1,1-Trichloroethane	ND	5.0	1.1		ND				20	
1,1,2,2-Tetrachloroethane	ND	5.0	0.62		ND				20	
1,1,2-Trichloroethane	ND	5.0	1.6		ND				20	
1,1-Dichloroethane	ND	5.0	0.81		ND				20	
1,1-Dichloroethene	ND	5.0	2.6		ND				20	
1,1-Dichloropropene	ND	5.0	2.3		ND				20	
1,2,3-Trichloropropane	ND	5.0	0.54		ND				20	
1,2,3-Trichlorobenzene	ND	5.0	1.2		ND				20	
1,2,4-Trichlorobenzene	ND	5.0	1.1		ND				20	
1,2,4-Trimethylbenzene	ND	5.0	1.5		ND				20	
1,2-Dibromo-3-chloropropane	ND	10	1.6		ND				20	
1,2-Dibromoethane	ND	5.0	3.2		ND				20	
1,2-Dichlorobenzene	ND	5.0	1.1		ND				20	
1,2-Dichloroethane	ND	5.0	1.2		ND				20	
1,2-Dichloropropane	ND	5.0	1.8		ND				20	
1,3,5-Trimethylbenzene	ND	5.0	1.7		ND				20	
1,3-Dichlorobenzene	ND	5.0	1.3		ND				20	
1,3-Dichloropropane	ND	5.0	1.1		ND				20	
1,4-Dichlorobenzene	ND	5.0	1.2		ND				20	
2,2-Dichloropropane	ND	5.0	1.2		ND				20	
2-Chlorotoluene	ND	5.0	1.6		ND				20	
4-Chlorotoluene	ND	5.0	1.5		ND				20	

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0078 - MSVOA_S (continued)										
Duplicate (B9C0078-DUP1) - Continued			**Source: 1900815-10**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
4-Isopropyltoluene	ND	5.0	2.3		ND				20	
Benzene	ND	5.0	0.64		ND				20	
Bromobenzene	ND	5.0	1.1		ND				20	
Bromochloromethane	ND	5.0	0.64		ND				20	
Bromodichloromethane	ND	5.0	1.2		ND				20	
Bromoform	ND	5.0	0.80		ND				20	
Bromomethane	ND	5.0	2.5		ND				20	
Carbon disulfide	ND	5.0	3.5		ND				20	
Carbon tetrachloride	ND	5.0	1.2		ND				20	
Chlorobenzene	ND	5.0	1.0		ND				20	
Chloroethane	ND	5.0	1.1		ND				20	
Chloroform	ND	5.0	0.82		ND				20	
Chloromethane	ND	5.0	1.4		ND				20	
cis-1,2-Dichloroethene	ND	5.0	0.67		ND				20	
cis-1,3-Dichloropropene	ND	5.0	1.9		ND				20	
Di-isopropyl ether	ND	5.0	0.55		ND				20	
Dibromochloromethane	ND	5.0	1.0		ND				20	
Dibromomethane	ND	5.0	1.6		ND				20	
Dichlorodifluoromethane	ND	5.0	2.2		ND				20	
Ethyl Acetate	ND	50	8.1		ND				20	
Ethyl Ether	ND	50	6.1		ND				20	
Ethyl tert-butyl ether	ND	5.0	0.67		ND				20	
Ethylbenzene	ND	5.0	0.91		ND				20	
Freon-113	ND	5.0	2.8		ND				20	
Hexachlorobutadiene	ND	5.0	2.5		ND				20	
Isopropylbenzene	ND	5.0	1.8		ND				20	
m,p-Xylene	ND	10	1.5		ND				20	
Methylene chloride	ND	5.0	2.3		ND				20	
MTBE	ND	5.0	0.63		ND				20	
n-Butylbenzene	ND	5.0	2.4		ND				20	
n-Propylbenzene	ND	5.0	2.2		ND				20	
Naphthalene	ND	5.0	0.97		ND				20	
o-Xylene	ND	5.0	0.87		ND				20	
sec-Butylbenzene	ND	5.0	2.3		ND				20	
Styrene	ND	5.0	1.5		ND				20	
tert-Amyl methyl ether	ND	5.0	0.59		ND				20	
tert-Butanol	ND	100	19		ND				20	
tert-Butylbenzene	ND	5.0	2.0		ND				20	
Tetrachloroethene	ND	5.0	1.6		ND				20	
Toluene	ND	5.0	0.94		ND				20	
trans-1,2-Dichloroethene	ND	5.0	0.59		ND				20	
trans-1,3-Dichloropropene	ND	5.0	2.1		ND				20	

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Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0078 - MSVOA_S (continued)										
Duplicate (B9C0078-DUP1) - Continued			**Source: 1900815-10**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
Trichloroethene	ND	5.0	3.1		ND				20	
Trichlorofluoromethane	ND	5.0	1.4		ND				20	
Vinyl acetate	ND	50	9.8		ND				20	
Vinyl chloride	ND	5.0	1.7		ND				20	
Surrogate: 1,2-Dichloroethane-d4	*48.43*			*50.0000*		*96.9*	*60 - 145*			
Surrogate: 4-Bromofluorobenzene	*48.29*			*50.0000*		*96.6*	*68 - 121*			
Surrogate: Dibromofluoromethan	*52.00*			*50.0000*		*104*	*65 - 137*			
Surrogate: Toluene-d8	*50.75*			*50.0000*		*102*	*82 - 119*			
Matrix Spike (B9C0078-MS1)			**Source: 1900815-10**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
1,1,1,2-Tetrachloroethane	48.6200	5.0	0.96	50.0000	ND	97.2	45 - 121			
1,1,1-Trichloroethane	50.5200	5.0	1.1	50.0000	ND	101	43 - 127			
1,1,2,2-Tetrachloroethane	48.7700	5.0	0.62	50.0000	ND	97.5	32 - 128			
1,1,2-Trichloroethane	49.3300	5.0	1.6	50.0000	ND	98.7	45 - 121			
1,1-Dichloroethane	53.1500	5.0	0.81	50.0000	ND	106	46 - 119			
1,1-Dichloroethene	48.2800	5.0	2.6	50.0000	ND	96.6	40 - 130			
1,1-Dichloropropene	52.6200	5.0	2.3	50.0000	ND	105	45 - 130			
1,2,3-Trichloropropane	49.8900	5.0	0.54	50.0000	ND	99.8	42 - 124			
1,2,3-Trichlorobenzene	53.2000	5.0	1.2	50.0000	ND	106	4 - 135			
1,2,4-Trichlorobenzene	56.1000	5.0	1.1	50.0000	ND	112	8 - 141			
1,2,4-Trimethylbenzene	49.0700	5.0	1.5	50.0000	ND	98.1	30 - 136			
1,2-Dibromo-3-chloropropane	47.7900	10	1.6	50.0000	ND	95.6	38 - 132			
1,2-Dibromoethane	48.6300	5.0	3.2	50.0000	ND	97.3	45 - 121			
1,2-Dichlorobenzene	51.4400	5.0	1.1	50.0000	ND	103	30 - 125			
1,2-Dichloroethane	47.0100	5.0	1.2	50.0000	ND	94.0	51 - 115			
1,2-Dichloropropane	50.3600	5.0	1.8	50.0000	ND	101	50 - 118			
1,3,5-Trimethylbenzene	49.8500	5.0	1.7	50.0000	ND	99.7	29 - 137			
1,3-Dichlorobenzene	51.5600	5.0	1.3	50.0000	ND	103	30 - 124			
1,3-Dichloropropane	49.7500	5.0	1.1	50.0000	ND	99.5	49 - 116			
1,4-Dichlorobenzene	50.9300	5.0	1.2	50.0000	ND	102	31 - 124			
2,2-Dichloropropane	53.5900	5.0	1.2	50.0000	ND	107	41 - 134			
2-Chlorotoluene	48.1100	5.0	1.6	50.0000	ND	96.2	32 - 127			
4-Chlorotoluene	47.8000	5.0	1.5	50.0000	ND	95.6	34 - 124			
4-Isopropyltoluene	51.4900	5.0	2.3	50.0000	ND	103	26 - 141			
Benzene	98.2100	5.0	0.64	100.000	ND	98.2	48 - 117			
Bromobenzene	46.4800	5.0	1.1	50.0000	ND	93.0	40 - 117			
Bromochloromethane	49.7500	5.0	0.64	50.0000	ND	99.5	48 - 117			
Bromodichloromethane	47.5200	5.0	1.2	50.0000	ND	95.0	49 - 115			
Bromoform	48.2300	5.0	0.80	50.0000	ND	96.5	42 - 127			
Bromomethane	49.5600	5.0	2.5	50.0000	ND	99.1	19 - 157			
Carbon disulfide	43.7500	5.0	3.5	50.0000	ND	87.5	34 - 138			

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/11/2019

Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0078 - MSVOA_S (continued)										
Matrix Spike (B9C0078-MS1) - Continued			**Source: 1900815-10**			Prepared: 3/5/2019 Analyzed: 3/5/2019				
Carbon tetrachloride	46.9000	5.0	1.2	50.0000	ND	93.8	43 - 130			
Chlorobenzene	49.0900	5.0	1.0	50.0000	ND	98.2	41 - 122			
Chloroethane	51.0600	5.0	1.1	50.0000	ND	102	32 - 145			
Chloroform	50.1400	5.0	0.82	50.0000	ND	100	46 - 118			
Chloromethane	40.4400	5.0	1.4	50.0000	ND	80.9	34 - 132			
cis-1,2-Dichloroethene	51.9400	5.0	0.67	50.0000	ND	104	44 - 119			
cis-1,3-Dichloropropene	58.8800	5.0	1.9	50.0000	ND	118	44 - 126			
Di-isopropyl ether	55.0600	5.0	0.55	50.0000	ND	110	42 - 126			
Dibromochloromethane	48.6300	5.0	1.0	50.0000	ND	97.3	46 - 119			
Dibromomethane	47.9100	5.0	1.6	50.0000	ND	95.8	52 - 114			
Dichlorodifluoromethane	30.2900	5.0	2.2	50.0000	ND	60.6	22 - 147			
Ethyl Acetate	597.130	50	8.1	500.000	ND	119	9 - 140			
Ethyl Ether	528.390	50	6.1	500.000	ND	106	45 - 131			
Ethyl tert-butyl ether	57.6300	5.0	0.67	50.0000	ND	115	33 - 138			
Ethylbenzene	97.1200	5.0	0.91	100.000	ND	97.1	38 - 131			
Freon-113	48.8700	5.0	2.8	50.0000	ND	97.7	38 - 140			
Hexachlorobutadiene	47.7900	5.0	2.5	50.0000	ND	95.6	4 - 141			
Isopropylbenzene	53.5700	5.0	1.8	50.0000	ND	107	35 - 133			
m,p-Xylene	102.130	10	1.5	100.000	ND	102	38 - 130			
Methylene chloride	50.1600	5.0	2.3	50.0000	ND	100	26 - 137			
MTBE	54.5800	5.0	0.63	50.0000	ND	109	45 - 121			
n-Butylbenzene	51.5700	5.0	2.4	50.0000	ND	103	18 - 144			
n-Propylbenzene	49.3200	5.0	2.2	50.0000	ND	98.6	30 - 137			
Naphthalene	51.9600	5.0	0.97	50.0000	ND	104	14 - 137			
o-Xylene	102.390	5.0	0.87	100.000	ND	102	41 - 129			
sec-Butylbenzene	50.5200	5.0	2.3	50.0000	ND	101	24 - 140			
Styrene	51.1500	5.0	1.5	50.0000	ND	102	41 - 125			
tert-Amyl methyl ether	56.9200	5.0	0.59	50.0000	ND	114	31 - 133			
tert-Butanol	253.030	100	19	250.000	ND	101	0 - 201			
tert-Butylbenzene	50.6300	5.0	2.0	50.0000	ND	101	30 - 134			
Tetrachloroethene	51.6100	5.0	1.6	50.0000	ND	103	37 - 130			
Toluene	100.430	5.0	0.94	100.000	ND	100	45 - 122			
trans-1,2-Dichloroethene	50.0800	5.0	0.59	50.0000	ND	100	46 - 122			
trans-1,3-Dichloropropene	49.1900	5.0	2.1	50.0000	ND	98.4	44 - 124			
Trichloroethene	51.0200	5.0	3.1	50.0000	ND	102	36 - 142			
Trichlorofluoromethane	43.4400	5.0	1.4	50.0000	ND	86.9	37 - 135			
Vinyl acetate	491.710	50	9.8	500.000	ND	98.3	0 - 136			
Vinyl chloride	45.5200	5.0	1.7	50.0000	ND	91.0	42 - 131			
Surrogate: 1,2-Dichloroethane-d4	*51.88*			*50.0000*		*104*	*60 - 145*			
Surrogate: 4-Bromofluorobenzene	*52.30*			*50.0000*		*105*	*68 - 121*			
Surrogate: Dibromofluoromethan	*54.84*			*50.0000*		*110*	*65 - 137*			

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/11/2019

Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)		Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0078 - MSVOA_S (continued)										
Matrix Spike (B9C0078-MS1) - Continued			**Source: 1900815-10**			Prepared: 3/5/2019 Analyzed: 3/5/2019				
Surrogate: Toluene-d8	*52.04*			*50.0000*		*104*	*82 - 119*			
Matrix Spike Dup (B9C0078-MSD1)			**Source: 1900815-10**			Prepared: 3/5/2019 Analyzed: 3/5/2019				
1,1,1,2-Tetrachloroethane	46.4200	5.0	0.96	50.0000	ND	92.8	45 - 121	4.63	20	
1,1,1-Trichloroethane	43.6600	5.0	1.1	50.0000	ND	87.3	43 - 127	14.6	20	
1,1,2,2-Tetrachloroethane	47.6700	5.0	0.62	50.0000	ND	95.3	32 - 128	2.28	20	
1,1,2-Trichloroethane	47.4500	5.0	1.6	50.0000	ND	94.9	45 - 121	3.89	20	
1,1-Dichloroethane	45.9900	5.0	0.81	50.0000	ND	92.0	46 - 119	14.4	20	
1,1-Dichloroethene	41.0800	5.0	2.6	50.0000	ND	82.2	40 - 130	16.1	20	
1,1-Dichloropropene	46.8500	5.0	2.3	50.0000	ND	93.7	45 - 130	11.6	20	
1,2,3-Trichloropropane	48.3400	5.0	0.54	50.0000	ND	96.7	42 - 124	3.16	20	
1,2,3-Trichlorobenzene	49.4500	5.0	1.2	50.0000	ND	98.9	4 - 135	7.31	20	
1,2,4-Trichlorobenzene	51.8700	5.0	1.1	50.0000	ND	104	8 - 141	7.84	20	
1,2,4-Trimethylbenzene	46.3600	5.0	1.5	50.0000	ND	92.7	30 - 136	5.68	20	
1,2-Dibromo-3-chloropropane	45.0200	10	1.6	50.0000	ND	90.0	38 - 132	5.97	20	
1,2-Dibromoethane	46.3800	5.0	3.2	50.0000	ND	92.8	45 - 121	4.74	20	
1,2-Dichlorobenzene	48.9400	5.0	1.1	50.0000	ND	97.9	30 - 125	4.98	20	
1,2-Dichloroethane	43.9400	5.0	1.2	50.0000	ND	87.9	51 - 115	6.75	20	
1,2-Dichloropropane	46.2300	5.0	1.8	50.0000	ND	92.5	50 - 118	8.55	20	
1,3,5-Trimethylbenzene	46.6200	5.0	1.7	50.0000	ND	93.2	29 - 137	6.70	20	
1,3-Dichlorobenzene	49.0300	5.0	1.3	50.0000	ND	98.1	30 - 124	5.03	20	
1,3-Dichloropropane	48.2700	5.0	1.1	50.0000	ND	96.5	49 - 116	3.02	20	
1,4-Dichlorobenzene	48.3500	5.0	1.2	50.0000	ND	96.7	31 - 124	5.20	20	
2,2-Dichloropropane	45.5400	5.0	1.2	50.0000	ND	91.1	41 - 134	16.2	20	
2-Chlorotoluene	45.8700	5.0	1.6	50.0000	ND	91.7	32 - 127	4.77	20	
4-Chlorotoluene	45.3400	5.0	1.5	50.0000	ND	90.7	34 - 124	5.28	20	
4-Isopropyltoluene	47.9800	5.0	2.3	50.0000	ND	96.0	26 - 141	7.06	20	
Benzene	88.6300	5.0	0.64	100.000	ND	88.6	48 - 117	10.3	20	
Bromobenzene	45.1900	5.0	1.1	50.0000	ND	90.4	40 - 117	2.81	20	
Bromochloromethane	44.7300	5.0	0.64	50.0000	ND	89.5	48 - 117	10.6	20	
Bromodichloromethane	44.8400	5.0	1.2	50.0000	ND	89.7	49 - 115	5.80	20	
Bromoform	47.3300	5.0	0.80	50.0000	ND	94.7	42 - 127	1.88	20	
Bromomethane	43.0900	5.0	2.5	50.0000	ND	86.2	19 - 157	14.0	20	
Carbon disulfide	37.1600	5.0	3.5	50.0000	ND	74.3	34 - 138	16.3	20	
Carbon tetrachloride	41.5400	5.0	1.2	50.0000	ND	83.1	43 - 130	12.1	20	
Chlorobenzene	46.4200	5.0	1.0	50.0000	ND	92.8	41 - 122	5.59	20	
Chloroethane	43.9100	5.0	1.1	50.0000	ND	87.8	32 - 145	15.1	20	
Chloroform	44.7200	5.0	0.82	50.0000	ND	89.4	46 - 118	11.4	20	
Chloromethane	36.2900	5.0	1.4	50.0000	ND	72.6	34 - 132	10.8	20	
cis-1,2-Dichloroethene	45.4500	5.0	0.67	50.0000	ND	90.9	44 - 119	13.3	20	
cis-1,3-Dichloropropene	55.1500	5.0	1.9	50.0000	ND	110	44 - 126	6.54	20	
Di-isopropyl ether	49.8100	5.0	0.55	50.0000	ND	99.6	42 - 126	10.0	20	

Certificate of Analysis

Stantec	Project Number : KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280	Report To : Jim Dewoody
San Bernardino , CA 92408	Reported : 03/11/2019

Volatile Organic Compounds by EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0078 - MSVOA_S (continued)										
Matrix Spike Dup (B9C0078-MSD1) - Continued			**Source: 1900815-10**		Prepared: 3/5/2019 Analyzed: 3/5/2019					
Dibromochloromethane	46.8300	5.0	1.0	50.0000	ND	93.7	46 - 119	3.77	20	
Dibromomethane	45.4600	5.0	1.6	50.0000	ND	90.9	52 - 114	5.25	20	
Dichlorodifluoromethane	26.2000	5.0	2.2	50.0000	ND	52.4	22 - 147	14.5	20	
Ethyl Acetate	542.680	50	8.1	500.000	ND	109	9 - 140	9.55	20	
Ethyl Ether	476.580	50	6.1	500.000	ND	95.3	45 - 131	10.3	20	
Ethyl tert-butyl ether	51.9500	5.0	0.67	50.0000	ND	104	33 - 138	10.4	20	
Ethylbenzene	90.7100	5.0	0.91	100.000	ND	90.7	38 - 131	6.83	20	
Freon-113	42.1100	5.0	2.8	50.0000	ND	84.2	38 - 140	14.9	20	
Hexachlorobutadiene	42.8700	5.0	2.5	50.0000	ND	85.7	4 - 141	10.9	20	
Isopropylbenzene	50.2300	5.0	1.8	50.0000	ND	100	35 - 133	6.44	20	
m,p-Xylene	95.5500	10	1.5	100.000	ND	95.6	38 - 130	6.66	20	
Methylene chloride	43.8700	5.0	2.3	50.0000	ND	87.7	26 - 137	13.4	20	
MTBE	49.6100	5.0	0.63	50.0000	ND	99.2	45 - 121	9.54	20	
n-Butylbenzene	47.6700	5.0	2.4	50.0000	ND	95.3	18 - 144	7.86	20	
n-Propylbenzene	46.2600	5.0	2.2	50.0000	ND	92.5	30 - 137	6.40	20	
Naphthalene	49.0800	5.0	0.97	50.0000	ND	98.2	14 - 137	5.70	20	
o-Xylene	96.2700	5.0	0.87	100.000	ND	96.3	41 - 129	6.16	20	
sec-Butylbenzene	46.8600	5.0	2.3	50.0000	ND	93.7	24 - 140	7.52	20	
Styrene	48.4800	5.0	1.5	50.0000	ND	97.0	41 - 125	5.36	20	
tert-Amyl methyl ether	52.3800	5.0	0.59	50.0000	ND	105	31 - 133	8.31	20	
tert-Butanol	226.260	100	19	250.000	ND	90.5	0 - 201	11.2	20	
tert-Butylbenzene	47.3500	5.0	2.0	50.0000	ND	94.7	30 - 134	6.70	20	
Tetrachloroethene	46.7900	5.0	1.6	50.0000	ND	93.6	37 - 130	9.80	20	
Toluene	91.4100	5.0	0.94	100.000	ND	91.4	45 - 122	9.40	20	
trans-1,2-Dichloroethene	42.8400	5.0	0.59	50.0000	ND	85.7	46 - 122	15.6	20	
trans-1,3-Dichloropropene	47.0300	5.0	2.1	50.0000	ND	94.1	44 - 124	4.49	20	
Trichloroethene	45.9000	5.0	3.1	50.0000	ND	91.8	36 - 142	10.6	20	
Trichlorofluoromethane	38.1600	5.0	1.4	50.0000	ND	76.3	37 - 135	12.9	20	
Vinyl acetate	437.780	50	9.8	500.000	ND	87.6	0 - 136	11.6	20	
Vinyl chloride	39.8100	5.0	1.7	50.0000	ND	79.6	42 - 131	13.4	20	
Surrogate: 1,2-Dichloroethane-d4	*48.26*			*50.0000*		*96.5*	*60 - 145*			
Surrogate: 4-Bromofluorobenzene	*51.09*			*50.0000*		*102*	*68 - 121*			
Surrogate: Dibromofluoromethan	*50.22*			*50.0000*		*100*	*65 - 137*			
Surrogate: Toluene-d8	*50.27*			*50.0000*		*101*	*82 - 119*			

Certificate of Analysis

Stantec		Project Number :	KB- El Monte, 185804357
735 E. Carnegie Drive, Suite 280		Report To :	Jim Dewoody
San Bernardino , CA 92408		Reported :	03/11/2019

Notes and Definitions

R2	RPD value outside acceptance criteria due to possible matrix interference.
R	RPD value outside acceptance criteria. Calculation is based on raw values.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
L4	Laboratory Control Sample outside of control limit but within Marginal Exceedance (ME) limit.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

Stantec

CHAIN OF CUSTODY

Laboratory Project Number: 1900834

Page 1 of 1

Client Name/Address:	Project Manager:
Stantec Consulting Services Inc. **735 E. Carnegie Drive, Suite 280** **San Bernardino, CA 92408** **909-335-6116**	**Jim Dewoody**
	E-Mail Address: **james.dewoody@stantec.com**
	Sampler Name: **M. Bohn**
Laboratory (circle): **ATL** **3275 Walnut Ave.** **Signal Hill, CA** **562-989-4040**	Stantec Project Number: **185804357** Project: **KB - El Monte**

Sample Description/Identification	Sample Matrix	Preservative (see below)	# of Cont.	Sample Date	Sample Time	Filtered Sample	TPH GRO/DRO/ORO (8015B)	VOCs (8260B)	Title 22 (6010B)	Cr6 (7196)	PCBs (8082)	HOLD					Special Instructions
SV-9-1	Soil	1	1	3/1/19	1232		X	X	X								
SV-9-3					1238							X					
SV-9-5					1242		X	X	X								
SV-9-10					1246							X					
SV-9-15					1250							X					
SV-10-1					1320		X	X	X								
SV-10-3					1323							X					
SV-10-5					1334		X	X	X								
SV-10-10					1348							X					
SV-10-15	Soil	1	1	3/1/19	1353							X					

Analysis Required

Turn Around Time:
- Normal TAT: X
- 72 Hour:
- 48 Hour
- 24 Hour
- Same Day:
- Other:

Sample Temp °C: _____

Sample Preservative: 1=ICE - 2=HCl - 3=H_2SO_4 - 4=HNO_3 - 5=NaOH - 6=Other: _____

Special Instructions:

Relinquished By:	Date	Time	Received By + Company Name:	Date	Time
	3/1/19	1716	ATL	3/4/19	10:05
Relinquished By + Company Name:	Date	Time	Received By + Company Name:	Date	Time
	3/4/19	1734	FedEx	3/4/19	1734
Relinquished By + Company Name:	Date	Time	Received By + Company Name:	Date	Time

H&P Mobile Geochemistry Inc.

15 March 2019

Jim Dewoody
Stantec - San Bernardino
735 E Carnegie Dr., Ste 280
San Bernardino, CA 92408

H&P Project: ST030619-11
Client Project: 185804357/ 3700 Cypress Ave

Dear Jim Dewoody:

Enclosed is the analytical report for the above referenced project. The data herein applies to samples as received by H&P Mobile Geochemistry, Inc. on 05-Mar-19 which were analyzed in accordance with the attached Chain of Custody record(s).

The results for all sample analyses and required QA/QC analyses are presented in the following sections and summarized in the documents:

- Sample Summary
- Case Narrative (if applicable)
- Sample Results
- Quality Control Summary
- Notes and Definitions / Appendix
- Chain of Custody
- Sampling Logs (if applicable)

Unless otherwise noted, I certify that all analyses were performed and reviewed in compliance with our Quality Systems Manual and Standard Operating Procedures. This report shall not be reproduced, except in full, without the written approval of H&P Mobile Geochemistry, Inc.

We at H&P Mobile Geochemistry, Inc. sincerely appreciate the opportunity to provide analytical services to you on this project. If you have any questions or concerns regarding this analytical report, please contact me at your convenience at 760-804-9678.

Sincerely,

Janis La Roux
Laboratory Director

H&P Mobile Geochemistry, Inc. is certified under the California ELAP and the National Environmental Laboratory Accreditation Conference (NELAC). H&P is approved as an Environmental Testing Laboratory and Mobile Laboratory in accordance with the DoD-ELAP Program and ISO/IEC 17025:2005 programs, accreditation number 69070 for EPA Method TO-15, H&P Method TO-15, EPA Method 8260B and H&P 8260SV.

H&P Mobile
Geochemistry Inc.

2470 Impala Drive
Carlsbad, CA 92010
760-804-9678 Phone
760-804-9159 Fax

Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SV-1-15	E903018-01	Vapor	05-Mar-19	05-Mar-19
SV-2-15	E903018-02	Vapor	05-Mar-19	05-Mar-19
SV-1-5	E903018-03	Vapor	05-Mar-19	05-Mar-19
SV-3-15	E903018-04	Vapor	05-Mar-19	05-Mar-19
SV-2-5	E903018-05	Vapor	05-Mar-19	05-Mar-19
SV-3-5	E903018-06	Vapor	05-Mar-19	05-Mar-19
SV-6-15	E903018-07	Vapor	05-Mar-19	05-Mar-19
SV-11-15	E903018-08	Vapor	05-Mar-19	05-Mar-19
SV-11-5	E903018-09	Vapor	05-Mar-19	05-Mar-19
SV-9-15	E903018-10	Vapor	05-Mar-19	05-Mar-19
SV-9-15-REP	E903018-11	Vapor	05-Mar-19	05-Mar-19
SV-6-5	E903018-12	Vapor	05-Mar-19	05-Mar-19
SV-9-5	E903018-13	Vapor	05-Mar-19	05-Mar-19
SV-10-15	E903018-14	Vapor	05-Mar-19	05-Mar-19
SV-10-5	E903018-15	Vapor	05-Mar-19	05-Mar-19
SV-8-15	E903018-16	Vapor	05-Mar-19	05-Mar-19
SV-8-5	E903018-17	Vapor	05-Mar-19	05-Mar-19
SV-7-15	E903018-18	Vapor	05-Mar-19	05-Mar-19
SV-7-5	E903018-19	Vapor	05-Mar-19	05-Mar-19
SV-4	E903018-20	Vapor	05-Mar-19	05-Mar-19
SV-5	E903018-21	Vapor	05-Mar-19	05-Mar-19

H&P Mobile
Geochemistry Inc.

2470 Impala Drive
Carlsbad, CA 92010
760-804-9678 Phone
760-804-9159 Fax

Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-1-15 (E903018-01) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**2.8**	0.4	4.0	"	"	"	"	"	"	J
Chloromethane	**0.3**	0.1	0.8	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	ND	0.2	1.6	"	"	"	"	"	"	
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**4.1**	0.2	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	0.6	6.1	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	**11**	0.3	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	0.1	1.4	"	"	"	"	"	"	
Carbon disulfide	**1.0**	0.1	1.3	"	"	"	"	"	"	J
trans-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**3.6**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	**860**	2.0	9.9	"	10	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.3	3.4	"	1	"	"	"	"	
1,1,1-Trichloroethane	**1.4**	0.2	2.2	"	"	"	"	"	"	J
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**0.5**	0.1	0.6	"	"	"	"	"	"	J
Carbon tetrachloride	ND	0.3	1.3	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	
Trichloroethene	**0.2**	0.2	2.2	"	"	"	"	"	"	J
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	ND	0.3	2.7	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**0.4**	0.3	3.3	"	"	"	"	"	"	J
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**4.0**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-1-15 (E903018-01) Vapor	**Sampled: 05-Mar-19**	**Received: 05-Mar-19**								**J- Report**
Tetrachloroethene	**53**	0.3	2.8	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	0.2	1.9	"	"	"	"	"	"	
Ethylbenzene	**1.4**	0.2	1.8	"	"	"	"	"	"	J
m,p-Xylene	**8.0**	0.2	1.8	"	"	"	"	"	"	
Styrene	**0.9**	0.2	1.7	"	"	"	"	"	"	J
o-Xylene	**2.5**	0.2	1.8	"	"	"	"	"	"	
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	**0.3**	0.2	2.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**0.4**	0.2	2.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**3.3**	0.2	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	**1.1**	0.2	2.4	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	**0.7**	0.2	2.1	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.9	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*114 %*		*76-134*		*"*	*"*	*"*	
Surrogate: 4-Bromofluorobenzene			*84.5 %*		*77-127*		*"*	*"*	*"*	
SV-2-15 (E903018-02) Vapor	**Sampled: 05-Mar-19**	**Received: 05-Mar-19**								**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**2.9**	0.4	4.0	"	"	"	"	"	"	J
Chloromethane	**0.4**	0.1	0.8	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	ND	0.2	1.6	"	"	"	"	"	"	
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**3.7**	0.2	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	0.6	6.1	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	**9.6**	0.3	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	0.1	1.4	"	"	"	"	"	"	
Carbon disulfide	**32**	0.1	1.3	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

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Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-2-15 (E903018-02) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
trans-1,2-Dichloroethene	ND	0.2	1.6	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**8.6**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	**1000**	2.0	9.9	"	10	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.3	3.4	"	1	"	"	"	"	
1,1,1-Trichloroethane	**1.4**	0.2	2.2	"	"	"	"	"	"	J
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**3.2**	0.1	0.6	"	"	"	"	"	"	
Carbon tetrachloride	**0.3**	0.3	1.3	"	"	"	"	"	"	J
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	
Trichloroethene	**0.5**	0.2	2.2	"	"	"	"	"	"	J
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	ND	0.3	2.7	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**0.4**	0.3	3.3	"	"	"	"	"	"	J
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**20**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	
Tetrachloroethene	**39**	0.3	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	0.2	1.9	"	"	"	"	"	"	
Ethylbenzene	**2.9**	0.2	1.8	"	"	"	"	"	"	
m,p-Xylene	**21**	0.2	1.8	"	"	"	"	"	"	
Styrene	**1.3**	0.2	1.7	"	"	"	"	"	"	J
o-Xylene	**6.5**	0.2	1.8	"	"	"	"	"	"	
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	**0.3**	0.2	2.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**1.0**	0.2	2.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**3.3**	0.2	2.0	"	"	"	"	"	"	

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San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-2-15 (E903018-02) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,3-Dichlorobenzene	ND	0.2	2.4	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
1,4-Dichlorobenzene	**0.9**	0.2	2.4	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	**0.3**	0.2	2.1	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.9	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*114 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*85.6 %*	*77-127*		"	"	"	"	
SV-1-5 (E903018-03) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		4.4	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**3.2**	0.8	8.0	"	"	"	"	"	"	J
Chloromethane	**0.3**	0.3	1.7	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.6	5.6	"	"	"	"	"	"	
Vinyl chloride	ND	0.3	1.0	"	"	"	"	"	"	
Bromomethane	ND	0.3	3.2	"	"	"	"	"	"	
Chloroethane	ND	0.4	2.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**2.8**	0.5	4.5	"	"	"	"	"	"	J
1,1-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	1.2	12	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	**6.0**	0.6	6.2	"	"	"	"	"	"	J
Methylene chloride (Dichloromethane)	ND	0.3	2.8	"	"	"	"	"	"	
Carbon disulfide	**7.6**	0.3	2.5	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.6	5.8	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.3	3.3	"	"	"	"	"	"	
2-Butanone (MEK)	**5.5**	0.5	4.8	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.7	6.8	"	"	"	"	"	"	
Chloroform	**26**	0.4	2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.7	6.8	"	"	"	"	"	"	
1,1,1-Trichloroethane	**0.4**	0.4	4.4	"	"	"	"	"	"	J
1,2-Dichloroethane (EDC)	ND	0.3	3.3	"	"	"	"	"	"	
Benzene	**3.2**	0.3	1.3	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.5	2.6	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.7	6.8	"	"	"	"	"	"	

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735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-1-5 (E903018-03) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
Trichloroethene	ND	0.4	4.4	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
1,2-Dichloropropane	ND	0.4	3.7	"	"	"	"	"	"	
Bromodichloromethane	ND	0.5	5.4	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**3.2**	0.7	6.6	"	"	"	"	"	"	J
trans-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
Toluene	**54**	0.3	6.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.4	4.4	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.7	6.6	"	"	"	"	"	"	
Dibromochloromethane	ND	0.7	6.9	"	"	"	"	"	"	
Tetrachloroethene	**13**	0.6	5.5	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.6	6.2	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
Chlorobenzene	ND	0.4	3.7	"	"	"	"	"	"	
Ethylbenzene	**30**	0.4	3.5	"	"	"	"	"	"	
m,p-Xylene	**110**	0.4	3.5	"	"	"	"	"	"	
Styrene	**1.9**	0.3	3.5	"	"	"	"	"	"	J
o-Xylene	**33**	0.4	3.5	"	"	"	"	"	"	
Bromoform	ND	0.8	8.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
4-Ethyltoluene	**2.4**	0.4	4.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**2.2**	0.4	4.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**8.1**	0.4	4.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.5	4.9	"	"	"	"	"	"	
1,4-Dichlorobenzene	**1.1**	0.5	4.9	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.5	4.9	"	"	"	"	"	"	
Naphthalene	**1.0**	0.4	4.2	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.6	15	"	"	"	"	"	"	
Hexachlorobutadiene	ND	1.7	21	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*118 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*87.8 %*	*77-127*		"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
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San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-3-15 (E903018-04) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**2.3**	0.4	4.0	"	"	"	"	"	"	J
Chloromethane	**0.3**	0.1	0.8	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	ND	0.2	1.6	"	"	"	"	"	"	
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**2.5**	0.2	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	0.6	6.1	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	**5.8**	0.3	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	0.1	1.4	"	"	"	"	"	"	
Carbon disulfide	**6.2**	0.1	1.3	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**15**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	**960**	2.0	9.9	"	10	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.3	3.4	"	1	"	"	"	"	
1,1,1-Trichloroethane	**1.0**	0.2	2.2	"	"	"	"	"	"	J
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**1.5**	0.1	0.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.3	1.3	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	
Trichloroethene	ND	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	ND	0.3	2.7	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**14**	0.3	3.3	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**12**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-3-15 (E903018-04) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
Tetrachloroethene	**31**	0.3	2.8	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	0.2	1.9	"	"	"	"	"	"	
Ethylbenzene	**4.4**	0.2	1.8	"	"	"	"	"	"	
m,p-Xylene	**15**	0.2	1.8	"	"	"	"	"	"	
Styrene	**3.8**	0.2	1.7	"	"	"	"	"	"	
o-Xylene	**4.7**	0.2	1.8	"	"	"	"	"	"	
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	**1.1**	0.2	2.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**0.9**	0.2	2.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**4.2**	0.2	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	**1.7**	0.2	2.4	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	**1.1**	0.2	2.1	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.9	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*109 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*87.1 %*	*77-127*		"	"	"	"	
SV-2-5 (E903018-05) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**2.7**	0.4	4.0	"	"	"	"	"	"	J
Chloromethane	**0.3**	0.1	0.8	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	ND	0.2	1.6	"	"	"	"	"	"	
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**6.5**	0.2	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	**0.9**	0.6	6.1	"	"	"	"	"	"	J
1,1,2-Trichlorotrifluoroethane (F113)	**5.2**	0.3	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	**0.3**	0.1	1.4	"	"	"	"	"	"	J
Carbon disulfide	**11**	0.1	1.3	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

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Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-2-5 (E903018-05) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
trans-1,2-Dichloroethene	ND	0.2	1.6	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**14**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	**19**	0.2	1.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.3	3.4	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**4.2**	0.1	0.6	"	"	"	"	"	"	
Carbon tetrachloride	**0.4**	0.3	1.3	"	"	"	"	"	"	J
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	
Trichloroethene	**0.5**	0.2	2.2	"	"	"	"	"	"	J
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	**0.4**	0.3	2.7	"	"	"	"	"	"	J
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**5.9**	0.3	3.3	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**36**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	
Tetrachloroethene	**9.4**	0.3	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	**0.7**	0.2	1.9	"	"	"	"	"	"	J
Ethylbenzene	**8.0**	0.2	1.8	"	"	"	"	"	"	
m,p-Xylene	**25**	0.2	1.8	"	"	"	"	"	"	
Styrene	**1.3**	0.2	1.7	"	"	"	"	"	"	J
o-Xylene	**8.1**	0.2	1.8	"	"	"	"	"	"	
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	**0.8**	0.2	2.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**1.0**	0.2	2.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**3.3**	0.2	2.0	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-2-5 (E903018-05) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,3-Dichlorobenzene	ND	0.2	2.4	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
1,4-Dichlorobenzene	**0.3**	0.2	2.4	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	**0.3**	0.2	2.1	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.9	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*105 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*87.6 %*	*77-127*		"	"	"	"	
SV-3-5 (E903018-06) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**2.2**	0.4	4.0	"	"	"	"	"	"	J
Chloromethane	ND	0.1	0.8	"	"	"	"	"	"	
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	ND	0.2	1.6	"	"	"	"	"	"	
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**1.6**	0.2	2.3	"	"	"	"	"	"	J
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	**0.9**	0.6	6.1	"	"	"	"	"	"	J
1,1,2-Trichlorotrifluoroethane (F113)	**2.7**	0.3	3.1	"	"	"	"	"	"	J
Methylene chloride (Dichloromethane)	**0.4**	0.1	1.4	"	"	"	"	"	"	J
Carbon disulfide	**9.1**	0.1	1.3	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**3.9**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	**51**	0.2	1.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.3	3.4	"	"	"	"	"	"	
1,1,1-Trichloroethane	**0.4**	0.2	2.2	"	"	"	"	"	"	J
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**4.5**	0.1	0.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.3	1.3	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

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Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-3-5 (E903018-06) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
Trichloroethene	ND	0.2	2.2	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	ND	0.3	2.7	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**5.6**	0.3	3.3	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**34**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	
Tetrachloroethene	**7.3**	0.3	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	0.2	1.9	"	"	"	"	"	"	
Ethylbenzene	**6.3**	0.2	1.8	"	"	"	"	"	"	
m,p-Xylene	**21**	0.2	1.8	"	"	"	"	"	"	
Styrene	**2.1**	0.2	1.7	"	"	"	"	"	"	
o-Xylene	**6.9**	0.2	1.8	"	"	"	"	"	"	
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	**1.1**	0.2	2.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**0.9**	0.2	2.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**4.1**	0.2	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	**0.9**	0.2	2.4	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	**0.6**	0.2	2.1	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.9	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*109 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*86.7 %*	*77-127*		"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-6-15 (E903018-07) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	ND	0.4	4.0	"	"	"	"	"	"	
Chloromethane	**0.4**	0.1	0.8	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	ND	0.2	1.6	"	"	"	"	"	"	
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**8.6**	0.2	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	0.6	6.1	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	**34**	0.3	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	0.1	1.4	"	"	"	"	"	"	
Carbon disulfide	**1.5**	0.1	1.3	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**11**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	ND	0.2	1.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.3	3.4	"	"	"	"	"	"	
1,1,1-Trichloroethane	**9.7**	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**0.6**	0.1	0.6	"	"	"	"	"	"	J
Carbon tetrachloride	ND	0.3	1.3	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	
Trichloroethene	**0.3**	0.2	2.2	"	"	"	"	"	"	J
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	ND	0.3	2.7	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**0.4**	0.3	3.3	"	"	"	"	"	"	J
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**3.1**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-6-15 (E903018-07) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
Tetrachloroethene	**180**	0.3	2.8	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	0.2	1.9	"	"	"	"	"	"	
Ethylbenzene	**1.2**	0.2	1.8	"	"	"	"	"	"	J
m,p-Xylene	**5.0**	0.2	1.8	"	"	"	"	"	"	
Styrene	**2.4**	0.2	1.7	"	"	"	"	"	"	
o-Xylene	**1.8**	0.2	1.8	"	"	"	"	"	"	
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	**0.4**	0.2	2.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**0.4**	0.2	2.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**2.0**	0.2	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	**1.6**	0.2	2.4	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	**0.7**	0.2	2.1	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.9	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*107 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*88.6 %*	*77-127*		"	"	"	"	
SV-11-15 (E903018-08) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**2.0**	0.4	4.0	"	"	"	"	"	"	J
Chloromethane	**0.4**	0.1	0.8	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	ND	0.2	1.6	"	"	"	"	"	"	
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**1.5**	0.2	2.3	"	"	"	"	"	"	J
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	0.6	6.1	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	**1.0**	0.3	3.1	"	"	"	"	"	"	J
Methylene chloride (Dichloromethane)	**0.4**	0.1	1.4	"	"	"	"	"	"	J
Carbon disulfide	**1.9**	0.1	1.3	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-11-15 (E903018-08) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
trans-1,2-Dichloroethene	ND	0.2	1.6	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**8.4**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	ND	0.2	1.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.3	3.4	"	"	"	"	"	"	
1,1,1-Trichloroethane	**5.3**	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**0.8**	0.1	0.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.3	1.3	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	
Trichloroethene	ND	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	ND	0.3	2.7	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**0.3**	0.3	3.3	"	"	"	"	"	"	J
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**5.2**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	
Tetrachloroethene	**9.4**	0.3	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	0.2	1.9	"	"	"	"	"	"	
Ethylbenzene	**4.3**	0.2	1.8	"	"	"	"	"	"	
m,p-Xylene	**19**	0.2	1.8	"	"	"	"	"	"	
Styrene	**2.2**	0.2	1.7	"	"	"	"	"	"	
o-Xylene	**8.5**	0.2	1.8	"	"	"	"	"	"	
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	**1.1**	0.2	2.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**2.8**	0.2	2.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	**22**	0.2	2.0	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-11-15 (E903018-08) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,3-Dichlorobenzene	ND	0.2	2.4	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
1,4-Dichlorobenzene	**1.2**	0.2	2.4	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	**0.7**	0.2	2.1	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.9	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*106 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*85.5 %*	*77-127*		"	"	"	"	
SV-11-5 (E903018-09) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**2.1**	0.4	4.0	"	"	"	"	"	"	J
Chloromethane	**0.4**	0.1	0.8	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	ND	0.2	1.6	"	"	"	"	"	"	
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**1.7**	0.2	2.3	"	"	"	"	"	"	J
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	**1.5**	0.6	6.1	"	"	"	"	"	"	J
1,1,2-Trichlorotrifluoroethane (F113)	**1.0**	0.3	3.1	"	"	"	"	"	"	J
Methylene chloride (Dichloromethane)	**0.3**	0.1	1.4	"	"	"	"	"	"	J
Carbon disulfide	**20**	0.1	1.3	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**5.1**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	**1.5**	0.2	1.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.3	3.4	"	"	"	"	"	"	
1,1,1-Trichloroethane	**2.3**	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**7.6**	0.1	0.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.3	1.3	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-11-5 (E903018-09) Vapor	**Sampled: 05-Mar-19**	**Received: 05-Mar-19**								**J- Report**
Trichloroethene	**0.5**	0.2	2.2	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	J
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	**0.6**	0.3	2.7	"	"	"	"	"	"	J
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**2.9**	0.3	3.3	"	"	"	"	"	"	J
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**74**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	
Tetrachloroethene	**3.9**	0.3	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	0.2	1.9	"	"	"	"	"	"	
Ethylbenzene	**27**	0.2	1.8	"	"	"	"	"	"	
m,p-Xylene	**76**	0.2	1.8	"	"	"	"	"	"	
Styrene	**27**	0.2	1.7	"	"	"	"	"	"	
o-Xylene	**26**	0.2	1.8	"	"	"	"	"	"	
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	ND	0.2	2.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.2	2.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.2	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	ND	0.2	2.1	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.9	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*109 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*97.3 %*	*77-127*		"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

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Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-9-15 (E903018-10) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		4.4	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**3.5**	0.8	8.0	"	"	"	"	"	"	J
Chloromethane	**1.6**	0.3	1.7	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.6	5.6	"	"	"	"	"	"	
Vinyl chloride	ND	0.3	1.0	"	"	"	"	"	"	
Bromomethane	ND	0.3	3.2	"	"	"	"	"	"	
Chloroethane	ND	0.4	2.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**2.7**	0.5	4.5	"	"	"	"	"	"	J
1,1-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	1.2	12	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	**4.8**	0.6	6.2	"	"	"	"	"	"	J
Methylene chloride (Dichloromethane)	**0.4**	0.3	2.8	"	"	"	"	"	"	J
Carbon disulfide	**12**	0.3	2.5	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.6	5.8	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.3	3.3	"	"	"	"	"	"	
2-Butanone (MEK)	**5.5**	0.5	4.8	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.7	6.8	"	"	"	"	"	"	
Chloroform	ND	0.4	2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.7	6.8	"	"	"	"	"	"	
1,1,1-Trichloroethane	**73**	0.4	4.4	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.3	3.3	"	"	"	"	"	"	
Benzene	**2.1**	0.3	1.3	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.5	2.6	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.7	6.8	"	"	"	"	"	"	
Trichloroethene	**0.4**	0.4	4.4	"	"	"	"	"	"	J
1,2-Dichloropropane	ND	0.4	3.7	"	"	"	"	"	"	
Bromodichloromethane	ND	0.5	5.4	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	ND	0.7	6.6	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
Toluene	**20**	0.3	6.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.4	4.4	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.7	6.6	"	"	"	"	"	"	
Dibromochloromethane	ND	0.7	6.9	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-9-15 (E903018-10) Vapor	**Sampled: 05-Mar-19**	**Received: 05-Mar-19**								**J- Report**
Tetrachloroethene	**30**	0.6	5.5	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
1,2-Dibromoethane (EDB)	ND	0.6	6.2	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
Chlorobenzene	ND	0.4	3.7	"	"	"	"	"	"	
Ethylbenzene	**5.5**	0.4	3.5	"	"	"	"	"	"	
m,p-Xylene	**21**	0.4	3.5	"	"	"	"	"	"	
Styrene	**8.4**	0.3	3.5	"	"	"	"	"	"	
o-Xylene	**5.8**	0.4	3.5	"	"	"	"	"	"	
Bromoform	ND	0.8	8.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
4-Ethyltoluene	**1.3**	0.4	4.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**1.2**	0.4	4.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**6.1**	0.4	4.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.5	4.9	"	"	"	"	"	"	
1,4-Dichlorobenzene	**2.2**	0.5	4.9	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.5	4.9	"	"	"	"	"	"	
Naphthalene	**1.0**	0.4	4.2	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.6	15	"	"	"	"	"	"	
Hexachlorobutadiene	ND	1.7	21	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*113 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*84.9 %*	*77-127*		"	"	"	"	
SV-9-15-REP (E903018-11) Vapor	**Sampled: 05-Mar-19**	**Received: 05-Mar-19**								**J- Report**
1,1-Difluoroethane (LCC)	ND		4.4	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**3.8**	0.8	8.0	"	"	"	"	"	"	J
Chloromethane	**1.1**	0.3	1.7	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.6	5.6	"	"	"	"	"	"	
Vinyl chloride	ND	0.3	1.0	"	"	"	"	"	"	
Bromomethane	ND	0.3	3.2	"	"	"	"	"	"	
Chloroethane	ND	0.4	2.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**2.8**	0.5	4.5	"	"	"	"	"	"	J
1,1-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	1.2	12	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	**6.0**	0.6	6.2	"	"	"	"	"	"	J
Methylene chloride (Dichloromethane)	ND	0.3	2.8	"	"	"	"	"	"	
Carbon disulfide	**7.6**	0.3	2.5	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-9-15-REP (E903018-11) Vapor	**Sampled: 05-Mar-19**	**Received: 05-Mar-19**								**J- Report**
trans-1,2-Dichloroethene	ND	0.3	3.2	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
Methyl tertiary-butyl ether (MTBE)	ND	0.6	5.8	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.3	3.3	"	"	"	"	"	"	
2-Butanone (MEK)	**2.8**	0.5	4.8	"	"	"	"	"	"	J
cis-1,2-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.7	6.8	"	"	"	"	"	"	
Chloroform	ND	0.4	2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.7	6.8	"	"	"	"	"	"	
1,1,1-Trichloroethane	**89**	0.4	4.4	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.3	3.3	"	"	"	"	"	"	
Benzene	**1.2**	0.3	1.3	"	"	"	"	"	"	J
Carbon tetrachloride	ND	0.5	2.6	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.7	6.8	"	"	"	"	"	"	
Trichloroethene	ND	0.4	4.4	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.4	3.7	"	"	"	"	"	"	
Bromodichloromethane	ND	0.5	5.4	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	ND	0.7	6.6	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
Toluene	**14**	0.3	6.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.4	4.4	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.7	6.6	"	"	"	"	"	"	
Dibromochloromethane	ND	0.7	6.9	"	"	"	"	"	"	
Tetrachloroethene	**37**	0.6	5.5	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.6	6.2	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
Chlorobenzene	ND	0.4	3.7	"	"	"	"	"	"	
Ethylbenzene	**4.0**	0.4	3.5	"	"	"	"	"	"	
m,p-Xylene	**16**	0.4	3.5	"	"	"	"	"	"	
Styrene	**7.1**	0.3	3.5	"	"	"	"	"	"	
o-Xylene	**4.6**	0.4	3.5	"	"	"	"	"	"	
Bromoform	ND	0.8	8.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
4-Ethyltoluene	**1.3**	0.4	4.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**0.9**	0.4	4.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**4.4**	0.4	4.0	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-9-15-REP (E903018-11) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,3-Dichlorobenzene	ND	0.5	4.9	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
1,4-Dichlorobenzene	**1.6**	0.5	4.9	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.5	4.9	"	"	"	"	"	"	
Naphthalene	**0.6**	0.4	4.2	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.6	15	"	"	"	"	"	"	
Hexachlorobutadiene	ND	1.7	21	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*115 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*86.6 %*	*77-127*		"	"	"	"	
SV-6-5 (E903018-12) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91119	11-Mar-19	11-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**3.3**	0.4	4.0	"	"	"	"	"	"	J
Chloromethane	**0.3**	0.1	0.8	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	ND	0.2	1.6	"	"	"	"	"	"	
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**4.7**	0.2	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	**1.1**	0.6	6.1	"	"	"	"	"	"	J
1,1,2-Trichlorotrifluoroethane (F113)	**18**	0.3	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	**0.2**	0.1	1.4	"	"	"	"	"	"	J
Carbon disulfide	**8.8**	0.1	1.3	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**13**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	ND	0.2	1.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.3	3.4	"	"	"	"	"	"	
1,1,1-Trichloroethane	**2.7**	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**1.7**	0.1	0.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.3	1.3	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

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Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-6-5 (E903018-12) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
Trichloroethene	**0.3**	0.2	2.2	ug/m3	1	EC91119	11-Mar-19	11-Mar-19	EPA TO-15	J
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	ND	0.3	2.7	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**1.9**	0.3	3.3	"	"	"	"	"	"	J
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**17**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	
Tetrachloroethene	**54**	0.3	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	0.2	1.9	"	"	"	"	"	"	
Ethylbenzene	**6.7**	0.2	1.8	"	"	"	"	"	"	
m,p-Xylene	**22**	0.2	1.8	"	"	"	"	"	"	
Styrene	**1.6**	0.2	1.7	"	"	"	"	"	"	J
o-Xylene	**6.9**	0.2	1.8	"	"	"	"	"	"	
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	**1.2**	0.2	2.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**1.5**	0.2	2.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**4.9**	0.2	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	**0.3**	0.2	2.4	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	**0.5**	0.2	2.1	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	**0.9**	0.9	11	"	"	"	"	"	"	J
Surrogate: 1,2-Dichloroethane-d4			*112 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*82.7 %*	*77-127*		"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

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Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-9-5 (E903018-13) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	ND	0.4	4.0	"	"	"	"	"	"	
Chloromethane	**0.3**	0.1	0.8	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	ND	0.2	1.6	"	"	"	"	"	"	
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**1.5**	0.2	2.3	"	"	"	"	"	"	J
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	**3.1**	0.6	6.1	"	"	"	"	"	"	J
1,1,2-Trichlorotrifluoroethane (F113)	**2.1**	0.3	3.1	"	"	"	"	"	"	J
Methylene chloride (Dichloromethane)	**0.2**	0.1	1.4	"	"	"	"	"	"	J
Carbon disulfide	**10**	0.1	1.3	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**6.6**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	**0.5**	0.2	1.0	"	"	"	"	"	"	J
Ethyl tert-butyl ether (ETBE)	**0.3**	0.3	3.4	"	"	"	"	"	"	J
1,1,1-Trichloroethane	**21**	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**3.4**	0.1	0.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.3	1.3	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	
Trichloroethene	**0.3**	0.2	2.2	"	"	"	"	"	"	J
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	**0.3**	0.3	2.7	"	"	"	"	"	"	J
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**4.8**	0.3	3.3	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**34**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
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San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-9-5 (E903018-13) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
Tetrachloroethene	**5.0**	0.3	2.8	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	**1.0**	0.2	1.9	"	"	"	"	"	"	J
Ethylbenzene	**9.7**	0.2	1.8	"	"	"	"	"	"	
m,p-Xylene	**30**	0.2	1.8	"	"	"	"	"	"	
Styrene	**14**	0.2	1.7	"	"	"	"	"	"	
o-Xylene	**9.4**	0.2	1.8	"	"	"	"	"	"	
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	**2.0**	0.2	2.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	**2.4**	0.2	2.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	**8.1**	0.2	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	**0.5**	0.2	2.4	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	**0.8**	0.2	2.1	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.9	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*102 %*		*76-134*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*80.1 %*		*77-127*	"	"	"	"	
SV-10-15 (E903018-14) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**2.2**	0.4	4.0	"	"	"	"	"	"	J
Chloromethane	**0.4**	0.1	0.8	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	ND	0.2	1.6	"	"	"	"	"	"	
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**2.9**	0.2	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	**2.2**	0.6	6.1	"	"	"	"	"	"	J
1,1,2-Trichlorotrifluoroethane (F113)	**6.4**	0.3	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	**0.3**	0.1	1.4	"	"	"	"	"	"	J
Carbon disulfide	**0.7**	0.1	1.3	"	"	"	"	"	"	J

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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-10-15 (E903018-14) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
trans-1,2-Dichloroethene	ND	0.2	1.6	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**8.8**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	ND	0.2	1.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.3	3.4	"	"	"	"	"	"	
1,1,1-Trichloroethane	**86**	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**1.3**	0.1	0.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.3	1.3	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	
Trichloroethene	ND	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	ND	0.3	2.7	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**0.7**	0.3	3.3	"	"	"	"	"	"	J
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**7.3**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	
Tetrachloroethene	**47**	0.3	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	**0.5**	0.2	1.9	"	"	"	"	"	"	J
Ethylbenzene	**2.9**	0.2	1.8	"	"	"	"	"	"	
m,p-Xylene	**9.6**	0.2	1.8	"	"	"	"	"	"	
Styrene	**5.7**	0.2	1.7	"	"	"	"	"	"	
o-Xylene	**3.2**	0.2	1.8	"	"	"	"	"	"	
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	**1.0**	0.2	2.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**0.7**	0.2	2.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**3.1**	0.2	2.0	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-10-15 (E903018-14) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,3-Dichlorobenzene	ND	0.2	2.4	ug/m3	1	EC91212	12-Mar-19	12-Mar-19	EPA TO-15	
1,4-Dichlorobenzene	**1.0**	0.2	2.4	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	**0.3**	0.2	2.1	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.9	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*108 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*77.1 %*	*77-127*		"	"	"	"	
SV-10-5 (E903018-15) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91212	12-Mar-19	13-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**2.2**	0.4	4.0	"	"	"	"	"	"	J
Chloromethane	**0.9**	0.1	0.8	"	"	"	"	"	"	
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	**0.3**	0.2	1.6	"	"	"	"	"	"	J
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**1.9**	0.2	2.3	"	"	"	"	"	"	J
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	**3.0**	0.6	6.1	"	"	"	"	"	"	J
1,1,2-Trichlorotrifluoroethane (F113)	**2.6**	0.3	3.1	"	"	"	"	"	"	J
Methylene chloride (Dichloromethane)	**1.1**	0.1	1.4	"	"	"	"	"	"	J
Carbon disulfide	**5.4**	0.1	1.3	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**9.4**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	**0.7**	0.2	1.0	"	"	"	"	"	"	J
Ethyl tert-butyl ether (ETBE)	ND	0.3	3.4	"	"	"	"	"	"	
1,1,1-Trichloroethane	**30**	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**3.4**	0.1	0.6	"	"	"	"	"	"	
Carbon tetrachloride	**0.3**	0.3	1.3	"	"	"	"	"	"	J
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-10-5 (E903018-15) Vapor	**Sampled: 05-Mar-19**	**Received: 05-Mar-19**								**J- Report**
Trichloroethene	ND	0.2	2.2	ug/m3	1	EC91212	12-Mar-19	13-Mar-19	EPA TO-15	
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	**0.5**	0.3	2.7	"	"	"	"	"	"	J
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**1.7**	0.3	3.3	"	"	"	"	"	"	J
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**14**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	
Tetrachloroethene	**11**	0.3	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	0.2	1.9	"	"	"	"	"	"	
Ethylbenzene	**2.6**	0.2	1.8	"	"	"	"	"	"	
m,p-Xylene	**5.3**	0.2	1.8	"	"	"	"	"	"	
Styrene	ND	0.2	1.7	"	"	"	"	"	"	
o-Xylene	**1.9**	0.2	1.8	"	"	"	"	"	"	
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	**0.2**	0.2	2.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**0.2**	0.2	2.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**0.5**	0.2	2.0	"	"	"	"	"	"	J
1,3-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	ND	0.2	2.1	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.9	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*107 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*77.8 %*	*77-127*		"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

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Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-8-15 (E903018-16) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91212	12-Mar-19	13-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**3.8**	0.4	4.0	"	"	"	"	"	"	J
Chloromethane	**0.3**	0.1	0.8	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	ND	0.2	1.6	"	"	"	"	"	"	
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**3.6**	0.2	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	**1.0**	0.6	6.1	"	"	"	"	"	"	J
1,1,2-Trichlorotrifluoroethane (F113)	**10**	0.3	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	**0.4**	0.1	1.4	"	"	"	"	"	"	J
Carbon disulfide	**0.3**	0.1	1.3	"	"	"	"	"	"	J
trans-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**14**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	ND	0.2	1.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.3	3.4	"	"	"	"	"	"	
1,1,1-Trichloroethane	**7.7**	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**0.8**	0.1	0.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.3	1.3	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	
Trichloroethene	ND	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	ND	0.3	2.7	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**1.0**	0.3	3.3	"	"	"	"	"	"	J
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**3.1**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-8-15 (E903018-16) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
Tetrachloroethene	**39**	0.3	2.8	ug/m3	1	EC91212	12-Mar-19	13-Mar-19	EPA TO-15	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	0.2	1.9	"	"	"	"	"	"	
Ethylbenzene	**1.2**	0.2	1.8	"	"	"	"	"	"	J
m,p-Xylene	**3.4**	0.2	1.8	"	"	"	"	"	"	
Styrene	**3.0**	0.2	1.7	"	"	"	"	"	"	
o-Xylene	**1.3**	0.2	1.8	"	"	"	"	"	"	J
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	**0.4**	0.2	2.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**0.5**	0.2	2.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**2.1**	0.2	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	**1.6**	0.2	2.4	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	**1.0**	0.2	2.1	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.9	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*106 %*		*76-134*		*"*	*"*	*"*	
Surrogate: 4-Bromofluorobenzene			*77.9 %*		*77-127*		*"*	*"*	*"*	
SV-8-5 (E903018-17) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		4.4	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**4.3**	0.8	8.0	"	"	"	"	"	"	J
Chloromethane	ND	0.3	1.7	"	"	"	"	"	"	
Dichlorotetrafluoroethane (F114)	ND	0.6	5.6	"	"	"	"	"	"	
Vinyl chloride	ND	0.3	1.0	"	"	"	"	"	"	
Bromomethane	ND	0.3	3.2	"	"	"	"	"	"	
Chloroethane	ND	0.4	2.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**2.8**	0.5	4.5	"	"	"	"	"	"	J
1,1-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	1.2	12	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	**6.2**	0.6	6.2	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	0.3	2.8	"	"	"	"	"	"	
Carbon disulfide	ND	0.3	2.5	"	"	"	"	"	"	

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San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-8-5 (E903018-17) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
trans-1,2-Dichloroethene	ND	0.3	3.2	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
Methyl tertiary-butyl ether (MTBE)	ND	0.6	5.8	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.3	3.3	"	"	"	"	"	"	
2-Butanone (MEK)	**5.7**	0.5	4.8	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.7	6.8	"	"	"	"	"	"	
Chloroform	ND	0.4	2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.7	6.8	"	"	"	"	"	"	
1,1,1-Trichloroethane	**3.8**	0.4	4.4	"	"	"	"	"	"	J
1,2-Dichloroethane (EDC)	ND	0.3	3.3	"	"	"	"	"	"	
Benzene	**0.5**	0.3	1.3	"	"	"	"	"	"	J
Carbon tetrachloride	ND	0.5	2.6	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.7	6.8	"	"	"	"	"	"	
Trichloroethene	ND	0.4	4.4	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.4	3.7	"	"	"	"	"	"	
Bromodichloromethane	ND	0.5	5.4	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**4.6**	0.7	6.6	"	"	"	"	"	"	J
trans-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
Toluene	**6.6**	0.3	6.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.4	4.4	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.7	6.6	"	"	"	"	"	"	
Dibromochloromethane	ND	0.7	6.9	"	"	"	"	"	"	
Tetrachloroethene	**14**	0.6	5.5	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.6	6.2	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
Chlorobenzene	ND	0.4	3.7	"	"	"	"	"	"	
Ethylbenzene	**2.8**	0.4	3.5	"	"	"	"	"	"	J
m,p-Xylene	**14**	0.4	3.5	"	"	"	"	"	"	
Styrene	**1.7**	0.3	3.5	"	"	"	"	"	"	J
o-Xylene	**3.6**	0.4	3.5	"	"	"	"	"	"	
Bromoform	ND	0.8	8.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
4-Ethyltoluene	**1.8**	0.4	4.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**3.2**	0.4	4.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**12**	0.4	4.0	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

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Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-8-5 (E903018-17) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,3-Dichlorobenzene	ND	0.5	4.9	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
1,4-Dichlorobenzene	**1.6**	0.5	4.9	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.5	4.9	"	"	"	"	"	"	
Naphthalene	**1.7**	0.4	4.2	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.6	15	"	"	"	"	"	"	
Hexachlorobutadiene	ND	1.7	21	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*114 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*85.7 %*	*77-127*		"	"	"	"	
SV-7-15 (E903018-18) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		2.2	ug/m3	1	EC91212	12-Mar-19	13-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**3.2**	0.4	4.0	"	"	"	"	"	"	J
Chloromethane	**0.1**	0.1	0.8	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.3	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.1	0.5	"	"	"	"	"	"	
Bromomethane	ND	0.2	1.6	"	"	"	"	"	"	
Chloroethane	ND	0.2	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**2.6**	0.2	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	**1.0**	0.6	6.1	"	"	"	"	"	"	J
1,1,2-Trichlorotrifluoroethane (F113)	**5.3**	0.3	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	**0.2**	0.1	1.4	"	"	"	"	"	"	J
Carbon disulfide	**1.1**	0.1	1.3	"	"	"	"	"	"	J
trans-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.3	2.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.2	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	**14**	0.2	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.2	1.6	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.3	3.4	"	"	"	"	"	"	
Chloroform	ND	0.2	1.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.3	3.4	"	"	"	"	"	"	
1,1,1-Trichloroethane	**3.4**	0.2	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.2	1.6	"	"	"	"	"	"	
Benzene	**0.5**	0.1	0.6	"	"	"	"	"	"	J
Carbon tetrachloride	ND	0.3	1.3	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.3	3.4	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

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Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-7-15 (E903018-18) Vapor	**Sampled: 05-Mar-19**	**Received: 05-Mar-19**								**J- Report**
Trichloroethene	ND	0.2	2.2	ug/m3	1	EC91212	12-Mar-19	13-Mar-19	EPA TO-15	
1,2-Dichloropropane	ND	0.2	1.9	"	"	"	"	"	"	
Bromodichloromethane	ND	0.3	2.7	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**1.6**	0.3	3.3	"	"	"	"	"	"	J
trans-1,3-Dichloropropene	ND	0.2	1.8	"	"	"	"	"	"	
Toluene	**5.4**	0.2	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.2	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.3	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	0.3	3.5	"	"	"	"	"	"	
Tetrachloroethene	**16**	0.3	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.3	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	0.2	1.9	"	"	"	"	"	"	
Ethylbenzene	**2.6**	0.2	1.8	"	"	"	"	"	"	
m,p-Xylene	**9.8**	0.2	1.8	"	"	"	"	"	"	
Styrene	**2.9**	0.2	1.7	"	"	"	"	"	"	
o-Xylene	**3.8**	0.2	1.8	"	"	"	"	"	"	
Bromoform	ND	0.4	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.3	2.8	"	"	"	"	"	"	
4-Ethyltoluene	**1.1**	0.2	2.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**1.2**	0.2	2.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**5.6**	0.2	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	**1.2**	0.2	2.4	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.2	2.4	"	"	"	"	"	"	
Naphthalene	**0.9**	0.2	2.1	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.3	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.9	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*107 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*79.5 %*	*77-127*		"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

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Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-7-5 (E903018-19) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		4.4	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**4.1**	0.8	8.0	"	"	"	"	"	"	J
Chloromethane	ND	0.3	1.7	"	"	"	"	"	"	
Dichlorotetrafluoroethane (F114)	ND	0.6	5.6	"	"	"	"	"	"	
Vinyl chloride	ND	0.3	1.0	"	"	"	"	"	"	
Bromomethane	ND	0.3	3.2	"	"	"	"	"	"	
Chloroethane	ND	0.4	2.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**2.6**	0.5	4.5	"	"	"	"	"	"	J
1,1-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	1.2	12	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	**4.2**	0.6	6.2	"	"	"	"	"	"	J
Methylene chloride (Dichloromethane)	ND	0.3	2.8	"	"	"	"	"	"	
Carbon disulfide	**0.3**	0.3	2.5	"	"	"	"	"	"	J
trans-1,2-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.6	5.8	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.3	3.3	"	"	"	"	"	"	
2-Butanone (MEK)	**4.5**	0.5	4.8	"	"	"	"	"	"	J
cis-1,2-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.7	6.8	"	"	"	"	"	"	
Chloroform	ND	0.4	2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.7	6.8	"	"	"	"	"	"	
1,1,1-Trichloroethane	**2.3**	0.4	4.4	"	"	"	"	"	"	J
1,2-Dichloroethane (EDC)	ND	0.3	3.3	"	"	"	"	"	"	
Benzene	**0.5**	0.3	1.3	"	"	"	"	"	"	J
Carbon tetrachloride	ND	0.5	2.6	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.7	6.8	"	"	"	"	"	"	
Trichloroethene	ND	0.4	4.4	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.4	3.7	"	"	"	"	"	"	
Bromodichloromethane	ND	0.5	5.4	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	ND	0.7	6.6	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
Toluene	**2.3**	0.3	6.1	"	"	"	"	"	"	J
1,1,2-Trichloroethane	ND	0.4	4.4	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.7	6.6	"	"	"	"	"	"	
Dibromochloromethane	ND	0.7	6.9	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-7-5 (E903018-19) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
Tetrachloroethene	**6.1**	0.6	5.5	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
1,2-Dibromoethane (EDB)	ND	0.6	6.2	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
Chlorobenzene	ND	0.4	3.7	"	"	"	"	"	"	
Ethylbenzene	**0.7**	0.4	3.5	"	"	"	"	"	"	J
m,p-Xylene	**3.1**	0.4	3.5	"	"	"	"	"	"	J
Styrene	**1.0**	0.3	3.5	"	"	"	"	"	"	J
o-Xylene	**1.3**	0.4	3.5	"	"	"	"	"	"	J
Bromoform	ND	0.8	8.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
4-Ethyltoluene	ND	0.4	4.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	**0.5**	0.4	4.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**1.9**	0.4	4.0	"	"	"	"	"	"	J
1,3-Dichlorobenzene	ND	0.5	4.9	"	"	"	"	"	"	
1,4-Dichlorobenzene	**0.7**	0.5	4.9	"	"	"	"	"	"	J
1,2-Dichlorobenzene	ND	0.5	4.9	"	"	"	"	"	"	
Naphthalene	**0.6**	0.4	4.2	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.6	15	"	"	"	"	"	"	
Hexachlorobutadiene	ND	1.7	21	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*114 %*		*76-134*		*"*	*"*	*"*	
Surrogate: 4-Bromofluorobenzene			*83.9 %*		*77-127*		*"*	*"*	*"*	
SV-4 (E903018-20) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		4.4	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**4.9**	0.8	8.0	"	"	"	"	"	"	J
Chloromethane	**0.6**	0.3	1.7	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.6	5.6	"	"	"	"	"	"	
Vinyl chloride	ND	0.3	1.0	"	"	"	"	"	"	
Bromomethane	ND	0.3	3.2	"	"	"	"	"	"	
Chloroethane	ND	0.4	2.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**2.4**	0.5	4.5	"	"	"	"	"	"	J
1,1-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	**46**	1.2	12	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	**4.0**	0.6	6.2	"	"	"	"	"	"	J
Methylene chloride (Dichloromethane)	**1.3**	0.3	2.8	"	"	"	"	"	"	J
Carbon disulfide	**1.1**	0.3	2.5	"	"	"	"	"	"	J

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-4 (E903018-20) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
trans-1,2-Dichloroethene	ND	0.3	3.2	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
Methyl tertiary-butyl ether (MTBE)	ND	0.6	5.8	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.3	3.3	"	"	"	"	"	"	
2-Butanone (MEK)	**67**	0.5	4.8	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.7	6.8	"	"	"	"	"	"	
Chloroform	ND	0.4	2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	0.7	6.8	"	"	"	"	"	"	
1,1,1-Trichloroethane	**34**	0.4	4.4	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.3	3.3	"	"	"	"	"	"	
Benzene	**8.3**	0.3	1.3	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.5	2.6	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.7	6.8	"	"	"	"	"	"	
Trichloroethene	**0.4**	0.4	4.4	"	"	"	"	"	"	J
1,2-Dichloropropane	ND	0.4	3.7	"	"	"	"	"	"	
Bromodichloromethane	ND	0.5	5.4	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**17**	0.7	6.6	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
Toluene	**24**	0.3	6.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.4	4.4	"	"	"	"	"	"	
2-Hexanone (MBK)	**9.4**	0.7	6.6	"	"	"	"	"	"	
Dibromochloromethane	ND	0.7	6.9	"	"	"	"	"	"	
Tetrachloroethene	**15**	0.6	5.5	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.6	6.2	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
Chlorobenzene	ND	0.4	3.7	"	"	"	"	"	"	
Ethylbenzene	**6.2**	0.4	3.5	"	"	"	"	"	"	
m,p-Xylene	**21**	0.4	3.5	"	"	"	"	"	"	
Styrene	**1.5**	0.3	3.5	"	"	"	"	"	"	J
o-Xylene	**9.8**	0.4	3.5	"	"	"	"	"	"	
Bromoform	ND	0.8	8.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
4-Ethyltoluene	**7.2**	0.4	4.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	**13**	0.4	4.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	**38**	0.4	4.0	"	"	"	"	"	"	

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San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-4 (E903018-20) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,3-Dichlorobenzene	ND	0.5	4.9	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
1,4-Dichlorobenzene	ND	0.5	4.9	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.5	4.9	"	"	"	"	"	"	
Naphthalene	**2.4**	0.4	4.2	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.6	15	"	"	"	"	"	"	
Hexachlorobutadiene	ND	1.7	21	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*115 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*90.0 %*	*77-127*		"	"	"	"	
SV-5 (E903018-21) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
1,1-Difluoroethane (LCC)	ND		4.4	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
Dichlorodifluoromethane (F12)	**2.9**	0.8	8.0	"	"	"	"	"	"	J
Chloromethane	**1.1**	0.3	1.7	"	"	"	"	"	"	J
Dichlorotetrafluoroethane (F114)	ND	0.6	5.6	"	"	"	"	"	"	
Vinyl chloride	ND	0.3	1.0	"	"	"	"	"	"	
Bromomethane	ND	0.3	3.2	"	"	"	"	"	"	
Chloroethane	ND	0.4	2.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	**3.7**	0.5	4.5	"	"	"	"	"	"	J
1,1-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	**2.9**	1.2	12	"	"	"	"	"	"	J
1,1,2-Trichlorotrifluoroethane (F113)	**1.1**	0.6	6.2	"	"	"	"	"	"	J
Methylene chloride (Dichloromethane)	**0.5**	0.3	2.8	"	"	"	"	"	"	J
Carbon disulfide	**0.8**	0.3	2.5	"	"	"	"	"	"	J
trans-1,2-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	0.6	5.8	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.3	3.3	"	"	"	"	"	"	
2-Butanone (MEK)	**18**	0.5	4.8	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.3	3.2	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	0.7	6.8	"	"	"	"	"	"	
Chloroform	**0.5**	0.4	2.0	"	"	"	"	"	"	J
Ethyl tert-butyl ether (ETBE)	ND	0.7	6.8	"	"	"	"	"	"	
1,1,1-Trichloroethane	**1.2**	0.4	4.4	"	"	"	"	"	"	J
1,2-Dichloroethane (EDC)	ND	0.3	3.3	"	"	"	"	"	"	
Benzene	**1.7**	0.3	1.3	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.5	2.6	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	0.7	6.8	"	"	"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV-5 (E903018-21) Vapor Sampled: 05-Mar-19 Received: 05-Mar-19										**J- Report**
Trichloroethene	ND	0.4	4.4	ug/m3	2	EC91310	13-Mar-19	13-Mar-19	EPA TO-15	
1,2-Dichloropropane	ND	0.4	3.7	"	"	"	"	"	"	
Bromodichloromethane	ND	0.5	5.4	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	**3.1**	0.7	6.6	"	"	"	"	"	"	J
trans-1,3-Dichloropropene	ND	0.4	3.7	"	"	"	"	"	"	
Toluene	**3.7**	0.3	6.1	"	"	"	"	"	"	J
1,1,2-Trichloroethane	ND	0.4	4.4	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	0.7	6.6	"	"	"	"	"	"	
Dibromochloromethane	ND	0.7	6.9	"	"	"	"	"	"	
Tetrachloroethene	**21**	0.6	5.5	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.6	6.2	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
Chlorobenzene	ND	0.4	3.7	"	"	"	"	"	"	
Ethylbenzene	**4.0**	0.4	3.5	"	"	"	"	"	"	
m,p-Xylene	**18**	0.4	3.5	"	"	"	"	"	"	
Styrene	**1.6**	0.3	3.5	"	"	"	"	"	"	J
o-Xylene	**5.5**	0.4	3.5	"	"	"	"	"	"	
Bromoform	ND	0.8	8.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.6	5.6	"	"	"	"	"	"	
4-Ethyltoluene	**0.7**	0.4	4.0	"	"	"	"	"	"	J
1,3,5-Trimethylbenzene	**0.8**	0.4	4.0	"	"	"	"	"	"	J
1,2,4-Trimethylbenzene	**2.8**	0.4	4.0	"	"	"	"	"	"	J
1,3-Dichlorobenzene	ND	0.5	4.9	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.5	4.9	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.5	4.9	"	"	"	"	"	"	
Naphthalene	**0.5**	0.4	4.2	"	"	"	"	"	"	J
1,2,4-Trichlorobenzene	ND	0.6	15	"	"	"	"	"	"	
Hexachlorobutadiene	ND	1.7	21	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4			*109 %*	*76-134*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*86.0 %*	*77-127*		"	"	"	"	

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EC91119 - TO-15										
Blank (EC91119-BLK1)				Prepared & Analyzed: 11-Mar-19						
1,1-Difluoroethane (LCC)	ND	2.2	ug/m3							
Dichlorodifluoromethane (F12)	ND	4.0	"							
Chloromethane	ND	0.8	"							
Dichlorotetrafluoroethane (F114)	ND	2.8	"							
Vinyl chloride	ND	0.5	"							
Bromomethane	ND	1.6	"							
Chloroethane	ND	1.1	"							
Trichlorofluoromethane (F11)	ND	2.3	"							
1,1-Dichloroethene	ND	1.6	"							
Tertiary-butyl alcohol (TBA)	ND	6.1	"							
1,1,2-Trichlorotrifluoroethane (F113)	ND	3.1	"							
Methylene chloride (Dichloromethane)	ND	1.4	"							
Carbon disulfide	ND	1.3	"							
trans-1,2-Dichloroethene	ND	1.6	"							
Methyl tertiary-butyl ether (MTBE)	ND	2.9	"							
1,1-Dichloroethane	ND	1.6	"							
2-Butanone (MEK)	ND	2.4	"							
cis-1,2-Dichloroethene	ND	1.6	"							
Diisopropyl ether (DIPE)	ND	3.4	"							
Chloroform	ND	1.0	"							
Ethyl tert-butyl ether (ETBE)	ND	3.4	"							
1,1,1-Trichloroethane	ND	2.2	"							
1,2-Dichloroethane (EDC)	ND	1.6	"							
Benzene	ND	0.6	"							
Carbon tetrachloride	ND	1.3	"							
Tertiary-amyl methyl ether (TAME)	ND	3.4	"							
Trichloroethene	ND	2.2	"							
1,2-Dichloropropane	ND	1.9	"							
Bromodichloromethane	ND	2.7	"							
cis-1,3-Dichloropropene	ND	1.8	"							
4-Methyl-2-pentanone (MIBK)	ND	3.3	"							
trans-1,3-Dichloropropene	ND	1.8	"							
Toluene	ND	3.1	"							
1,1,2-Trichloroethane	ND	2.2	"							

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735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EC91119 - TO-15										
Blank (EC91119-BLK1)				Prepared & Analyzed: 11-Mar-19						
2-Hexanone (MBK)	ND	3.3	ug/m3							
Dibromochloromethane	ND	3.5	"							
Tetrachloroethene	ND	2.8	"							
1,2-Dibromoethane (EDB)	ND	3.1	"							
1,1,1,2-Tetrachloroethane	ND	2.8	"							
Chlorobenzene	ND	1.9	"							
Ethylbenzene	ND	1.8	"							
m,p-Xylene	ND	1.8	"							
Styrene	ND	1.7	"							
o-Xylene	ND	1.8	"							
Bromoform	ND	4.2	"							
1,1,2,2-Tetrachloroethane	ND	2.8	"							
4-Ethyltoluene	ND	2.0	"							
1,3,5-Trimethylbenzene	ND	2.0	"							
1,2,4-Trimethylbenzene	ND	2.0	"							
1,3-Dichlorobenzene	ND	2.4	"							
1,4-Dichlorobenzene	ND	2.4	"							
1,2-Dichlorobenzene	ND	2.4	"							
Naphthalene	ND	2.1	"							
1,2,4-Trichlorobenzene	ND	7.5	"							
Hexachlorobutadiene	ND	11	"							
Surrogate: 1,2-Dichloroethane-d4	*47.2*		*"*	*42.9*		*110*	*76-134*			
Surrogate: 4-Bromofluorobenzene	*61.3*		*"*	*72.9*		*84.1*	*77-127*			
LCS (EC91119-BS1)				Prepared & Analyzed: 11-Mar-19						
Dichlorodifluoromethane (F12)	20	4.0	ug/m3	20.2		101	59-128			
Vinyl chloride	9.1	0.5	"	10.4		87.7	64-127			
Chloroethane	8.6	1.1	"	10.7		80.4	63-127			
Trichlorofluoromethane (F11)	22	2.3	"	22.6		96.4	62-126			
1,1-Dichloroethene	14	1.6	"	16.2		89.6	61-133			
1,1,2-Trichlorotrifluoroethane (F113)	29	3.1	"	31.0		94.9	66-126			
Methylene chloride (Dichloromethane)	13	1.4	"	14.2		90.9	62-115			
trans-1,2-Dichloroethene	13	1.6	"	16.2		81.2	67-124			

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EC91119 - TO-15										
LCS (EC91119-BS1)				Prepared & Analyzed: 11-Mar-19						
1,1-Dichloroethane	15	1.6	ug/m3	16.5		88.5	68-126			
cis-1,2-Dichloroethene	14	1.6	"	16.0		88.0	70-121			
Chloroform	19	1.0	"	19.8		93.3	68-123			
1,1,1-Trichloroethane	21	2.2	"	22.2		93.0	68-125			
1,2-Dichloroethane (EDC)	15	1.6	"	16.5		90.4	65-128			
Benzene	12	0.6	"	13.0		90.6	69-119			
Carbon tetrachloride	24	1.3	"	25.6		92.3	68-132			
Trichloroethene	20	2.2	"	21.9		90.5	71-123			
Toluene	11	3.1	"	15.4		73.8	66-119			
1,1,2-Trichloroethane	17	2.2	"	22.2		78.1	73-119			
Tetrachloroethene	23	2.8	"	27.6		82.6	66-124			
1,1,1,2-Tetrachloroethane	22	2.8	"	28.0		80.1	67-129			
Ethylbenzene	17	1.8	"	17.7		95.5	70-124			
m,p-Xylene	16	1.8	"	17.7		88.5	61-134			
o-Xylene	15	1.8	"	17.7		86.5	67-125			
1,1,2,2-Tetrachloroethane	21	2.8	"	28.0		76.6	65-127			
Surrogate: 1,2-Dichloroethane-d4	*47.7*		*"*	*42.9*		*111*	*76-134*			
Surrogate: 4-Bromofluorobenzene	*67.4*		*"*	*72.9*		*92.4*	*77-127*			
Batch EC91212 - TO-15										
Blank (EC91212-BLK1)				Prepared & Analyzed: 12-Mar-19						
1,1-Difluoroethane (LCC)	ND	2.2	ug/m3							
Dichlorodifluoromethane (F12)	ND	4.0	"							
Chloromethane	ND	0.8	"							
Dichlorotetrafluoroethane (F114)	ND	2.8	"							
Vinyl chloride	ND	0.5	"							
Bromomethane	ND	1.6	"							
Chloroethane	ND	1.1	"							
Trichlorofluoromethane (F11)	ND	2.3	"							
1,1-Dichloroethene	ND	1.6	"							
Tertiary-butyl alcohol (TBA)	ND	6.1	"							
1,1,2-Trichlorotrifluoroethane (F113)	ND	3.1	"							

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San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EC91212 - TO-15										
Blank (EC91212-BLK1)				Prepared & Analyzed: 12-Mar-19						
Methylene chloride (Dichloromethane)	ND	1.4	ug/m3							
Carbon disulfide	ND	1.3	"							
trans-1,2-Dichloroethene	ND	1.6	"							
Methyl tertiary-butyl ether (MTBE)	ND	2.9	"							
1,1-Dichloroethane	ND	1.6	"							
2-Butanone (MEK)	ND	2.4	"							
cis-1,2-Dichloroethene	ND	1.6	"							
Diisopropyl ether (DIPE)	ND	3.4	"							
Chloroform	ND	1.0	"							
Ethyl tert-butyl ether (ETBE)	ND	3.4	"							
1,1,1-Trichloroethane	ND	2.2	"							
1,2-Dichloroethane (EDC)	ND	1.6	"							
Benzene	ND	0.6	"							
Carbon tetrachloride	ND	1.3	"							
Tertiary-amyl methyl ether (TAME)	ND	3.4	"							
Trichloroethene	ND	2.2	"							
1,2-Dichloropropane	ND	1.9	"							
Bromodichloromethane	ND	2.7	"							
cis-1,3-Dichloropropene	ND	1.8	"							
4-Methyl-2-pentanone (MIBK)	ND	3.3	"							
trans-1,3-Dichloropropene	ND	1.8	"							
Toluene	ND	3.1	"							
1,1,2-Trichloroethane	ND	2.2	"							
2-Hexanone (MBK)	ND	3.3	"							
Dibromochloromethane	ND	3.5	"							
Tetrachloroethene	ND	2.8	"							
1,2-Dibromoethane (EDB)	ND	3.1	"							
1,1,1,2-Tetrachloroethane	ND	2.8	"							
Chlorobenzene	ND	1.9	"							
Ethylbenzene	ND	1.8	"							
m,p-Xylene	ND	1.8	"							
Styrene	ND	1.7	"							
o-Xylene	ND	1.8	"							
Bromoform	ND	4.2	"							

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San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EC91212 - TO-15										
Blank (EC91212-BLK1)				Prepared & Analyzed: 12-Mar-19						
1,1,2,2-Tetrachloroethane	ND	2.8	ug/m3							
4-Ethyltoluene	ND	2.0	"							
1,3,5-Trimethylbenzene	ND	2.0	"							
1,2,4-Trimethylbenzene	ND	2.0	"							
1,3-Dichlorobenzene	ND	2.4	"							
1,4-Dichlorobenzene	ND	2.4	"							
1,2-Dichlorobenzene	ND	2.4	"							
Naphthalene	ND	2.1	"							
1,2,4-Trichlorobenzene	ND	7.5	"							
Hexachlorobutadiene	ND	11	"							
Surrogate: 1,2-Dichloroethane-d4	*46.0*		*"*	*42.9*		*107*	*76-134*			
Surrogate: 4-Bromofluorobenzene	*60.6*		*"*	*72.9*		*83.1*	*77-127*			
LCS (EC91212-BS1)				Prepared & Analyzed: 12-Mar-19						
Dichlorodifluoromethane (F12)	20	4.0	ug/m3	20.2		99.3	59-128			
Vinyl chloride	8.5	0.5	"	10.4		81.5	64-127			
Chloroethane	8.9	1.1	"	10.7		83.1	63-127			
Trichlorofluoromethane (F11)	21	2.3	"	22.6		92.7	62-126			
1,1-Dichloroethene	14	1.6	"	16.2		88.9	61-133			
1,1,2-Trichlorotrifluoroethane (F113)	29	3.1	"	31.0		92.5	66-126			
Methylene chloride (Dichloromethane)	13	1.4	"	14.2		90.6	62-115			
trans-1,2-Dichloroethene	13	1.6	"	16.2		81.9	67-124			
1,1-Dichloroethane	14	1.6	"	16.5		85.7	68-126			
cis-1,2-Dichloroethene	14	1.6	"	16.0		87.8	70-121			
Chloroform	17	1.0	"	19.8		87.1	68-123			
1,1,1-Trichloroethane	20	2.2	"	22.2		91.8	68-125			
1,2-Dichloroethane (EDC)	15	1.6	"	16.5		90.7	65-128			
Benzene	12	0.6	"	13.0		89.4	69-119			
Carbon tetrachloride	23	1.3	"	25.6		88.6	68-132			
Trichloroethene	18	2.2	"	21.9		83.5	71-123			
Toluene	11	3.1	"	15.4		71.5	66-119			
1,1,2-Trichloroethane	16	2.2	"	22.2		73.9	73-119			
Tetrachloroethene	22	2.8	"	27.6		81.1	66-124			

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Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EC91212 - TO-15										
LCS (EC91212-BS1)				Prepared & Analyzed: 12-Mar-19						
1,1,1,2-Tetrachloroethane	21	2.8	ug/m3	28.0		76.2	67-129			
Ethylbenzene	16	1.8	"	17.7		92.8	70-124			
m,p-Xylene	15	1.8	"	17.7		84.5	61-134			
o-Xylene	14	1.8	"	17.7		81.8	67-125			
1,1,2,2-Tetrachloroethane	20	2.8	"	28.0		70.7	65-127			
Surrogate: 1,2-Dichloroethane-d4	*47.5*		*"*	*42.9*		*111*	*76-134*			
Surrogate: 4-Bromofluorobenzene	*65.2*		*"*	*72.9*		*89.4*	*77-127*			
Batch EC91310 - TO-15										
Blank (EC91310-BLK1)				Prepared & Analyzed: 13-Mar-19						
1,1-Difluoroethane (LCC)	ND	2.2	ug/m3							
Dichlorodifluoromethane (F12)	ND	4.0	"							
Chloromethane	ND	0.8	"							
Dichlorotetrafluoroethane (F114)	ND	2.8	"							
Vinyl chloride	ND	0.5	"							
Bromomethane	ND	1.6	"							
Chloroethane	ND	1.1	"							
Trichlorofluoromethane (F11)	ND	2.3	"							
1,1-Dichloroethene	ND	1.6	"							
Tertiary-butyl alcohol (TBA)	ND	6.1	"							
1,1,2-Trichlorotrifluoroethane (F113)	ND	3.1	"							
Methylene chloride (Dichloromethane)	ND	1.4	"							
Carbon disulfide	ND	1.3	"							
trans-1,2-Dichloroethene	ND	1.6	"							
Methyl tertiary-butyl ether (MTBE)	ND	2.9	"							
1,1-Dichloroethane	ND	1.6	"							
2-Butanone (MEK)	ND	2.4	"							
cis-1,2-Dichloroethene	ND	1.6	"							
Diisopropyl ether (DIPE)	ND	3.4	"							
Chloroform	ND	1.0	"							
Ethyl tert-butyl ether (ETBE)	ND	3.4	"							
1,1,1-Trichloroethane	ND	2.2	"							

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EC91310 - TO-15										
Blank (EC91310-BLK1)				Prepared & Analyzed: 13-Mar-19						
1,2-Dichloroethane (EDC)	ND	1.6	ug/m3							
Benzene	ND	0.6	"							
Carbon tetrachloride	ND	1.3	"							
Tertiary-amyl methyl ether (TAME)	ND	3.4	"							
Trichloroethene	ND	2.2	"							
1,2-Dichloropropane	ND	1.9	"							
Bromodichloromethane	ND	2.7	"							
cis-1,3-Dichloropropene	ND	1.8	"							
4-Methyl-2-pentanone (MIBK)	ND	3.3	"							
trans-1,3-Dichloropropene	ND	1.8	"							
Toluene	ND	3.1	"							
1,1,2-Trichloroethane	ND	2.2	"							
2-Hexanone (MBK)	ND	3.3	"							
Dibromochloromethane	ND	3.5	"							
Tetrachloroethene	ND	2.8	"							
1,2-Dibromoethane (EDB)	ND	3.1	"							
1,1,1,2-Tetrachloroethane	ND	2.8	"							
Chlorobenzene	ND	1.9	"							
Ethylbenzene	ND	1.8	"							
m,p-Xylene	ND	1.8	"							
Styrene	ND	1.7	"							
o-Xylene	ND	1.8	"							
Bromoform	ND	4.2	"							
1,1,2,2-Tetrachloroethane	ND	2.8	"							
4-Ethyltoluene	ND	2.0	"							
1,3,5-Trimethylbenzene	ND	2.0	"							
1,2,4-Trimethylbenzene	ND	2.0	"							
1,3-Dichlorobenzene	ND	2.4	"							
1,4-Dichlorobenzene	ND	2.4	"							
1,2-Dichlorobenzene	ND	2.4	"							
Naphthalene	ND	2.1	"							
1,2,4-Trichlorobenzene	ND	7.5	"							
Hexachlorobutadiene	ND	11	"							

H&P Mobile
Geochemistry Inc.

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Carlsbad, CA 92010
760-804-9678 Phone
760-804-9159 Fax

Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EC91310 - TO-15										
Blank (EC91310-BLK1)				Prepared & Analyzed: 13-Mar-19						
Surrogate: 1,2-Dichloroethane-d4	*49.8*		*ug/m3*	*42.9*		*116*	*76-134*			
Surrogate: 4-Bromofluorobenzene	*59.4*		*"*	*72.9*		*81.5*	*77-127*			
LCS (EC91310-BS1)				Prepared & Analyzed: 13-Mar-19						
Dichlorodifluoromethane (F12)	23	4.0	ug/m3	20.2		113	59-128			
Vinyl chloride	9.3	0.5	"	10.4		89.0	64-127			
Chloroethane	9.5	1.1	"	10.7		88.6	63-127			
Trichlorofluoromethane (F11)	24	2.3	"	22.6		108	62-126			
1,1-Dichloroethene	17	1.6	"	16.2		105	61-133			
1,1,2-Trichlorotrifluoroethane (F113)	32	3.1	"	31.0		103	66-126			
Methylene chloride (Dichloromethane)	14	1.4	"	14.2		99.1	62-115			
trans-1,2-Dichloroethene	15	1.6	"	16.2		94.6	67-124			
1,1-Dichloroethane	16	1.6	"	16.5		94.7	68-126			
cis-1,2-Dichloroethene	15	1.6	"	16.0		94.0	70-121			
Chloroform	20	1.0	"	19.8		99.3	68-123			
1,1,1-Trichloroethane	23	2.2	"	22.2		105	68-125			
1,2-Dichloroethane (EDC)	17	1.6	"	16.5		104	65-128			
Benzene	12	0.6	"	13.0		95.6	69-119			
Carbon tetrachloride	26	1.3	"	25.6		102	68-132			
Trichloroethene	21	2.2	"	21.9		94.7	71-123			
Toluene	12	3.1	"	15.4		75.5	66-119			
1,1,2-Trichloroethane	18	2.2	"	22.2		82.1	73-119			
Tetrachloroethene	24	2.8	"	27.6		87.8	66-124			
1,1,1,2-Tetrachloroethane	23	2.8	"	28.0		82.6	67-129			
Ethylbenzene	16	1.8	"	17.7		92.5	70-124			
m,p-Xylene	15	1.8	"	17.7		86.0	61-134			
o-Xylene	15	1.8	"	17.7		83.3	67-125			
1,1,2,2-Tetrachloroethane	19	2.8	"	28.0		69.2	65-127			
Surrogate: 1,2-Dichloroethane-d4	*51.3*		*"*	*42.9*		*120*	*76-134*			
Surrogate: 4-Bromofluorobenzene	*63.1*		*"*	*72.9*		*86.6*	*77-127*			

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Stantec - San Bernardino	Project: ST030619-11	
735 E Carnegie Dr., Ste 280	Project Number: 185804357/ 3700 Cypress Ave	Reported:
San Bernardino, CA 92408	Project Manager: Jim Dewoody	15-Mar-19 08:25

Notes and Definitions

J- Report	This sample is reported to the MDL or LOD determined for this method. All confirmed hits above the listed MDL or LOD value and below the RL/LOQ, will be flagged with a "J" result. If an MDL or LOD is not listed, the analyte is ND at the RL.
J	Detected but below the RL/LOQ; therefore, result is an estimated concentration.
LCC	Leak Check Compound
ND	Analyte NOT DETECTED at or above the reporting limit
MDL	Method Detection Limit
%REC	Percent Recovery
RPD	Relative Percent Difference

All soil results are reported in wet weight.

Appendix

H&P Mobile Geochemistry, Inc. is approved as an Environmental Testing Laboratory and Mobile Laboratory in accordance with the DoD-ELAP Program and ISO/IEC 17025:2005 programs through PJLA, accreditation number 69070 for EPA Method TO-15, H&P Method TO-15, EPA Method 8260B and H&P 8260SV.

H&P is approved by the State of California as an Environmental Laboratory and Mobile Laboratory in conformance with the Environmental Laboratory Accreditation Program (ELAP) for the category of Volatile and Semi-Volatile Organic Chemistry of Hazardous Waste, certification numbers 2740, 2741, 2743 & 2745.

H&P is approved by the State of Louisiana Department of Environmental Quality under the National Environmental Laboratory Accreditation Conference (NELAC) certification number 04138.

The complete list of stationary and mobile laboratory certifications along with the fields of testing (FOTs) and analyte lists are available at www.handpmg.com/about/certifications.

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VAPOR / AIR Chain of Custody

DATE: 3/5/19
Page 1 of 3

Lab Client and Project Information

Lab Client/Consultant: Stantec Consulting Services, Inc	Project Name / #: 185804357
Lab Client Project Manager: Jim Dewoody	Project Location: 3700 Cypress Ave
Lab Client Address: 735 E Carnegie Dr. Suite 280	Report E-Mail(s): james.dewoody@stantec.com
Lab Client City, State, Zip: San Bernardino CA 92408	
Phone Number: 909-335-6116	

Reporting Requirements

☒ Standard Report ☐ Level III ☐ Level IV
☐ Excel EDD ☐ Other EDD: _____
☐ CA Geotracker Global ID: _____

Turnaround Time

☒ (5-7) day Stnd ☐ 24-Hr Rush
☐ 3-day Rush ☐ Mobile Lab
☐ 48-Hr Rush ☐ Other: ____

Sampler Information

Sampler(s): S. mayfield
Signature:
Date: 3.5.19

Sample Receipt (Lab Use Only)

Date Rec'd: 3/6/19 Control #: 190174.03
H&P Project # STO30619-11
Lab Work Order # E903018
Sample Intact: ☒ Yes ☐ No ☐ See Notes Below
Receipt Gauge ID: 30005 Temp: RT
Outside Lab:
Receipt Notes/Tracking #:
Lab PM Initials: KB

Additional Instructions to Laboratory: * 5-day TAT
1L RLS w/J flags - KB 3/6/19

Preferred VOC units (please choose one):
☐ µg/L ☒ µg/m³ ☐ ppbv ☐ ppmv

SAMPLE NAME	FIELD POINT NAME (if applicable)	DATE mm/dd/yy	TIME 24hr clock	SAMPLE TYPE Indoor Air (IA), Ambient Air (AA), Subslab (SS), Soil Vapor (SV)	CONTAINER SIZE & TYPE 400mL/1L/6L Summa, Tedlar, Tube, etc.	CONTAINER ID (###)	Lab use only: Receipt Vac	VOCs Standard Full List ☐ 8260SV ☒ TO-15	VOCs Short List / Project List ☐ 8260SV ☐ TO-15	Oxygenates ☐ 8260SV ☒ TO-15	Naphthalene ☐ 8260SV ☒ TO-15	TPHv as Gas ☐ 8260SVm ☐ TO-15m	Aromatic/Aliphatic Fractions ☐ 8260SVm ☐ TO-15m	Leak Check Compound ☒ DFA ☐ IPA ☐ He	Methane by EPA 8015m	Fixed Gases by ASTM D1945 ☐ CO2 ☐ O2 ☐ N2				
SV-1-15	N/A	03/05/19	0804	SV	1L Summas	373	.38	X		P	X			X						
SV-2-15			0825			175	-.33							X						
SV-1-5			0909			079	-.98							X						
SV-3-15			0918			ST 008	-.39							X						
SV-2-5			0924			191	.05							X						
SV-3-5			0949			363	-.11							X						
SV-6-15			0950			183	-.53							X						
SV-11-15			1119			117	-.83							X						
SV-11-5			1121			359	-.60							X						
SV-9-15			1153			412	-2.17	↓		↓	↓			X						

Approved/Relinquished by:	Company: Stantec	Date: 3/5/19	Time: 1640	Received by: Nicole Svoboda	Company: H&P	Date: 3/5/19	Time: 1645
Approved/Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:
Approved/Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:

*Approval constitutes as authorization to proceed with analysis and acceptance of conditions on back

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VAPOR / AIR Chain of Custody

DATE: 3/5/19

Lab Client and Project Information

Lab Client/Consultant: Stantec Consulting Services, Inc	Project Name / #: 185804357
Lab Client Project Manager: Jim Dewoody	Project Location: 3700 Cypress Ave
Lab Client Address: 735 E Carnegie Dr. Suite 280	Report E-Mail(s): james.dewoody@stantec.com
Lab Client City, State, Zip: San Bernardino CA 92408	
Phone Number: 909-335-6116	

Reporting Requirements
- [x] Standard Report ☐ Level III ☐ Level IV
- ☐ Excel EDD ☐ Other EDD:_____
- ☐ CA Geotracker Global ID:_____

Turnaround Time
- [x] 5-7 day Stnd ☐ 24-Hr Rush
- ☐ 3-day Rush ☐ Mobile Lab
- ☐ 48-Hr Rush ☐ Other:____

Sampler Information
- Sampler(s): S. Maxfield
- Signature:
- Date: 3.5.19

Sample Receipt (Lab Use Only)

Date Rec'd: 3/6/19	Control #: 190174.03
H&P Project # STO30619-11	
Lab Work Order # 6903018	
Sample Intact: [x] Yes ☐ No ☐ See Notes Below	
Receipt Gauge ID: 30005	Temp: RT
Outside Lab:	
Receipt Notes/Tracking #:	
Lab PM Initials: WB	

Additional Instructions to Laboratory: see pg 1

** Preferred VOC units (please choose one):*
☐ µg/L [x] µg/m³ ☐ ppbv ☐ ppmv

SAMPLE NAME	FIELD POINT NAME (if applicable)	DATE mm/dd/yy	TIME 24hr clock	SAMPLE TYPE Indoor Air (IA), Ambient Air (AA), Subslab (SS), Soil Vapor (SV)	CONTAINER SIZE & TYPE 400mL/1L/6L Summa, Tedlar, Tube, etc.	CONTAINER ID (###)	Lab use only: Receipt Vac	VOCs Standard Full List ☐ 8260SV [x] TO-15	VOCs Short List / Project List ☐ 8260SV ☐ TO-15	Oxygenates ☐ 8260SV [x] TO-15	Naphthalene ☐ 8260SV [x] TO-15	TPHv as Gas ☐ 8260SVm ☐ TO-15m	Aromatic/Aliphatic Fractions ☐ 8260SVm ☐ TO-15m	Leak Check Compound [x] DFA ☐ IPA ☐ He	Methane by EPA 8015m	Fixed Gases by ASTM D1945 ☐ CO2 ☐ O2 ☐ N2				
SV-9-15-Rep	N/A	03/05/19	1825	1200 SV	1L Summa	196	-1.02	X		X	X			X							
SV-6-5			1328	1141		171	-.72							X							
SV-9-5			1254	1325		177	-.69							X							
SV-10-15			1419	1328		417	-1.17							X							
SV-10-5			1424	1254		441	-.48							X							
SV-8-15			1442	1419		428	-.65							X							
SV-8-5			1452	1424		415	-.63							X							
SV-7-15				1442		429	-.38							X							
SV-7-5				1452		430	-.15							V							
SV-4				1541 SS		431	.03							X							

Approved/Relinquished by:	Company: Stantec	Date: 3/5/19	Time: 1640	Received by: Nicole Svoboda	Company: H&P	Date: 3/5/19	Time: 1645
Approved/Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:
Approved/Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:

**Approval constitutes as authorization to proceed with analysis and acceptance of conditions on back*

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VAPOR / AIR Chain of Custody

DATE: 3/5/19
Page 3 of 3

Lab Client and Project Information

Lab Client/Consultant: Stantec Consulting Services, Inc	Project Name / #: 185804357
Lab Client Project Manager: Jim Dewoody	Project Location: 3700 Cypress Ave
Lab Client Address: 735 E. Carnegie Dr. # 280	Report E-Mail(s): James.dewoody@stantec.com
Lab Client City, State, Zip: San Bernardino, CA 92408	
Phone Number: 909-335-6116	

Reporting Requirements
- [x] Standard Report
- [ ] Level III
- [ ] Level IV
- [ ] Excel EDD
- [ ] Other EDD:
- [ ] CA Geotracker Global ID:

Turnaround Time
- [x] 5-7 day Stnd
- [ ] 24-Hr Rush
- [ ] 3-day Rush
- [x] Mobile Lab NS
- [ ] 48-Hr Rush
- [ ] Other:

Sampler Information
Sampler(s): S. Mayfield
Signature:
Date: 3.5.19

Sample Receipt (Lab Use Only)

Date Rec'd: 3/6/19	Control #: 190174.03
H&P Project # STO30619 - 11	
Lab Work Order # E903018	
Sample Intact: [x] Yes [ ] No [ ] See Notes Below	
Receipt Gauge ID: 30005	Temp: RT
Outside Lab:	
Receipt Notes/Tracking #:	
Lab PM Initials: WB	

Additional Instructions to Laboratory: See pg 1

Preferred VOC units (please choose one):
- [ ] µg/L
- [x] µg/m³
- [ ] ppbv
- [ ] ppmv

SAMPLE NAME	FIELD POINT NAME (if applicable)	DATE mm/dd/yy	TIME 24hr clock	SAMPLE TYPE Indoor Air (IA), Ambient Air (AA), Subslab (SS), Soil Vapor (SV)	CONTAINER SIZE & TYPE 400mL/1L/6L Summa, Tedlar, Tube, etc.	CONTAINER ID (###)	Lab use only: Receipt Vac	VOCs Standard Full List ☐ 8260SV ☑ TO-15	VOCs Short List / Project List ☐ 8260SV ☐ TO-15	Oxygenates ☐ 8260SV ☑ TO-15	Naphthalene ☐ 8260SV ☑ TO-15	TPHv as Gas ☐ 8260SVm ☐ TO-15m	Aromatic/Aliphatic Fractions ☐ 8260SVm ☐ TO-15m	Leak Check Compound ☒ DFA ☐ IPA ☐ He	Methane by EPA 8015m	Fixed Gases by ASTM D1945 ☐ CO2 ☐ O2 ☐ N2				
SV-5	N/A	03/05/19	1629	SS	1L Summa	~~444~~ 433	.16	Y		Y	Y			X						

Approved/Relinquished by:	Company: Stantec	Date: 3/5/19	Time: 1640	Received by: Nicole Svoboda	Company: H&P	Date: 3/5/19	Time: 1645
Approved/Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:
Approved/Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:

*Approval constitutes as authorization to proceed with analysis and acceptance of conditions on back

H&P Mobile Geochemistry Inc.

FMS005
Revision: 3
Revised: 1/15/16
Effective: 1/25/16
Page 1 of 1

Log Sheet: Soil Vapor Sampling with Summa

H&P Project #: ST030519-Tech
Date: 3.5.19
Site Address: 3700 Cypress Ave, El Monte
Page: 1 of 2
Consultant: Stantec
H&P Rep(s): S. mayfield
Reviewed: DB
Consultant Rep(s): Nick
Scanned: Torres

Equipment Info
Inline Gauge ID#: —
Pump ID#: 013

Purge Volume Information
PV Amount: 3PV
PV Includes: ☐ Tubing ☐ Sand 40% ☐ Dry Bent 50%

Leak Check Compound
A cloth saturated with LCC is placed around tubing connections and probe seal. This is done for all samples unless otherwise noted.
☒ 1,1-DFA ☐ 1,1,1,2-TFA ☐ IPA ☐ Other:

	Sample and Summa Information							Probe Specs							Purge & Collection Information							
	Point ID	Summa ID #	Sample Kit ID #	Start Time	Initial Vac (" Hg)	End / Sample Time	End Vac (" Hg)	Probe Depth (ft)	Tubing Length (ft)	Tubing OD (in.)	Sand Ht (in.)	Sand Dia (in.)	Dry Bent. Ht (in.)	Dry Bent. Dia (in.)	Shut In Test 60 sec (✓)	Leak Check (✓)	Purge Vol (mL)	Purge Flow Rate (mL/min)	Pump Time (min:sec)	Sample Flow Rate (mL/min)	ProbeVac ☐ Hg ☒ H_2O	
1	SV-1-15	373	267	0758	-27	0804	Ø	15'	17'	1/4	12	2.25	12	2.25	✓	✓	2358	200	11'47	200	Ø	
2	SV-2-15	175	248	0821	-28	0825	Ø	15	17	1/4	12	2.25	12	2.25	✓	✓	2358	200	11'47	200	Ø	
3	SV-1-5	079	171	0904	-29	0909	Ø	5	7	1/4	12	2.25	12	2.25	✓	✓	2313	200	—	200	Ø	*B
4	SV-3-15	ST 008	307	0912	-28	0918	Ø	15	17	1/4	12	2.25	12	2.25	✓	✓	2358	200	11'47	200	Ø	
5	SV-2-5	191	197	0908	-29	0924	Ø	5	7	1/4	12	2.25	12	2.25	✓	✓	2313	200	—	200	Ø	*A *B
6	SV-3-5	363	096	0942	-27	0949	Ø	5	7	1/4	12	2.25	12	2.25	✓	✓	2313	200	—	200	Ø	*B
7	SV-6-15	183	192	0951	-27	0950	Ø	15	17	1/4	12	2.25	12	2.25	✓	✓	2358	200	11'47	200	Ø	*
8	SV-11-15	117	324	1111	-28	1119	Ø	15	17	1/4	12	2.25	12	2.25	✓	✓	2358	200	11'47	200	Ø	
9	SV-11-5	359	295	1114	-28	1121	Ø	5	7	1/4	12	2.25	12	2.25	✓	✓	2313	200	—	200	Ø	*B
10	SV-9-15	412	020	1145	-27	1153	Ø	15	17	1/4	12	2.25	12	2.25	✓	✓	2358	200	11'47	200	Ø	
11	SV-9-15-Rep	196	020	1153	-27	1200	Ø	15	17	1/4	12	2.25	12	2.25	✓	✓	3358	200	—	200	Ø	
12	SV-6-5	171	073	1131	-30	1141	Ø	5	7	1/4	12	2.25	12	2.25	✓	✓	2313	200	—	200	Ø	*B

Site Notes such as weather, visitors, scope deviations, health & safety issues, etc. (When making sample specific notes, reference the line number above):

*A Long sample collect
*B Purge volume included 100 cc syringe for 8260 mobile lab analysis prior to summa
- All 5' were 2313 except for SV-9-5, which due to the syringe rep, was 2413.

SM

H&P Mobile Geochemistry Inc.

FMS005
Revision: 3
Revised: 1/15/16
Effective: 1/25/16
Page 1 of 1

Log Sheet: Soil Vapor Sampling with Summa

H&P Project #: ST030519-Tech
Site Address: 3700 Cypress Ave, El Monte
Consultant: Stantec
Consultant Rep(s): Nick

Date: 3.5.19
Page: 2 of 2
H&P Rep(s): S. Mayfield

Reviewed: DWS
Scanned: TMoses

Equipment Info
Inline Gauge ID#: —
Pump ID#: 013

Purge Volume Information
PV Amount: 3PV
PV Includes: ☐ Tubing ☐ Sand 40% ☐ Dry Bent 50%

Leak Check Compound
A cloth saturated with LCC is placed around tubing connections and probe seal. This is done for all samples unless otherwise noted.
☑ 1,1-DFA ☐ 1,1,1,2-TFA ☐ IPA ☐ Other:

	Sample and Summa Information							Probe Specs							Purge & Collection Information							
	Point ID	Summa ID #	Sample Kit ID #	Start Time	Initial Vac (" Hg)	End / Sample Time	End Vac (" Hg)	Probe Depth (ft)	Tubing Length (ft)	Tubing OD (in.)	Sand Ht (in.)	Sand Dia (in.)	Dry Bent. Ht (in.)	Dry Bent. Dia (in.)	Shut In Test 60 sec (✓)	Leak Check (✓)	Purge Vol (mL)	Purge Flow Rate (mL/min)	Pump Time (min:sec)	Sample Flow Rate (mL/min)	ProbeVac ☐ Hg ☒ H_2O	
1	SV-9-5	177	196	1314	-27	1325	Ø	5	7	1/4	12	2.25	12	2.25	✓	✓	2413 2358	200	—	200	Ø	MB
2	SV-10-15	417	203	1321	-28	1328	Ø	15	17	1/4	12	2.25	12	2.25	✓	✓	2358	200	11'47	200	Ø	
3	SV-10-5	441 (5m) 496	030	1246	-27	1254	Ø	5	7	1/4	12	2.25	12	2.25	✓	✓	2313 2243	200	—	200	Ø	MB
4	SV-8-15	428	274	1412	-27	1419	Ø	15	17	1/4	12	2.25	12	2.25	✓	✓	2358	200	11'47	200	Ø	
5	SV-8-5	415	188	1416	-26	1424	Ø	5	7	1/4	12	2.25	12	2.25	✓	✓	(5m) 2313 2243	200	—	200	Ø	MB
6	SV-7-15	429 (5m) 430	240 244	1435	-27.5	1442	Ø	15	17	1/4	12	2.25	12	2.25	✓	✓	2358	200	11'47	200	Ø	
7	SV-7-5	430	211	1444	-28.5	1452	Ø	5	7	1/4	12	2.25	12	2.25	✓	✓	2313 2243	200	—	200	Ø	MB
8	SV-4	431	316	1533	-27.5	1541	Ø	SS	2'	1/8	3	1	1	1	✓	✓	121 (5m)	200	—	200	Ø	
9	SV-5	433	152	1623	-28	1629	Ø	SS	2	1/8	3	1	1	1	✓	✓	121	200	—	200	Ø	
10																						
11																						
12																						

Site Notes such as weather, visitors, scope deviations, health & safety issues, etc. (When making sample specific notes, reference the line number above):

APPENDIX B

Boring Logs

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

WELL / PROBEHOLE / BOREHOLE NO: **HA-1** PAGE 1 OF 1

Stantec

DRILLING: STARTED **2/28/19** COMPLETED: **2/28/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **Hand Auger**
DRILLING METHOD: **Manual**
SAMPLING EQUIPMENT: **Jar**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **2.0**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.5**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
			4" Concrete							Concrete Cap
		SP	**POORLY GRADED SAND WITH GRAVEL** ; SP; 10YR 3/3 dark brown; fine to coarse-grained; non plastic; slightly moist; no odor; no staining; little gravel		1116 HA-1-1 8015 T22 8082	2		0.2		Native Soil Backfill
			Refusal at 2 feet. Hole terminated at 2 feet.							

GEO FORM 304 INITIAL_LOGS.GPJ STANTEC001.GDT 3/4/19

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

WELL / PROBEHOLE / BOREHOLE NO: **HA-2** PAGE 1 OF 1

Stantec

DRILLING: STARTED **2/28/19** COMPLETED: **2/28/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **Hand Auger**
DRILLING METHOD: **Manual**
SAMPLING EQUIPMENT: **Jar**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **5.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.5**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
			4" Concrete							Concrete Cap
		SP-SM	**POORLY GRADED SAND - SILTY SAND** ; SP-SM; 10YR 3/2 very dark grayish brown; fine to coarse-grained; non plastic; moist; no odor; no staining; little to some silt; few gravel		1315 HA-2-1 8015 8260 T22 7196	5.5		0.0		Native Soil Backfill
5		ML	**SILT** ; ML; 10YR 4/2 dark grayish brown; non plastic; moist; no odor; no staining; trace very fine to fine sand		1328 HA-2-5			0.0	5	
			Hole terminated at 5.5 feet.							

GEO FORM 304 INITIAL_LOGS.GPJ STANTEC001.GDT 3/4/19

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

WELL / PROBEHOLE / BOREHOLE NO: **HA-3** PAGE 1 OF 1

DRILLING: STARTED **2/28/19** COMPLETED: **2/28/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **Hand Auger**
DRILLING METHOD: **Manual**
SAMPLING EQUIPMENT: **Jar**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **5.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.5**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
			4" Concrete							Concrete Cap
		SP-SM	**POORLY GRADED SAND - SILTY SAND** ; SP-SM; 10YR 3/2 very dark grayish brown; fine to coarse-grained; non plastic; moist; no odor; no staining; little to some silt; few gravel		1337 HA-3-2 8015 8260 T22 7196	5.5		0.2		Native Soil Backfill
5		ML	**SANDY SILT** ; ML; 10YR 3/2 very dark grayish brown; non plastic; moist; no odor; no staining; some very fine to fine sand		1345 HA-3-5			0.0	5	
			Hole terminated at 5.5 feet.							

GEO FORM 304 INITIAL_LOGS.GPJ STANTEC001.GDT 3/4/19

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

WELL / PROBEHOLE / BOREHOLE NO: **SV-1** PAGE 1 OF 1

Stantec

DRILLING: STARTED **2/28/19** COMPLETED: **2/28/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **5400**
DRILLING METHOD: **DPT**
SAMPLING EQUIPMENT: **Acetate**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **15.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.25**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
			3" Asphalt							Thin Concrete Cap
		SM	**SILTY SAND WITH GRAVEL** ; SM; dark grayish brown; fine to medium-grained; non plastic; moist; no odor; no staining							x2 1/4" Nylaflow Tube in Hydrated Granular Bentonite
										Dry Granular Bentonite
5		SM	**SILTY SAND** ; SM; 10YR 4/2 dark grayish brown; very fine to fine-grained; non plastic; moist; no odor; no staining; some silt; thin interbedding		0729 SV-1-5 8015 8260 T22 7199			0.0	5	PennPlax Filter in #2/12 Sand
10		SP	**POORLY GRADED SAND** ; SP; 10YR 4/2 dark grayish brown; fine-grained; moist; no odor; no staining; few fines; trace medium sand		0748 SV-1-10 8015 8260			0.0	10	1/4" Nylaflow Tube in Hydrated Granular Bentonite
										Dry Granular Bentonite
15		SM	**SILTY SAND** ; SM; 10YR 4/2 dark grayish brown; very fine to fine-grained; non plastic; moist; no odor; no staining; some silt; trace medium sand; interbedded		0751 SV-1-15			0.0	15	PennPlax Filter in #2/12 Sand
			Hole terminated at 15.5 feet.							

GEO FORM 304 INITIAL_LOGS.GPJ STANTEC001.GDT 3/4/19

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

WELL / PROBEHOLE / BORE HOLE NO: **SV-2** PAGE 1 OF 1

Stantec

DRILLING: STARTED **2/28/19** COMPLETED: **2/28/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **5400**
DRILLING METHOD: **DPT**
SAMPLING EQUIPMENT: **Acetate**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **15.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.25**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
		SM	4" Concrete **SILTY SAND WITH GRAVEL** ; SM; dark grayish brown; fine to medium-grained; non plastic; moist; no odor; no staining							Thin Concrete Cap
5		SM	**SILTY SAND** ; SM; 10YR 4/2 dark grayish brown; very fine to fine-grained; non plastic; moist; no odor; no staining; some silt; thin interbedding		0845 SV-2-5 8015 8260 T22 7199			0.0	5	x2 1/4" Nylaflow Tube in Hydrated Granular Bentonite Dry Granular Bentonite PennPlax Filter in #2/12 Sand
10		SP	**POORLY GRADED SAND** ; SP; 10YR 4/2 dark grayish brown; fine-grained; moist; no odor; no staining; few fines; trace medium sand		0849 SV-2-10 8015 8260			0.0	10	1/4" Nylaflow Tube in Hydrated Granular Bentonite
15		SP-SM	**SILTY SAND - SANDY SILT** ; SP-SM; 10YR 4/2 dark grayish brown; very fine to fine-grained; non plastic; moist; no odor; no staining; little to some silt; trace medium sand; interbedded Hole terminated at 15.5 feet.		0853 SV-2-15			0.0	15	Dry Granular Bentonite PennPlax Filter in #2/12 Sand

GEO FORM 304 INITIAL_LOGS.GPJ STANTEC001.GDT 3/4/19

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

WELL / PROBEHOLE / BOREHOLE NO: **SV-3** PAGE 1 OF 1

Stantec

DRILLING: STARTED **2/28/19** COMPLETED: **2/28/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **5400**
DRILLING METHOD: **DPT**
SAMPLING EQUIPMENT: **Acetate**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **15.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.25**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
		SM	4" Concrete **SILTY SAND WITH GRAVEL** ; SM; dark grayish brown; fine to medium-grained; non plastic; moist; no odor; no staining							Thin Concrete Cap
5		SM	**SILTY SAND** ; SM; 10YR 4/2 dark grayish brown; very fine to fine-grained; non plastic; moist; no odor; no staining; some silt; thin interbedding		0930 SV-3-5 8015 8260 T22 7199			0.0	5	x2 1/4" Nylaflow Tube in Hydrated Granular Bentonite Dry Granular Bentonite PennPlax Filter in #2/12 Sand
10		SP	**POORLY GRADED SAND** ; SP; 10YR 4/2 dark grayish brown; fine-grained; moist; no odor; no staining; few fines; trace medium sand		0935 SV-3-10 8015 8260			0.0	10	1/4" Nylaflow Tube in Hydrated Granular Bentonite
15		SP	**POORLY GRADED SAND WITH SILT** ; SP; 10YR 4/2 dark grayish brown; very fine to fine-grained; non plastic; moist; no odor; no staining; few to little silt; trace medium sand; interbedded; soils in sampler tip appear wet Hole terminated at 15.5 feet.		0939 SV-3-15			0.0	15	Dry Granular Bentonite PennPlax Filter in #2/12 Sand

GEO FORM 304 INITIAL_LOGS.GPJ STANTEC001.GDT 3/4/19

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

WELL / PROBEHOLE / BOREHOLE NO: **SV-4** PAGE 1 OF 1

Stantec

DRILLING: STARTED **2/28/19** COMPLETED: **2/28/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **Hand Auger**
DRILLING METHOD: **Manual**
SAMPLING EQUIPMENT: **Jar**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **2.3**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.5**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
			4" Concrete							Concrete Cap
		SP	**POORLY GRADED SAND WITH GRAVEL** ; SP; 10YR 3/3 dark brown; fine to coarse-grained; slightly moist; no odor; no staining; little gravel; few to little fines		1033 SV-4-1 8015 T22 8082			0.0		Native Soil Backfill
			Refusal at 2.3 feet. Hole terminated at 2.3 feet.							

GEO FORM 304 INITIAL_LOGS.GPJ STANTEC001.GDT 3/4/19

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

WELL / PROBEHOLE / BOREHOLE NO: **SV-5** PAGE 1 OF 1

DRILLING: STARTED **2/28/19** COMPLETED: **2/28/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **Hand Auger**
DRILLING METHOD: **Manual**
SAMPLING EQUIPMENT: **Jar**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **2.3**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.5**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
			4" Concrete							Concrete Cap
		SM	**SILTY SAND** ; SM; 10YR 3/3 dark brown; fine to medium-grained; non plastic; moist; no odor; no staining; few gravel; some silt		1212 SV-5-1 8015 8260 T22			0.2		Native Soil Backfill
			Refusal at 2.3 feet. Hole terminated at 2.3 feet.							

GEO FORM 304 INITIAL_LOGS.GPJ STANTEC001.GDT 3/4/19

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

WELL / PROBEHOLE / BORE HOLE NO: **SV-6** PAGE 1 OF 1

DRILLING: STARTED **3/1/19** COMPLETED: **3/1/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **5400**
DRILLING METHOD: **DPT**
SAMPLING EQUIPMENT: **Acetate**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **15.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.25**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
			3" Asphalt							Thin Concrete Cap
		SM	**SILTY SAND WITH GRAVEL** ; SM; dark grayish brown; fine to medium-grained; non plastic; moist; no odor; no staining		--			0.0		x2 1/4" Nylaflow Tube in Hydrated Granular Bentonite
5		SM	**SILTY SAND** ; SM; 10YR 4/2 dark grayish brown; very fine to fine-grained; non plastic; moist; no odor; no staining; some silt; thin interbedding						5	Dry Granular Bentonite
		SP	**POORLY GRADED SAND** ; SP; 10YR 4/2 dark grayish brown; fine-grained; moist; no odor; no staining; few fines; trace medium sand		--			0.0		PennPlax Filter in #2/12 Sand
10		SP-SM	**POORLY GRADED SAND - SILTY SAND** ; SP-SM; 10YR 3/3 dark brown; fine-grained; moist; no odor; no staining; little to some silt; trace medium sand						10	1/4" Nylaflow Tube in Hydrated Granular Bentonite
		ML-SM								
		SM	**SANDY SILT - SILTY SAND** ; ML-SM; 10YR 4/2 dark grayish brown; non plastic; moist; no odor; no staining; ~50% silt/very fine to fine sand		--			0.0		
		SP	**SILTY SAND** ; SM; 10YR 4/2 dark grayish brown; very fine to fine-grained; non plastic; moist; no odor; no staining; some silt							Dry Granular Bentonite
15			**POORLY GRADED SAND** ; SP; 10YR 4/2 dark grayish brown; fine-grained; moist; no odor; no staining; few fines; trace medium sand		--			0.0	15	PennPlax Filter in #2/12 Sand
			Hole terminated at 15.5 feet.							

GEO FORM 304 INITIAL_LOGS.GPJ STANTEC001.GDT 3/4/19

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

WELL / PROBEHOLE / BOREHOLE NO: **SV-7** PAGE 1 OF 1

Stantec

DRILLING: STARTED **3/1/19** COMPLETED: **3/1/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **5400/6610**
DRILLING METHOD: **DPT**
SAMPLING EQUIPMENT: **Acetate**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **15.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.25**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
			4" Aspahlt							Thin Concrete Cap
		SM	**SILTY SAND** ; SM; 10YR 4/2 dark grayish brown; very fine to fine-grained; non plastic; moist; no odor; no staining; some silt; few gravel							x2 1/4" Nylaflow Tube in Hydrated Granular Bentonite
			SAME AS ABOVE ; interbedding; no gravel							Dry Granular Bentonite
5			**SAME AS ABOVE** ; 10YR 3/3 dark brown; very fine to fine-grained; non plastic; moist; no odor; no staining		--			0.0	5	PennPlax Filter in #2/12 Sand
		ML-SM	**SANDY SILT - SILTY SAND** ; ML-SM; 10YR 3/3 dark brown; non plastic; moist; no odor; no staining; ~50% silt/very fine to fine sand		--			0.0		
		SP	**POORLY GRADED SAND** ; SP; 10YR 5/2 grayish brown; fine to medium-grained; slightly moist; no odor; no staining; trace coarse sand; trace fines							
10			**SAME AS ABOVE** ; increasing fines						10	1/4" Nylaflow Tube in Hydrated Granular Bentonite
		SP-SM	**POORLY GRADED SAND - SILTY SAND** ; SP-SM; 10YR 4/3 brown; very fine to fine-grained; slightly moist; no odor; no staining; little to some silt		--			0.0		
		SP	**POORLY GRADED SAND** ; SP; 10YR 5/2 grayish brown; fine to medium-grained; slightly moist; no odor; no staining; trace coarse sand; trace fines		--			0.0		
										Dry Granular Bentonite
15		ML-SM	**SANDY SILT - SILTY SAND** ; ML-SM; 10YR 2/2 dark grayish brown; non plastic; slightly moist; no odor; no staining; ~50% silt/very fine to fine sand		--			0.0	15	PennPlax Filter in #2/12 Sand
			Hole terminated at 15.5 feet.							

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

WELL / PROBEHOLE / BOREHOLE NO: **SV-8** PAGE 1 OF 1

Stantec

DRILLING: STARTED **3/1/19** COMPLETED: **3/1/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **6610**
DRILLING METHOD: **DPT**
SAMPLING EQUIPMENT: **Acetate**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **15.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.25**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
			4" Aspahlt							Thin Concrete Cap
		SM	**SILTY SAND** ; SM; 10YR 4/2 dark grayish brown; very fine to fine-grained; non plastic; moist; no odor; no staining; some silt; few gravel							x2 1/4" Nylaflow Tube in Hydrated Granular Bentonite
			SAME AS ABOVE ; interbedding; no gravel		--			0.0		Dry Granular Bentonite
5			**SAME AS ABOVE** ; 10YR 3/3 dark brown; very fine to fine-grained; non plastic; moist; no odor; no staining						5	PennPlax Filter in #2/12 Sand
		ML-SM	**SANDY SILT - SILTY SAND** ; ML-SM; 10YR 3/3 dark brown; non plastic; moist; no odor; no staining; ~50% silt/very fine to fine sand		--			0.0		
		SP	**POORLY GRADED SAND** ; SP; 10YR 5/2 grayish brown; fine to medium-grained; slightly moist; no odor; no staining; trace coarse sand; trace fines							
10			**SAME AS ABOVE** ; increasing fines						10	1/4" Nylaflow Tube in Hydrated Granular Bentonite
		SP-SM	**POORLY GRADED SAND - SILTY SAND** ; SP-SM; 10YR 4/3 brown; very fine to fine-grained; slightly moist; no odor; no staining; little to some silt		--			0.0		
		SP	**POORLY GRADED SAND** ; SP; 10YR 5/2 grayish brown; fine to medium-grained; slightly moist; no odor; no staining; trace coarse sand; trace fines							Dry Granular Bentonite
15		ML-SM	**SANDY SILT - SILTY SAND** ; ML-SM; 10YR 2/2 dark grayish brown; non plastic; slightly moist; no odor; no staining; ~50% silt/very fine to fine sand		--			0.0	15	PennPlax Filter in #2/12 Sand
			Hole terminated at 15.5 feet.							

GEO FORM 304 INITIAL_LOGS.GPJ STANTEC001.GDT 3/4/19

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

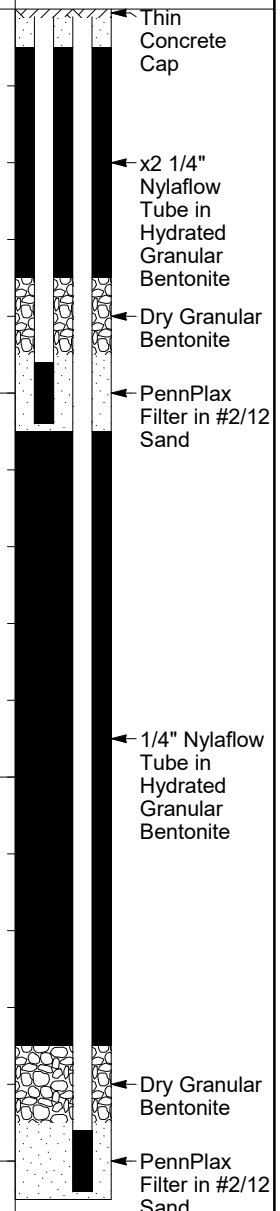
WELL / PROBEHOLE / BOREHOLE NO: **SV-9** PAGE 1 OF 1

Stantec

DRILLING: STARTED **3/1/19** COMPLETED: **3/1/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **6610**
DRILLING METHOD: **DPT**
SAMPLING EQUIPMENT: **Acetate**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **15.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.25**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	USCS	Description	Sample	Time Sample ID Method	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)
		~8" degraded Asphalt					
	SM	**SILTY SAND WITH GRAVEL** ; SM; 10YR 3/2 very dark grayish brown; fine to medium-grained; non plastic; moist; no odor; no staining; little gravel; some silt		1232 SV-9-1 8015 8260 T22			0.2
		SAME AS ABOVE ; few gravel		1238 SV-9-3			2.5
5				1242 SV-9-5 8015 8260 T22			0.0
	SP-SM	**POORLY GRADED SAND - SILTY SAND** ; SP-SM; 10YR 5/2 grayish brown; fine-grained; non plastic; moist; no odor; no staining; litle to some silt					
10		**SAME AS ABOVE** ; slight decrease in fines		1246 SV-9-10			0.0
		SAME AS ABOVE ; increase in fines					
	ML-SM	**SANDY SILT - SILTY SAND** ; ML-SM; 10YR 4/2 dark grayish brown; non plastic; moist; no odor; no staining; ~50% silt/very fine to fine sand					
15	SM	**SILTY SAND** ; SM; 10YR 4/2 dark grayish brown; fine-grained; non plastic; moist; no odor; no staining; some silt; interbedded		1250 SV-9-15			0.0
		Hole terminated at 15.5 feet.					



GEO FORM 304 INITIAL_LOGS.GPJ STANTEC001.GDT 3/4/19

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

WELL / PROBEHOLE / BOREHOLE NO: **SV-10** PAGE 1 OF 1

DRILLING: STARTED **3/1/19** COMPLETED: **3/1/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **6610**
DRILLING METHOD: **DPT**
SAMPLING EQUIPMENT: **Acetate**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **15.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.25**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
			6" degraded Asphalt							Thin Concrete Cap
		SP	**POORLY GRADED SAND WITH GRAVEL AND SILT** ; SP; 10YR 3/2 very dark grayish brown; fine to coarse-grained; dry; no odor; no staining; little gravel; little fines		1320 SV-10-1 8015 8260 T22			0.0		
		ML	**SANDY SILT** ; ML; 10YR 4/2 dark grayish brown; non plastic; moist; no odor; no staining; some very fine sand; few fine sand		1323 SV-10-3			0.1		x2 1/4" Nylaflow Tube in Hydrated Granular Bentonite; Dry Granular Bentonite
5		ML	**SILTY SAND** ; ML; 10YR 5/2 grayish brown; very fine to fine-grained; non plastic; moist; no odor; no staining; some silt; trace medium sand		1334 SV-10-5 8015 8260 T22			0.0	5	PennPlax Filter in #2/12 Sand
		SP	**POORLY GRADED SAND** ; SP; 10YR 4/2 dark grayish brown; very fine to fine-grained; moist; no odor; no staining; few fines							
10			**SAME AS ABOVE** ; increasing fines		1348 SV-10-10			0.0	10	1/4" Nylaflow Tube in Hydrated Granular Bentonite
		ML-SM	**SANDY SILT - SILTY SAND** ; ML-SM; 10YR 4/2 dark grayish brown; non plastic; moist; no odor; no staining; ~50% silt/very fine to fine sand							Dry Granular Bentonite
15		SM	**SILTY SAND** ; SM; 10YR 4/2 dark grayish brown; fine-grained; non plastic; moist; no odor; no staining; some silt; interbedded		1353 SV-10-15			0.0	15	PennPlax Filter in #2/12 Sand
			Hole terminated at 15.5 feet.							

GEO FORM 304 INITIAL_LOGS.GPJ STANTEC001.GDT 3/4/19

PROJECT: **KB - El Monte**
LOCATION: **El Monte, CA**
PROJECT NUMBER: **185804357**

WELL / PROBEHOLE / BORE HOLE NO: **SV-11** PAGE 1 OF 1

DRILLING: STARTED **3/1/19** COMPLETED: **3/1/19**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **Core Probe**
DRILLING EQUIPMENT: **6610**
DRILLING METHOD: **DPT**
SAMPLING EQUIPMENT: **Acetate**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **15.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2.25**
LOGGED BY: **MFB** CHECKED BY: **JD**

Time & Depth (feet)	USCS	Description	Time Sample ID	Measured Recovery (ft.)	Blow Count	PID Reading (ppmv)
		4" Asphalt				
	SM	**SILTY SAND WITH GRAVEL** ; SM; 10YR 4/2 dark grayish brown; fine to medium-grained; non plastic; moist; no odor; no staining				
5	SM	**SILTY SAND** ; SM; 10YR 4/2 dark grayish brown; very fine to fine-grained; non plastic; moist; no odor; no staining	--			0.0
	ML	**SILT WITH SAND** ; ML; 10YR 5/2 grayish brown; non plastic; moist; no odor; oxidation staining; little fine sand				
	SP	**POORLY GRADED SAND** ; SP; 10YR 4/3 brown; very fine to fine-grained; moist; no odor; no staining; few fines	--			0.0
	ML-SM	**SANDY SILT - SILTY SAND** ; ML-SM; 10YR 4/2 dark grayish brown; non plastic; moist; no odor; no staining; ~50% very fine to fine sand/silt				
10	SP	**POORLY GRADED SAND** ; SP; 10YR 4/3 brown; fine-grained; moist; no odor; no staining; few fines; trace medium sand	--			0.0
	SM	**SILTY SAND** ; SM; 10YR 4/2 dark grayish brown; very fine to fine-grained; non plastic; moist; no odor; no staining				
	SP	**POORLY GRADED SAND** ; SP; 10YR 4/3 brown; fine-grained; moist; no odor; no staining; few fines; trace medium sand	--			0.0
15	ML-SM	**SANDY SILT - SILTY SAND** ; ML-SM; 10YR 3/3 dark brown; non plastic; moist; no odor; no staining; ~50% very fine to fine sand/silt				
		Hole terminated at 15.5 feet.				

Borehole Backfill: Thin Concrete Cap; x2 1/4" Nylaflow Tube in Hydrated Granular Bentonite; Dry Granular Bentonite; PennPlax Filter in #2/12 Sand; 1/4" Nylaflow Tube in Hydrated Granular Bentonite; Dry Granular Bentonite; PennPlax Filter in #2/12 Sand

GEO FORM 304 INITIAL_LOGS.GPJ STANTEC001.GDT 3/4/19

APPENDIX C

GEOPHYSICAL REPORT

Subsurface Investigation Report

Project:

Industrial Property
11312 Orchard St.
El Monte, CA

Prepared For:

James DeWoody
Stantec Consulting Services, Inc.

Prepared By:

Pacific Coast Locators, Inc.
EM & GPR Technicians
2606 Foothill Blvd., Ste. G La Crescenta, CA 91214
Ph: 818-249-7700 Fax: 818-249-7701

INTRODUCTION

Pacific Coast Locators, Inc. performed a Subsurface Oil Well Investigation on Friday, January 17th, 2020 to attempt to locate and confirm a buried oil well within the area of concern on-site.

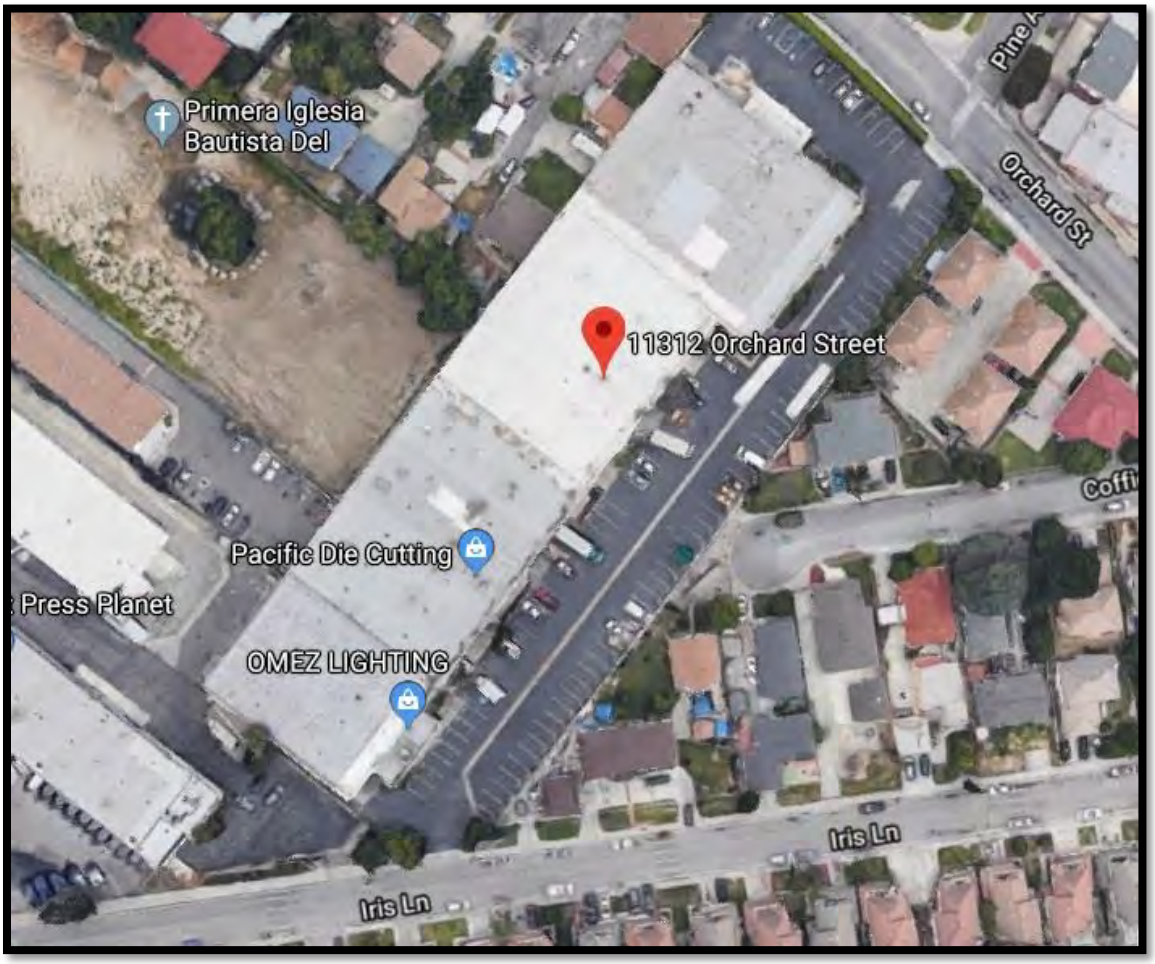
METHODOLOGY AND EQUIPMENT

The GSSI UtilityScan SIR 3000 Ground Penetrating Radar unit with 400MHz antenna sends a dielectric signal into the earth, which registers with the density of the soil that it is penetrating. Any other material of varied density will either speed up the signal creating an inverted hyperbola or slow it down leaving a hyperbola trail. This is similar to a rock in a creek. The water bends around the rock leaving a tail wake. The GPR signal is not bending however; it is sending back a continuous signal of the curvature of the anomaly or buried feature it encounters. GPR findings are not always accurate due to certain site conditions such as soil lithology, moisture and soil make-up. These can limit the depth to which the GPR antenna can penetrate to locate buried features.

The Schonstedt GA-52Cx Magnetic Locator detects iron and steel objects underground, such as USTs, buried oil wells and buried metal monitoring well lids. The Schonstedt GA-52Cx Magnetometer provides audio detection signals with frequencies that vary with gradient field intensity. The signals peak in frequency when the locator's tip is held directly over the target.

SITE AREA

The project site is located at 11312 Orchard St. in El Monte, CA. Below is an aerial view of the site.



ANALYSES / INTERPRETATIONS AND FINDINGS

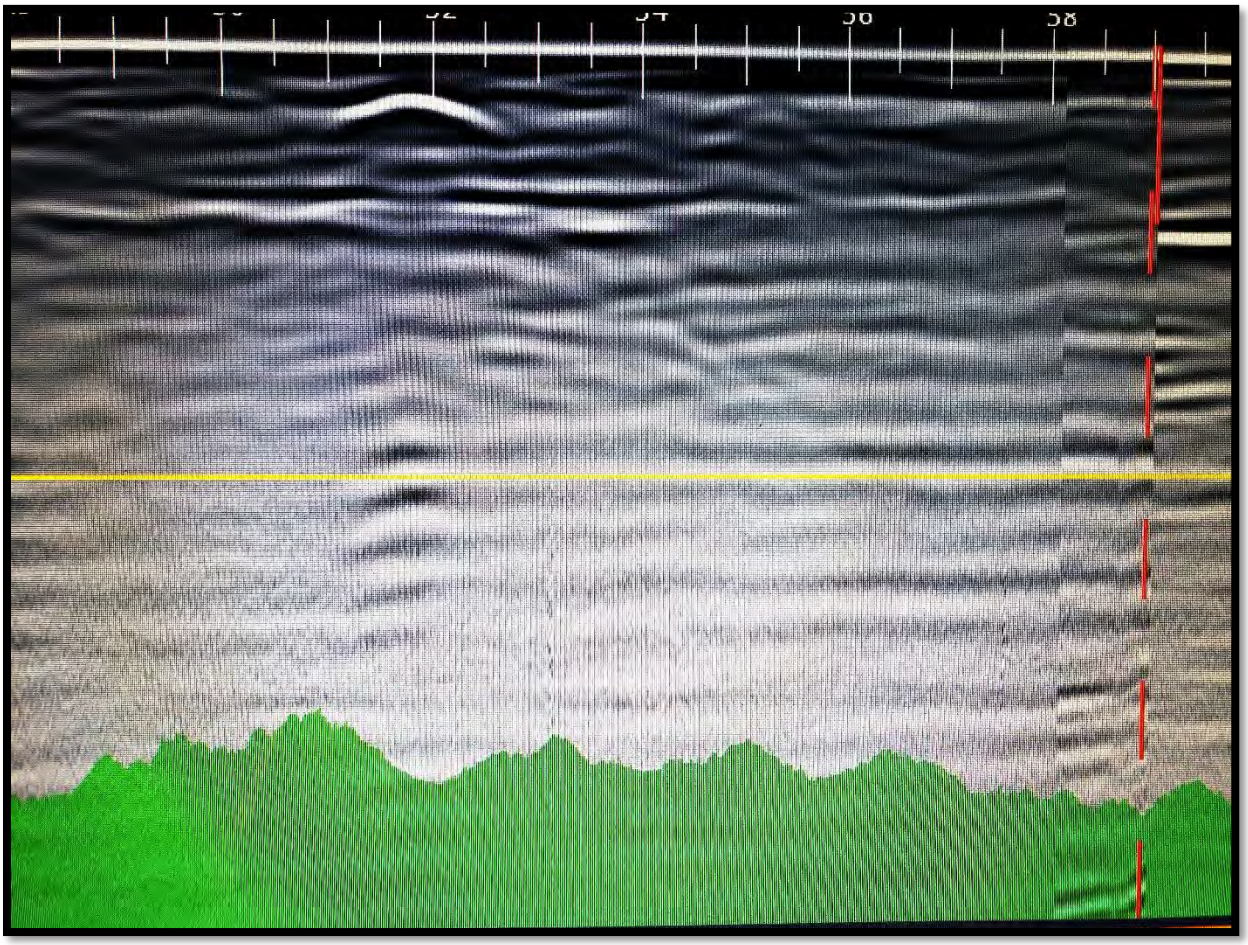
Our technician performed a Subsurface Oil Well Investigation using a Magnetometer & Ground Penetrating Radar locating equipment to attempt to locate and confirm a potential abandoned oil well within the area of concern in the southeast corner of the site.

After reviewing documentation provided by the client, our technician scanned the approximately 200' foot radius project area and an off-site parcel to the south of the site. An anomaly was identified with GPR at approximately 7' to 8' depth on the adjacent property to the south of the site. A Magnetometer was then used to confirm the anomaly was metallic in nature. No other anomalies or metallic signatures were identified within the scanned area.

Below is an aerial view of the site that shows the area that was scanned and the location of the potential abandoned oil well/anomaly.



Below is a GPR image of the anomaly found on-site:



Field work performed by Mark Wagganer,
EM & GPR Technician,
Pacific Coast Locators, Inc.

LIMITATIONS

Please be advised that there are limitations to any Subsurface Investigation. The equipment may not achieve maximum effectiveness due to soil conditions, above ground obstructions, reinforced concrete, and a variety of other factors. No Subsurface Investigation or equipment can provide a complete image of buried features. Our results should always be used in conjunction with as many methods as possible including: Consultation of existing plans and drawings, exploratory excavation or potholing, visual inspection of above ground features and utilization of services such as Dig Alert/Underground Service.

Appendix G3

Pre-Demolition Asbestos and Lead-Based Paint Survey



Stantec Consulting Services Inc.
735 E. Carnegie Drive, Suite 280
San Bernardino, CA 92408

July 5, 2019

Attention: Mr. David Lelie
KB Home Southern California
25152 Springfield Court Suite 180
Valencia, California 91335

Reference: Pre-Demolition Asbestos and Lead-Based Paint Survey
3630, 3640-3642, 3700 Cypress Avenue, 11297-11309 Iris lane and 11312 Orchard Street, EL Monte, California 91731

Dear Mr. Lelie:

Stantec Consulting Services Inc. (Stantec) appreciates the opportunity to provide KB Home Southern California with the following pre-demolition asbestos and lead-based paint (LBP) survey report. The survey was performed at the location referenced above (herein referred to as the "Property") on June 19 and 20, 2019. The purpose of this survey was to evaluate the Property for the presence of asbestos-containing materials (ACMs) and LBP that could require special handling and/or disposal in accordance with applicable federal, state, and local regulations during the proposed demolition of the Property. This report provides the survey's findings and recommendations.

BACKGROUND

At the request of KB Home Southern California, Stantec performed a pre-demolition ACM and LBP survey in support of the demolition that may occur at the Property. The scope of work included sampling and analysis of suspect building materials that would be affected by the upcoming demolition at the Property.

The Property consists of four buildings, each with multiple units, mainly consisting of office and warehouse space. These areas include interiors and exteriors of 3630, 3640-3642, 3700 Cypress Avenue, 11297-11309 Iris lane and 11312 Orchard Street, EL Monte, California 91731 as identified on the provided drawings.

Building 3630 Cypress Avenue consists of one tenant space occupied by Inovit Wheels, an auto parts manufacturer, and is divided into offices, restrooms, and warehouse space. The building consists of a concrete block walls on a concrete foundation. The roof consists of asphaltic sheeting. The interior finishes generally consist of gypsum board, joint compound, vinyl floor tiles and sheeting, cove base, mastics and adhesives. The ceiling consists of lay-in acoustical ceiling panels and acoustic ceiling spray. A total of 86 bulk samples were collected from 20 homogeneous areas from Building 3630 Cypress Avenue.

Building 3640-3642 Cypress Avenue and 11297 Iris Lane consists of three tenant spaces, occupied by flooring and door businesses, and is divided into offices, restrooms, and warehouse space. The building consists of a concrete block walls on a concrete foundation. The interior finishes generally consist of gypsum board, joint compound, vinyl floor tiles, vinyl floor sheeting, mastics, adhesives, and ceramic floor tiles. The ceiling consists of acoustic ceiling spray. The roof consists of asphaltic sheeting similar to Building 3630 Cypress Avenue; however, the roof of this building was inaccessible and not sampled. A total of 73 bulk samples were collected from 19 homogeneous areas from Building 3640-3642 Cypress Avenue and 11297 Iris Lane.

Building 3700 Cypress Avenue consists of two tenant spaces. The building consists of a concrete block walls on a concrete foundation. The exterior consists of asphaltic sheet roofing and stucco

walls. The interior finishes generally consist of plaster, gypsum board, joint compound, vinyl floor tiles, cove base, mastics, adhesives, wood paneling, and ceramic floor tiles. The ceiling consists of acoustic ceiling panels. A total of 89 bulk samples were collected from 21 homogeneous areas from Building 3700 Cypress Avenue.

Building 11297-11309 Iris lane and 11312 Orchard Street consists of seven tenant spaces. The building consists of a concrete block walls on a concrete foundation. The exterior consists of asphaltic sheet roofing and stucco walls. The interior finishes generally consist of plaster, gypsum board, joint compound, vinyl floor tiles, vinyl floor sheeting, cove bases, mastics, adhesives, and terrazzo flooring. The ceiling consists of acoustic ceiling panels. A total of 214 bulk samples were collected from 61 homogeneous areas from Building 11297-11309 Iris lane and 11312 Orchard Street.

PROJECT PERSONNEL

The survey was performed by Ms. Debbie Hernandez, Staff Geologist with Stantec, Asbestos Hazard Emergency Response Act (AHERA) Accredited Building Inspector and Ms. Melissa Baernstein, Project Scientist with Stantec, Division of Occupational Safety and Health (DOSH) Certified Site Surveillance Technician (CSST#15-5377) and California Department of Public Health (CDPH) Lead Related Sampling Technician (LRST# 26903) under the oversight of Ms. Alicia Jansen, Associate Scientist with Stantec, DOSH Certified Asbestos Consultant (CAC #15-5379) and CDPH Lead Related Construction Inspector/Assessor (LRCIA #19526).

SUSPECT ASBESTOS CONTAINING MATERIALS

Asbestos is a potential health hazard capable of causing respiratory system fibrosis and various forms of systemic cancers. Its condition, handling and disposal are regulated by federal, state, and local agencies. Materials that contain asbestos generally do not pose a health threat unless the asbestos fibers are disturbed by renovation, construction or demolition, and may then become airborne and inhaled. If the Property's buildings are not going to be demolished, then written notification to employees, tenants, contractors, or purchasers of the Property in regards to the presence and location of ACMs and asbestos-containing construction materials (ACCMs) is required pursuant to the California Health and Safety Code 25915.

In California, asbestos exposure in construction is regulated when there is construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof that contain asbestos [§1529 (a)(1)(C)]. For purposes of this report, materials with any detectable concentration of asbestos are considered positive.

The Environmental Protection Agency (EPA) defines a homogeneous area as a surfacing material, thermal system insulation, or miscellaneous material that is uniform in color and texture. The use or application of the homogeneous area is also used to identify suspect ACMs. The EPA and DOSH define ACM as any material that contains more than one percent (by weight) of asbestos (>1%). Only one sample from a homogeneous area with an asbestos concentration >1% is required to collectively identify that material as an ACM. The EPA additionally categorizes ACM as follows:

- Category I nonfriable ACM - asbestos containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1% asbestos as determined using the PLM method.
- Category II nonfriable ACM - any material, excluding Category I nonfriable ACM, containing more than 1% asbestos as determined using the PLM method that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- Regulated asbestos-containing material (RACM) - (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II

> nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

In California, potential asbestos exposure in construction is regulated when construction, alteration, repair, maintenance, renovation or demolition of structures, substrates, or portions thereof contain asbestos [8 CCR §1529 (a)(1)(C)]. Additionally, in California, materials containing greater than one-tenth of one percent (>0.1%) asbestos by weight are regulated as ACCMs.

Sampling and Analysis

Stantec conducted a survey of the Property in an effort to identify suspect ACMs in accordance with the Asbestos Hazard Emergency Response Act (AHERA) sampling guidelines as outlined in 40 CFR Part 763. The location, condition, friability, and the potential for suspect ACMs to be potentially disturbed were assessed and documented. Bulk samples of readily accessible suspect ACMs were collected. Consistent with building demolition and renovation regulatory requirements, building material sampling was conducted regardless of the age and/or condition of the structures.

The samples were analyzed by Polarized Light Microscopy (PLM) in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials" (EPA/600/R93/116, July 1993). Analysis was performed by EMSL Analytical, Inc. located in Cinnaminson, New Jersey. This laboratory is participating in the Environmental Laboratory Accreditation Program (ELAP), the National Institute of Standards and Testing (NIST), and the National Voluntary Laboratory Accreditation Program (NVLAP). The laboratory is also accredited by the American Industrial Hygiene Association (AIHA).

Findings

Tables 1 through 4 below provide a summary of suspect ACMs identified and sampled at the Property during this survey. The tables include the DOSH definition and the EPA category, as applicable. Figures 1 through 18 depict sample locations. Laboratory analytical results and bulk sample logs are provided in Attachment A; sample location maps are provided in Attachment B; certifications are provided in Attachment C; and a photographic log is provided in Attachment D.

July 5, 2019
Mr. Lelie
Reference: Pre-Demolition Asbestos and Lead-Based Paint Survey
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

Table 1 – Asbestos Sampling Results from Building 3630 Cypress Avenue (Figures 1-2 and Figure 18)

Sample No.	Homogeneous Area	Location of Material	Condition	Asbestos Content	Quantity Estimate	DOSH Definition	EPA Category
01A 01B 01C 01D 01E 01F 01G	Concrete, Gray, Perimeter Walls	Throughout	Good	ND	10,000 SF	NA	NA
02A 02B 02C	Concrete, Gray, Patterned	Exterior, East Side	Good	ND	300 SF	NA	NA
03A 03B 03C	Sealant, Black, Associated with Roof Penetrations	Roof	Damaged	ND	100 SF	NA	NA
03C	Shingle – attached to another HA#03 sample	Roof	Good	3% Chrysotile	100 SF	ACM	Category I
04A 04B 04C 04D 04E 04F 04G	Asphaltic Roofing System, Gray/Black, Rolled Sheets	Roof	Good	ND	17,000 SF	NA	NA
05A 05B 05C	Sealant, White, Associated with Roof/Skylight Seams	Roof	Good	ND	100 SF	NA	NA
06A 06B 06C	Acoustic Ceiling, White, Spray-on, Popcorn Style	Lobby, Meeting Room, Hallway, Breakroom	Good	3% Chrysotile	900 SF	ACM	RACM
07A 07B 07C 07D 07E 07F 07G	Concrete, Gray, Foundation	Throughout	Good	ND	17,000 SF	NA	NA
08A 08B 08C	VFT, Green, 12”X12” Mottled	Breakroom	Good	ND	250 SF	NA	NA
09A 09B 09C	Mastic, Grayish-White, Associated with HA #08	Breakroom	Damaged	2% Chrysotile	250 SF	ACM	Category II
10A 10B 10C 10D 10E	Gypsum Board, White, Interior Walls	Rooms on NW Side of Building	Good	ND	3,400 SF	NA	NA

July 5, 2019
Mr. Lelie
Reference: Pre-Demolition Asbestos and Lead-Based Paint Survey
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

11A 11B 11C 11D 11E	Joint Compound, White, Interior Walls, Associated with HA#10	Rooms on NW Side of Building	Good	3% Chrysotile	3,000 SF	ACM	RACM
12A 12B 12C	VFS, Gray, Patterned	Restrooms #3&4	Damaged	ND	250 SF	NA	NA
13A 13B 13C	Cove Base, Green, 3" Vinyl	Restrooms	Good	ND	120 SF	NA	NA
14A 14B 14C	Mastic, White, Associated with HA#12&13	Restrooms	Good	ND	370 SF	NA	NA
15A 15B 15C	Gypsum Board, White, Interior Walls	Throughout	Good	ND	999 SF	NA	NA
16A 16B 16C	Joint Compound, White, Interior Walls, Associated with HA#15	Throughout	Good	ND	999 SF	NA	NA
17A 17B 17C	Acoustic Ceiling Panels, White, 2'x4', Dots & Fissures, Lay-in Type	Stairway	Good	ND	72 SF	NA	NA
18A 18B 18C	Acoustic Ceiling, White, Spray-on, Popcorn Style	2nd Floor, Hallway, Open Office	Good	2% Chrysotile	300 SF	ACM	RACM
19A 19B 19C	Mortar, Gray, Associated with HA#20	Warehouse West Wall	Good	ND	225 SF	NA	NA
20A 20B 20C	CMU, Gray	Warehouse West Wall	Good	ND	225 SF	NA	NA

Notes and Abbreviations
Bold items indicate material tested positive for asbestos
ND = Non-detect
SF = Square feet
NA = Not applicable
VFS = Vinyl Floor Sheeting
VFT = Vinyl Floor Tile
CMU = Concrete Masonry Unit
ACM = Asbestos Containing Material
CAT I = Category I Non-friable Asbestos Containing Material
CAT II = Category II Non-friable Asbestos Containing Material
RACM = Regulated Asbestos Containing Material

July 5, 2019
Mr. Lelie
Reference: Pre-Demolition Asbestos and Lead-Based Paint Survey
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

Table 2 – Asbestos Sampling Results from Building 3640-3642 Cypress Avenue and 11297 Iris Lane (Figures 3-7 and Figure 18)

Sample No.	Homogeneous Area	Location of Material	Condition	Asbestos Content	Quantity Estimate	DOSH Definition	EPA Category
01A 01B 01C 01D 01E 01F 01G	Concrete, Gray, Walls	Throughout Perimeter Walls	Good	ND	12,800 SF	NA	NA
02A 02B 02C 02D 02E 02F 02G	Gypsum Board, White, Interior Walls	Interior Walls	Good	ND	6,000 SF	NA	NA
03A 03B 03C 03D 03E 03F 03G	Joint Compound, White, Interior Walls	Interior Walls	Good	ND	6,000 SF	NA	NA
04A 04B 04C	VFT, White, 12"X12" Self-Stick	Restrooms	Good	ND	40 SF	NA	NA
05A 05B 05C	VFT, Gray, 12"X12" Mottled	Restrooms	Good	ND	40 SF	NA	NA
06A 06B 06C	Mastic, Dark Yellow, Associated with HA#05	Restrooms	Good	ND	40 SF	NA	NA
07A 07B 07C 07D 07E 07F 07G	Concrete, Gray, Foundation	Throughout	Good	ND	53,000 SF	NA	NA
08A 08B 08C	VFS, Green, Small Squares	3640 2nd Floor	Good	30% Chrysotile	36 SF	ACM	Category I
09A 09B 09C	VFS, Blue, Solid	3640 2nd Floor	Good	ND	70 SF	NA	NA
10A 10B 10C	VFS, Browns, Tree Bark Pattern	3640 2nd Floor	Good	ND	240 SF	NA	NA
11A 11B 11C	VFS, Beige, Pebble Pattern	3640 2nd Floor	Good	30% Chrysotile	90 SF	ACM	Category I
12A 12B 12C	VFS, Black, Solid	3640 2nd Floor	Good	ND	140 SF	NA	NA
13A 13B 13C	VFS, Red, Solid	3640 2nd Floor	Good	ND	30 SF	NA	NA

July 5, 2019
Mr. Lelie
Reference: Pre-Demolition Asbestos and Lead-Based Paint Survey
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

14A 14B 14C	Adhesive, Brown/Beige, Associated with HAs#08-13	3640 2nd Floor	Good	2% Chrysotile	600 SF	ACM	Category II
15A 15B 15C	VFS, Blue, Gray Marbling	3640 Restrooms	Damaged	ND	50 SF	NA	NA
16A 16B 16C	Adhesive, Yellow, Associated with HA#15	3640 2nd Floor	Damaged	ND	50 SF	NA	NA
17A 17B 17C	VFT, Gray, 12"X12" Mottled	3640 2nd Floor	Good	ND	30 SF	NA	NA
18A 18B 18C	Adhesive, Yellow, Associated with HA#17	3640 2nd Floor	Good	ND	30 SF	NA	NA
19A 19B 19C	Acoustic Ceiling, White, Spray-on, Popcorn Style	11297 Iris, 2nd Floor, Rooms #1&2	Good	4% Chrysotile	450 SF	ACM	RACM

Notes and Abbreviations
Bold items indicate material tested positive for asbestos
ND = Non-detect
SF = Square feet
NA = Not applicable
VFS = Vinyl Floor Sheeting
VFT = Vinyl Floor Tile
CMU = Concrete Masonry Unit
ACM = Asbestos Containing Material
CAT I = Category I Non-friable Asbestos Containing Material
CAT II = Category II Non-friable Asbestos Containing Material
RACM = Regulated Asbestos Containing Material

July 5, 2019
Mr. Lelie
Reference: Pre-Demolition Asbestos and Lead-Based Paint Survey
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

Table 3 – Asbestos Sampling Results from Building 3700 Cypress (Figures 8-9 and Figure 18)

Sample No.	Homogeneous Area	Location of Material	Condition	Asbestos Content	Quantity Estimate	DOSH Definition	EPA Category
01A 01B 01C 01D 01E 01F 01G	Stucco, Beige, Finish on Exterior Walls	Throughout	Good	3% Chrysotile	12,700 SF	ACM	RACM
02A 02B 02C	Brick, Red, Associated with Planter	Exterior, East Side	Good	ND	250 SF	NA	NA
03A 03B 03C	Mortar, Gray, Associated with HA#02	Exterior, East Side	Good	ND	250 SF	NA	NA
04A 04B 04C 04D 04E 04F 04G	Roofing System, Yellow & Black, Foam on Top of Asphalt	Exterior, Roof	Good	ND	15,000 SF	NA	NA
05A 05B 05C	Sealant, White, At Roof/HVAC Penetrations	Exterior, Roof	Good	ND	15 SF	NA	NA
06A 06B 06C	Cove Base, Brownish-Gray, 3" Vinyl	Throughout Office #1	Good	ND	170 SF	NA	NA
07A 07B 07C	Mastic, Yellow, Associated with HA#06	Throughout Office #1	Good	ND	170 SF	NA	NA
08A 08B 08C	Plaster, Gray, Interior Walls	3700A Restroom #1	Good	3% Chrysotile	150 SF	ACM	RACM
09A 09B 09C 09D 09E 09F 09G	Gypsum Board, Light Gray, Interior Walls	Warehouse B Office & Restroom, Warehouse A	Good	ND	5,000 SF	NA	NA
10A 10B 10C 10D 10E 10F 10G	Gypsum Board, White, Interior Walls	3700A Kitchen, 3700B Warehouse, Restroom, & Office	Good	ND	2,900 SF	NA	NA
11A 11B 11C 11D 11E 11F 11G	Joint Compound, White, Associated with HA#10	3700A Kitchen, 3700B Warehouse, Restroom, & Office	Good	ND	2,900 SF	NA	NA

12A 12B 12C	Texture, White, Orange Peel Pattern	3700A Kitchen	Good	ND	400 SF	NA	NA
13A 13B 13C 13D 13E 13F 13G	Concrete, Gray, Foundation	Throughout	Good	ND	14,500 SF	NA	NA
14A 14B 14C	Concrete, Gray, Foundation Patch	Warehouses	Good	ND	600 SF	NA	NA
15A 15B 15C 15D 15E	Acoustic Ceiling Panels, White, 2'x4', Dots & Fissures, Lay-in Type	Offices	Damaged	ND	1,480 SF	NA	NA
16A 16B 16C	VFT, White, 12"X12" Marble Pattern	Restroom #1	Good	ND	40 SF	NA	NA
17A 17B 17C	Mastic, Dark Yellow, Associated with HA#16	3700A Restroom #1	Good	2% Chrysotile	40 SF	ACM	Category II
18A 18B 18C	Acoustic Ceiling Panels, White, 2'x2', Dots & Fissures, Lay-in Type with Lip	Office #2 & Kitchen	Good	ND	600 SF	NA	NA
19A 19B 19C	Joint Compound, White, Associated with HA#09	Warehouse B	Good	ND	900 SF	NA	NA
20A 20B 20C	Foam, Yellow, Spray-in Gap Filler	Warehouse B	Damaged	ND	5 SF	NA	NA
21A 21B 21C	Stucco, White/Gray, Wall Finish	Kitchen	Good	ND	400 SF	NA	NA

July 5, 2019
Mr. Lelie
Reference: Pre-Demolition Asbestos and Lead-Based Paint Survey
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

Table 4 – Asbestos Sampling Results from Buildings 11301-11309 Iris Lane and 11312 Orchard Street (Figures 10-18)

Sample No.	Homogeneous Area	Location of Material	Condition	Asbestos Content	Quantity Estimate	DOSH Definition	EPA Category
01A 01B 01C 01D 01E	*Gypsum Board, White, Interior Walls*	*11309B*	*Good*	*<0.25% Chrysotile**	*3,000 SF*	*ACCM*	*NA*
02A 02B 02C	VFT, White, 12"X12"	11309B	Good	ND	150 SF	NA	NA
03A 03B 03C	Mastic, Yellow, Associated with HA#02	11309B	Good	ND	150 SF	NA	NA
04A 04B 04C	Cove Base, Black, 3" Vinyl	11309B	Good	ND	160 SF	NA	NA
05A 05B 05C	Mastic, White, Associated with HA#04	11309B	Good	ND	160 SF	NA	NA
06A 06B 06C	Mastic, Yellow, Associated with Gray Carpet	11309B	Good	ND	336 SF	NA	NA
07A 07B 07C	Acoustic Ceiling Panels, White, 2'x4', Dots & Fissures, Lay-in Type	11309B	Good	ND	336 SF	NA	NA
08A 08B 08C 08D 08E 08F 08G	Acoustic Ceiling Panels, White, 2'x4', Dots & Fissures, Lay-in Type	11303-11307 and 11312	Good	ND	2,644 SF	NA	NA
09A 09B 09C 09D 09E	Mastic, Dark Yellow, Associated with Gray Carpet	11303, 11307, 11309, 11312	Good	ND	3,716 SF	NA	NA
10A 10B 10C	Cove Base, Black, 3" Vinyl	11301-11309	Good	ND	850 SF	NA	NA
11A 11B 11C	Mastic, Tan, Associated with HA#10	11301-11309	Good	ND	850 SF	NA	NA
12A 12B 12C 12D	VFT, White, 12"x12" Mottled with Gray	11303, 11307, 11309, 11312	Good	ND	1,500 SF	NA	NA

13A 13B 13C 13D	Mastic, Yellow, Associated with HA#12	11303, 11307, 11309, 11312	Good	ND	1,500 SF	NA	NA
13B 13C	Mastic, Black, Associated with HA#12	11303, 11307, 11309, 11312	Good	4% Chrysotile	1,500 SF	ACM	Category II
14A 14B 14C 14D 14E 14F 14G	Gypsum Board, White, Interior Walls	All Units	Good	ND	25,000 SF	NA	NA
15A *15B* *15C* *15D* *15E* *15F* *15G*	*Joint Compound, White, Interior Walls*	*All Units*	*Good*	*<0.25% Chrysotile**	*25,000 SF*	*ACCM*	*NA*
16A 16B 16C	VFT, Dark Gray, 12"X12" Mottled	11303 Restrooms #1&2	Good	ND	100 SF	NA	NA
17A 17B 17C	Mastic, Dark Yellow, Associated with HA#16	11303 Restrooms #1&2	Good	ND	100 SF	NA	NA
18A 18B	Leveling Compound	11303 & 11307	Damaged	ND	6 SF	NA	NA
19A 19B 19C	VFT, Brown & Blue, 12"x12" Marble Pattern, Self-Stick	11305	Good	ND	30 SF	NA	NA
20A 20B 20C	Acoustic Ceiling Panels, White, 2'x2', Dots & Fissures, Lay-in Type	11301A&B	Good	ND	528 SF	NA	NA
21A 21B 21C	Cove Base, Gray, 3" Vinyl	11301A&B	Good	ND	65 SF	NA	NA
22A 22B 22C	Mastic, Yellow, Associated with HA#21	11301A&B	Good	ND	65 SF	NA	NA
23A 23B 23C	VFS, White	11301A&B Restrooms	Good	ND	280 SF	NA	NA
24A 24B 24C	Mastic, Dark Yellow, Associated with HA #23	11301A&B Restrooms	Good	ND	280 SF	NA	NA
25A 25B 25C	Cove Base, Brown, 3" Vinyl	11301A Offices	Good	ND	120 SF	NA	NA

26A 26B 26C	Mastic, Beige, Associated with HA#25	11301A Offices	Good	ND	120 SF	NA	NA
27A 27B 27C	Gypsum Board, White, Interior Walls	11301A Restroom	Good	ND	250 SF	NA	NA
28A 28B 28C	Joint Compound, White, Interior Walls	11301A Restroom	Good	ND	250 SF	NA	NA
29A 29B 29C	Texture, White, Wall Finish	11301A Restroom	Good	ND	250 SF	NA	NA
30A 30B 30C 30D 30E 30F 30G	Asphaltic Roofing System, Gray & Black, Multi-Layered	11301-11312 Roofs	Good	ND	65,000 SF	NA	NA
31A 31B 31C	Sealant, Black, Associated with Seams on Roof Features and Penetrations	11301-11312 Roofs	Damaged	5% Chrysotile	100 SF	ACM	Category II
32A 32B 32C	Foam, Yellow, Spray-in Gap Filler, Associated with Parapets	11301-11312 Roofs	Significantly Damaged	ND	500 SF	NA	NA
33A 33B 33C	Sealant, White, Associated with Seams	11301-11312 Roofs	Good	ND	20 SF	NA	NA
34A 34B 34C 34D 34E 34F 34G	Asphaltic Roofing System, Yellow & Black, Foam on top of Asphaltic	11305 & 11309 Roofs	Good	ND	25,100 SF	NA	NA
35A 35B 35C	Cove Base, Light Gray, 3" Vinyl	11312	Good	ND	240 SF	NA	NA
36A 36B 36C	Mastic, Yellow, Associated with HA#35	11312	Good	ND	240 SF	NA	NA
37A	Cove Base, Brown, 3" Vinyl	11312	Good	ND	10 SF	NA	NA
38A 38B 38C	VFS, Gray, Self-Stick	11312B	Good	ND	280 SF	NA	NA
39A 39B 39C	VFT, Red, 9"x9" Brick Pattern	11312 Warehouse	Significantly Damaged	2% Chrysotile	10 SF	ACM	Category I

40A 40B 40C	Mastic, Black, Associated with HA#39	11312 Warehouse	Damaged	4% Chrysotile	10 SF	ACM	Category II
41A 41B 41C	Concrete, Gray, Foundation	11312	Good	ND	51,363 SF	NA	NA
42A 42B 42C	Cove Base, White, 3" Vinyl	11309 & 11312	Damaged	ND	85 SF	NA	NA
43A 43B 43C	Acoustic Ceiling Panels, White, 2'x2', Lay-in Type	11312	Good	ND	880 SF	NA	NA
44A 44B 44C	VFT, Brown, 12"x12" Mottled	11312	Good	ND	170 SF	NA	NA
45A 45B 45C	Mastic, Yellow, Associated with HA#44	11312	Good	ND	170 SF	NA	NA
46A 46B 46C	Gypsum Board, White, Interior Walls	11312 Throughout Rooms & One Warehouse Wall	Good	ND	1,000 SF	NA	NA
47A 47B 47C	Joint Compound, White, Interior Walls	11312 Throughout Rooms & One Warehouse Wall	Good	ND	900 SF	NA	NA
48A 48B 48C	Texture, White, Interior Wall Finish	11312A Storage & Office	Good	ND	500 SF	NA	NA
49A 49B 49C	Stucco, Gray, Interior Wall Finish	11312A NE Warehouse Wall	Good	ND	900 SF	NA	NA
50A 50B 50C 50D 50E	VFT, Gray, 12"x12" Mottled	11301-11307	Good	ND	1,368 SF	NA	NA
51A 51B 51C 51D 51E	Mastic, Yellow, Associated with HA#50	11301-11307	Good	ND	1,368 SF	NA	NA
51B 51C 51D 51E	Mastic, Black, Associated with HA#50	11301-11307	Good	2% Chrysotile	1,368 SF	ACM	Category II
52A 52B 52C 52D 52E 52F 52G	Concrete, Gray, Perimeter Walls	11301-11312	Good	ND	21,180 SF	NA	NA
53A 53B 53C	Cove Base, Black, 3" Vinyl	11305	Good	ND	15 SF	NA	NA

54A 54B 54C	Mastic, Yellow, Associated with HA#53	11305	Good	ND	15 SF	NA	NA
55A 55B 55C	Adhesive, Dark Orange Brown, Associated with Fiber Reinforced Plastic	11309A	Good	ND	80 SF	NA	NA
56A 56B 56C	Acoustic Ceiling Tiles, White, 1'x1', Dots, Suspended Type	11309A Office	Damaged	ND	500 SF	NA	NA
57A 57B 57C	Acoustic Ceiling Tiles, White, 1'x1', Dots, Suspended Type	11309A Office	Good	ND	150 SF	NA	NA
58A 58B 58C	Mortar, Gray, Associated with HA#59	Exterior 11301 & 11312	Good	ND	475 SF	NA	NA
59A 59B 59C	Brick, Gray, Walls	Exterior 11301 & 11312	Good	ND	475 SF	NA	NA
60A 60B 60C	Concrete Masonry Unit, Beige, Walls Between Lots	Exterior 11297-11301	Good	ND	650 SF	NA	NA
61A 61B 61C	Mortar, Gray, Associated with HA#60	Exterior 11297-11301	Good	ND	650 SF	NA	NA

Notes and Abbreviations
Bold items indicate material tested positive for asbestos
Materials in *Italics* are identified as being Asbestos Containing Construction Material (ACCM)
* Result by 400-point count method
ND = Non-detect
SF = Square feet
NA = Not applicable
ACM = Asbestos-Containing Material
ACCM = Asbestos-Containing Construction Material
Category I = Non-Friable Asbestos-Containing Material
Category II = Non-Friable Asbestos-Containing Material

LEAD-BASED PAINT

The State of California, Title 17, Division 1, and Chapter 8 (herein referred to as "Title 17") pertains to all public and residential buildings in California and is enforced by the CDPH. Pursuant to Title 17 and EPA regulations, lead-based paint is defined as paint or other surface coatings containing an amount of lead equal to or greater than one milligram per square centimeter (1.0 mg/cm2) or more than half of one percent (>0.5% or 5,000 parts per million [ppm]) by weight. Title 17 also defines a lead hazard as deteriorated lead-based paint, disturbing lead-based paint or presumed lead-based paint without containment, or any other nuisances which may result in persistent or quantifiable lead exposure. Additionally, worker exposure to materials containing lead during construction work is regulated by the Federal OSHA [29 CFR 1926.62(a)] and the DOSH [8 CCR §1532.1(a)]. These regulations require worker protection during construction "...where lead or materials containing lead are present."

July 5, 2019
Mr. Lelie
Reference: Pre-Demolition Asbestos and Lead-Based Paint Survey
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

Lead is a potential health hazard. Its condition, handling and disposal are regulated by federal, state, and local agencies. Lead in paint generally does not pose a health threat unless the material is disturbed or sufficiently deteriorated to produce dust, which may become airborne and inhaled or ingested. Contractors working in the facility should be informed of the type and the location of lead-containing materials. Applicable Federal and DOSH regulations may apply depending on the work being performed.

Sampling and Analysis

Stantec assessed the condition of painted surfaces at the Property in general accordance with Chapter 5 of the United States, Housing and Urban Development (HUD) guidelines. Paint that is in fair and/or poor condition presents the highest risk for lead exposure. Samples of paint observed to be in fair and/or poor condition, as well as intact paint, were collected from building components as a part of this survey. The definitions of paint condition are dependent on the location of the paint and component involved. Table 5 below illustrates how HUD categorizes paint condition under various circumstances.

Table 5 – HUD Categories of Paint Film Quality

	Total Area of Deteriorated Paint		
Type of Building Component	Intact	Fair	Poor
Exterior components with large surface areas.	Entire Surface is intact.	Less than or equal to 10 square feet.	More than 10 square feet.
Interior components with large surface areas (walls, ceilings, floors, doors).	Entire Surface is intact.	Less than or equal to 2 square feet.	More than 2 square feet.
Interior and exterior components with small surface areas (window sills, baseboards, soffits, trim).	Entire Surface is intact.	Less than or equal to 10 percent of the total surface area of the component.	More than 10 percent of the total surface area of the component.

Paint chip samples were collected by removing the material using hand tools to extract representative pieces. A hard-sided container was used to contain the samples of suspect material. A unique sample number was assigned to each sample.

Seven bulk paint-chip samples were collected and analyzed by Flame Atomic Absorption Spectrometry following the EPA SW 846-7000B/7420 analytical protocol. The samples were submitted to EMSL Analytical, Inc. in Cinnaminson, New Jersey. This laboratory is accredited by the American Industrial Hygiene Association (AIHA Lab ID 100194) under the Environmental Lead Laboratory Accreditation Program (ELLAP) as well as the CDPH Environmental Lab Accreditation Program (ELAP No. 2492) for bulk paint chip analysis. Please note, worker exposure to materials containing lead during construction related activities is regulated by the Code of Federal Regulations (CFR) Occupational Safety and Health Administration (OSHA) regulation [29 CFR 1926.62(a)] and the California Code of Regulations (CCR) DOSH regulation [8 CCR §1532.1(a)]. The Federal OSHA and the DOSH regulations require worker protection during construction "where lead containing coatings or paint is present".

Laboratory analytical results and bulk sample logs are provided in Attachment A and a sample location map is provided in Attachment B. The CDPH Lead Hazard Evaluation Report Form No. 8552 was submitted to the CDPH, as required, and a copy of this form is included in Attachment E.

July 5, 2019
Mr. Lelie
Reference: Pre-Demolition Asbestos and Lead-Based Paint Survey
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

Findings

Tables 6 below provides a summary of the paint identified and sampled at the Property during this survey.

Table 6 – Paint Sample Results

Sample Number	Sample Location	Paint Color	Substrate Material	Paint Condition	Estimated Quantity	Lead Content
P-1	*3700 Cypress Ave – Exterior*	*Beige*	*Metal*	*Intact*	*12,000 SF*	*0.099%*
P-2	3640 Cypress Ave – Exterior	Beige	Concrete	Intact	13,000 SF	<0.0080%
P-3	3630 Cypress Ave – Exterior	Beige	Concrete	Intact	20,000 SF	<0.0080%
P-4	*11303 Iris Lane – Interior*	*White*	*Concrete*	*Intact*	*30,000 SF*	*0.024%*
P-5	3640 Cypress Ave – Interior	White	Concrete	Intact	12,000 SF	<0.0080%
P-6	3700A Cypress Ave – Interior	Beige	CMU	Intact	12,000 SF	<0.0080%
P-7	3630 Cypress Ave – Interior	White	Gypsum Board	Intact	5,000 SF	<0.0080%

SF = Square Feet
Italics = Paint has detectable concentrations of lead that would require compliance with applicable portions of the Federal OSHA 29 CFR 1926.62 and the DOSH Section 1532.1

RECOMMENDATIONS

Asbestos-Containing Materials

The DOSH requires employers to implement specific work practices, which protect workers from airborne asbestos exposure, when materials are found to contain detectable concentrations of asbestos. Building materials, which contain even low levels of asbestos (trace amounts), can potentially generate concentrations of airborne asbestos fibers when disturbed. Therefore, control measures should be instituted by those disturbing ACMs which adequately address worker health and safety during planned renovation or demolition activities involving these materials.

It is recommended that ACMs be removed by a licensed abatement contractor prior to renovation, refurbishing, or demolition activities in accordance with all applicable laws, including guidelines of the Occupational Safety and Health Administration ("OSHA"). If the entire area of asbestos containing material is not affected by renovation, refurbishing, or demolition activities, spot abatement of the material could be completed provided it complies with applicable laws and regulations. This would entail only abating the affected areas. If the identified ACM is going to be managed in-place, then written notification to employees, tenants, contractors, or purchasers of the Property in regards to the presence and location of ACMs and ACCMs is required pursuant to the California Health and Safety Code 25915.

It should be noted that the asbestos survey was limited to accessible materials only and did not include underground utilities. Historically, certain concealed materials may be present within wall cavities (e.g. electrical wire wrapping, insulation materials, vapor barrier paper, gypsum board, joint compound, etc.) that contain asbestos, and some underground utility piping has been known to contain asbestos (e.g. Transite pipe). If demolition of the Property includes removal of on-site portions of underground utilities (storm drains, sewer, domestic water laterals, etc.), evaluation of the asbestos content of these components must be performed prior to the removal process. Suspect materials identified in these locations are assumed positive for asbestos until sampling and analysis indicates otherwise. If during the course of a renovation/demolition project suspect ACMs

are discovered that are not included within this report, those materials are to be assumed positive for asbestos unless additional sampling, analysis and/or assessment indicates otherwise.

Lead-Based Paint

None of the paint samples that were collected as part of this survey meet the definition of LBP; however, the beige paint on the exterior of 3700 Cypress Avenue (P-1) and the white paint on the interior of 11303 Iris Lane (P-4) contain detectable concentrations of lead that would require compliance with applicable portions of the Federal OSHA 29 CFR 1926.62 and the DOSH Section 1532.1. All other paint samples do not meet the definition of LBP or contain concentrations of lead above the laboratory reporting limit.

It is recommended that the lead-containing paint be stabilized prior to renovation, refurbishing, or demolition activities. The paint stabilization work should be performed by a State of California, Licensed Contractor who maintains CDPH trained and certified lead workers. Additionally, the work should be performed in accordance with OSHA 29 CFR 1926.62 (Lead – Safety and Health Regulations for Construction) and DOSH 8 CCR Section 1532.1 (Lead in Construction Standard).

LIMITATIONS

Reasonable efforts have been made by Stantec personnel to locate, sample, and/or identify suspect ACMs and LBPs associated with the Property. This report is not intended to be a bidding document. For any facility, the existence of unique or concealed materials and debris is a possibility. In addition, sampling and laboratory analysis constraints typically hinder the investigation.

Stantec does not warrant, guarantee or profess to have the ability to locate or identify all hazardous materials in a facility. The survey is limited in nature, as only full demolition of the Property will reveal all concealed conditions. Stantec cannot warrant the effectiveness or damage thereof, at any of the patches or temporary repairs performed at sampling locations (roofing, carpet, gypsum board, etc.). This report is intended for use in planning based on the agreed upon scope of work. Quantities of materials identified are estimates only and would need to be verified. If during the course of a renovation or demolition project suspect ACMs or LBPs are discovered that are not included within this report, those materials should be treated accordingly until additional sampling, analysis and/or assessment can be performed.

Additionally, the passage of time may result in a change in the environmental characteristics at the Property. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions and recommendations expressed in this report are based only on conditions that were observed during Stantec's survey of the Property and test results provided by EMSL. These observations are time dependent, are subject to changing site conditions, and revisions to federal, state, and local regulations. Reliance on this letter report by Third Parties shall be at the Third Party's sole risk.

July 5, 2019
Mr. Lelie
Reference: Pre-Demolition Asbestos and Lead-Based Paint Survey
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

If you have any questions regarding this report or require further clarification, please do not hesitate to contact the Stantec personnel identified below.

Respectfully submitted,

STANTEC CONSULTING SERVICES INC.

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Attachments:
A: Laboratory Analytical Results and Bulk Sample Logs
B: Figures
C: Personnel Certifications and Laboratory Accreditations
D: Photographic Log
E: CDPH Form 8552

July 5, 2019

Reference: **Pre-Demolition Asbestos and Lead-Based Paint Survey**
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

Attachment A
Laboratory Analytical Results and Bulk Sample Logs

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	041917639
Customer ID:	STTC26
Customer PO:	
Project ID:	

Attention:	Jason Stagno	**Phone:**	(909) 335-6116
	Stantec Consulting Services Inc.	**Fax:**	
	735 E. Carnegie Drive	**Received Date:**	06/24/2019 9:00 AM
	Suite 280	**Analysis Date:**	06/24/2019 - 06/27/2019
	San Bernardino, CA 92408	**Collected Date:**	06/19/2019

Project: Pre-Demolition Asbestos Survey - 185804357 - 3700 Cypress Avenue 11312 Orchard Street El Monte, CA

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
01A *041917639-0001*	E Wall - Stucco - Beige	Beige Non-Fibrous Homogeneous	HA: 01	97% Non-fibrous (Other)	3% Chrysotile
01B *041917639-0002*	E Wall - Stucco - Beige		HA: 01		Positive Stop (Not Analyzed)
01C *041917639-0003*	E Wall - Stucco - Beige		HA: 01		Positive Stop (Not Analyzed)
01D *041917639-0004*	N Wall - Stucco - Beige		HA: 01		Positive Stop (Not Analyzed)
01E *041917639-0005*	NE Corner - Stucco - Beige		HA: 01		Positive Stop (Not Analyzed)
01F *041917639-0006*	S Wall - Stucco - Beige		HA: 01		Positive Stop (Not Analyzed)
01G *041917639-0007*	S Wall - Stucco - Beige		HA: 01		Positive Stop (Not Analyzed)
02A *041917639-0008*	E Side - Brick - Red	Red Non-Fibrous Homogeneous	HA: 02	100% Non-fibrous (Other)	None Detected
02B *041917639-0009* *Sample appears to be mortor.*	E Side - Brick - Red	Gray Non-Fibrous Homogeneous	HA: 02	100% Non-fibrous (Other)	None Detected
02C *041917639-0010*	E Side - Brick - Red	Red Non-Fibrous Homogeneous	HA: 02	100% Non-fibrous (Other)	None Detected
03A *041917639-0011*	E Side - Mortar - Gray	Gray Non-Fibrous Homogeneous	HA: 03	100% Non-fibrous (Other)	None Detected
03B *041917639-0012* *Sample appears to be brick.*	E Side - Mortar - Gray	Red Non-Fibrous Homogeneous	HA: 03	100% Non-fibrous (Other)	None Detected

Initial report from: 06/25/2019 00:35:29

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	041917639
Customer ID:	STTC26
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
03C *041917639-0013*	E Side - Mortar - Gray	Gray Non-Fibrous Homogeneous	HA: 03	100% Non-fibrous (Other)	None Detected
04A-Foam *041917639-0014*	Roof - Roofing System - Yellow and Black	Yellow Non-Fibrous Homogeneous	HA: 04	100% Non-fibrous (Other)	None Detected
04A-Shingle *041917639-0014A*	Roof - Roofing System - Yellow and Black	Black Fibrous Homogeneous	20% Cellulose HA: 04	80% Non-fibrous (Other)	None Detected
04A-Tar Felt *041917639-0014B*	Roof - Roofing System - Yellow and Black	Black Fibrous Homogeneous	60% Glass HA: 04	40% Non-fibrous (Other)	None Detected
04B-Foam *041917639-0015*	Roof - Roofing System - Yellow and Black	Yellow Non-Fibrous Homogeneous	HA: 04	100% Non-fibrous (Other)	None Detected
04B-Shingle *041917639-0015A*	Roof - Roofing System - Yellow and Black	Black Fibrous Homogeneous	20% Glass HA: 04	80% Non-fibrous (Other)	None Detected
04C-Foam *041917639-0016*	Roof - Roofing System - Yellow and Black	Yellow Non-Fibrous Homogeneous	HA: 04	100% Non-fibrous (Other)	None Detected
04C-Shingle *041917639-0016A*	Roof - Roofing System - Yellow and Black	Black Fibrous Homogeneous	20% Glass HA: 04	80% Non-fibrous (Other)	None Detected
04C-Tar Felt *041917639-0016B*	Roof - Roofing System - Yellow and Black	Black Fibrous Homogeneous	40% Glass HA: 04	60% Non-fibrous (Other)	None Detected
04D-Foam *041917639-0017*	Roof - Roofing System - Yellow and Black	Yellow Non-Fibrous Homogeneous	HA: 04	100% Non-fibrous (Other)	None Detected
04D-Shingle *041917639-0017A*	Roof - Roofing System - Yellow and Black	Black Fibrous Homogeneous	20% Glass HA: 04	80% Non-fibrous (Other)	None Detected
04E-Foam *041917639-0018*	Roof - Roofing System - Yellow and Black	Yellow Non-Fibrous Homogeneous	HA: 04	100% Non-fibrous (Other)	None Detected
04E-Shingle *041917639-0018A*	Roof - Roofing System - Yellow and Black	Black Fibrous Homogeneous	20% Glass HA: 04	80% Non-fibrous (Other)	None Detected
04F-Foam *041917639-0019*	Roof - Roofing System - Yellow and Black	Yellow Non-Fibrous Homogeneous	HA: 04	100% Non-fibrous (Other)	None Detected

Initial report from: 06/25/2019 00:35:29

EMSL Analytical, Inc.
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Customer ID: STTC26
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
04F-Shingle *041917639-0019A*	Roof - Roofing System - Yellow and Black	Black Fibrous Homogeneous	10% Glass HA: 04	90% Non-fibrous (Other)	None Detected
04G-Foam *041917639-0020*	Roof - Roofing System - Yellow and Black	Yellow Non-Fibrous Homogeneous	HA: 04	100% Non-fibrous (Other)	None Detected
04G-Shingle *041917639-0020A*	Roof - Roofing System - Yellow and Black	Black Fibrous Homogeneous	10% Glass HA: 04	90% Non-fibrous (Other)	None Detected
05A *041917639-0021*	Roof - Sealant - White	White Non-Fibrous Homogeneous	HA: 05	100% Non-fibrous (Other)	None Detected
05B *041917639-0022*	Roof - Sealant - White	White Non-Fibrous Homogeneous	HA: 05	100% Non-fibrous (Other)	None Detected
05C *041917639-0023*	Roof - Sealant - White	White Non-Fibrous Homogeneous	HA: 05	100% Non-fibrous (Other)	None Detected
06A *041917639-0024*	Office #1 - Cove Base - Brownish Gray	Brown/Gray/Yellow Non-Fibrous Homogeneous	HA: 06	100% Non-fibrous (Other)	None Detected
06B *041917639-0025*	Office #1 - Cove Base - Brownish Gray	Brown/Gray Non-Fibrous Homogeneous	HA: 06	100% Non-fibrous (Other)	None Detected
06C *041917639-0026*	Office #1 - Cove Base - Brownish Gray	Brown/Gray Non-Fibrous Homogeneous	HA: 06	100% Non-fibrous (Other)	None Detected
07A *041917639-0027*	Office #1 - Mastic - Yellow	White/Yellow Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07B *041917639-0028*	Office #1 - Mastic - Yellow	White/Yellow Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07C *041917639-0029*	Office #1 - Mastic - Yellow	White/Yellow Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
08A-Skim Coat *041917639-0030*	Restroom #1 - Plaster - Gray	White Non-Fibrous Homogeneous	HA: 08	98% Non-fibrous (Other)	2% Chrysotile
08A-Base Coat *041917639-0030A*	Restroom #1 - Plaster - Gray	Gray Non-Fibrous Homogeneous	HA: 08	97% Non-fibrous (Other)	3% Chrysotile
08B-Skim Coat *041917639-0031*	Restroom #1 - Plaster - Gray				Positive Stop (Not Analyzed)

Initial report from: 06/25/2019 00:35:29

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041917639
Customer ID: STTC26
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
			HA: 08		
08B-Base Coat *041917639-0031A*	Restroom #1 - Plaster - Gray				Positive Stop (Not Analyzed)
			HA: 08		
08C-Skim Coat *041917639-0032*	Restroom #1 - Plaster - Gray				Positive Stop (Not Analyzed)
			HA: 08		
08C-Base Coat *041917639-0032A*	Restroom #1 - Plaster - Gray				Positive Stop (Not Analyzed)
			HA: 08		
09A *041917639-0033*	Warehouse B - Gypsum Board - Light Gray	Brown/Gray Fibrous Homogeneous	15% Cellulose 5% Glass	80% Non-fibrous (Other)	None Detected
			HA: 09		
09B *041917639-0034*	Restroom - Gypsum Board - Light Gray	Brown/Gray Fibrous Homogeneous	10% Cellulose 5% Glass	85% Non-fibrous (Other)	None Detected
			HA: 09		
09C *041917639-0035*	Restroom - Gypsum Board - Light Gray	Brown/Gray Fibrous Homogeneous	15% Cellulose 5% Glass	80% Non-fibrous (Other)	None Detected
			HA: 09		
09D *041917639-0036*	Warehouse B - Gypsum Board - Light Gray	Brown/Gray Fibrous Homogeneous	10% Cellulose 5% Glass	85% Non-fibrous (Other)	None Detected
			HA: 09		
09E *041917639-0037*	Warehouse A - Gypsum Board - Light Gray	Brown/Gray Fibrous Homogeneous	10% Cellulose 5% Glass	85% Non-fibrous (Other)	None Detected
			HA: 09		
09F *041917639-0038*	Warehouse A - Gypsum Board - Light Gray	Brown/Gray Fibrous Homogeneous	15% Cellulose 5% Glass	80% Non-fibrous (Other)	None Detected
			HA: 09		
09G *041917639-0039*	Warehouse A - Gypsum Board - Light Gray	Brown/Gray Fibrous Homogeneous	15% Cellulose 5% Glass	80% Non-fibrous (Other)	None Detected
			HA: 09		
10A *041917639-0040*	Kitchen - Gypsum Board - White	White Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
			HA: 10		
10B *041917639-0041*	Kitchen - Gypsum Board - White	White Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
			HA: 10		
10C *041917639-0042*	Kitchen - Gypsum Board - White				Not Submitted
			HA: 10		
10D *041917639-0043*	Warehouse 3700B - Gypsum Board - White	Brown/White Fibrous Homogeneous	10% Cellulose 3% Glass	87% Non-fibrous (Other)	None Detected
			HA: 10		

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EMSL Order: 041917639
Customer ID: STTC26
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
10E *041917639-0044*	Office - Gypsum Board - White	White Non-Fibrous Homogeneous	5% Cellulose 3% Glass HA: 10	92% Non-fibrous (Other)	None Detected
10F *041917639-0045*	Warehouse 3700B - Gypsum Board - White	Brown/White Fibrous Homogeneous	15% Cellulose 5% Glass HA: 10	80% Non-fibrous (Other)	None Detected
10G *041917639-0046*	Warehouse 3700B - Gypsum Board - White	Brown/White Fibrous Homogeneous	15% Cellulose 5% Glass HA: 10	80% Non-fibrous (Other)	None Detected
11A *041917639-0047*	Kitchen 3700A - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 11	100% Non-fibrous (Other)	None Detected
11B *041917639-0048*	Kitchen 3700A - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 11	100% Non-fibrous (Other)	None Detected
11C *041917639-0049*	Kitchen 3700A - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 11	100% Non-fibrous (Other)	None Detected
11D *041917639-0050*	Warehouse 3700B - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 11	100% Non-fibrous (Other)	None Detected
11E *041917639-0051*	Office 3700B - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 11	100% Non-fibrous (Other)	None Detected
11F *041917639-0052*	Warehouse 3700B - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 11	100% Non-fibrous (Other)	None Detected
11G *041917639-0053*	Warehouse 3700B - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 11	100% Non-fibrous (Other)	None Detected
12A *041917639-0054* *Result includes a small amount of inseparable attached material*	Kitchen - Texture - White	White Non-Fibrous Heterogeneous	HA: 12	100% Non-fibrous (Other)	None Detected
12B *041917639-0055* *Result includes a small amount of inseparable attached material*	Kitchen - Texture - White	White Non-Fibrous Heterogeneous	HA: 12	100% Non-fibrous (Other)	None Detected
12C *041917639-0056*	Kitchen - Texture - White	White Non-Fibrous Homogeneous	HA: 12	100% Non-fibrous (Other)	None Detected
13A *041917639-0057*	Warehouse A - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected

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EMSL Order: 041917639
Customer ID: STTC26
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
13B *041917639-0058*	Warehouse A - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
13C *041917639-0059*	Warehouse A - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
13D *041917639-0060*	Warehouse A - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
13E *041917639-0061*	Warehouse B - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
13F *041917639-0062*	Warehouse B - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
13G *041917639-0063*	Warehouse B - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
14A *041917639-0064*	Warehouse A - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 14	100% Non-fibrous (Other)	None Detected
14B *041917639-0065*	Warehouse A - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 14	100% Non-fibrous (Other)	None Detected
14C *041917639-0066*	Warehouse A - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 14	100% Non-fibrous (Other)	None Detected
15A *041917639-0067*	Office #1 - Ceiling Panel - White	Gray/White Fibrous Homogeneous	40% Cellulose 30% Min. Wool HA: 15	30% Non-fibrous (Other)	None Detected
15B *041917639-0068*	Office #1 - Ceiling Panel - White	Gray/White Fibrous Homogeneous	40% Cellulose 30% Min. Wool HA: 15	30% Non-fibrous (Other)	None Detected
15C *041917639-0069*	Office #1 - Ceiling Panel - White	Gray/White Non-Fibrous Homogeneous	40% Cellulose 30% Min. Wool HA: 15	30% Non-fibrous (Other)	None Detected
15D *041917639-0070*	Office #3 - Ceiling Panel - White	Gray/White Fibrous Homogeneous	55% Cellulose 15% Min. Wool HA: 15	30% Non-fibrous (Other)	None Detected
15E *041917639-0071*	Office #3 - Ceiling Panel - White	Gray/White Fibrous Homogeneous	55% Cellulose 15% Min. Wool HA: 15	30% Non-fibrous (Other)	None Detected

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EMSL Order: 041917639
Customer ID: STTC26
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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
16A *041917639-0072*	Restroom #1 - VFT-White	White/Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
16B *041917639-0073*	Restroom #1 - VFT-White	White/Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
16C *041917639-0074*	Restroom #1 - VFT-White	White/Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
17A *041917639-0075*	Restroom #1 - Mastic - Dark Yellow	Black/Yellow Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
Result includes a small amount of inseparable attached black and yellow mastic.					
			HA: 17		
17B *041917639-0076*	Restroom #1 - Mastic - Dark Yellow				Positive Stop (Not Analyzed)
			HA: 17		
17C *041917639-0077*	Restroom #1 - Mastic - Dark Yellow				Positive Stop (Not Analyzed)
			HA: 17		
18A *041917639-0078*	Office - Ceiling Panels - White	Gray/White Fibrous Homogeneous	40% Cellulose 20% Min. Wool	40% Non-fibrous (Other)	None Detected
			HA: 18		
18B *041917639-0079*	Kitchen - Ceiling Panels - White	Gray/White Fibrous Homogeneous	40% Cellulose 20% Min. Wool	40% Non-fibrous (Other)	None Detected
			HA: 18		
18C *041917639-0080*	Kitchen - Ceiling Panels - White	Gray/White Fibrous Homogeneous	60% Cellulose 25% Min. Wool	15% Non-fibrous (Other)	None Detected
			HA: 18		
19A *041917639-0081*	Warehouse 3700B - Joint Compound - White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 19		
19B *041917639-0082*	RR 3700B - Joint Compound - White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 19		
19C *041917639-0083*	RR 3700B - Joint Compound - White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 19		
20A *041917639-0084*	SE Wall - Foam - Yellow	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 20		
20B *041917639-0085*	SE Wall - Foam - Yellow	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 20		

Initial report from: 06/25/2019 00:35:29

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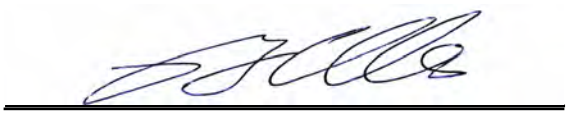
EMSL Order:	041917639
Customer ID:	STTC26
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
20C *041917639-0086*	SE Wall - Foam - Yellow	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 20		
21A *041917639-0087* *Sample appears to be gypsum board.*	Kitchen - Stucco - White and Gray	Gray/White Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected
			HA: 21		
21B-Skim Coat *041917639-0088* *Sample appears to be plaster.*	Kitchen - Stucco - White and Gray	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 21		
21B-Base Coat *041917639-0088A* *Sample appears to be plaster.*	Kitchen - Stucco - White and Gray	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 21		
21C-Skim Coat *041917639-0089*	Kitchen - Stucco - White and Gray	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 21		
21C-Base Coat *041917639-0089A*	Kitchen - Stucco - White and Gray	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 21		

Analyst(s)

Laura Kantor (29)
Spencer Taylor (61)



Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 06/25/2019 00:35:29

OrderID: 041917639

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number *(Lab Use Only)*: 041917639

200 Route 130 North
Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
FAX: (856) 786-5974

Company : Stantec	**EMSL-Bill to:** ☑ Same ☐ Different If Bill to is Different note instructions in Comments**
Street: 735 E Carnegie Drive, Suite 280	*Third Party Billing requires written authorization from third party*
City: San Bernardino **State/Province:** CA	**Zip/Postal Code:** 92408 **Country:** United States
Report To (Name): Alicia Jansen	**Telephone #:** Cell# 909-654-8342
Email Address: Alicia.Jansen@stantec.com	**Fax #:** 909-335-6120 **Purchase Order:**
Project Name/Number: 185804357	**Please Provide Results:** ☐ Fax ☑ Email ☐ Mail
U.S. State Samples Taken: CA	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ■ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

**For TEM Air 3 hr through 6 hr, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PLM - Bulk (reporting limit)	TEM – Bulk
■ PLM EPA 600/R-93/116 (<1%)	☐ TEM EPA NOB – EPA 600/R-93/116 Section 2.5.5.1
☐ PLM EPA NOB (<1%)	☐ NY ELAP Method 198.4 (TEM)
Point Count ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ Chatfield Protocol (semi-quantitative)
Point Count w/Gravimetric ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ TEM % by Mass – EPA 600/R-93/116 Section 2.5.5.2
☐ NIOSH 9002 (<1%)	☐ TEM Qualitative via Filtration Prep Technique
☐ NY ELAP Method 198.1 (friable in NY)	☐ TEM Qualitative via Drop Mount Prep Technique
☐ NY ELAP Method 198.6 NOB (non-friable-NY)	**Other**
☐ OSHA ID-191 Modified	☐
☐ Standard Addition Method	

RECEIVED 2019 JUN 25 A 5 CINNAMINSON, N.J.

■ **Check For Positive Stop – Clearly Identify Homogenous Group** **Date Sampled:** 06/19/19 - 06/20/19

Samplers Name: Melissa Baernstein **Samplers Signature:** M. Lisa Baernstein

Sample #	HA #	Sample Location	Material Description
		See attached sample logs	

Client Sample # (s): HA#01A - HA#21C **Total # of Samples:** 87

Relinquished (Client): M. Lisa Baernstein **Date:** 06/24/19 **Time:** 16:01

Received (Lab): [signature] **Date:** 6/24/19 **Time:** 900

Comments/Special Instructions:

Stantec

Bulk Sample Log

041917639

735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630, 3640, 3700 Cypress Avenue

Address: 11312 Orchard Street
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	01
Material Type:	Stucco
Color:	Beige
Description:	Finish on exterior walls
Total Qty.:	12,700 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	T/O walls	12,700	G

SAMPLES	
Sample #	Sample Location
01A	E wall
01B	"
01C	"
01D	N wall
01E	NE corner
01F	S wall
01G	"

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: Melissa Baeumler Date: 06/24/19

Received By: _____ Date: _____

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EMSL
CINNAMINSON, N.J.
2019 JUN 24 A 9:56

Stantec

Bulk Sample Log

041917639

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: 3630, 3640, 3700 Cypress Avenue
11312 Orchard Street
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	02
Material Type:	Brick
Color:	Red
Description:	Associated with plaster
Total Qty.:	250 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
EXT	E (street) side	250	G

SAMPLES	
Sample #	Sample Location
02 A	E side
02 B	
02C	

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	Low	(Med)	High

Relinquished By: Melissa Bremster Date: 06/24/19

Received By: Date:

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EMSL
CINNAMINSON, N.J.
2019 JUN 24 A 9:56

Stantec

Bulk Sample Log

041917639

735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: 3630, 3640, 3700 Cypress Avenue / 11312 Orchard Street

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	03
Material Type:	Mortar
Color:	Gray
Description:	Associated with HA#02
Total Qty.:	250 SF

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	E (street) side	250	G

SAMPLES	
Sample #	Sample Location
03A	E side
03B	"
03C	"

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	Low	(Med)	High

Notes:

Relinquished By: Melissa Boemster Date: 06/21/19

Received By: RECEIVED EMSL CINNAMINSON, N.J. 2019 JUN 24 A 9:56

Date:

041917639

Bulk Sample Log

735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	04
Material Type:	Roofing System
Color:	Yellow & black
Description:	Foam on top asphalt below
Total Qty.:	15,000 ft²

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
~~EXT~~ 01	Roof	15,000	G

SAMPLES	
Sample #	Sample Location
04 A	Roof
04 B	
04 C	
04 D	
04 E	
04 F	
04 G	

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	Low	(Med)	High
Vibration:	(Low)	Med	High
Air Movement:	Low	Med	(High)

Relinquished By: Melissa Baermann Date: 06/21/19

Received By: CINNAMINSON, N.J. EMSL RECEIVED 2019 JUN 24 A 9:56 Date:

041917639

Bulk Sample Log

735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630/3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	05
Material Type:	Sealant
Color:	white
Description:	At roof at HVAC feature penetrations
Total Qty.:	15 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	Roof	15	G

SAMPLES	
Sample #	Sample Location
05 A	Roof
05 B	"
05 C	"

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	Low	(Med)	High

Relinquished By: Melissa Baermann Date: 06/21/19

Received By: CINDY MASON EMSL Date:

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Bulk Sample Log

735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	06
Material Type:	Cove Base
Color:	Brownish gray
Description:	3" vinyl
Total Qty.:	170 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	T/O office #1	170	G

SAMPLES	
Sample #	Sample Location
06 A	office #1
06 B	
06 C	

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Notes:

Relinquished By: Melissa Baerman Date: 06/21/19

Received By: RECEIVED EMSL CINNAMINSON, N.J. 2019 JUN 24 A 9:56 Date:

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Stantec — Bulk Sample Log

735 E Carnegie Drive Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey
Site Name: 3630-3700 Cypress Avenue and 11297 Iris Lane
Date: 06/20/2019
Address: El Monte, CA
Inspector: MAB/DH
Stantec Project #: 185804357
Inspector #:

MATERIAL	
HA#	07
Material Type:	Mastic
Color:	Yellow
Description:	Associated with HA# 06
Total Qty.:	170 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	T/O offices	170	G

SAMPLES	
Sample #	Sample Location
07 A	office #1
07 B	"
07 C	"

Notes:

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Brempton Date: 06/21/19

Received By: RECEIVED EMSL CINNAMINSON, NJ 2019 JUN 24 A 9:56 Date:

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Bulk Sample Log

735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	08
Material Type:	Plaster
Color:	Gray
Description:	Interior walls
Total Qty.:	150 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom #1	150	G

SAMPLES	
Sample #	Sample Location
08 A	Restroom #1
08 B	"
08 C	"

Notes:

HAZARD ASSESSMENT			
Friable:	Yes	No	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baemster Date: 06/21/19

Received By: EMSL CINNAMINSON, N.J. RECEIVED 2019 JUN 24 A 9:56 Date:

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Bulk Sample Log

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San Bernardino, CA 92408
Tel: (909) 335-6116
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OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name: B

Date: 06/20/19

Address: 3700B Cypress Ave
El Monte, CA

Inspector: MAB

Stantec Project #: 185804357

MATERIAL	
HA#	09
Material Type:	Gypsum Board
Color:	light gray
Description:	finished walls
Total Qty.:	5,000 ft²

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	warehouse B, office + restroom	3,000	G
01	warehouse A	2,000	G

SAMPLES	
Sample #	Sample Location
09A	warehouse B
09B	restroom
09C	"
09D	warehouse B
09E	warehouse A
09F	"
09G	"

Notes:

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa A Baumgartner Date:

Received By: Date:

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630/3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	10
Material Type:	Gypsum Board
Color:	white
Description:	walls
Total Qty.:	2,900 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Kitchen 3700A	400	G
	warehouse, RR & office 3700B	2,500	

SAMPLES	
Sample #	Sample Location
10A	Kitchen
10B	"
10C	"
10D	warehouse 3700B
10E	office
10F	warehouse 3700B
10G	"

Notes:

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baerwalden Date: 06/21/19

Received By: CINNAMINSON, N.J. EMSL RECEIVED 2019 JUN 24 A 9:56 Date:

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Bulk Sample Log

735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630 3700 Cypress Avenue and

Address: 11297 Iris Lane
El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	11
Material Type:	Joint Compound
Color:	White
Description:	Associated with HA# 10
Total Qty.:	2,400 SF

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Kitchen 3700A	400	G
01	warehouse 3700B	2,000	G

SAMPLES	
Sample #	Sample Location
11A	Kitchen 3700A
11B	↓
11C	↓
11D	warehouse 3700B
11E	office 3700B
11F	warehouse 3700B
11G	↓

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Notes:

Relinquished By: Melissa Buenrostro Date: 06/21/19

Received By: EMSL CINNAMINSON, N.J. RECEIVED 2019 JUN 24 A 9:56 Date:

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Bulk Sample Log

735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630/3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	12
Material Type:	Texture
Color:	white
Description:	orange peel wall finish over gypsum board
Total Qty.:	400 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	kitchen	400	G

SAMPLES	
Sample #	Sample Location
12A	kitchen
12B	
12C	

Notes:

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baerman Date: 06/21/19

Received By: CINNAMINSON, N.J. EMSL RECEIVED 2019 JUN 24 A 9:56 Date:

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735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
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OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name: ~~3630~~ 3700 Cypress Avenue and

Address: 11297 Iris Lane

El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	13
Material Type:	Concrete
Color:	Gray
Description:	Foundation
Total Qty.:	14,500

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	T/O	14,500	G

SAMPLES	
Sample #	Sample Location
13A	warehouse A
13B	
13C	
13D	
13E	warehouse B
13F	
13G	

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baerwalden Date: 06/21/19

Received By: CINNAMINSON, N.J. EMSL RECEIVED 2019 JUN 24 A 9:56 Date:

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San Bernardino, CA 92408
Tel: (909) 335-6116
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OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630-3700 Cypress Avenue and

Address: 11297 Iris Lane
El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	14
Material Type:	Concrete
Color:	Gray
Description:	Concrete patch
Total Qty.:	600 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	warehouse (patch) trench	600	G

SAMPLES	
Sample #	Sample Location
14 A	warehouse A
14 B	
14 C	

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Michael Buenrostro Date: 06/21/19

Received By: _____ Date: _____

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630 3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	15
Material Type:	Ceiling Panel
Color:	white
Description:	2'X4' lay in type ~~dots~~ + fissures
Total Qty.:	1,480 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	offices #1 (3700A) + 3	1,200	D
01	office 3700B	280	G

SAMPLES	
Sample #	Sample Location
15 A	office #1
15 B	1
15 C	1
15D	office #3
15E	1

Notes:

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	Med	(High)
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baemster Date: 06/24/19

Received By: Date:

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630-3700 Cypress Avenue and

Address: 11297 Iris Lane
El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	16
Material Type:	VFT
Color:	white
Description:	12" X 12" marble pattern
Total Qty.:	40 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom #1	40	G

SAMPLES	
Sample #	Sample Location
16 A	Restroom #1
16 B	"
16 C	"

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baerwalden Date: 06/21/19

Received By: Date:

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735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	17
Material Type:	Mastic
Color:	Dark yellow
Description:	associated with HA#16
Total Qty.:	40 sf

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom #1	40	G

SAMPLES	
Sample #	Sample Location
17A	Restroom #1
17B	
17C	

Notes:

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Relinquished By: Melissa Baemster Date: 06/21/19

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San Bernardino, CA 92408
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Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	18
Material Type:	Ceiling Panels
Color:	white
Description:	2' X 2' lay-in type with lip dots & tissures
Total Qty.:	600 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	office #2 +	~~MAB 600 1,200~~	D
	kitchen		

SAMPLES	
Sample #	Sample Location
18 A	office
18 B	kitchen
18 C	1

Notes:

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	(Med)	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa A Baerwalden Date: 06/21/19

Received By: CINNAMINSON, N.J. Date:

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630/3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	19
Material Type:	Joint Compound
Color:	white
Description:	Associated with HA # 09 ~~10~~
Total Qty.:	900 SF

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	warehouse 3700B	900	G

SAMPLES	
Sample #	Sample Location
19A	warehouse 3700B
19B	RR 3700B
19C	

HAZARD ASSESSMENT			
Friable:	Yes	~~No~~	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Notes:

Relinquished By: Melissa Baensten Date: 06/24/19

Received By: Date:

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041917639

Bulk Sample Log

735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917639

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	20
Material Type:	Foam
Color:	Yellow
Description:	Spray-in
Total Qty.:	5 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	warehouse B	5 ft2	D

SAMPLES	
Sample #	Sample Location
20 A	SE wall
20 B	
20C	

Notes:

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Bremoter Date: 06/21/19

Received By: Date:

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Bulk Sample Log

735 E Carnegie Dri te 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/19

Address: 3700A Cypress
El Monte, CA

Inspector: MAB

Stantec Project #: 185804357

MATERIAL	
HA#	21
Material Type:	Stucco
Color:	white/gray
Description:	wall finish
Total Qty.:	400 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Kitchen	400	G

SAMPLES	
Sample #	Sample Location
21 A	Kitchen
21 B	1
21 C	1

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: Melissa Baerwalden Date: 06/21/19

Received By: Date:

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OrderID: 041917639

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	041917652
Customer ID:	STTC26
Customer PO:	
Project ID:	

Attention:	Jason Stagno	**Phone:**	(909) 335-6116
	Stantec Consulting Services Inc.	**Fax:**	
	735 E. Carnegie Drive	**Received Date:**	06/24/2019 9:00 AM
	Suite 280	**Analysis Date:**	06/24/2019 - 06/27/2019
	San Bernardino, CA 92408	**Collected Date:**	06/19/2019
Project:	Pre-Demolition Asbestos Survey - 185804357 - 11297 Iris and 3640-3642 Cypress Avenue 11312 Orchard Street El Monte, CA		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
01A *041917652-0001*	Exterior N Corner - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
01B *041917652-0002*	Exterior W Side - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
01C *041917652-0003*	Exterior SW Corner - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
01D *041917652-0004*	Warehouse 3642 Interior - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
01E *041917652-0005*	Exterior N Wall - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
01F *041917652-0006*	Exterior S Wall - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
01G *041917652-0007*	Exterior S Wall - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
02A *041917652-0008*	Warehouse 3642 - Gypsum Board - White	White Non-Fibrous Homogeneous	HA: 02	100% Non-fibrous (Other)	None Detected
02B *041917652-0009*	Restroom 3642 - Gypsum Board - White	White Non-Fibrous Homogeneous	HA: 02	100% Non-fibrous (Other)	None Detected
02C *041917652-0010*	3640 - Gypsum Board - White	White Non-Fibrous Homogeneous	HA: 02	100% Non-fibrous (Other)	None Detected
02D *041917652-0011*	3640 - Gypsum Board - White	White Non-Fibrous Homogeneous	HA: 02	100% Non-fibrous (Other)	None Detected
02E *041917652-0012*	3640 - Gypsum Board - White	Brown/White Fibrous Homogeneous	15% Cellulose HA: 02	85% Non-fibrous (Other)	None Detected

Initial report from: 06/25/2019 02:12:14

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041917652
Customer ID: STTC26
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
02F *041917652-0013*	11297 Iris - Gypsum Board - White	Brown/White Fibrous Homogeneous	15% Cellulose HA: 02	85% Non-fibrous (Other)	None Detected
02G *041917652-0014*	11297 Iris - Gypsum Board - White	Brown/White Fibrous Homogeneous	15% Cellulose HA: 02	85% Non-fibrous (Other)	None Detected
03A *041917652-0015*	Warehouse 3642 - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 03	100% Non-fibrous (Other)	None Detected
03B *041917652-0016*	Restroom 3642 - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 03	100% Non-fibrous (Other)	None Detected
03C *041917652-0017*	3640 - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 03	100% Non-fibrous (Other)	None Detected
03D *041917652-0018*	3640 - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 03	100% Non-fibrous (Other)	None Detected
03E *041917652-0019*	3640 - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 03	100% Non-fibrous (Other)	None Detected
03F *041917652-0020*	11297 - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 03	100% Non-fibrous (Other)	None Detected
03G *041917652-0021*	11297 - Joint Compound - White	White Non-Fibrous Homogeneous	HA: 03	100% Non-fibrous (Other)	None Detected
04A *041917652-0022*	Restroom 3642 - VFT - White	White Non-Fibrous Homogeneous	HA: 04	100% Non-fibrous (Other)	None Detected
04B *041917652-0023*	Restroom 3642 - VFT - White	White Non-Fibrous Homogeneous	HA: 04	100% Non-fibrous (Other)	None Detected
04C *041917652-0024*	Restroom 3642 - VFT - White	White Non-Fibrous Homogeneous	HA: 04	100% Non-fibrous (Other)	None Detected
05A *041917652-0025*	Restroom 3642 - VFT - Gray	Gray Non-Fibrous Homogeneous	2% Cellulose HA: 05	98% Non-fibrous (Other)	None Detected
05B *041917652-0026*	Restroom 3642 - VFT - Gray	Gray Non-Fibrous Homogeneous	HA: 05	100% Non-fibrous (Other)	None Detected

Initial report from: 06/25/2019 02:12:14

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041917652
Customer ID: STTC26
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
05C *041917652-0027*	Restroom 3642 - VFT - Gray	Gray Non-Fibrous Homogeneous	HA: 05	100% Non-fibrous (Other)	None Detected
06A *041917652-0028*	Restroom 3642 - Mastic - Dark Yellow	Yellow Non-Fibrous Homogeneous	HA: 06	100% Non-fibrous (Other)	None Detected
06B *041917652-0029*	Restroom 3642 - Mastic - Dark Yellow	Yellow Non-Fibrous Homogeneous	HA: 06	100% Non-fibrous (Other)	None Detected
06C *041917652-0030*	Restroom 3642 - Mastic - Dark Yellow	Yellow Non-Fibrous Homogeneous	HA: 06	100% Non-fibrous (Other)	None Detected
07A *041917652-0031*	Warehouse 3642 - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07B *041917652-0032*	Warehouse 3642 - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07C *041917652-0033*	Warehouse 3642 - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07D *041917652-0034*	Warehouse 3640 - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07E *041917652-0035*	Warehouse 3640 - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07F *041917652-0036*	Warehouse 3640 - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07G *041917652-0037*	Warehouse11297 - Concrete - Gray	Gray Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
08A *041917652-0038*	Left - VFS - Green	Green Fibrous Homogeneous	30% Cellulose HA: 08	40% Non-fibrous (Other)	30% Chrysotile
08B *041917652-0039*	Left - VFS - Green		HA: 08		Positive Stop (Not Analyzed)
08C *041917652-0040*	Left - VFS - Green		HA: 08		Positive Stop (Not Analyzed)
09A *041917652-0041*	Left - VFS - Blue	Blue Fibrous Homogeneous	40% Cellulose	60% Non-fibrous (Other)	None Detected

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EMSL Order: 041917652
Customer ID: STTC26
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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
			HA: 09		
09B *041917652-0042*	Left - VFS - Blue	Blue Fibrous Homogeneous	40% Cellulose HA: 09	60% Non-fibrous (Other)	None Detected
09C *041917652-0043*	Left - VFS - Blue	Brown Non-Fibrous Homogeneous	 HA: 09	100% Non-fibrous (Other)	None Detected
10A *041917652-0044*	Left - VFS - Browns	Brown Non-Fibrous Homogeneous	 HA: 10	100% Non-fibrous (Other)	None Detected
10B *041917652-0045*	Left - VFS - Browns	Brown Non-Fibrous Homogeneous	 HA: 10	100% Non-fibrous (Other)	None Detected
10C *041917652-0046*	Left - VFS - Browns	Brown Non-Fibrous Homogeneous	 HA: 10	100% Non-fibrous (Other)	None Detected
11A *041917652-0047*	Left - VFS - Beige	Beige Fibrous Homogeneous	30% Cellulose HA: 11	40% Non-fibrous (Other)	30% Chrysotile
11B *041917652-0048*	Left - VFS - Beige		 HA: 11		Positive Stop (Not Analyzed)
11C *041917652-0049*	Left - VFS - Beige		 HA: 11		Positive Stop (Not Analyzed)
12A *041917652-0050*	Left - VFS - Black	Black Fibrous Homogeneous	40% Cellulose HA: 12	60% Non-fibrous (Other)	None Detected
12B *041917652-0051* *Result includes a small amount of inseparable attached material*	Left - VFS - Black	Tan/Black Fibrous Heterogeneous	60% Cellulose HA: 12	40% Non-fibrous (Other)	None Detected
12C *041917652-0052*	Left - VFS - Black	Green Fibrous Homogeneous	20% Cellulose HA: 12	80% Non-fibrous (Other)	None Detected
13A *041917652-0053*	Left - VFS - Red	Red Fibrous Homogeneous	40% Cellulose HA: 13	60% Non-fibrous (Other)	None Detected
13B *041917652-0054*	Left - VFS - Red	Red Fibrous Homogeneous	40% Cellulose HA: 13	60% Non-fibrous (Other)	None Detected
13C *041917652-0055*	Left - VFS - Red	Brown/Red Fibrous Homogeneous	35% Cellulose HA: 13	65% Non-fibrous (Other)	None Detected

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EMSL Order: 041917652
Customer ID: STTC26
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Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
14A *041917652-0056*	Left - Adhesive - Grayish Brown	Gray/White Fibrous Heterogeneous		98% Non-fibrous (Other)	2% Chrysotile
Adhesive analyzed as a composite with inseparable positive VFS.			HA: 14		
14B *041917652-0057*	Left - Adhesive - Grayish Brown				Positive Stop (Not Analyzed)
			HA: 14		
14C *041917652-0058*	Left - Adhesive - Grayish Brown				Positive Stop (Not Analyzed)
			HA: 14		
15A *041917652-0059*	Restroom - VFS - Blue	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 15		
15B *041917652-0060*	Restroom - VFS - Blue	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 15		
15C *041917652-0061*	Restroom - VFS - Blue	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 15		
16A *041917652-0062*	Restroom - Mastic - Yellow	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
16B *041917652-0063*	Restroom - Mastic - Yellow	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
16C *041917652-0064*	Restroom - Mastic - Yellow	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
17A *041917652-0065*	RR #1 - VFT - Gray	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 17		
17B *041917652-0066*	RR #1 - VFT - Gray	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 17		
17C *041917652-0067*	RR #1 - VFT - Gray	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 17		
18A *041917652-0068*	Restroom #1 - Mastic - Yellow	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 18		
18B *041917652-0069*	Restroom #1 - Mastic - Yellow	Yellow Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
			HA: 18		

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http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	041917652
Customer ID:	STTC26
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
18C *041917652-0070*	Restroom #1 - Mastic - Yellow	Yellow Non-Fibrous Homogeneous	HA: 18	100% Non-fibrous (Other)	None Detected
19A *041917652-0071*	Room 1 - Acoustic Ceiling - White	White Non-Fibrous Homogeneous	HA: 19	96% Non-fibrous (Other)	4% Chrysotile
19B *041917652-0072*	Room 1 - Acoustic Ceiling - White		HA: 19		Positive Stop (Not Analyzed)
19C *041917652-0073*	Room 2 - Acoustic Ceiling - White		HA: 19		Positive Stop (Not Analyzed)

Analyst(s)

Erica Valent (14)
John Flanagan (9)
Michael Moore (19)
Maxwell Taylor (23)

Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 06/25/2019 02:12:14

OrderID: 041917652

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number *(Lab Use Only)*: 041917652

200 Route 130 North
Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
FAX: (856) 786-5974

Company : Stantec	**EMSL-Bill to:** ☑ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 735 E Carnegie Drive, Suite 280	
City: San Bernardino **State/Province:** CA	**Zip/Postal Code:** 92408 **Country:** United States
Report To (Name): Alicia Jansen	**Telephone #:** Cell# 909-654-8342
Email Address: Alicia.Jansen@stantec.com	**Fax #:** 909-335-6120 **Purchase Order:**
Project Name/Number: 185804357	**Please Provide Results:** ☐ Fax ☑ Email ☐ Mail
U.S. State Samples Taken: CA	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☑ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PLM - Bulk (reporting limit)	TEM – Bulk
☑ PLM EPA 600/R-93/116 (<1%)	☐ TEM EPA NOB – EPA 600/R-93/116 Section 2.5.5.1
☐ PLM EPA NOB (<1%)	☐ NY ELAP Method 198.4 (TEM)
Point Count ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ Chatfield Protocol (semi-quantitative)
Point Count w/Gravimetric ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ TEM % by Mass – EPA 600/R-93/116 Section 2.5.5.2
☐ NIOSH 9002 (<1%)	☐ TEM Qualitative via Filtration Prep Technique
☐ NY ELAP Method 198.1 (friable in NY)	☐ TEM Qualitative via Drop Mount Prep Technique
☐ NY ELAP Method 198.6 NOB (non-friable-NY)	**Other**
☐ OSHA ID-191 Modified	☐
☐ Standard Addition Method	

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☑ **Check For Positive Stop – Clearly Identify Homogenous Group** **Date Sampled:** 06/19/19 - 06/20/19

Samplers Name: Melissa Baernstein **Samplers Signature:** MelissaBaernstein

Sample #	HA #	Sample Location	Material Description
		See attached sample logs	

Client Sample # (s): HA#01A - HA#19C **Total # of Samples:** 135

Relinquished (Client): MelissaBaernstein **Date:** 06/21/19 **Time:** 15:00

Received (Lab): [signature] **Date:** 6/24/19 **Time:** 900

Comments/Special Instructions:

041017652

Stantec

Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11297 Iris & 3640-3642 Cypress
3630 (3640) 3700 Cypress Avenue

Address: 11312 Orchard Street
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	01
Material Type:	Concrete
Color:	Gray
Description:	Associated with walls
Total Qty.:	12,800 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Throughout	12,800	G
Ext	perimeter walls		

SAMPLES	
Sample #	Sample Location
01A	Ext NW corner
01B	Ext W side
01C	Ext SW corner
01D	warehouse 3642 int
01E	Ext N wall
01F	Ext S wall
01G	1

Notes:

Relinquished By: [signature] Date: 06/21/19

Received By: Date:

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Page 2 Of 20

OrderID: 041917652

041917652

Stantec

Bulk Sample Log

735 E Carnegie Dr. Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3640-3642.
~~3600~~, 3640, ~~3700~~ Cypress Avenue

Address: ~~11312 Orchard Street~~ 11297 Iris Ln

Date: 06/19/2019

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	02
Material Type:	Gypsum Board
Color:	white
Description:	walls
Total Qty.:	6,000 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	3642	2,000	G
01	3640	2,000	G
01	11297	2,000	G

SAMPLES	
Sample #	Sample Location
02A	warehouse 3642
02B	Restroom 3642
02C	3640
02D	"
02E	"
02F	11297 Iris
02G	"

Notes:

Relinquished By: Melissa Buenrostro Date: 06/21/19

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735 E Carnegie Dr. Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3640-3642 Cypress
~~3630,~~ 3640, ~~3700~~ Cypress Avenue

Address: ~~11312 Orchard Street~~ 11297 Iris
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	03
Material Type:	Joint Compound
Color:	White
Description:	Associated with HA#02
Total Qty.:	6,000 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	3642	2,000	G
01	3640	2,000	G
01	11297	2,000	G

SAMPLES	
Sample #	Sample Location
03 A	warehouse 3642
03 B	restroom 3642
03 C	3640
03D	↓
03E	↓
03F	11297
03G	↓

Notes:

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 8642
3630, 3640, 3700 Cypress Avenue

Date: 06/19/2019

Address: 11312 Orchard Street
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	04
Material Type:	VFT
Color:	white
Description:	12" X 12" Self Stick
Total Qty.:	40

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restrooms	40	G

SAMPLES	
Sample #	Sample Location
04 A	Restroom 3642
04 B	"
04 C	"

Notes:

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baemster Date: 06/21/19

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OrderID: 041917652

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3642
3630, 3640, 3700 Cypress Avenue

Date: 06/19/2019

Address: ~~11312 Orchard Street~~
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	05
Material Type:	VFT
Color:	Gray
Description:	12"X12" mottled
Total Qty.:	40

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restrooms	40	G

SAMPLES	
Sample #	Sample Location
05 A	Restroom 3642
05 B	
05C	

Notes:

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Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3642
3630, 3640, 3700 Cypress Avenue

Date: 06/19/2019

Address: 11312 Orchard Street
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	06
Material Type:	Mastic
Color:	Dark yellow
Description:	~~12"X12"~~ MAB. Associated with HA#05
Total Qty.:	40 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restrooms	40	G

SAMPLES	
Sample #	Sample Location
06A	Restroom 3642
06B	"
06C	"

Notes:

Relinquished By: Melissa Baenton Date:

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Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11297 Iris & 3640-3642 Cypress
3630, 3640, 3700 Cypress Avenue

Address: 11312 Orchard Street
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	07
Material Type:	Concrete
Color:	Gray
Description:	Foundation
Total Qty.:	53,000 sf2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Foundation T/O	53,000	G

SAMPLES	
Sample #	Sample Location
07A	warehouse 3642
07B	↓
07C	↓
07D	warehouse 3640
07E	↓
07F	↓
07G	warehouse 11297

Notes:

Relinquished By: Melissa A Baumgartner Date: 06/21/19

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Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3640

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	08
Material Type:	VFS
Color:	Green
Description:	Small squares
Total Qty.:	36 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
02	Loft	36	G

SAMPLES	
Sample #	Sample Location
08A	Loft
08B	"
08C	"

Notes:

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3640

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	09
Material Type:	VFS
Color:	Blue
Description:	Solid
Total Qty.:	70 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
02	Loft	70	G

SAMPLES	
Sample #	Sample Location
09 A	Loft
09 B	"
09 C	"

Notes:

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OrderID: 041917652

041917652

Stantec

Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3640

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	10
Material Type:	VFS
Color:	Browns
Description:	tree bark type pattern
Total Qty.:	240

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
02	Loft	240	G

SAMPLES	
Sample #	Sample Location
10A	Loft
10B	↓
10C	↓

Notes:

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OrderID: 041917652

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Stantec

Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: ~~Loft~~ 3640

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	11
Material Type:	VFS
Color:	Beige
Description:	pebble type pattern
Total Qty.:	90 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
02	Loft	90	G

SAMPLES	
Sample #	Sample Location
11 A	Loft
11 B	"
11 C	"

Notes:

Relinquished By: Melissa Baenster Date: 06/21/19

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735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3640

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	12
Material Type:	VFS
Color:	Black
Description:	Solid
Total Qty.:	140 ft²

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
02	Loft	140	G

SAMPLES	
Sample #	Sample Location
12 A	Loft
12 B	"
12C	"

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

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735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
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Project Name: Pre-Demolition Asbestos Survey

Site Name: 3640

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	13
Material Type:	VFS
Color:	Red
Description:	Solid
Total Qty.:	30 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
02	Loft	30	G

SAMPLES	
Sample #	Sample Location
13A	Loft
13B	"
13C	"

Notes:

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baermeter Date: 06/21/19

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San Bernardino, CA 92408
Tel: (909) 335-6116
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Project Name: Pre-Demolition Asbestos Survey

Site Name: 3640

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	14
Material Type:	Adhesive
Color:	Grayish brown
Description:	Associated with HA# 08-13
Total Qty.:	600 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
02	Loft	600	G

SAMPLES	
Sample #	Sample Location
14 A	Loft
14 B	
14 C	

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Project Name: Pre-Demolition Asbestos Survey

Site Name: 3640

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	15
Material Type:	VFS
Color:	Blue
Description:	gray marbeling
Total Qty.:	50 SF

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restrooms (back)	50	D

SAMPLES	
Sample #	Sample Location
15A	Restroom
15B	↑
15C	↑

Notes:

Relinquished By: Melissa Baerwalter Date: 06/21/19

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Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	16
Material Type:	Mastic
Color:	Yellow
Description:	Associated with HA#15
Total Qty.:	50 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Back Restrooms	50	D

SAMPLES	
Sample #	Sample Location
16A	Restroom
16B	
16C	

Notes:

Relinquished By: Melissa Baemster Date: 06/21/19

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Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey
Site Name:
Date: 06/20/2019
Address: ~~11301-11309 Iris Lane~~ 11297 Iris Ln
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	17
Material Type:	VFT
Color:	Gray
Description:	12" X 12" mottled
Total Qty.:	30 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom #1	30	G

SAMPLES	
Sample #	Sample Location
17A	RR #1
17B	"
17C	"

Notes:

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Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	18
Material Type:	Mastic
Color:	Yellow
Description:	Associated with HA#17
Total Qty.:	30 sf 2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom #1	30	G

SAMPLES	
Sample #	Sample Location
18A	Restroom #1
18B	"
18C	"

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Notes:

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Relinquished By: Melissa Buenrostro Date: 06/21/19

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Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: ~~11301-11309~~ 11297 Iris Lane

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	19
Material Type:	Acoustic Ceiling
Color:	white
Description:	popcorn spray
Total Qty.:	450 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	Med	(High)
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
02	Rooms #102	450	G

SAMPLES	
Sample #	Sample Location
19 A	Room 1
19 B	1
19 C	Room 2

Notes:

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EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	041917684
Customer ID:	STTC26
Customer PO:	
Project ID:	

Attention:	Alicia Jansen	**Phone:**	(909) 335-6116
	Stantec Consulting Services Inc.	**Fax:**	
	735 E. Carnegie Drive	**Received Date:**	06/24/2019 9:00 AM
	Suite 280	**Analysis Date:**	06/25/2019 - 06/27/2019
	San Bernardino, CA 92408	**Collected Date:**	
Project:	185804357		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
01A *041917684-0001*	E Side - Concrete	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
01B *041917684-0002*	E Side - Concrete	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
01C *041917684-0003*	S Side - Concrete	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
01D *041917684-0004*	N Side - Concrete	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
01E *041917684-0005*	N Side - Concrete	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
01F *041917684-0006*	W Side - Concrete	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
01G *041917684-0007*	S Side - Concrete	Gray Non-Fibrous Homogeneous	HA: 01	100% Non-fibrous (Other)	None Detected
02A *041917684-0008*	E Side - Concrete	Gray Non-Fibrous Homogeneous	HA: 02	100% Non-fibrous (Other)	None Detected
02B *041917684-0009*	E Side - Concrete	Gray Non-Fibrous Homogeneous	HA: 02	100% Non-fibrous (Other)	None Detected
02C *041917684-0010*	E Side - Concrete	Gray Non-Fibrous Homogeneous	HA: 02	100% Non-fibrous (Other)	None Detected
03A *041917684-0011*	Roof - Sealant	Black Non-Fibrous Homogeneous	10% Cellulose HA: 03	90% Non-fibrous (Other)	None Detected
03B *041917684-0012*	Roof - Sealant	Black Non-Fibrous Homogeneous	10% Cellulose HA: 03	90% Non-fibrous (Other)	None Detected

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EMSL Order:	041917684
Customer ID:	STTC26
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
03C-Sealant *041917684-0013*	Roof - Sealant	Black Fibrous Homogeneous	10% Cellulose HA: 03	90% Non-fibrous (Other)	None Detected
03C-Shingle *041917684-0013A*	Roof - Shingle	Gray/Black Non-Fibrous Homogeneous	 HA: 03	97% Non-fibrous (Other)	3% Chrysotile
04A-Roofing *041917684-0014*	Roof - Asphalt Roofing	Gray/Black Fibrous Homogeneous	10% Synthetic HA: 04	90% Non-fibrous (Other)	None Detected
04A-Felt *041917684-0014A*	Roof - Felt	Black Fibrous Homogeneous	30% Glass HA: 04	70% Non-fibrous (Other)	None Detected
04B-Roofing *041917684-0015*	Roof - Asphalt Roofing	Gray/Black Fibrous Homogeneous	10% Synthetic HA: 04	90% Non-fibrous (Other)	None Detected
04B-Felt *041917684-0015A*	Roof - Felt	Black Fibrous Homogeneous	30% Glass HA: 04	70% Non-fibrous (Other)	None Detected
04C-Roofing *041917684-0016*	Roof - Asphalt Roofing	Gray/Black Fibrous Homogeneous	10% Synthetic HA: 04	90% Non-fibrous (Other)	None Detected
04C-Felt *041917684-0016A*	Roof - Felt	Black Fibrous Homogeneous	30% Glass HA: 04	70% Non-fibrous (Other)	None Detected
04D-Roofing *041917684-0017*	Roof - Asphalt Roofing	Gray/Black Fibrous Homogeneous	10% Synthetic HA: 04	90% Non-fibrous (Other)	None Detected
04D-Felt *041917684-0017A*	Roof - Felt	Black Fibrous Homogeneous	 HA: 04	100% Non-fibrous (Other)	None Detected
04E-Roofing *041917684-0018*	Roof - Asphalt Roofing	Gray/Black Fibrous Homogeneous	10% Synthetic HA: 04	90% Non-fibrous (Other)	None Detected
04E-Felt *041917684-0018A*	Roof - Felt	Black Fibrous Homogeneous	30% Glass HA: 04	70% Non-fibrous (Other)	None Detected
04F-Roofing *041917684-0019*	Roof - Asphalt Roofing	Gray/Black Fibrous Homogeneous	10% Synthetic HA: 04	90% Non-fibrous (Other)	None Detected
04F-Felt *041917684-0019A*	Roof - Felt	Black Fibrous Homogeneous	40% Glass HA: 04	60% Non-fibrous (Other)	None Detected

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EMSL Order: 041917684
Customer ID: STTC26
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
04G-Roofing *041917684-0020*	Roof - Asphalt Roofing	Gray/Black Fibrous Homogeneous	10% Synthetic HA: 04	90% Non-fibrous (Other)	None Detected
04G-Felt *041917684-0020A*	Roof - Felt	Black Fibrous Homogeneous	40% Glass HA: 04	60% Non-fibrous (Other)	None Detected
05A *041917684-0021*	Roof - Sealant	White/Black Non-Fibrous Homogeneous	HA: 05	100% Non-fibrous (Other)	None Detected
05B *041917684-0022*	Roof - Sealant	White Fibrous Homogeneous	10% Glass HA: 05	90% Non-fibrous (Other)	None Detected
05C *041917684-0023*	Roof - Sealant	White Non-Fibrous Homogeneous	HA: 05	100% Non-fibrous (Other)	None Detected
06A *041917684-0024*	Meeting Room - Acoustic Ceiling	White Non-Fibrous Homogeneous	HA: 06	97% Non-fibrous (Other)	3% Chrysotile
06B *041917684-0025*	Meeting Room - Acoustic Ceiling		HA: 06		Positive Stop (Not Analyzed)
06C *041917684-0026*	Breakroom - Acoustic Ceiling		HA: 06		Positive Stop (Not Analyzed)
07A *041917684-0027*	Warehouse - Concrete	Gray Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07B *041917684-0028*	Warehouse - Concrete	Gray Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07C *041917684-0029*	Warehouse - Concrete	Gray Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07D *041917684-0030*	Warehouse - Concrete	Gray Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07E *041917684-0031*	Warehouse - Concrete	Gray Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07F *041917684-0032*	Warehouse - Concrete	Gray Non-Fibrous Homogeneous	HA: 07	100% Non-fibrous (Other)	None Detected
07G *041917684-0033*	Warehouse - Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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EMSL Order: 041917684
Customer ID: STTC26
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
			HA: 07		
08A *041917684-0034*	Breakroom - VFT	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 08		
08B *041917684-0035*	Breakroom - VFT	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 08		
08C *041917684-0036*	Breakroom - VFT	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 08		
09A *041917684-0037*	Breakroom - Mastic	Gray/White/Black Non-Fibrous Heterogeneous		98% Non-fibrous (Other)	2% Chrysotile
			HA: 09		
09B *041917684-0038*	Breakroom - Mastic				Positive Stop (Not Analyzed)
			HA: 09		
09C *041917684-0039*	Breakroom - Mastic				Positive Stop (Not Analyzed)
			HA: 09		
10A *041917684-0040*	Restroom #2 - Gypsum Board	Brown/White Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
			HA: 10		
10B *041917684-0041*	Meeting Room - Gypsum Board	Brown/White Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
			HA: 10		
10C *041917684-0042*	Breakroom - Gypsum Board	Brown/White Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
			HA: 10		
10D *041917684-0043*	Restroom #1 - Gypsum Board	Brown/White Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
			HA: 10		
10E *041917684-0044*	Restroom #3 - Gypsum Board	Brown/White Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
			HA: 10		
11A-Joint Compound *041917684-0045*	Restroom #2 - Joint Compound	White Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
			HA: 11		
11A-Texture *041917684-0045A*	Restroom #2 - Texture	White Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
			HA: 11		
11B-Joint Compound *041917684-0046*	Meeting Room - Joint Compound				Positive Stop (Not Analyzed)
			HA: 11		

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Tel/Fax: (800) 220-3675 / (856) 786-5974
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EMSL Order:	041917684
Customer ID:	STTC26
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
11B-Texture *041917684-0046A*	Meeting Room - Texture		HA: 11		Positive Stop (Not Analyzed)
11C-Joint Compound *041917684-0047*	Breakroom - Joint Compound		HA: 11		Positive Stop (Not Analyzed)
11C-Texture *041917684-0047A*	Breakroom - Texture		HA: 11		Positive Stop (Not Analyzed)
11D-Joint Compound *041917684-0048*	Restroom #1 - Joint Compound		HA: 11		Positive Stop (Not Analyzed)
11D-Texture *041917684-0048A*	Restroom #1 - Texture		HA: 11		Positive Stop (Not Analyzed)
11E-Joint Compound *041917684-0049*	Restroom #3 - Joint Compound		HA: 11		Positive Stop (Not Analyzed)
11E-Texture *041917684-0049A*	Restroom #3 - Texture		HA: 11		Positive Stop (Not Analyzed)
12A *041917684-0050*	Restroom #4 - VFS	Gray Fibrous Homogeneous	15% Synthetic 10% Glass HA: 12	75% Non-fibrous (Other)	None Detected
12B *041917684-0051*	Restroom #4 - VFS	Gray Fibrous Homogeneous	15% Synthetic 10% Glass HA: 12	75% Non-fibrous (Other)	None Detected
12C *041917684-0052*	Restroom #3 - VFS	Gray Fibrous Homogeneous	20% Cellulose 10% Glass HA: 12	70% Non-fibrous (Other)	None Detected
13A *041917684-0053*	Restroom #1 - Cove Base	Green Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
13B *041917684-0054*	Restroom #2 - Cove Base	Green Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
13C *041917684-0055*	Restroom #4 - Cove Base	Green Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
14A *041917684-0056*	Restroom #1 - Mastic	White Non-Fibrous Homogeneous	HA: 14	100% Non-fibrous (Other)	None Detected
14B *041917684-0057*	Restroom #2 - Mastic	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 06/25/2019 21:31:49

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041917684
Customer ID: STTC26
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
			HA: 14		
14C *041917684-0058*	Restroom #4 - Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 14		
15A *041917684-0059*	Hallway - Gypsum Board	Brown/White Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
			HA: 15		
15B *041917684-0060*	Hallway - Gypsum Board	Brown/White Fibrous Homogeneous	10% Cellulose 10% Glass	80% Non-fibrous (Other)	None Detected
			HA: 15		
15C *041917684-0061*	Closet - Gypsum Board	Brown/White Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
			HA: 15		
16A *041917684-0062*	Hallway - Joint Compound				Not Submitted
			HA: 16		
16B *041917684-0063*	Hallway - Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
16C *041917684-0064*	Closet - Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
17A *041917684-0065*	Stairway - Ceiling Panel	White Fibrous Homogeneous	50% Cellulose 30% Min. Wool	20% Non-fibrous (Other)	None Detected
			HA: 17		
17B *041917684-0066*	Stairway - Ceiling Panel	White Fibrous Homogeneous	50% Cellulose 30% Min. Wool	20% Non-fibrous (Other)	None Detected
			HA: 17		
17C *041917684-0067*	Stairway - Ceiling Panel	White Fibrous Homogeneous	60% Cellulose 30% Min. Wool	10% Non-fibrous (Other)	None Detected
			HA: 17		
18A *041917684-0068*	Hallway - Acoustic Ceiling	White Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
			HA: 18		
18B *041917684-0069*	Hallway - Acoustic Ceiling				Positive Stop (Not Analyzed)
			HA: 18		
18C *041917684-0070*	Hallway - Acoustic Ceiling				Positive Stop (Not Analyzed)
			HA: 18		
19A *041917684-0071*	SWC - Mortar	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 19		

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EMSL Order:	041917684
Customer ID:	STTC26
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
19B *041917684-0072*	SWC - Mortar	Gray Non-Fibrous Homogeneous	HA: 19	100% Non-fibrous (Other)	None Detected
19C *041917684-0073*	SWC - Mortar	Gray Non-Fibrous Homogeneous	HA: 19	100% Non-fibrous (Other)	None Detected
20A *041917684-0074*	SW Corner - CMU	Gray Non-Fibrous Homogeneous	HA: 20	100% Non-fibrous (Other)	None Detected
20B *041917684-0075*	SW Corner - CMU	Gray Non-Fibrous Homogeneous	HA: 20	100% Non-fibrous (Other)	None Detected
20C *041917684-0076*	SW Corner - CMU	Gray Non-Fibrous Homogeneous	HA: 20	100% Non-fibrous (Other)	None Detected

Analyst(s)

Christopher Richardson (3)
Daniel Blake (52)
Jose Sanchez (19)

Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 06/25/2019 21:31:49

OrderID: 041917684

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number *(Lab Use Only)*: 041917684

200 Route 130 North
Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
FAX: (856) 786-5974

Company : Stantec	**EMSL-Bill to:** ☑ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 735 E Carnegie Drive, Suite 280	
City: San Bernardino **State/Province:** CA	**Zip/Postal Code:** 92408 **Country:** United States
Report To (Name): Alicia Jansen	**Telephone #:** Cell# 909-654-8342
Email Address: Alicia.Jansen@stantec.com	**Fax #:** 909-335-6120 **Purchase Order:**
Project Name/Number: 185804357	**Please Provide Results:** ☐ Fax ☑ Email ☐ Mail
U.S. State Samples Taken: CA	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☑ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

**For TEM Air 3 hr through 6 hr, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PLM - Bulk (reporting limit)

- ☑ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)
- Point Count ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- Point Count w/Gravimetric ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NIOSH 9002 (<1%)
- ☐ NY ELAP Method 198.1 (friable in NY)
- ☐ NY ELAP Method 198.6 NOB (non-friable-NY)
- ☐ OSHA ID-191 Modified
- ☐ Standard Addition Method

TEM – Bulk

- ☐ TEM EPA NOB – EPA 600/R-93/116 Section 2.5.5.1
- ☐ NY ELAP Method 198.4 (TEM)
- ☐ Chatfield Protocol (semi-quantitative)
- ☐ TEM % by Mass – EPA 600/R-93/116 Section 2.5.5.2
- ☐ TEM Qualitative via Filtration Prep Technique
- ☐ TEM Qualitative via Drop Mount Prep Technique

Other

- ☐

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2019 JUN 24 P 1:00

☑ **Check For Positive Stop – Clearly Identify Homogenous Group** **Date Sampled:** 06/19/19 - 06/20/19

Samplers Name: Melissa Baernstein **Samplers Signature:** Melissa Baernstein

Sample #	HA #	Sample Location	Material Description
		See attached sample logs	

Client Sample # (s): HA#01A - HA#20C **Total # of Samples:** ~~80~~ 76 TV

Relinquished (Client): Melissa Baernstein **Date:** 06/24/19 **Time:** 16:00

Received (Lab): [signature] **Date:** 6/24/19 **Time:** 900

Comments/Special Instructions:

Stantec

Bulk Sample Log

041917684

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630/3640, 3700 Cypress Avenue

Address: 11312 Orchard Street, El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	01
Material Type:	Concrete
Color:	Gray
Description:	Associated with walls of building
Total Qty.:	10,000 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Perimeter walls	10,000	G

SAMPLES	
Sample #	Sample Location
01 A	E side
01 B	⊥
01 C	S side
01 D	N side
01 E	⊥
01 F	W side.
01 G	S side.

Notes:

Relinquished By: Melissa Boerster Date: 06/21/19

Received By: Date:

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041917684

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: 3630 3640, 3700 Cypress Avenue
11312 Orchard Street
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	02
Material Type:	Concrete
Color:	Gray
Description:	Associated with front ext wall patterned
Total Qty.:	300 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
EXT	E (street) side	300	G

SAMPLES	
Sample #	Sample Location
02A	E side
02B	"
02C	"

Notes:

Relinquished By: Melissa Baumgartner Date: 06/21/19

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735 E Carnegie Drive, Suite 280
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Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630-3700 Cypress Avenue and 11297 Iris Lane

Date: 06/20/2019

Address: El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	03
Material Type:	Sealant
Color:	Black
Description:	Associated with roof penetrations
Total Qty.:	100 sf2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	Low	(Med)	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	Roof	100	D

SAMPLES	
Sample #	Sample Location
03A	Roof
03B	|
03C	L

Notes:

Relinquished By: Melissa Baemster Date: 06/21/19

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Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Address:

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	04
Material Type:	Asphalt Roofing
Color:	Gray/Black
Description:	Rolled sheet system
Total Qty.:	17,000 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	Low	Med	(High)

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	Roof	17,000	G

SAMPLES	
Sample #	Sample Location
04A	Roof
04B	
04C	
04D	
04E	
04F	
04G	

Notes:

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Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630-3700 Cypress Avenue and 11297 Iris Lane

Date: 06/20/2019

Address: El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	05
Material Type:	Sealant
Color:	white
Description:	Associated with roof/ skylight seams
Total Qty.:	100 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	Low	(Med)	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	Roof	100	G

SAMPLES	
Sample #	Sample Location
05 A	Roof
05 B	
05C	

Notes:

Relinquished By: Melissa Baemster Date: 06/21/19

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Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	06
Material Type:	Acoustic Ceiling
Color:	White
Description:	Popcorn Spray
Total Qty.:	900 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	(Med)	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	lobby, meeting room	900	G
	hallway, breakroom		

SAMPLES	
Sample #	Sample Location
06 A	meeting room
06 B	
06 C	breakroom

Notes:

Relinquished By: Melissa Baerenstein Date: 06/21/19

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Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	07
Material Type:	Concrete
Color:	Gray
Description:	Foundation
Total Qty.:	17,000 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	T/O	17,000	G

SAMPLES	
Sample #	Sample Location
07A	warehouse
07B	
07C	
07D	
07E	
07F	
07G	

Notes:

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Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	68
Material Type:	VFT
Color:	Green
Description:	12" X 12" mottled
Total Qty.:	250 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Breakroom	250	G

SAMPLES	
Sample #	Sample Location
08 A	Breakroom
08 B	
08 C	

Notes:

Relinquished By: Melissa Baemster Date: 06/21/19

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Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	09
Material Type:	Mastic
Color:	grayish-white
Description:	Associated with HA#09
Total Qty.:	250 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Breakroom	250	D

SAMPLES	
Sample #	Sample Location
09 A	Breakroom
09 B	
09 C	

Notes:

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Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630/3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	10
Material Type:	Gypsum Board
Color:	White
Description:	Associated with interior walls
Total Qty.:	3400 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Rooms on NW side of building.	3400	G

SAMPLES	
Sample #	Sample Location
10A	Restroom #2
10B	meeting room
10C	Break room
10D	Restroom #1
10E	Restroom #3

Notes:

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Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	11
Material Type:	Joint Compound
Color:	White
Description:	Associated with HA#10
Total Qty.:	3,000 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Rooms on NW side of building	3,000	G

SAMPLES	
Sample #	Sample Location
11A	Restroom #2
11B	Meeting room
11C	Break room
11D	Restroom #1
11E	Restroom #3

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: Melissa Baemster Date: 06/21/19

Received By: CINNAMINSON, N.J. EMSL RECEIVED 2019 JUN 24 A 10:00 Date:

OrderID: 041917684

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Bulk Sample Log

041917684

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	12
Material Type:	VFS
Color:	Gray
Description:	pattern
Total Qty.:	250 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restrooms #3&4	250	D

SAMPLES	
Sample #	Sample Location
12A	restroom #4
12B	"
12C	restroom #3

Notes:

Relinquished By: Melissa A Baeuerle Date: 06/21/19

Received By: CINNAMINSON, N.J. EMSL RECEIVED 2019 JUN 24 A 10:00 Date:

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	13
Material Type:	Cove Base
Color:	Green
Description:	3" vinyl
Total Qty.:	120 SF

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restrooms	120	G

SAMPLES	
Sample #	Sample Location
13A	Restroom #1
13B	Restroom #2
13C	Restroom #4

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baenster Date: 06/21/19

Received By: CINNAMINSON, N.J. EMSL RECEIVED 2019 JUN 24 A 10:00

Date:

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Bulk Sample Log 041917684

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Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Date: 06/20/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	14
Material Type:	Mastic
Color:	White
Description:	Associated with HA# 13 & 12
Total Qty.:	MAB ~~370~~ 370 ~~220~~ sf 2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restrooms	120	G
		250	

SAMPLES	
Sample #	Sample Location
14A	Restroom #1
14B	Restroom #2
14C	Restroom #4
~~14D~~	
~~14E~~	

Notes:

Relinquished By: Melissa Baenateo Date: 06/21/19

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OrderID: 041917684

Stantec

Bulk Sample Log 041917684

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	15
Material Type:	Gypsum Board
Color:	white
Description:	finished walls
Total Qty.:	999 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
02	T/O interior walls	999	G

SAMPLES	
Sample #	Sample Location
15 A	Hallway
15 B	Hallway
15 C	closet

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: Melissa Baemoter Date: 06/21/19

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Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	16
Material Type:	Joint Compound
Color:	White
Description:	Associated with HA#15
Total Qty.:	999 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
02	T/O interior walls	999	G

SAMPLES	
Sample #	Sample Location
16A	Hallway
16B	1
16C	closet

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Notes:

Relinquished By: Melissa Baemster Date: 06/21/19

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Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	17
Material Type:	Ceiling Panel
Color:	White
Description:	2'X4' dots & fissures lay-in type
Total Qty.:	72 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	Med	(High)
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
02	Stairway	72	

SAMPLES	
Sample #	Sample Location
17A	Stairway
17B	
17C	

Notes:

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Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	18
Material Type:	Acoustic Ceiling
Color:	white
Description:	popcorn spray
Total Qty.:	300 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	Med	(High)
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
02	Hallway, open office	300	G

SAMPLES	
Sample #	Sample Location
18A	Hallway
18B	
18C	

Notes:

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Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	19
Material Type:	Mortar
Color:	Gray
Description:	Associated with HA#20
Total Qty.:	225 sf

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	SWC /w wall	225	G

SAMPLES	
Sample #	Sample Location
19 A	SWC
19 B	"
19 C	"

Notes:

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Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: 3630-3700 Cypress Avenue and 11297 Iris Lane, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	20
Material Type:	CMU
Color:	Gray
Description:	Concrete Masonry Unit (bricks)
Total Qty.:	225 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	SW corner W wall	225	G

SAMPLES	
Sample #	Sample Location
20A	SW corner
20B	"
20C	"

Notes:

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EMSL Order ID: 041917804
Customer ID: STTC26
Customer PO:
Project ID:

Attn: Alicia Jansen
Stantec Consulting Services Inc.
735 E. Carnegie Drive
Suite 280
San Bernardino, CA 92408

Phone: (909) 335-6116
Fax:
Collected: 6/19/2019
Received: 6/25/2019
Analyzed: 7/05/2019

Proj: Pre-Demolition Asbestos Survey - 185894357 - 11309 Iris Lane - 11312 Orchard Street El Monte, CA

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 01A **Lab Sample ID:** **041917804-0001**
Sample Description: 11309B/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Brown/White	15.0%	85.0%	None Detected	

Client Sample ID: 01B-Gypsum Board **Lab Sample ID:** **041917804-0002**
Sample Description: 11309B/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Brown/White	15.0%	85.0%	None Detected	

Client Sample ID: 01B-Joint Compound **Lab Sample ID:** **041917804-0002A**
Sample Description: 11309B/Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	0.0%	100.0%	**<1% Chrysotile**	

Client Sample ID: 01Gypsum Board / Joint Compound **Lab Sample ID:** **041917804-0002B**
Sample Description: 11309B/Gypsum Board - White / Joint Compound - Composite

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
400 PLM PtCt Grav. Red.	7/05/2019	White	0.0%	100%	**<0.25% Chrysotile**	

Client Sample ID: 01C-Gypsum Board **Lab Sample ID:** **041917804-0003**
Sample Description: 11309B/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Brown/White	15.0%	85.0%	None Detected	

Client Sample ID: 01C-Joint Compound **Lab Sample ID:** **041917804-0003A**
Sample Description: 11309B/Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	0.0%	98.0%	**2% Chrysotile**	

Client Sample ID: 01C-Gypsum Board / Joint Compound **Lab Sample ID:** **041917804-0003B**
Sample Description: 11309B/Gypsum Board - White / Joint Compound - Composite

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
400 PLM PtCt Grav. Red.	7/05/2019	White	1.2%	98.8%	**<0.25% Chrysotile**	

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EMSL Order ID: 041917804
Customer ID: STTC26
Customer PO:
Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 01D **Lab Sample ID:** **041917804-0004**
Sample Description: 11309B/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Brown/White	20.0%	80.0%	None Detected	

Client Sample ID: 01E **Lab Sample ID:** **041917804-0005**
Sample Description: 11309B/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Brown/White	20.0%	80.0%	None Detected	

Client Sample ID: 02A **Lab Sample ID:** **041917804-0006**
Sample Description: Restroom 11309B/VFT - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 02B **Lab Sample ID:** **041917804-0007**
Sample Description: Restroom 11309B/VFT - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 02C **Lab Sample ID:** **041917804-0008**
Sample Description: Restroom 11309B/VFT - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 03A **Lab Sample ID:** **041917804-0009**
Sample Description: Restroom 11309B/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 03B **Lab Sample ID:** **041917804-0010**
Sample Description: Restroom 11309B/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 03C **Lab Sample ID:** **041917804-0011**
Sample Description: Restroom 11309B/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow	0.0%	100.0%	None Detected	

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Customer ID: STTC26
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Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 04A **Lab Sample ID:** **041917804-0012**
Sample Description: Restroom/Cove Base - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black	0.0%	100.0%	None Detected	

Client Sample ID: 04B **Lab Sample ID:** **041917804-0013**
Sample Description: Restroom/Cove Base - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black	0.0%	100.0%	None Detected	

Client Sample ID: 04C **Lab Sample ID:** **041917804-0014**
Sample Description: Office/Cove Base - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Black	0.0%	100.0%	None Detected	

Client Sample ID: 05A **Lab Sample ID:** **041917804-0015**
Sample Description: Restroom/Mastic - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 05B **Lab Sample ID:** **041917804-0016**
Sample Description: Restroom/Mastic - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 05C **Lab Sample ID:** **041917804-0017**
Sample Description: Office/Mastic - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 06A **Lab Sample ID:** **041917804-0018**
Sample Description: Office/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 06B **Lab Sample ID:** **041917804-0019**
Sample Description: Office/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Yellow	0.0%	100.0%	None Detected	

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Customer ID: STTC26
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Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 06C **Lab Sample ID:** **041917804-0020**
Sample Description: Office/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 07A **Lab Sample ID:** **041917804-0021**
Sample Description: Office/Ceiling Panel - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	90.0%	10.0%	None Detected	

Client Sample ID: 07B **Lab Sample ID:** **041917804-0022**
Sample Description: Office/Ceiling Panel - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	90.0%	10.0%	None Detected	

Client Sample ID: 07C **Lab Sample ID:** **041917804-0023**
Sample Description: Office/Ceiling Panel - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	90.0%	10.0%	None Detected	

Client Sample ID: 08A **Lab Sample ID:** **041917804-0024**
Sample Description: Office #1 11303/Ceiling Panel - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	90.0%	10.0%	None Detected	

Client Sample ID: 08B **Lab Sample ID:** **041917804-0025**
Sample Description: Office #2 11303/Ceiling Panel - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	90.0%	10.0%	None Detected	

Client Sample ID: 08C **Lab Sample ID:** **041917804-0026**
Sample Description: Office #2 11307/Ceiling Panel - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	90.0%	10.0%	None Detected	

Client Sample ID: 08D **Lab Sample ID:** **041917804-0027**
Sample Description: Office 11312B/Ceiling Panel - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	90.0%	10.0%	None Detected	

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EMSL Order ID: 041917804
Customer ID: STTC26
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Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 08E **Lab Sample ID:** **041917804-0028**
Sample Description: Lobby 11312A/Ceiling Panel - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	90.0%	10.0%	None Detected	

Client Sample ID: 08F **Lab Sample ID:** **041917804-0029**
Sample Description: Office 11305/Ceiling Panel - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Brown/White	90.0%	10.0%	None Detected	

Client Sample ID: 08G **Lab Sample ID:** **041917804-0030**
Sample Description: Office 11305/Ceiling Panel - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Brown/White	90.0%	10.0%	None Detected	

Client Sample ID: 09A **Lab Sample ID:** **041917804-0031**
Sample Description: Office 11303/Mastic - Dark Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 09B **Lab Sample ID:** **041917804-0032**
Sample Description: Office 11303/Mastic - Dark Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019				Not Submitted	

Client Sample ID: 09C **Lab Sample ID:** **041917804-0033**
Sample Description: Office 11312A/Mastic - Dark Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 09D **Lab Sample ID:** **041917804-0034**
Sample Description: Office 11312A/Mastic - Dark Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 09E **Lab Sample ID:** **041917804-0035**
Sample Description: Office 11309A/Mastic - Dark Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow	0.0%	100.0%	None Detected	

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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 10A **Lab Sample ID:** **041917804-0036**
Sample Description: Office #1 11303/Cove Base - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black	0.0%	100.0%	None Detected	

Client Sample ID: 10B **Lab Sample ID:** **041917804-0037**
Sample Description: Hallway 11303/Cove Base - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black	0.0%	100.0%	None Detected	

Client Sample ID: 10C **Lab Sample ID:** **041917804-0038**
Sample Description: Office #2 11307/Cove Base - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Black	0.0%	100.0%	None Detected	

Client Sample ID: 11A **Lab Sample ID:** **041917804-0039**
Sample Description: Office #1 11303/Mastic - Tan

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Tan	0.0%	100.0%	None Detected	

Client Sample ID: 11B **Lab Sample ID:** **041917804-0040**
Sample Description: Office #1 11303/Mastic - Tan

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Tan	0.0%	100.0%	None Detected	

Client Sample ID: 11C **Lab Sample ID:** **041917804-0041**
Sample Description: Office #1 11307/Mastic - Tan

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Tan	0.0%	100.0%	None Detected	

Client Sample ID: 12A **Lab Sample ID:** **041917804-0042**
Sample Description: Office #1 11312A/VFT - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 12B **Lab Sample ID:** **041917804-0043**
Sample Description: Office #2 11307/VFT - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	0.0%	100.0%	None Detected	

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EMSL Order ID: 041917804
Customer ID: STTC26
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Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 12C **Lab Sample ID:** **041917804-0044**
Sample Description: Warehouse 11312B/VFT - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 13A **Lab Sample ID:** **041917804-0045**
Sample Description: Office #1 11312A/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 13B-Mastic **Lab Sample ID:** **041917804-0046**
Sample Description: Office #2 11307/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 13B-Mastic 2 **Lab Sample ID:** **041917804-0046A**
Sample Description: Office #2 11307/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black	0.0%	98.0%	**2% Chrysotile**	

Client Sample ID: 13C **Lab Sample ID:** **041917804-0047**
Sample Description: Warehouse 11312B/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Black	0.0%	96.0%	**4% Chrysotile**	No yellow mastic present.

Client Sample ID: 14A **Lab Sample ID:** **041917804-0048**
Sample Description: Warehouse 11312B/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Brown/White	20.0%	80.0%	None Detected	

Client Sample ID: 14B **Lab Sample ID:** **041917804-0049**
Sample Description: Restroom #2 11303/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Brown/White	20.0%	80.0%	None Detected	

Client Sample ID: 14C **Lab Sample ID:** **041917804-0050**
Sample Description: Office #2 11303/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Brown	15.0%	85.0%	None Detected	

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Client Sample ID: 14C/15C-Composite **Lab Sample ID:** **041917804-0050A**
Sample Description: Office #2 11303/Gypsum Board - White / Joint Compound - White - Composite

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
400 PLM PtCt Grav. Red.	7/05/2019	White	0.0%	100%	**<0.25% Chrysotile**	

Client Sample ID: 14D **Lab Sample ID:** **041917804-0051**
Sample Description: Warehouse 11312B/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Brown/White	15.0%	85.0%	None Detected	

Client Sample ID: 14E **Lab Sample ID:** **041917804-0052**
Sample Description: Warehouse 11305/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Brown/White	15.0%	85.0%	None Detected	

Client Sample ID: 14E/15E-Composite **Lab Sample ID:** **041917804-0052A**
Sample Description: Warehouse 11305/Gypsum Board - White / Joint Compound - White - Composite

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
400 PLM PtCt Grav. Red.	7/05/2019	White	2.2%	97.8%	**<0.25% Chrysotile**	

Client Sample ID: 14F **Lab Sample ID:** **041917804-0053**
Sample Description: Warehouse 11305/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Brown/White	15.0%	85.0%	None Detected	

Client Sample ID: 14F/15F-Composite **Lab Sample ID:** **041917804-0053A**
Sample Description: Warehouse 11305/Gypsum Board - White / Joint Compound - White - Composite

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
400 PLM PtCt Grav. Red.	7/05/2019	White	0.0%	100%	**<0.25% Chrysotile**	

Client Sample ID: 15A **Lab Sample ID:** **041917804-0054**
Sample Description: Warehouse 11312B/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 15B **Lab Sample ID:** **041917804-0055**
Sample Description: Restroom #2 11303/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	White	0.0%	100.0%	None Detected	

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Client Sample ID: 15C-Joint Compound **Lab Sample ID:** **041917804-0056**
Sample Description: Office #2 11303/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 15C-Texture **Lab Sample ID:** **041917804-0056A**
Sample Description: Office #2 11303/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	White	0.0%	98.0%	**2% Chrysotile**	

Client Sample ID: 15D **Lab Sample ID:** **041917804-0057**
Sample Description: Warehouse 11312B/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 15E **Lab Sample ID:** **041917804-0058**
Sample Description: Warehouse 11305/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	98.0%	**2% Chrysotile**	

Client Sample ID: 15F **Lab Sample ID:** **041917804-0059**
Sample Description: Warehouse 11305/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	98.0%	**2% Chrysotile**	

Client Sample ID: 16A **Lab Sample ID:** **041917804-0060**
Sample Description: Restroom #1/VFT - Dark Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 16B **Lab Sample ID:** **041917804-0061**
Sample Description: Restroom #1/VFT - Dark Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 16C **Lab Sample ID:** **041917804-0062**
Sample Description: Restroom #2/VFT - Dark Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray	0.0%	100.0%	None Detected	

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Client Sample ID: 17A **Lab Sample ID:** **041917804-0063**
Sample Description: Restroom #1/Mastic - Dark Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 17B **Lab Sample ID:** **041917804-0064**
Sample Description: Restroom #1/Mastic - Dark Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 17C **Lab Sample ID:** **041917804-0065**
Sample Description: Restroom #2/Mastic - Dark Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 18A **Lab Sample ID:** **041917804-0066**
Sample Description: Office #2 11303/Leveling Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 18B **Lab Sample ID:** **041917804-0067**
Sample Description: Office #2 11307/Leveling Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 19A-Vinyl Floor Tile **Lab Sample ID:** **041917804-0068**
Sample Description: Restroom/VFT - Brown and Blue

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Brown/Blue	0.0%	100.0%	None Detected	

Client Sample ID: 19A-Adhesive **Lab Sample ID:** **041917804-0068A**
Sample Description: Restroom/VFT - Brown and Blue

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Clear	0.0%	100.0%	None Detected	

Client Sample ID: 19B-Vinyl Floor Tile **Lab Sample ID:** **041917804-0069**
Sample Description: Restroom/VFT - Brown and Blue

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Brown/Blue	0.0%	100.0%	None Detected	

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Client Sample ID: 19B-Adhesive ***Lab Sample ID:*** **041917804-0069A**
Sample Description: Restroom/VFT - Brown and Blue

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Clear	0.0%	100.0%	None Detected	

Client Sample ID: 19C-Vinyl Floor Tile ***Lab Sample ID:*** **041917804-0070**
Sample Description: Restroom/VFT - Brown and Blue

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Brown/Blue	0.0%	100.0%	None Detected	

Client Sample ID: 19C-Adhesive ***Lab Sample ID:*** **041917804-0070A**
Sample Description: Restroom/VFT - Brown and Blue

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Clear	0.0%	100.0%	None Detected	

Client Sample ID: 20A ***Lab Sample ID:*** **041917804-0071**
Sample Description: Office #2 11301A/Ceiling Panels - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	White	70.0%	30.0%	None Detected	

Client Sample ID: 20B ***Lab Sample ID:*** **041917804-0072**
Sample Description: Office #2 11301A/Ceiling Panels - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	White	70.0%	30.0%	None Detected	

Client Sample ID: 20C ***Lab Sample ID:*** **041917804-0073**
Sample Description: Office #2 11301A/Ceiling Panels - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	90.0%	10.0%	None Detected	

Client Sample ID: 21A ***Lab Sample ID:*** **041917804-0074**
Sample Description: Restroom 11301A/Cove Base - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 21B ***Lab Sample ID:*** **041917804-0075**
Sample Description: Restroom 11301A/Cove Base - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Gray	0.0%	100.0%	None Detected	

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Client Sample ID: 21C ***Lab Sample ID:*** **041917804-0076**

Sample Description: Restroom 11301A/Cove Base - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 22A ***Lab Sample ID:*** **041917804-0077**

Sample Description: Restroom 11301A/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	White/Yellow	0.0%	100.0%	None Detected	Result includes a small amount of inseparable attached material

Client Sample ID: 22B ***Lab Sample ID:*** **041917804-0078**

Sample Description: Restroom 11301A/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 22C ***Lab Sample ID:*** **041917804-0079**

Sample Description: Restroom 11301A/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 23A ***Lab Sample ID:*** **041917804-0080**

Sample Description: Restroom 11301A/VFS - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 23B ***Lab Sample ID:*** **041917804-0081**

Sample Description: Restroom 11301A/VFS - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 23C ***Lab Sample ID:*** **041917804-0082**

Sample Description: Restroom 11301A/VFS - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 24A ***Lab Sample ID:*** **041917804-0083**

Sample Description: Restroom 11301A/Mastic - Dark Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Yellow	0.0%	100.0%	None Detected	

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Client Sample ID: 24B **Lab Sample ID:** **041917804-0084**
Sample Description: Restroom 11301A/Mastic - Dark Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 24C **Lab Sample ID:** **041917804-0085**
Sample Description: Restroom 11301A/Mastic - Dark Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 25A **Lab Sample ID:** **041917804-0086**
Sample Description: Office #2/Cove Base - Brown

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Brown/Gray	0.0%	100.0%	None Detected	

Client Sample ID: 25B **Lab Sample ID:** **041917804-0087**
Sample Description: Office #2/Cove Base - Brown

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Brown/Gray	0.0%	100.0%	None Detected	

Client Sample ID: 25C **Lab Sample ID:** **041917804-0088**
Sample Description: Office #1/Cove Base - Brown

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 26A **Lab Sample ID:** **041917804-0089**
Sample Description: Office #2/Mastic - Beige

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 26B **Lab Sample ID:** **041917804-0090**
Sample Description: Office #2/Mastic - Beige

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 26C **Lab Sample ID:** **041917804-0091**
Sample Description: Office #1/Mastic - Beige

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Beige	0.0%	100.0%	None Detected	

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Client Sample ID: 27A ***Lab Sample ID:*** **041917804-0092**
Sample Description: Restroom/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Brown/White	15.0%	85.0%	None Detected	

Client Sample ID: 27B ***Lab Sample ID:*** **041917804-0093**
Sample Description: Restroom/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Brown/White	15.0%	85.0%	None Detected	

Client Sample ID: 27C ***Lab Sample ID:*** **041917804-0094**
Sample Description: Restroom/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Brown/White	15.0%	85.0%	None Detected	

Client Sample ID: 28A ***Lab Sample ID:*** **041917804-0095**
Sample Description: Restroom/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 28B ***Lab Sample ID:*** **041917804-0096**
Sample Description: Restroom/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 28C ***Lab Sample ID:*** **041917804-0097**
Sample Description: Restroom/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 29A ***Lab Sample ID:*** **041917804-0098**
Sample Description: Restroom/Texture - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 29B ***Lab Sample ID:*** **041917804-0099**
Sample Description: Restroom/Texture - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	White	0.0%	100.0%	None Detected	

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Client Sample ID: 29C **Lab Sample ID:** **041917804-0100**
Sample Description: Restroom/Texture - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 30A **Lab Sample ID:** **041917804-0101**
Sample Description: Roof/Rolled Asphalt Roofing - Gray and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black	15.0%	85.0%	None Detected	

Client Sample ID: 30B-Shingle **Lab Sample ID:** **041917804-0102**
Sample Description: Roof/Rolled Asphalt Roofing - Gray and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black	30.0%	70.0%	None Detected	

Client Sample ID: 30B-Tar Felt **Lab Sample ID:** **041917804-0102C**
Sample Description: Roof/Rolled Asphalt Roofing - Gray and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black	30.0%	70.0%	None Detected	

Client Sample ID: 30C-Shingle **Lab Sample ID:** **041917804-0103**
Sample Description: Roof/Rolled Asphalt Roofing - Gray and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black	30.0%	70.0%	None Detected	

Client Sample ID: 30C-Tar Felt **Lab Sample ID:** **041917804-0103A**
Sample Description: Roof/Rolled Asphalt Roofing - Gray and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black	30.0%	70.0%	None Detected	

Client Sample ID: 30D **Lab Sample ID:** **041917804-0104**
Sample Description: Roof/Rolled Asphalt Roofing - Gray and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black	30.0%	70.0%	None Detected	

Client Sample ID: 30E **Lab Sample ID:** **041917804-0105**
Sample Description: Roof/Rolled Asphalt Roofing - Gray and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray/Black	20.0%	80.0%	None Detected	

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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 30F-Shingle **Lab Sample ID:** **041917804-0106**
Sample Description: Roof/Rolled Asphalt Roofing - Gray and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray/Black	30.0%	70.0%	None Detected	

Client Sample ID: 30F-Tar Felt **Lab Sample ID:** **041917804-0106A**
Sample Description: Roof/Rolled Asphalt Roofing - Gray and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Black	30.0%	70.0%	None Detected	

Client Sample ID: 30G **Lab Sample ID:** **041917804-0107**
Sample Description: Roof/Rolled Asphalt Roofing - Gray and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray/Black	30.0%	70.0%	None Detected	

Client Sample ID: 31A **Lab Sample ID:** **041917804-0108**
Sample Description: Roof/Sealant - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Black	40.0%	60.0%	None Detected	

Client Sample ID: 31B **Lab Sample ID:** **041917804-0109**
Sample Description: Roof/Sealant - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Black	0.0%	95.0%	**5% Chrysotile**	

Client Sample ID: 31C **Lab Sample ID:** **041917804-0110**
Sample Description: Roof/Sealant - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019				Positive Stop (Not Analyzed)	

Client Sample ID: 32A **Lab Sample ID:** **041917804-0111**
Sample Description: Roof/Foam - Yellow and Orange

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Yellow/Orange	0.0%	100.0%	None Detected	

Client Sample ID: 32B **Lab Sample ID:** **041917804-0112**
Sample Description: Roof/Foam - Yellow and Orange

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Yellow/Orange	0.0%	100.0%	None Detected	

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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 32C **Lab Sample ID:** **041917804-0113**
Sample Description: Roof/Foam - Yellow and Orange

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow/Orange	0.0%	100.0%	None Detected	

Client Sample ID: 33A **Lab Sample ID:** **041917804-0114**
Sample Description: Roof/Sealant - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 33B **Lab Sample ID:** **041917804-0115**
Sample Description: Roof/Sealant - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 33C **Lab Sample ID:** **041917804-0116**
Sample Description: Roof/Sealant - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 34A-Foam **Lab Sample ID:** **041917804-0117**
Sample Description: Roof 11305/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 34A-Asphalt **Lab Sample ID:** **041917804-0117A**
Sample Description: Roof 11305/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Black	0.0%	100.0%	None Detected	

Client Sample ID: 34B-Foam **Lab Sample ID:** **041917804-0118**
Sample Description: Roof 11309/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 34B-Asphalt **Lab Sample ID:** **041917804-0118A**
Sample Description: Roof 11309/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Black	25.0%	75.0%	None Detected	

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Client Sample ID: 34C-Foam ***Lab Sample ID:*** **041917804-0119**
Sample Description: Roof 11309/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 34C-Asphalt ***Lab Sample ID:*** **041917804-0119A**
Sample Description: Roof 11309/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Black	0.0%	100.0%	None Detected	

Client Sample ID: 34D-Foam ***Lab Sample ID:*** **041917804-0120**
Sample Description: Roof 11309/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 34D-Asphalt ***Lab Sample ID:*** **041917804-0120A**
Sample Description: Roof 11309/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Black	0.0%	100.0%	None Detected	

Client Sample ID: 34E-Foam ***Lab Sample ID:*** **041917804-0121**
Sample Description: Roof 11309/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 34E-Asphalt ***Lab Sample ID:*** **041917804-0121A**
Sample Description: Roof 11309/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Black	5.0%	95.0%	None Detected	

Client Sample ID: 34F-Foam ***Lab Sample ID:*** **041917804-0122**
Sample Description: Roof 11309/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 34F-Asphalt ***Lab Sample ID:*** **041917804-0122A**
Sample Description: Roof 11309/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Black	5.0%	95.0%	None Detected	

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Client Sample ID: 34G-Foam **Lab Sample ID:** **041917804-0123**
Sample Description: Roof 11309/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 34G-Asphalt **Lab Sample ID:** **041917804-0123A**
Sample Description: Roof 11309/Asphalt Roofing System - Yellow and Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Black	10.0%	90.0%	None Detected	

Client Sample ID: 35A **Lab Sample ID:** **041917804-0124**
Sample Description: Restroom 11312B/Cove Base - Light Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 35B **Lab Sample ID:** **041917804-0125**
Sample Description: Restroom 11312B/Cove Base - Light Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 35C **Lab Sample ID:** **041917804-0126**
Sample Description: Restroom 11312B/Cove Base - Light Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 36A **Lab Sample ID:** **041917804-0127**
Sample Description: Restroom 11312B/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 36B **Lab Sample ID:** **041917804-0128**
Sample Description: Restroom 11312B/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 36C **Lab Sample ID:** **041917804-0129**
Sample Description: Restroom 11312B/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow	0.0%	100.0%	None Detected	

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Client Sample ID: 37A ***Lab Sample ID:*** **041917804-0130**
Sample Description: Warehouse/Cove Base - Brown

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 38A ***Lab Sample ID:*** **041917804-0131**
Sample Description: Warehouse/VFS - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Gray	40.0%	60.0%	None Detected	

Client Sample ID: 38B ***Lab Sample ID:*** **041917804-0132**
Sample Description: Office/VFS - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 38C ***Lab Sample ID:*** **041917804-0133**
Sample Description: Office/VFS - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 39A ***Lab Sample ID:*** **041917804-0134**
Sample Description: Warehouse 11312/VFT - Red

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Red	0.0%	98.0%	**2% Chrysotile**	

Client Sample ID: 39B ***Lab Sample ID:*** **041917804-0135**
Sample Description: Warehouse 11312/VFT - Red

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019				Positive Stop (Not Analyzed)	

Client Sample ID: 39C ***Lab Sample ID:*** **041917804-0136**
Sample Description: Warehouse 11312/VFT - Red

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019				Positive Stop (Not Analyzed)	

Client Sample ID: 40A ***Lab Sample ID:*** **041917804-0137**
Sample Description: Warehouse/Mastic - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Black	0.0%	96.0%	**4% Chrysotile**	

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Client Sample ID: 40B **Lab Sample ID:** **041917804-0138**
Sample Description: Warehouse/Mastic - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019				Positive Stop (Not Analyzed)	

Client Sample ID: 40C **Lab Sample ID:** **041917804-0139**
Sample Description: Warehouse/Mastic - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019				Positive Stop (Not Analyzed)	

Client Sample ID: 41A **Lab Sample ID:** **041917804-0140**
Sample Description: 11312B Warehouse/Concrete - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 41B **Lab Sample ID:** **041917804-0141**
Sample Description: 11312B Warehouse/Concrete - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 41C **Lab Sample ID:** **041917804-0142**
Sample Description: 11312A Warehouse/Concrete - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 42A **Lab Sample ID:** **041917804-0143**
Sample Description: Restroom 11312A/Cove Base - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 42B **Lab Sample ID:** **041917804-0144**
Sample Description: Restroom 11312A/Cove Base - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 42C **Lab Sample ID:** **041917804-0145**
Sample Description: Restroom 11312A/Cove Base - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	100.0%	None Detected	

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Client Sample ID: 43A **Lab Sample ID:** **041917804-0146**
Sample Description: Office/Ceiling Panels - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Gray	95.0%	5.0%	None Detected	

Client Sample ID: 43B **Lab Sample ID:** **041917804-0147**
Sample Description: Office/Ceiling Panels - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Gray	90.0%	10.0%	None Detected	

Client Sample ID: 43C **Lab Sample ID:** **041917804-0148**
Sample Description: Office/Ceiling Panels - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray	90.0%	10.0%	None Detected	

Client Sample ID: 44A **Lab Sample ID:** **041917804-0149**
Sample Description: RR#2/VFT - Brown

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 44B **Lab Sample ID:** **041917804-0150**
Sample Description: RR#2/VFT - Brown

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 44C **Lab Sample ID:** **041917804-0151**
Sample Description: RR#1/VFT - Brown

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 45A **Lab Sample ID:** **041917804-0152**
Sample Description: RR#2/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 45B **Lab Sample ID:** **041917804-0153**
Sample Description: RR#2/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/28/2019	Yellow	0.0%	100.0%	None Detected	

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Client Sample ID: 45C **Lab Sample ID:** **041917804-0154**
Sample Description: RR#1/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 46A **Lab Sample ID:** **041917804-0155**
Sample Description: Storage #2/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Brown/White	15.0%	85.0%	None Detected	

Client Sample ID: 46B **Lab Sample ID:** **041917804-0156**
Sample Description: Storage #2/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Brown/White	15.0%	85.0%	None Detected	

Client Sample ID: 46C **Lab Sample ID:** **041917804-0157**
Sample Description: Storage #2/Gypsum Board - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Brown/White	20.0%	80.0%	None Detected	

Client Sample ID: 47A **Lab Sample ID:** **041917804-0158**
Sample Description: Storage #2/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 47B **Lab Sample ID:** **041917804-0159**
Sample Description: Storage #2/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 47C **Lab Sample ID:** **041917804-0160**
Sample Description: Storage #2/Joint Compound - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 48A **Lab Sample ID:** **041917804-0161**
Sample Description: Storage #2/Texture - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	0.0%	100.0%	None Detected	

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Client Sample ID: 48B **Lab Sample ID:** **041917804-0162**
Sample Description: Office/Texture - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 48C **Lab Sample ID:** **041917804-0163**
Sample Description: Storage #2/Texture - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: 49A **Lab Sample ID:** **041917804-0164**
Sample Description: Warehouse Wall/Stucco - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 49B **Lab Sample ID:** **041917804-0165**
Sample Description: Warehouse Wall/Stucco - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 49C **Lab Sample ID:** **041917804-0166**
Sample Description: Warehouse Wall/Stucco - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 50A **Lab Sample ID:** **041917804-0167**
Sample Description: Office #2 11307/VFT - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 50B **Lab Sample ID:** **041917804-0168**
Sample Description: Office #1 11303/VFT - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 50C **Lab Sample ID:** **041917804-0169**
Sample Description: Office #2 11307/VFT - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

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Client Sample ID: 50D **Lab Sample ID:** **041917804-0170**
Sample Description: Offices 11305/VFT - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 50E **Lab Sample ID:** **041917804-0171**
Sample Description: Offices 11305/VFT - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 51A **Lab Sample ID:** **041917804-0172**
Sample Description: Office #2 11307/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black/Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 51B-Mastic **Lab Sample ID:** **041917804-0173**
Sample Description: Office #1 11303/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 51B-Mastic 2 **Lab Sample ID:** **041917804-0173A**
Sample Description: Office #1 11303/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black	0.0%	98.0%	**2% Chrysotile**	

Client Sample ID: 51C-Mastic **Lab Sample ID:** **041917804-0174**
Sample Description: Office #2 11307/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 51C-Mastic 2 **Lab Sample ID:** **041917804-0174A**
Sample Description: Office #2 11307/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Black	0.0%	98.0%	**2% Chrysotile**	

Client Sample ID: 51D-Mastic **Lab Sample ID:** **041917804-0175**
Sample Description: Offices 11305/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Yellow	0.0%	100.0%	None Detected	

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order ID: 041917804
Customer ID: STTC26
Customer PO:
Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 51D-Mastic 2 ***Lab Sample ID:*** **041917804-0175A**
Sample Description: Offices 11305/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/26/2019			Positive Stop (Not Analyzed)		

Client Sample ID: 51E-Mastic ***Lab Sample ID:*** **041917804-0176**
Sample Description: Offices 11305/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 51E-Mastic 2 ***Lab Sample ID:*** **041917804-0176A**
Sample Description: Offices 11305/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/26/2019			Positive Stop (Not Analyzed)		

Client Sample ID: 52A ***Lab Sample ID:*** **041917804-0177**
Sample Description: SW Corner/Concrete - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 52B ***Lab Sample ID:*** **041917804-0178**
Sample Description: SW Corner/Concrete - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 52C ***Lab Sample ID:*** **041917804-0179**
Sample Description: S Wall/Concrete - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 52D ***Lab Sample ID:*** **041917804-0180**
Sample Description: E Wall/Concrete - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 52E ***Lab Sample ID:*** **041917804-0181**
Sample Description: E Wall/Concrete - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Gray	0.0%	100.0%	None Detected	

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EMSL Order ID: 041917804
Customer ID: STTC26
Customer PO:
Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 52F **Lab Sample ID:** **041917804-0182**
Sample Description: NE Corner/Concrete - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 52G **Lab Sample ID:** **041917804-0183**
Sample Description: N Wall/Concrete - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 53A **Lab Sample ID:** **041917804-0184**
Sample Description: Restroom/Cove Base - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Black	0.0%	100.0%	None Detected	

Client Sample ID: 53B **Lab Sample ID:** **041917804-0185**
Sample Description: Restroom/Cove Base - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Black	0.0%	100.0%	None Detected	

Client Sample ID: 53C **Lab Sample ID:** **041917804-0186**
Sample Description: Restroom/Cove Base - Black

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Black	0.0%	100.0%	None Detected	

Client Sample ID: 54A **Lab Sample ID:** **041917804-0187**
Sample Description: Restroom/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 54B **Lab Sample ID:** **041917804-0188**
Sample Description: Restroom/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/27/2019	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 54C **Lab Sample ID:** **041917804-0189**
Sample Description: Restroom/Mastic - Yellow

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Yellow	0.0%	100.0%	None Detected	

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EMSL Order ID: 041917804
Customer ID: STTC26
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Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 55A **Lab Sample ID:** **041917804-0190**
Sample Description: Restroom/Adhesive - Dark Orangish Brown

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Brown/Orange	0.0%	100.0%	None Detected	

Client Sample ID: 55B **Lab Sample ID:** **041917804-0191**
Sample Description: Restroom/Adhesive - Dark Orangish Brown

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Brown/Orange	0.0%	100.0%	None Detected	

Client Sample ID: 55C **Lab Sample ID:** **041917804-0192**
Sample Description: Restroom/Adhesive - Dark Orangish Brown

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Brown/Orange	0.0%	100.0%	None Detected	

Client Sample ID: 56A **Lab Sample ID:** **041917804-0193**
Sample Description: Office/Ceiling Tiles - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	90.0%	10.0%	None Detected	

Client Sample ID: 56B **Lab Sample ID:** **041917804-0194**
Sample Description: Office/Ceiling Tiles - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	90.0%	10.0%	None Detected	

Client Sample ID: 56C **Lab Sample ID:** **041917804-0195**
Sample Description: Office/Ceiling Tiles - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	95.0%	5.0%	None Detected	

Client Sample ID: 57A **Lab Sample ID:** **041917804-0196**
Sample Description: Office/Ceiling Tile - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	90.0%	10.0%	None Detected	

Client Sample ID: 57B **Lab Sample ID:** **041917804-0197**
Sample Description: Office/Ceiling Tile - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	White	90.0%	10.0%	None Detected	

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EMSL Order ID: 041917804
Customer ID: STTC26
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Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 57C **Lab Sample ID:** **041917804-0198**
Sample Description: Office/Ceiling Tile - White

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	White	95.0%	5.0%	None Detected	

Client Sample ID: 58A **Lab Sample ID:** **041917804-0199**
Sample Description: 11312/Mortar - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 58B **Lab Sample ID:** **041917804-0200**
Sample Description: 11312/Mortar - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 58C **Lab Sample ID:** **041917804-0201**
Sample Description: 11301/Mortar - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 59A **Lab Sample ID:** **041917804-0202**
Sample Description: 11312/Brick - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 59B **Lab Sample ID:** **041917804-0203**
Sample Description: 11312/Brick - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 59C **Lab Sample ID:** **041917804-0204**
Sample Description: 11301/Brick - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 60A **Lab Sample ID:** **041917804-0205**
Sample Description: 11301/CMU - Beige

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Beige	0.0%	100.0%	None Detected	

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EMSL Order ID: 041917804
Customer ID: STTC26
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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Client Sample ID: 60B **Lab Sample ID:** **041917804-0206**
Sample Description: 11297/CMU - Beige

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 60C **Lab Sample ID:** **041917804-0207**
Sample Description: 11297/CMU - Beige

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 61A **Lab Sample ID:** **041917804-0208**
Sample Description: 11301/Mortar - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 61B **Lab Sample ID:** **041917804-0209**
Sample Description: 11297/Mortar - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	6/26/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 61C **Lab Sample ID:** **041917804-0210**
Sample Description: 11297/Mortar - Gray

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/02/2019	Gray	0.0%	100.0%	None Detected	

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EMSL Order ID:	041917804
Customer ID:	STTC26
Customer PO:	
Project ID:	

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116

Analyst(s):

Daniel Blake	PLM (24)
Daniel Fricker	400 PLM PtCt Grav. Red (5)
Garret Vliet	PLM (6)
Gregory Barry	PLM (20)
Laura Kantor	PLM (19)
Maxwell Taylor	PLM (78)
Seri Smith	PLM (30)
Shelby Baker	PLM (18)
Spencer Taylor	PLM (28)

Reviewed and approved by:

Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, LA #04127

Report amended: 07/05/201909:43:00 Replaces initial report from: 06/26/201920:59:31 Reason Code: Client-Additional Analysis

OrderID: 041917804

EMSL ANALYTICAL, INC.
LABORATORY · PRODUCTS · TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number *(Lab Use Only)*: 041917604

200 Route 130 North
Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
FAX: (856) 786-5974

RECEIVED EMSL CINNAMINSON 2019 JUN 25 AM 10:15

Company : Stantec	**EMSL-Bill to:** ☑ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 735 E Carnegie Drive, Suite 280	
City: San Bernardino **State/Province:** CA	**Zip/Postal Code:** 92408 **Country:** United States
Report To (Name): Alicia Jansen	**Telephone #:** Cell# 909-654-8342
Email Address: Alicia.Jansen@stantec.com	**Fax #:** 909-335-6120 **Purchase Order:**
Project Name/Number: 185804357	**Please Provide Results:** ☐ Fax ☑ Email ☐ Mail
U.S. State Samples Taken: CA	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☑ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

**For TEM Air 3 hr through 6 hr, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PLM - Bulk (reporting limit)	TEM – Bulk
☑ PLM EPA 600/R-93/116 (<1%)	☐ TEM EPA NOB – EPA 600/R-93/116 Section 2.5.5.1
☐ PLM EPA NOB (<1%)	☐ NY ELAP Method 198.4 (TEM)
Point Count ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ Chatfield Protocol (semi-quantitative)
Point Count w/Gravimetric ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ TEM % by Mass – EPA 600/R-93/116 Section 2.5.5.2
☐ NIOSH 9002 (<1%)	☐ TEM Qualitative via Filtration Prep Technique
☐ NY ELAP Method 198.1 (friable in NY)	☐ TEM Qualitative via Drop Mount Prep Technique
☐ NY ELAP Method 198.6 NOB (non-friable-NY)	**Other**
☐ OSHA ID-191 Modified	☐
☐ Standard Addition Method	

☑ **Check For Positive Stop – Clearly Identify Homogenous Group** **Date Sampled:** 06/19/19-06/20/19

Samplers Name: Melissa Baernstein **Samplers Signature:** Melissa Baernstein

Sample #	HA #	Sample Location	Material Description
		See attached sample logs	

Client Sample # (s): HA#01A - HA#61C **Total # of Samples:** 210

Relinquished (Client): Melissa Baernstein **Date:** 06/24/19 **Time:** 1220

Received (Lab): EMSLFX **Date:** 6/25/19 **Time:** 1230

Comments/Special Instructions:

Stantec

Bulk San . le Log

041917404

735 E Carnegie Dr ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11309B Frits Lane
~~3630, 3640, 3700 Cypress Avenue~~

Address: 11312 Orchard Street
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	01
Material Type:	Gypsum Board
Color:	white
Description:	walls
Total Qty.:	3,000 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	11309B interior walls	3,000	G

SAMPLES	
Sample #	Sample Location
01A	11309B
01B	
01C	
01D	
01E	

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CLIFTON, N.J.
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HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Notes: No joint compound observed

Relinquished By: Melissa Baemster Date: 06/24/19

Received By: _____ Date: _____

0419174604

Stantec

Bulk Sar . le Log

735 E Carnegie Dr Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419174804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11309B
3630, 3640, 3700 Cypress Avenue

Date: 06/19/2019

Address: 11312 Orchard Street
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	02
Material Type:	VFT
Color:	white
Description:	12" X12"
Total Qty.:	150 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom	150	G

SAMPLES	
Sample #	Sample Location
02 A	Restroom 11309B
02 B	"
02 C	"

Notes:

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CINNAMINSON, NJ
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Relinquished By: Melissa Baemster Date: 06/24/19

Received By: _____ Date: _____

041917604

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Bulk Sample Log

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11309B
3630, 3640, 3700 Cypress Avenue

Address: 11312 Orchard Street
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	03
Material Type:	Mastic
Color:	Yellow
Description:	Associated with HA#02
Total Qty.:	150 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom 11309B	150	G

SAMPLES	
Sample #	Sample Location
03A	Restroom 11309B
03B	"
03C	"

Notes:

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ENSL
CINNAMINSON, N.J.
2019 JUN 25 AM 10:16

Relinquished By: Melissa Baerwalter Date: 06/24/19

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OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 113098
3630, 3640, 3700 Cypress Avenue

Date: 06/19/2019

Address: 11312 Orchard Street
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	04
Material Type:	Cove Base
Color:	Black
Description:	3" vinyl
Total Qty.:	160 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom + office 113098	160	G

SAMPLES	
Sample #	Sample Location
04 A	restroom
04 B	1
04 C	office

Notes:

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2019 JUL 25 AM 10:15
ETHYL CHEMISTRY, N.J.

Relinquished By: Melissa Baumgartner Date: 06/24/19

Received By: Date:

0419017804

Stantec

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OrderID: 0419017804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11309B
3630, 3640, 3700 Cypress Avenue

Address: 11312 Orchard Street
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	05
Material Type:	Mastic
Color:	White
Description:	Associated with HA #04
Total Qty.:	160 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom & office 11309B	160	G

SAMPLES	
Sample #	Sample Location
05A	Restroom
05B	1
05C	office

Notes:

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IRVINGTON, N.J.
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Relinquished By: Melissa Baumoten Date: 06/24/19

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Fax: (909) 335-6120

OrderID: 0419917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11309B
3630, 3640, 3700 Cypress Avenue

Date: 06/19/2019

Address: 11312 Orchard Street
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	06
Material Type:	Mastic
Color:	Yellow
Description:	Associated with gray carpet
Total Qty.:	336 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	office 11309B	336	G

SAMPLES	
Sample #	Sample Location
06 A	office
06 B	"
06 C	"

Notes:

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Bulk Sample Log

0419179404

735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419179404

Project Name: Pre-Demolition Asbestos Survey

Site Name: 113098
3630, 3640, 3700 Cypress Avenue

Date: 06/19/2019

Address: 11312 Orchard Street
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	07
Material Type:	Ceiling Panel
Color:	white
Description:	2'x4' Dots + fissure
Total Qty.:	336 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	Med	(High)
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	office	336	G

SAMPLES	
Sample #	Sample Location
07A	office
07B	"
07C	"

Notes:

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Bulk Sample Log

04 19 174061

Stantec
735 E Carnegie Dr Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419174061

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11301-11309 Iris Ave & ~~3630, 3640, 3700 Cypress Avenue~~

Address: 11312 Orchard Street, El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	08
Material Type:	Ceiling Panel
Color:	white
Description:	2'x4' Dots & fissured lay in type
Total Qty.:	2,644

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	Med	(High)
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	offices + hallway 11303	1,100	G
01	offices + hallway 11307	500	
01	office 11312B	240	G
	lobby 11312A + storage #2	300	G
01	offices 11305 1 & 2	504	G

SAMPLES	
Sample #	Sample Location
08 A	office #1 11303
08 B	office #2 11303
08 C	office #2 11307
08D	office 11312B
08E	lobby 11312A
08F	office 11305
08G	

Notes:

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11301-11309 Iris Lane + ~~3630, 3640, 3700~~ Cypress Avenue

Date: 06/19/2019

Address: 11312 Orchard Street

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	09
Material Type:	Mastic
Color:	Dark yellow
Description:	Associated with gray carpet
Total Qty.:	3,716 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	office 11303	616	G
	office 11312A	1,000	
	offices 11307	500	
	office 11309A	600	
	storage	150	
	office & storage 11309B	850	
1			

SAMPLES	
Sample #	Sample Location
09 A	office 11303
09 B	"
09 C	office 11312A
09 D	"
09 E	office 11309A

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Notes:

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0419176041

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735 E Carnegie Dr Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419176041

Project Name: Pre-Demolition Asbestos Survey
Site Name: 3630, 3640, 3700 Cypress Avenue
Address: 11312 Orchard Street, El Monte, CA
Date: 06/19/2019
Inspector: MAB/DH
Stantec Project #: 185804357
Inspector #:

MATERIAL	
HA#	10
Material Type:	Cove Base
Color:	Black
Description:	3" vinyl
Total Qty.:	~~850 ft²~~

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restrooms 11303 office + hallway	250	G
01	office, hallway, Restrooms 11307	200	G
01	office + restroom 11301B	100	G
01	offices 11305	200	G
01	office + storage 11309	100	G

SAMPLES	
Sample #	Sample Location
10A	office #1 11303
10B	hallway 11303
10C	office #2 11307
~~10D~~	

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Notes:

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0419/7804

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419/7804

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: 3630, 3640, 3700 Cypress Avenue
11312 Orchard Street
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	11
Material Type:	Mastic
Color:	tan
Description:	Associated with HA #10
Total Qty.:	~~300~~ 11B 850 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restrooms office & hallway 11303	250	G
01	office, hallway & restrooms 11307	200	G
01	office & restroom 11308	100	G
01	offices 11305	200	G
01	office & storage 11309	100	G

SAMPLES	
Sample #	Sample Location
11A	office #1 11303
11B	office #1 11303
11C	office #1 11309

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Notes:

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/19-06/20/19

Address: 11301-11309 Iris & 11312 Orchard

Inspector: MAB

Stantec Project #: 185804357

MATERIAL	
HA#	12
Material Type:	VFT
Color:	white
Description:	12" X 12" mottled with gray
Total Qty.:	1,500 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	office #1 11303	616	G
	office #2 11307	60	
	office 11312-A	240	
	warehouse 11312B	500	
01	Restroom 11309A	70	D

SAMPLES	
Sample #	Sample Location
12A	office #1 11312A
12B	office #2 11307
12C	warehouse 11312B
~~12D~~	~~office 11312A~~

Notes:

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

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Tel: (909) 335-6116
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OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey
Site Name:
Date: 06/19-06/20/19
Address: 11301-11309 Iris Lane + 11312 Orchard
Inspector: MAB
Stantec Project #: 185804357

MATERIAL	
HA#	13
Material Type:	Mastic
Color:	Yellow
Description:	Associated with HA #12
Total Qty.:	1,500 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	samas HA #12	1,500	G

SAMPLES	
Sample #	Sample Location
13 A	office #1 11312A
13 B	office #2 11307
13 C	warehouse 11312B
~~c/~~ ~~13D~~	~~office #1 11312A~~

Notes:

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419117804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11303-11312
3630, 3640, 3700 Cypress Avenue

Address: 11312 Orchard Street
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	14
Material Type:	Gypsum Board
Color:	White
Description:	Walls
Total Qty.:	25,000 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	(Med)	High
Vibration:	(Low?)	Med	High
Air Movement:	Low	(Med)	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	warehouse 11312B	5,000	G
	Restroom of offices 11303		
	Restrooms + offices 11307		
	Interior walls in all units	20,000	

SAMPLES	
Sample #	Sample Location
14A	warehouse 11312B
14B	Restroom #2 11303
14C	office #2 11303
14D	warehouse 11312B
14E	warehouse 11305
14F	
14G	op

Notes:

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Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11301-11309 Iris Lane & ~~8630, 3640, 3700 Cypress Avenue.~~

Address: 11312 Orchard Street
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	15
Material Type:	Joint Compound
Color:	white
Description:	Associated with HA#14
Total Qty.:	25,000

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Interior walls in all units	25,000	G

SAMPLES	
Sample #	Sample Location
15A	warehouse 11312B
15B	Restroom #2 11303
15C	office #2 11303
15D	warehouse 11312B
15E	~~Restroom #1301A~~ warehouse 11303 MAB
15F	
~~15G~~	

Notes:

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baenstein Date: 06/24/19

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419174804

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: 11301- 11309 Iris Lane and 11312 Orchard Street

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	16
Material Type:	VFT
Color:	Dark gray
Description:	12" X 12" Mottled
Total Qty.:	100 sf2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	11303 Restrooms #1 & 2	100	G

SAMPLES	
Sample #	Sample Location
16A	Restroom #1
16B	↓
16C	Restroom #2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Notes:

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Relinquished By: Melissa Baumbach Date: 06/24/19

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Bulk Sar..,le Log

735 E Carnegie Dr Jite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041017804

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: 3630, 3640, 3700 Cypress Avenue
11312 Orchard Street
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	17
Material Type:	Mastic
Color:	Dark yellow
Description:	Associated with HA#16
Total Qty.:	100 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	11303 Restrooms #1+2	100	G

SAMPLES	
Sample #	Sample Location
17A	Restroom #1
17B	1
17C	Restroom #2

Notes:

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Stantec Bulk Sar..le Log

735 E Carnegie Dr Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419017804

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: 3630, 3640, 3700 Cypress Avenue 11312 Orchard Street El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	18
Material Type:	Leveling Compound
Color:	White
Description:	found under carpet
Total Qty.:	12 ft

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	Med	(High)
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	office #2 11303	6	D
	office #2 11307	6	D
		~~26~~ MAB	

SAMPLES	
Sample #	Sample Location
18 A	office #2 11303
18 B	office #2 11307
MAB ~~18C~~	

Notes: Hidden material, may be more

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11305

Date: 06/20/2019

Address: ~~11301-11309~~ Iris Lane

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	19
Material Type:	VFT
Color:	Brown + Blue
Description:	12"X12" marbled pattern Self Stick
Total Qty.:	30 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom	30	G

SAMPLES	
Sample #	Sample Location
19A	Restroom
19B	
19C	

Notes:

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11301 A+B

Date: 06/19/2019

Address: 3630, 3640, 3700 Cypress Avenue
11312 Orchard Street
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	20
Material Type:	Ceiling Panels
Color:	white
Description:	2' x 2' dots + fissures pattern, lay-in type
Total Qty.:	528 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	Med	(High)
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	office #2 1130A	264	G
1	office (front) 1130B	264	G

SAMPLES	
Sample #	Sample Location
20A	office #2 1130A
20B	1
20C	

Notes:

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Relinquished By: Melissa A Brewster Date: 06/24/19

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041917604

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735 E Carnegie Dr Jite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11301A
3630, 3640, 3700 Cypress Avenue

Address: 11312 Orchard Street
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	21
Material Type:	Cove Base
Color:	Gray
Description:	3" vinyl
Total Qty.:	65 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom 11301A	35	G
01	Restroom 11301B	30	G

SAMPLES	
Sample #	Sample Location
21A	Restroom 11301A
21B	
21C	

Notes:

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735 E Carnegie Dr Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 3630, 3640, 3700 Cypress Avenue

Date: 06/19/2019

Address: 11312 Orchard Street, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	22
Material Type:	Mastic
Color:	Yellow
Description:	Associated with HA#21
Total Qty.:	65 sf2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom 1130A	35	G
01	Restroom 1130B	30	G

SAMPLES	
Sample #	Sample Location
22A	Restroom 1130A
22B	"
22C	"

Notes:

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735 E Carnegie Dr Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11301A+B Iris Lane
~~3630, 3640, 3700 Cypress Avenue~~

Address: ~~11312 Orchard Street~~
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	23
Material Type:	VFS
Color:	white
Description:	flooring
Total Qty.:	280 ft²

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restrooms	280	G

SAMPLES	
Sample #	Sample Location
23A	Restroom 11301A
23B	↓
23C	↓

Notes:

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735 E Carnegie Dr . Jite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419117804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11301 A+B Irislano
~~3630, 3640, 3700 Cypress Avenue~~

Date: 06/19/2019

Address: ~~11312 Orchard Street~~

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	24
Material Type:	Mastic
Color:	Dark yellow
Description:	Associated with HA# 23
Total Qty.:	280 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restrooms	280	G

SAMPLES	
Sample #	Sample Location
24A	Restroom #11301 A
24B	↓
24C	↓

Notes:

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Bulk Sample Log

735 E Carnegie Dr Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419174804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11301A
3630, 3640, 3700 Cypress Avenue

Address: 11312 Orchard Street
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	25
Material Type:	Cove Base
Color:	Brown
Description:	vinyl
Total Qty.:	120 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	offices #1 + 2	120	G

SAMPLES	
Sample #	Sample Location
25A	office #2
25B	
25C	office #1

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Relinquished By: Melissa Baenden Date: 06/24/19

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Stantec

Bulk Sample Log

735 E Carnegie Dr Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11801 A
3630, 3640, 3700 Cypress Avenue

Date: 06/19/2019

Address: 11312 Orchard Street
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	26
Material Type:	Mastic
Color:	Beige
Description:	Associated with HA# 25
Total Qty.:	120

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	offices #1 & 2	120	G

SAMPLES	
Sample #	Sample Location
26A	office #2
26B	"
26C	office #1

Notes:

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Bulk Sample Log

735 E Carnegie Dr Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 1130LA

Date: 06/19/2019

3630, 3640, 3700 Cypress Avenue
Address: 11312 Orchard Street

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	27
Material Type:	Gypsum Board
Color:	White
Description:	Associated with walls
Total Qty.:	250-ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom 1130LA	250	G
	offices & restroom 1130LA		

SAMPLES	
Sample #	Sample Location
27 A	Restroom
27 B	|
27C	

Notes:

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Bulk Sample Log

735 E Carnegie Dr Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11301A
3630, 3640, 3700 Cypress Avenue

Address: 11312 Orchard Street
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	28
Material Type:	Joint Compound
Color:	white
Description:	Associated with HA#27
Total Qty.:	250

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom	250	G

SAMPLES	
Sample #	Sample Location
28 A	Restroom
28 B	"
28 C	"

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041917404

735 E Carnegie Dr Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11301 A
3630, 3640, 3700 Cypress Avenue

Date: 06/19/2019

Address: 11312 Orchard Street
El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	29
Material Type:	Texture
Color:	white
Description:	Associated with walls
Total Qty.:	250 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom	250	G

SAMPLES	
Sample #	Sample Location
29 A	Restroom
29 B	"
29 C	"

Notes:

Relinquished By: Melissa Barnes Date: 06/24/19

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Page 29 of 61

Page 30 Of 62

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0419174604

Bulk Sample Log

735 E Carnegie Drive, suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey
Site Name:
Date: 06/19/2019
Address: 11301- 11309 Iris Lane and 11312 Orchard Street
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	30
Material Type:	Rolled asphalt roofing
Color:	Gray & Black
Description:	System
Total Qty.:	65,000 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	Roof	65,000	G

SAMPLES	
Sample #	Sample Location
30A	Roof
30B	
30C	
30D	
30E	
30F	
30G	

Notes:

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Bachmeier Date: 06/24/19
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Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419174804

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: 11301- 11309 Iris Lane and 11312 Orchard Street, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	31
Material Type:	Sealant
Color:	Black
Description:	Associated with seams on roof features + penetrations
Total Qty.:	100 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	Low	(Med)	High
Vibration:	(Low)	Med	High
Air Movement:	Low	(Med)	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	Roof	100	D

SAMPLES	
Sample #	Sample Location
31 A	Roof
31 B	"
31 C	"

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Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419174041

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: 11301- 11309 Iris Lane and 11312 Orchard Street

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	32
Material Type:	Foam
Color:	Yellow → orange
Description:	Associated with parapet tops - Spray on.
Total Qty.:	500 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	Roof	500	SD

SAMPLES	
Sample #	Sample Location
32A	Roof
32B	"
32C	"

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	Low	Med	(High)
Vibration:	(Low)	Med	High
Air Movement:	Low	(Med)	High

Relinquished By: Melissa Baumster Date: 06/24/19

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Tel: (909) 335-6116
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Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: 11301- 11309 Iris Lane and 11312 Orchard Street, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	33
Material Type:	Sealant
Color:	white
Description:	Associated with seams
Total Qty.:	20 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	Roof	20	G

SAMPLES	
Sample #	Sample Location
33A	Roof
33B	"
33C	"

Notes:

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baesmeier Date: 06/24/19

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Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11301-11309 Iris ~~Street~~ Lane and 11312 Orchard Street, El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	34
Material Type:	Asphalt Roofing System
Color:	Yellow & black
Description:	Foam on top asphalt below
Total Qty.:	25,100 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	Roof 11309 & 11305	25,100	G

SAMPLES	
Sample #	Sample Location
34A	Roof 11305
34B	Roof 11809
34C	
34D	
34E	
34F	
34G	

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	Low	(Med)	High

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Tel: (909) 335-6116
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OrderID: 0419174804

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: ~~3630, 3640, 3700 Cypress Avenue~~ 11312 Orchard Street

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	35
Material Type:	Cove Base
Color:	light gray
Description:	3" vinyl
Total Qty.:	240 sft

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	~~Three~~ Restroom 11312B	20'	G
	+ office	60	|
01	offices 11312A +	160	|

SAMPLES	
Sample #	Sample Location
35 A	Restroom 11312B
35 B	|
35 C	|
~~MAB 35D~~	~~office 11312A~~

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

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San Bernardino, CA 92408
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Fax: (909) 335-6120

OrderID: 0411917804

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: ~~11301-11309 Iris Street and~~ 11312 Orchard Street, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

Page 37 of 62

MATERIAL	
HA#	36
Material Type:	Mastic
Color:	Yellow
Description:	Associated with HA#35
Total Qty.:	240 sfe

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	same as HA#36	240	G

SAMPLES	
Sample #	Sample Location
36A	Restroom 11312B
36B	
36C	

Notes:

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HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Barnes Date: 06/24/19

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0419 17804

Stantec

Bulk Sample Log

735 E Carnegie Dr Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419 17804

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: 3630, 3640, 3700 Cypress Avenue / 11312 Orchard Street

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	37
Material Type:	Cove Base
Color:	Brown
Description:	3" vinyl
Total Qty.:	10

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	warehouse	10	G

SAMPLES	
Sample #	Sample Location
37 A	warehouse
B	
C	

Notes:

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Relinquished By: Melissa Barnett Date: 06/24/19

Received By: Date:

0419174041

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Bulk Sar . le Log

735 E Carnegie Dr Jite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419174041

Project Name: Pre-Demolition Asbestos Survey

Site Name: 113124B

Date: 06/19/2019

3630, 3640, 3700 Cypress Avenue
Address: 11312 Orchard Street

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	38
Material Type:	VFS
Color:	Gray
Description:	self stick
Total Qty.:	280

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	office + warehouse	280	G

SAMPLES	
Sample #	Sample Location
38 A	warehouse
38 B	office
38C	1

Notes:

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HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11312

Address: 3630, 3640, 3700 Cypress Avenue
11312 Orchard Street
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	39
Material Type:	VFT
Color:	Red
Description:	9"X9" brick pattern
Total Qty.:	10

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	warehouse	10	SD

SAMPLES	
Sample #	Sample Location
39 A	warehouse 11312
39 B	
39C	

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey
Site Name:
Date: 06/19/2019
Address: 11312B Orchard Street
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	40
Material Type:	Mastic
Color:	Black
Description:	Associated with HA#39
Total Qty.:	10 8x2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	warehouse	10	D

SAMPLES	
Sample #	Sample Location
40A	warehouse
40B	"
40C	"

Notes:

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04 1917604

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11301-11309 Iris ~~Street~~ Lane and 11312 Orchard Street, El Monte, CA

Date: 06/19/2019-06/20/19

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	41
Material Type:	Concrete
Color:	Gray
Description:	Foundation
Total Qty.:	51,363 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Throughout Foundation	51,363	G

SAMPLES	
Sample #	Sample Location
41 A	11312 B warehouse
41 B	"
41 C	11312 A warehouse

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baermann Date: 06/24/19

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735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419017804

Project Name: Pre-Demolition Asbestos Survey

Site Name: ~~11309 Iris Lanes~~

Address: 11312A Orchard Street

El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	42
Material Type:	Cove Base
Color:	White
Description:	vinyl
Total Qty.:	85 SF2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restrooms 11312A	70	D
01	Restroom 11309	15	G

SAMPLES	
Sample #	Sample Location
42A	Restroom 11312A
42B	
42C	

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San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey
Site Name:
Date: 06/19/2019
Address: 11312A Orchard Street
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	43
Material Type:	Ceiling Panels
Color:	Gray
Description:	2' X 2' lay-in type
Total Qty.:	880 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	Med	(High)
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	office	880	G

SAMPLES	
Sample #	Sample Location
43A	office
43B	"
43C	"

Notes:

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Relinquished By: Melissa Baenateen Date: 06/24/19
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Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey
Site Name:
Date: 06/19/2019
Address: 11312A Orchard Street
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	44
Material Type:	VFT
Color:	Brown
Description:	12"X12" mottled
Total Qty.:	170 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restrooms	170	G

SAMPLES	
Sample #	Sample Location
44A	RR#2
44B	1
44C	RR#1

Notes:

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Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419178O4

Project Name: Pre-Demolition Asbestos Survey
Site Name:
Date: 06/19/2019
Address: 11312A Orchard Street
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	45
Material Type:	Mastic
Color:	Yellow
Description:	Associated with HA#44
Total Qty.:	170 ft2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
D1	Restrooms	170	G

SAMPLES	
Sample #	Sample Location
45A	RR#2
45B	"
45C	RR#1

Notes:

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Relinquished By: Melissa Baerwalter Date: 06/24/19
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Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey
Site Name:
Date: 06/19/2019
Address: 11312A Orchard Street
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	46
Material Type:	Gypsum Board
Color:	white
Description:	walls
Total Qty.:	1,000 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	T/O rooms & one warehouse wall	1,000	G

SAMPLES	
Sample #	Sample Location
46 A	Storage #2
46 B	
46 C	

Notes:

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CINNAMINSON, N.J.
2019 JUN 25 AM 10:17

Relinquished By: Melissa Baumstein Date: 06/24/19
Received By: Date:

0419174804

Stantec

Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419174804

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/19/2019

Address: ~~11301-11309 Iris Street and~~ 11312 Orchard Street, El Monte, CA

Inspector: MAB/DH

Stantec Project #: 185804357

Inspector #:

MATERIAL	
HA#	47
Material Type:	Joint Compound
Color:	white
Description:	Associated with HA#46
Total Qty.:	900 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	T/O rooms + one warehouse wall	900	G

SAMPLES	
Sample #	Sample Location
47A	Storage #2
47B	
47C	

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Notes:

RECEIVED
ENSL
CHINA MINSON, N.J.
2019 JUN 25 AM 10:17

Relinquished By: Melissa Baemoter Date: 06/24/19

Received By: Date:

041917404

Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey
Site Name:
Date: 06/19/2019
Address: ~~11301-11309 Iris Street and~~ 11312 Orchard Street
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	48
Material Type:	Texture
Color:	White
Description:	Associated with walls
Total Qty.:	500 ft2

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Storage #2, office	500	G

SAMPLES	
Sample #	Sample Location
48A	Storage #2
48B	office
48C	Storage #2

Notes:

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CINA L. HANSON, N.J.
2019 JUN 25 AM 10: 17

Relinquished By: Melissa Baemston Date: 06/24/19
Received By: Date:

0419176O4

Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419176O4

Project Name: Pre-Demolition Asbestos Survey
Site Name:
Date: 06/19/2019
Address: ~~11301 11309 Iris Lane and~~ 11312 Orchard Street
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	49
Material Type:	Stucco
Color:	Gray
Description:	wall finish
Total Qty.:	900 SF

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	NE warehouse wall	900	G

SAMPLES	
Sample #	Sample Location
49A	warehouse wall
49B	↓
49C	↓

Notes:

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baemster Date: 06/24/19
Received By: Date:

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FIRST
CINNAMINSON, N.J.
2019 JUN 25 AM 10: 17

041017404

Bulk Sample Log

735 E Carnegie Dr Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name: 11301-11309 Iris Lane ~~3630, 3640, 3700 Cypress Avenue~~

Address: 11312 Orchard Street
El Monte, CA

Date: 06/19/2019

Inspector: MAB/DH

Inspector #:

Stantec Project #: 185804357

MATERIAL	
HA#	50
Material Type:	VFT
Color:	Gray
Description:	12" X 12" Mottled
Total Qty.:	1,368

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Hallway & office #1 11303	300	G
	11301 office	300	
	office #2 11307	264	
	offices 11305	504	

SAMPLES	
Sample #	Sample Location
50A	~~Hallway~~ office #2 11303
50B	office #1 11303
50C	office #2 11307
50D	offices 11305
50E	

Notes:

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CINNAMINSON, N.J.
2019 JUN 25 AM 10:17

Relinquished By: Melissa Brewster Date: 06/24/19

Received By: _____ Date: _____

Page _____ of _____

0419017804

Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419017804

Project Name: Pre-Demolition Asbestos Survey
Site Name:
Date: 06/20/2019
Address: 11301-11309 Iris Lane
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	51
Material Type:	Mastic
Color:	Yellow
Description:	Associated with HA#50
Total Qty.:	1368 SF

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Same as HA #50	1,368	G

SAMPLES	
Sample #	Sample Location
51A	office #2 11307
51B	office #1 11303
51C	office #2 11307
51D	offices 11305
SVE	

Notes:

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CINDY ANDERSON, N.Y.
2019 JUN 25 AM 10: 17

Relinquished By: Melissa Baemster Date: 06/24/19
Received By: Date:

0419174604

Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey
Site Name:
Date: 06/20/2019
Address: 11301-11309 Iris Lane + 11312 Orchard St
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	52
Material Type:	Concrete
Color:	Gray
Description:	Walls
Total Qty.:	21,180 SF2

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	Low	(Med)	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	Perimeter walls	21,180	G

SAMPLES	
Sample #	Sample Location
52A	SW Corner
52B	⊥
52C	S wall
52D	E wall
52E	⊥
52F	NE corner
52G	N wall

Notes:

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2019 JUN 25 AM 10:17
CLERK
CHINO, N.J.

Relinquished By: Melissa Baumgartner
Date: 06/24/19
Received By:
Date:

OrderID: 0419174604

0419174804

Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey
Site Name: 11305
Date: 06/20/2019
Address: 11301-11309 Iris Lane
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	53
Material Type:	Cove Base
Color:	Black
Description:	3" vinyl
Total Qty.:	15 ~~ft~~ 2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom	15	G

SAMPLES	
Sample #	Sample Location
53A	Restroom
53B	
53C	

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Relinquished By: Melissa Baermotan Date: 06/24/19
Received By: Date:

RECEIVED
2019 JUN 25 AM 10:17
CHINA AIRLINES
FLUSHING, N.Y.

041917604

Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey
Site Name: 11305
Date: 06/20/2019
Address: 11301-11309 Iris Lane
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	54
Material Type:	Mastic
Color:	Yellow
Description:	Associated with HA#53
Total Qty.:	15 SF

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
01	Restroom	15	G

SAMPLES

Sample #	Sample Location
54 A	Restroom
54 B	"
54 C	"

Notes:

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JUNCTION, N.J.
2019 JUN 25 AM 10:17

Relinquished By: Melissa Baemster Date: 06/24/19
Received By: Date:

041917804

Stantec

Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: ~~11301~~ 11309 Iris Lane

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	55
Material Type:	Adhesive
Color:	Dark orangeish brown
Description:	Associated with FRP
Total Qty.:	80 sf

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	Restroom	80	G

SAMPLES	
Sample #	Sample Location
55A	Restroom
55B	"
55C	"

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

Notes:

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EMSL
OMAHA/MADISON, N.J.
2019 JUN 25 AM 10:17

Relinquished By: Melissa Barnett Date: 06/24/19

Received By: Date:

Page 55 of 61

Page 56 of 62

041917804

Stantec

Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 041917804

Project Name: Pre-Demolition Asbestos Survey
Site Name:
Date: 06/20/2019
Address: 11301-11309 A Iris Lane
Inspector: MAB/DH
Stantec Project #: 185804357
El Monte, CA
Inspector #:

MATERIAL	
HA#	56
Material Type:	Ceiling Tiles
Color:	white
Description:	1'X1' dots suspended
Total Qty.:	500

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	office	500	D

SAMPLES	
Sample #	Sample Location
56 A	office
56 B	"
56 C	"

Notes:

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	Med	(High)
Vibration:	Low	Med	(High)
Air Movement:	Low	Med	(High)

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CHANDLER, ENSL
2019 JUN 25 AM 10: 17

Relinquished By: Melissa Baerwalter Date: 06/21/19
Received By: Date:

0419174804

Stantec

Bulk Sample Log

735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/2019

Address: ~~11301~~ 11309 Iris Lane

Inspector: MAB/DH

Stantec Project #: 185804357

El Monte, CA

Inspector #:

MATERIAL	
HA#	57
Material Type:	Ceiling Tile
Color:	White
Description:	1'X1' Suspended
Total Qty.:	150 ft2

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
01	office	150	G

SAMPLES	
Sample #	Sample Location
57 A	office
57 B	
57 C	

HAZARD ASSESSMENT			
Friable:	(Yes)		No
Contact by Maintenance:	Low	Med	(High)
Vibration:	Low	(Med)	High
Air Movement:	Low	(Med)	High

Notes:

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EMSL
CINNAMINSON, N.J.
2019 JUN 25 AM 10: 17

Relinquished By: Melissa Baermoten Date: 06/24/19

Received By: Date:

201

0419117404

Bulk Sample Log

735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/19

Address: 11301 Iris Lane & 11302 Orchard Dr

Inspector: MAB

Stantec Project #: 185804357

MATERIAL	
HA#	58
Material Type:	Mortar
Color:	Gray
Description:	Associated with HA#59
Total Qty.:	475

HAZARD ASSESSMENT			
Friable:	Yes	(No)	
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
EXT	11301 & 11312 walls	475	G

SAMPLES	
Sample #	Sample Location
58 A	11312
58 B	1
58 C	11301

Notes:

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EMSL
CINNAMINSON, N.J.
2019 JUN 25 AM 10: 17

Relinquished By: Melissa Baermoten Date: 06/24/19

Received By: Date:

201

OrderID: 0419117804

0419917804

Bulk Sample Log

735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

OrderID: 0419917804

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/19

Address: 11301 Iris Lane
11312 Orchard St

Inspector: MAB

Stantec Project #: 185804357

MATERIAL	
HA#	59
Material Type:	Brick
Color:	Gray
Description:	Brick walls
Total Qty.:	475

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	11301 & 11312 walls	475	G

SAMPLES	
Sample #	Sample Location
59 A	11312
59 B	1
59 C	11301

Notes:

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EMSL
CINNAMINSON, N.J.
2019 JUN 25 AM 10: 17

Relinquished By: M Cosart Baemoter Date: 06/24/19

Received By: Date:

0419178041

Stantec Bulk Sample Log

735 E Carnegie Drive Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/19

Address: 11297-11301 Iris Lane
El Monte, CA

Inspector: MAB

Stantec Project #: 185804357

MATERIAL	
HA#	60
Material Type:	CMU
Color:	Beige
Description:	Associated with walls between lots
Total Qty.:	650 sf

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	11297-11301 walls	650	G

SAMPLES	
Sample #	Sample Location
60A	11301
60B	~~HB~~ MB 11297
61C	"

Notes:

RECEIVED
EMSL
ANALYTICAL, INC.
NORTHAMPTON, MA
2019 JUN 25 AM 10:17

Relinquished By: Melissa Barnett Date: 06/24/19 Received By: Date:

0419179804

Bulk Sample Log

735 E Carnegie Dri ite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Pre-Demolition Asbestos Survey

Site Name:

Date: 06/20/19

Address: 11297-11301 Iris Lane
El Monte, CA

Inspector: MAB

Stantec Project #:

MATERIAL	
HA#	61
Material Type:	Mortar
Color:	Gray
Description:	Associated with HA#60
Total Qty.:	650 ft2

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
Ext	11297-11301 Walls	650	G

SAMPLES	
Sample #	Sample Location
61 A	11301
61 B	11297
61 C	1

Notes:

RECEIVED
EMSL
CINNAMINSON, N.J.
2019 JUN 25 AM 10:17

Relinquished By: M Lisa Baerwalter Date: 06/24/19

Received By: Date:

OrderID: 041917804

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (856) 303-2500 / (856) 786-5974
http://www.EMSL.com cinnaminsonleadlab@emsl.com

EMSL Order: 201906265
CustomerID: STTC26
CustomerPO:
ProjectID:

Attn: **Alicia Jansen**
Stantec Consulting Services Inc.
735 E. Carnegie Drive
Suite 280
San Bernardino, CA 92408

Phone: (909) 335-6116
Fax:
Received: 06/25/19 10:30 AM
Collected:

Project: **185804357 / LBP Survey / 11312 Orchard Street, El Monte, CA**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Weight*	*Lead Concentration*
P - 1	*201906265-0001*		6/27/2019	0.2549 g	0.099 % wt
	Site: Ext 3700 Cypress Ave - E Side				
P - 2	*201906265-0002*		6/27/2019	0.2828 g	<0.0080 % wt
	Site: Ect 3640 Cypress Ave - N Side				
P - 3	*201906265-0003*		6/27/2019	0.2518 g	<0.0080 % wt
	Site: Ext 3630 Cypress Ave - N Side				
P - 4	*201906265-0004*		6/27/2019	0.1025 g	0.024 % wt
	Site: Int 11303 Iris Lane - W Corner				
P - 5	*201906265-0005*		6/27/2019	0.2563 g	<0.0080 % wt
	Site: Int 3640 Cypress Ave - E Wall				
P - 6	*201906265-0006*		6/27/2019	0.2546 g	<0.0080 % wt
	Site: Int 3700A Cypress Ave - S Wall				
P - 7	*201906265-0007*		6/27/2019	0.2769 g	<0.0080 % wt
	Site: Int 3630 Cypress Ave - NW Corner				

Phillip Worby, Lead Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10872, PA 68-00367, AIHA-LAP, LLC ELLAP 100194, A2LA 2845.01

Initial report from 06/28/2019 14:15:27

OrderID: 201906265

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Lead (Pb) Chain of Custody

EMSL Order ID *(Lab Use Only)*: 201906265

Company: Stantec	**EMSL-Bill to:** ■ Same ☐ Different If Bill to is Different note instructions in Comments**
Street: 735 E Carnegie Drive, Suite 280	*Third Party Billing requires written authorization from third party*
City: Redlands **State/Province:** CA	**Zip/Postal Code:** 92408 **Country:** USA
Report To (Name): Alicia Jansen, LRCST#19526	**Telephone #:** 909-654-8342
Email Address: Alicia.Jansen@stantec.com	**Fax #:** 909-335-6120 **Purchase Order:**
Project Name/Number: 185804357	**Please Provide Results:** ☐ Fax ■ Email
U.S. State Samples Taken: CA	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour | ☐ 6 Hour | ☐ 24 Hour | ☐ 48 Hour | ■ 72 Hour | ☐ 96 Hour | ☐ 1 Week | ☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide*

Matrix	Method	Instrument	Reporting Limit	Check
Chips ■ % by wt. ☐ mg/cm² ☐ ppm	SW846-7000B	Flame Atomic Absorption	0.01%	x
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	☐
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	☐
	NIOSH 7300 modified	ICP-AES/ICP-MS	0.5 µg/filter	☐
Wipe* ASTM ☐ non ASTM ☐ *if no box is checked, non-ASTM Wipe is assumed	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	☐
	SW846-6010B or C	ICP-AES	1.0 µg/wipe	☐
	SW846-7000B/7010	Graphite Furnace AA	0.075 µg/wipe	☐
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-1131/SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)	☐
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	SW846-7010	Graphite Furnace AA	0.3 mg/kg (ppm)	☐
	SW846-6010B or C	ICP-AES	2 mg/kg (ppm)	☐
Wastewater Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.7	ICP-AES	0.020 mg/L (ppm)	☐
Drinking Water Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	☐
TSP/SPM Filter	40 CFR Part 50	ICP-AES	12 µg/filter	☐
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	☐
Other:				☐

Name of Sampler: Melissa Baernstein **Signature of Sampler:** Melissa Baernstein

Sample #	Location	Volume/Area	Date/Time Sampled
	See attached sample logs		

Client Sample #'s P-1 - P-7 **Total # of Samples:** 7

Relinquished (Client):	Melissa Baernstein	**Date:**	06/24/19	**Time:**	12:20
Received (Lab):	EFX	**Date:**	6/25/19	**Time:**	10:30 am

Comments:

Paint Chip Sample Log

20190265

Stantec
735 E Carnegie Drive, Suite 280
San Bernardino, CA 92408
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: LBP Survey

Project #: ~~185804357~~

:

Site Address: 3630, 3640, 3700 Cypress Avenue; 11301 – 11309 & 11297 Iris Lane; ~~11312 Orchard Street~~ El Monte, CA

Date: ~~06/19/2019~~ 06/20/2019

Inspector: ~~MAB/DH~~

	Sample Number	Room	Component	Substrate	Sample Location*	Quantity Estimate	Notes/Condition/ Paint Color
1	P-1	Ext 3700 Cypress Ave	storm drain	Metal	E side	~~24,000~~ 12,000 ft2	Beige/Intact
2	P-2	Ext 3640 Cypress Ave	wall	Concrete	N side	13,000 ft2	Beige/Intact
3	P-3	Ext 3630 Cypress Ave	wall	Concrete	N side	20,000 ft2	Beige/Intact
4	P-4	Int 11303 Iris Lane	wall	concrete	W corner	30,000 ft2	white/Intact
5	P-5	Int 3640 Cypress Ave	wall	Concrete	E wall	12,000 ft2	white/Intact
6	P-6	Int 3700A Cypress Ave	wall	CMU	S wall	12,000 ft2	Beige/Intact
7	P-7	Int 3630 Cypress Ave	wall	Gypsum Board	NW corner	5,000 ft2	white/Intact

* - Include sample dimensions if trying to achieve mg/cm². Condition is Intact/Fair/Poor

Relinquished By: Melissa Baemsten Date: 06/24/19 Received By: _____ Date: _____

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

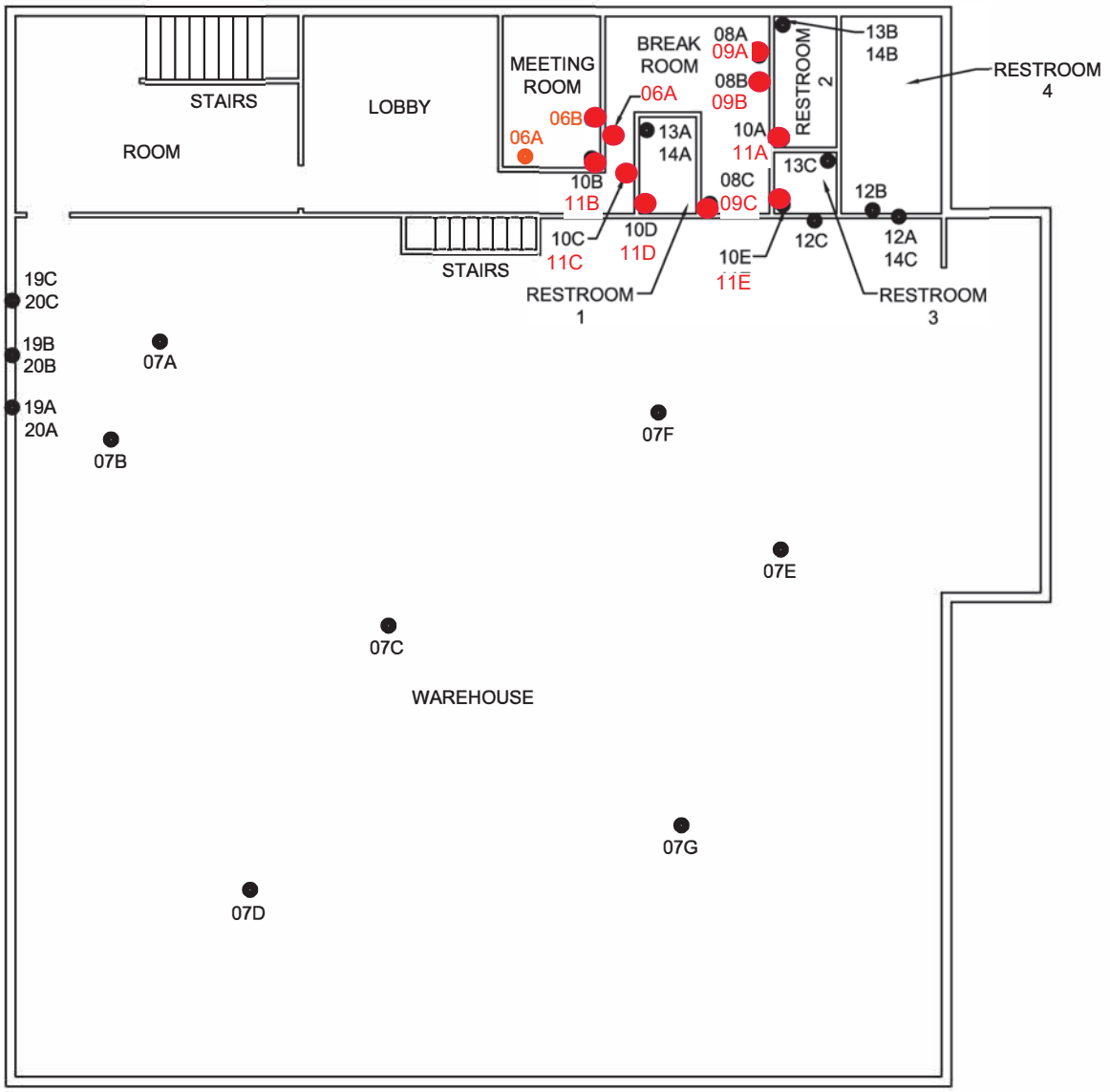
OrderID: 201906265

July 5, 2019

Reference: Pre-Demolition Asbestos and Lead-Based Paint Survey
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

Attachment B
Figures

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FIRST FLOOR - INTERIOR

LEGEND

- SUSPECT ACM SAMPLE LOCATION
- ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

3630 CYPRESS AVENUE, EL MONTE, CA

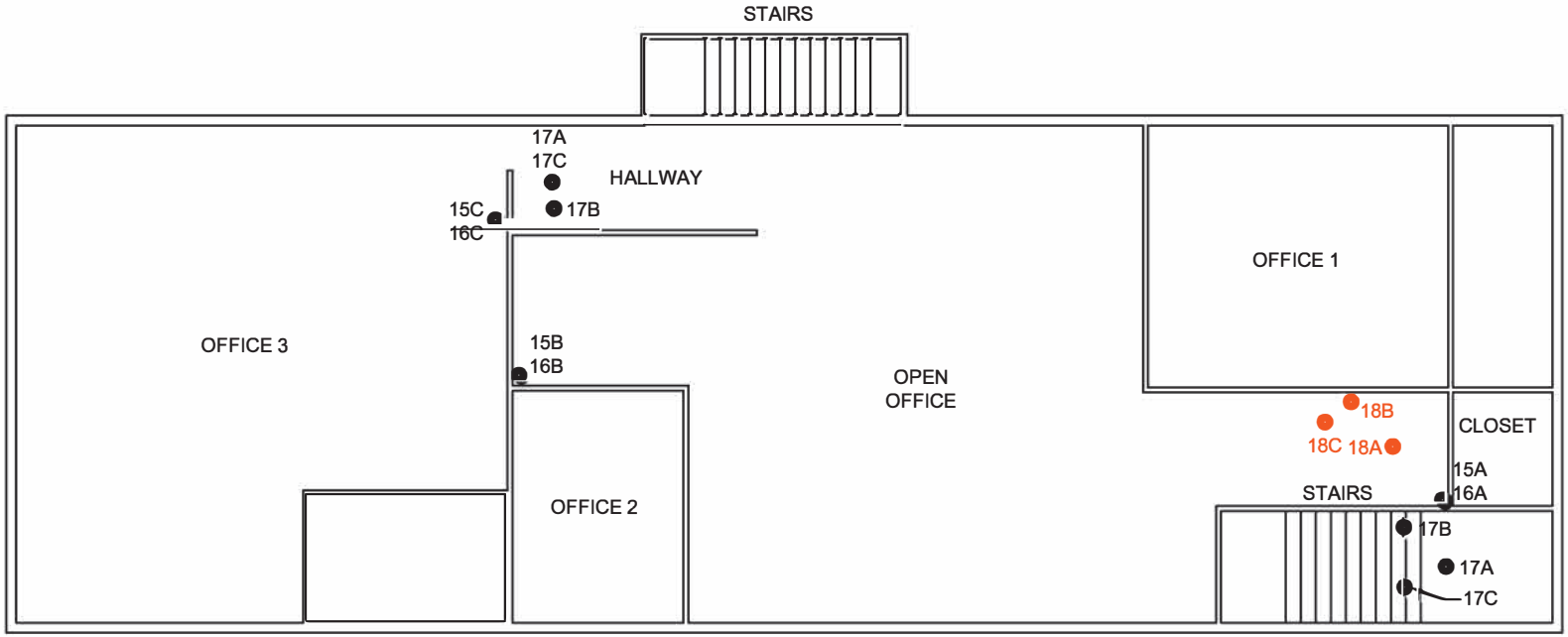
Client: KB HOME

Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060041
App'd By:	KE

Fig. No.: 1

Stantec

Stantec Consulting Ltd. © 2019



SECOND FLOOR - INTERIOR

LEGEND

- SUSPECT ACM SAMPLE LOCATION
- ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

3630 CYPRESS AVENUE, EL MONTE, CA

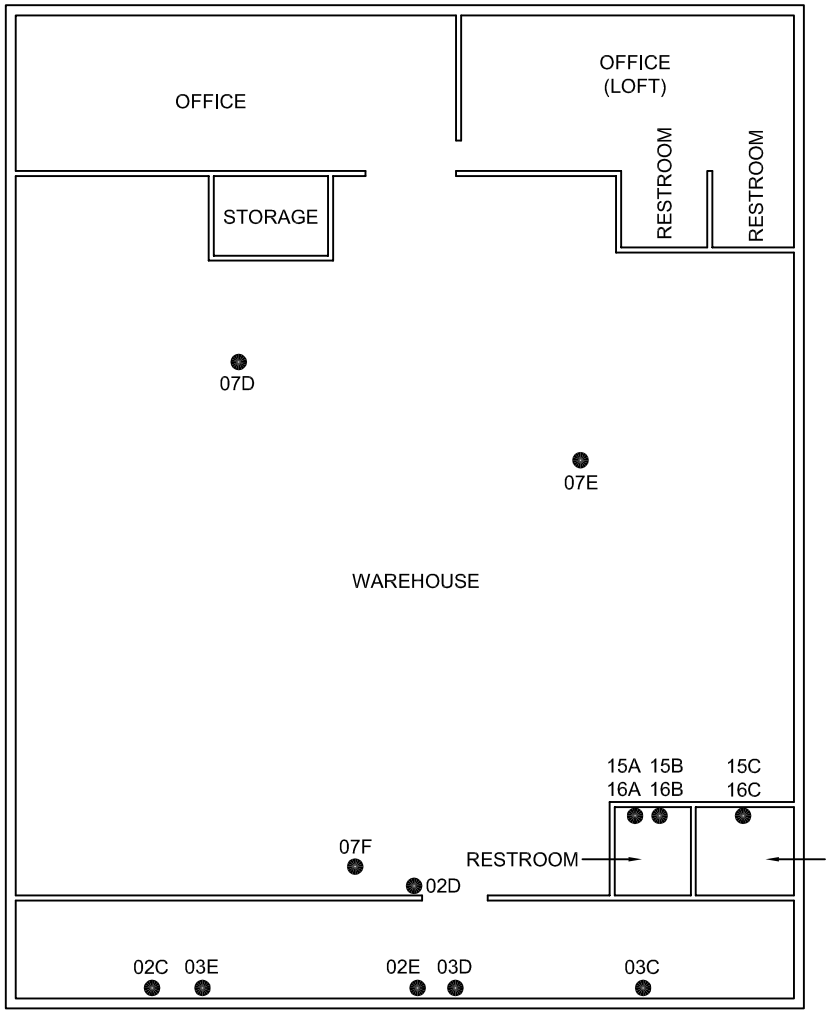
Client: KB HOME

Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060042
App'd By:	KE

Fig. No.: 2

Stantec

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FIRST FLOOR - INTERIOR

LEGEND

● SUSPECT ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

3640 CYPRESS AVENUE, EL MONTE, CA

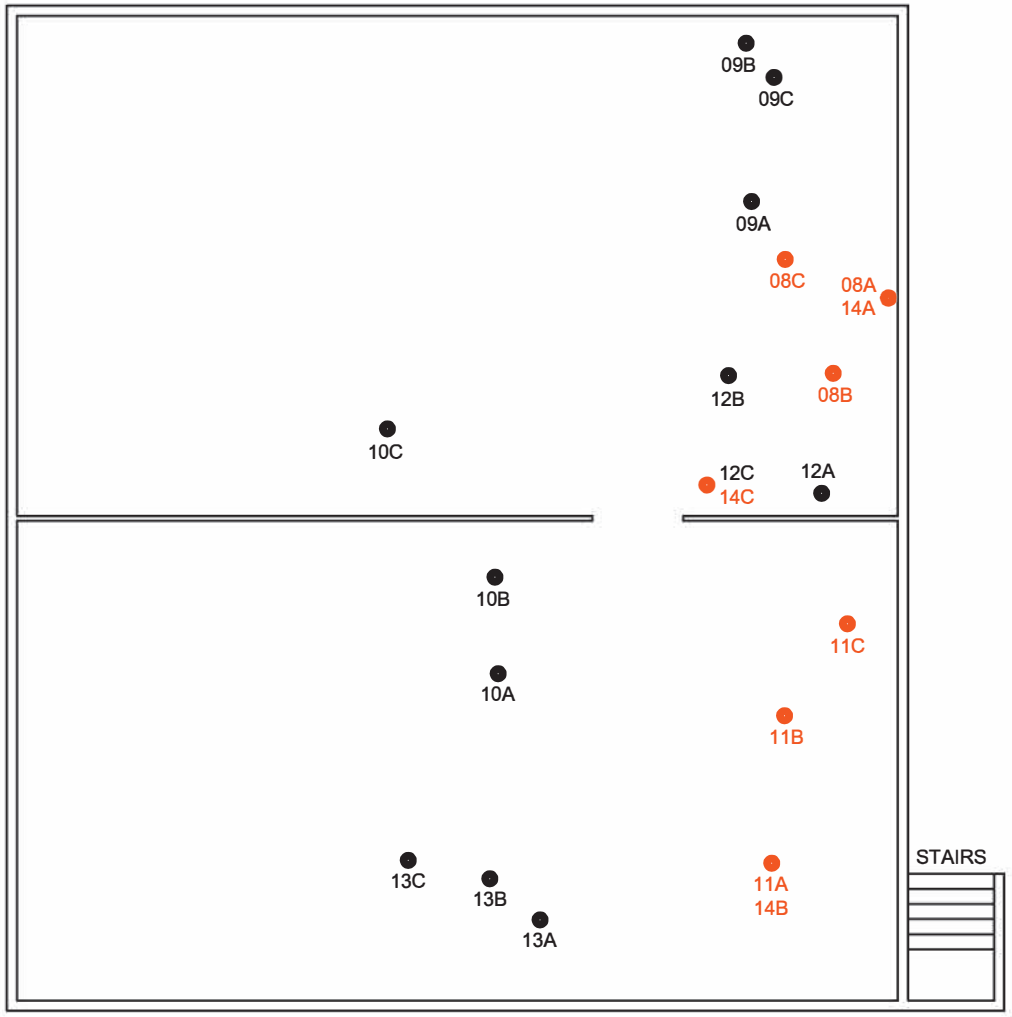
Client: KB HOME

Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060043
App'd By:	KE

Fig. No.: 3

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SECOND FLOOR - INTERIOR

LEGEND

- SUSPECT ACM SAMPLE LOCATION
- ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

3640 CYPRESS AVENUE, EL MONTE, CA

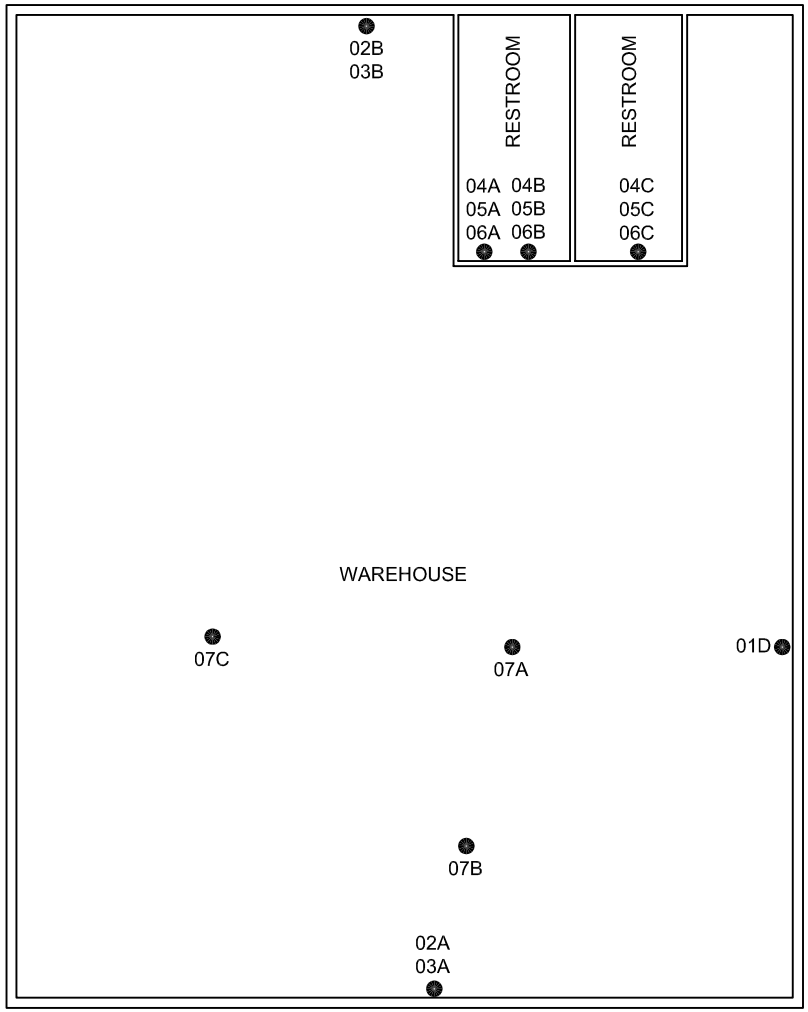
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Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060044
App'd By:	KE

Fig. No.: 4

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INTERIOR

LEGEND

● SUSPECT ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

3642 CYPRESS AVENUE, EL MONTE, CA

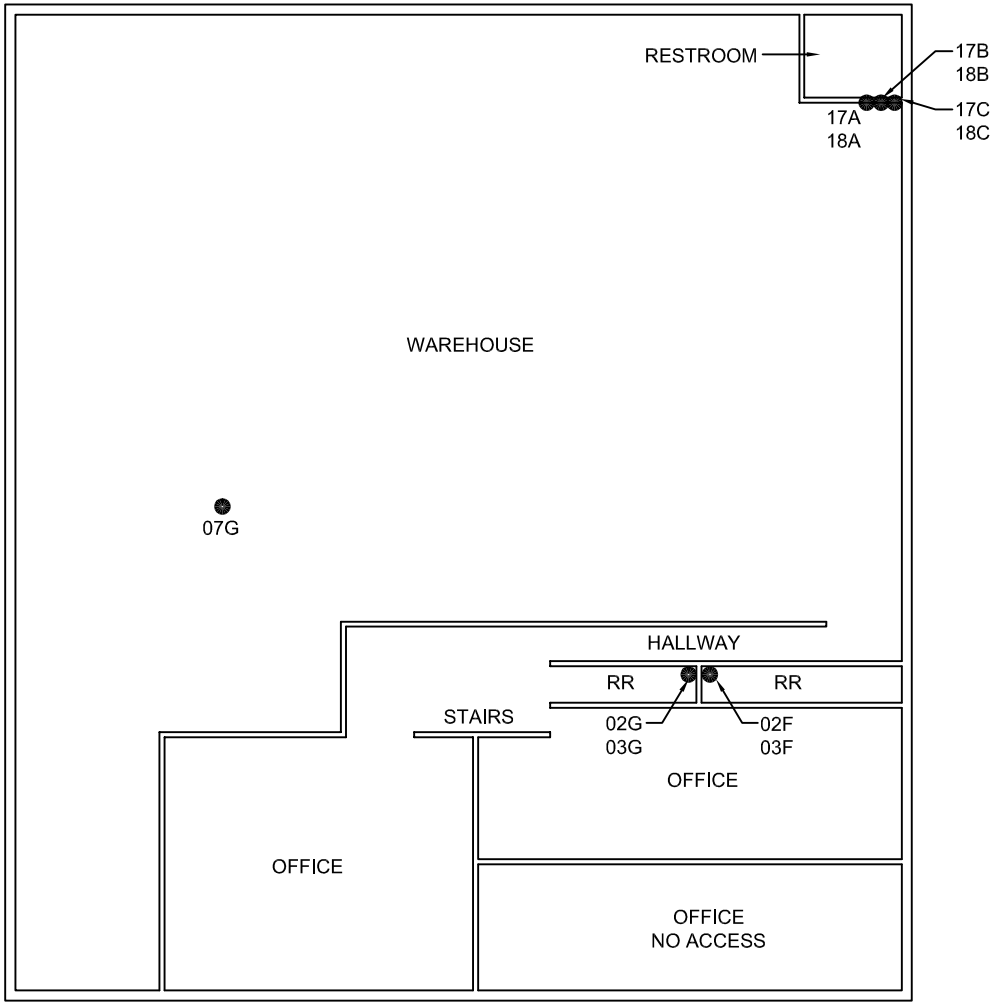
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Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060045
App'd By:	KE

Fig. No.: 5

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FIRST FLOOR - INTERIOR

LEGEND

● SUSPECT ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

11297 IRIS LANE, EL MONTE, CA

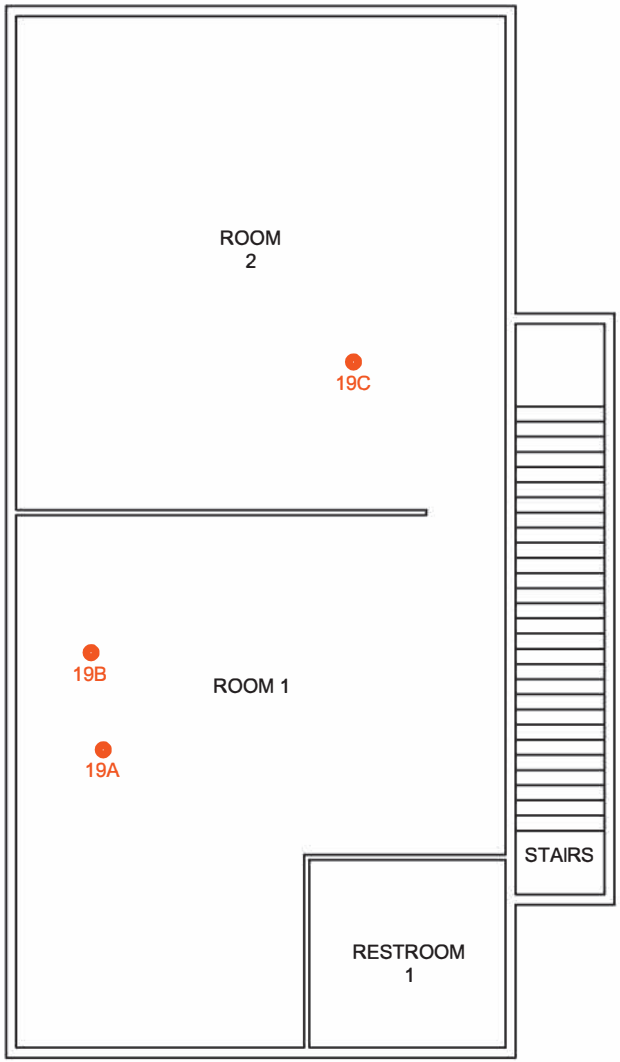
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Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060046
App'd By:	KE

Fig. No.: 6

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SECOND FLOOR - INTERIOR

LEGEND

- SUSPECT ACM SAMPLE LOCATION
- ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

11297 IRIS LANE, EL MONTE, CA

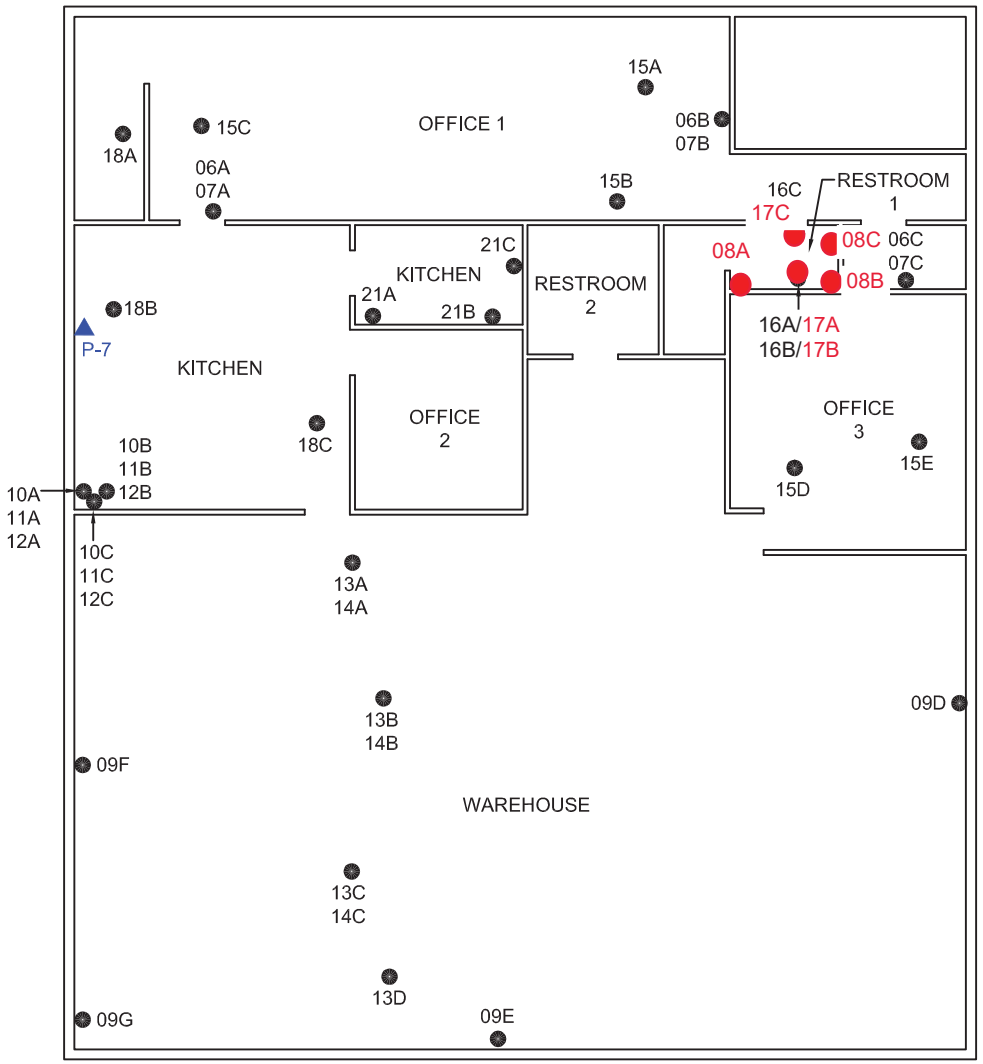
Client: KB HOME

Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060047
App'd By:	KE

Fig. No.: 7

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INTERIOR

LEGEND

- SUSPECT ACM SAMPLE LOCATION
- SUSPECT LBP SAMPLE LOCATION
- ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

3700A CYPRESS AVENUE, EL MONTE, CA

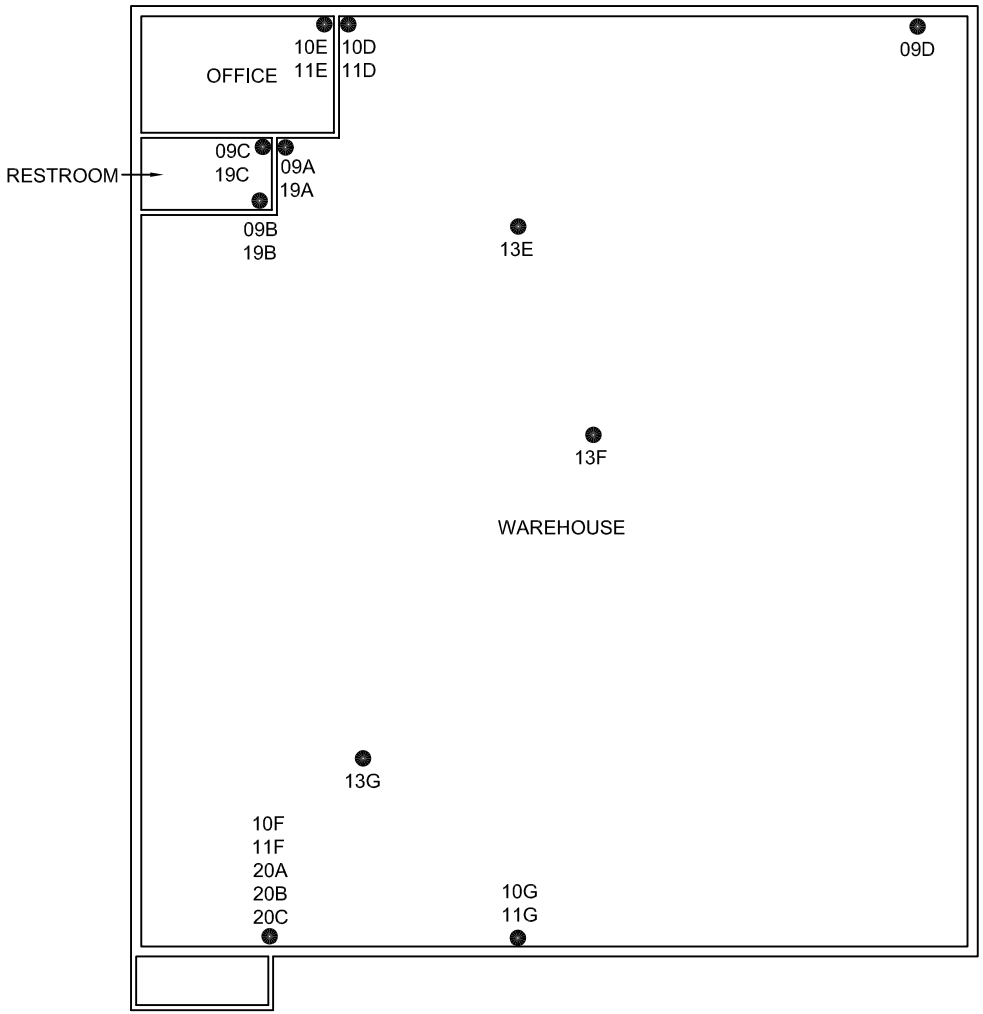
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Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060048
App'd By:	KE

Fig. No.: 8

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INTERIOR

LEGEND

● SUSPECT ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

3700B CYPRESS AVENUE, EL MONTE, CA

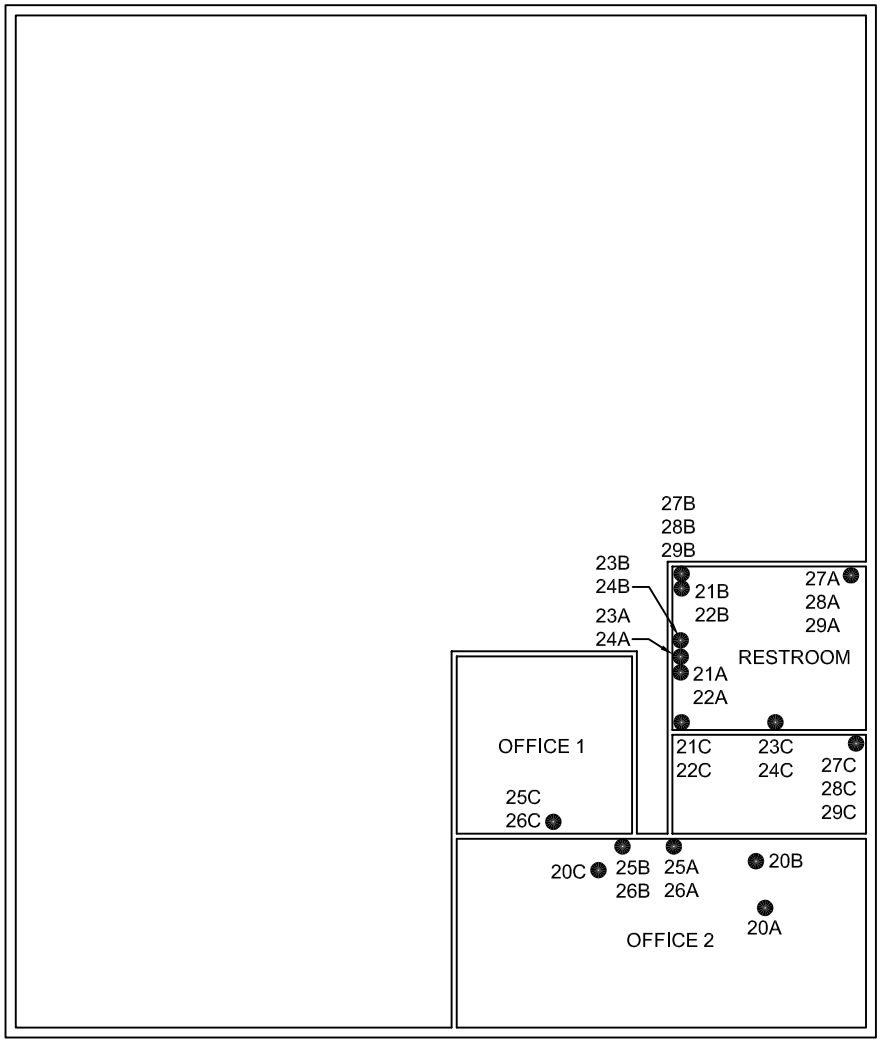
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Project No.:	185804357
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Date:	19/06/27
Dwn. By:	CD CS SC2019060049
App'd By:	KE

Fig. No.: 9

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INTERIOR

LEGEND

● SUSPECT ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

11301A CYPRESS AVENUE, EL MONTE, CA

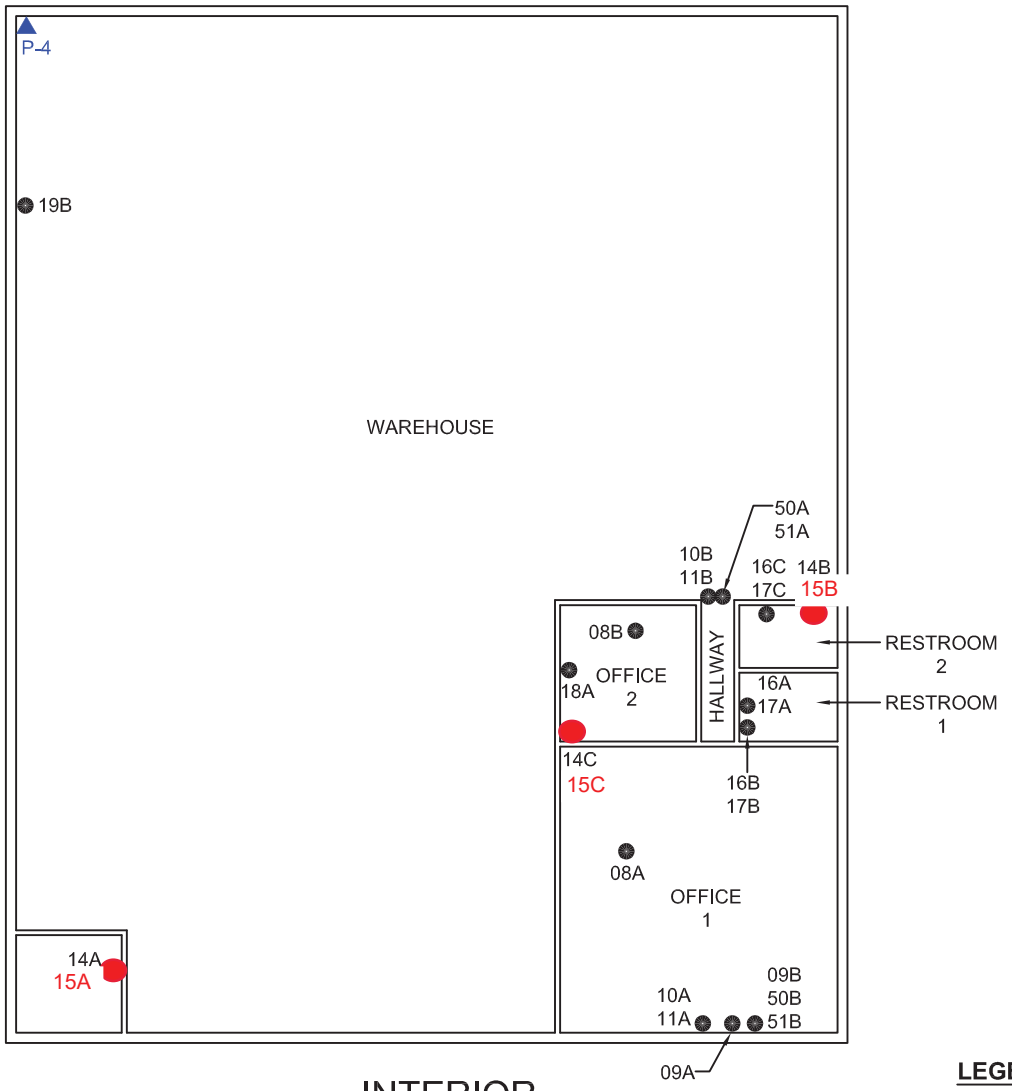
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Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060050
App'd By:	KE

Fig. No.: 10

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INTERIOR

LEGEND

- SUSPECT ACM SAMPLE LOCATION
- SUSPECT LBP SAMPLE LOCATION
- ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

11303 IRIS LANE, EL MONTE, CA

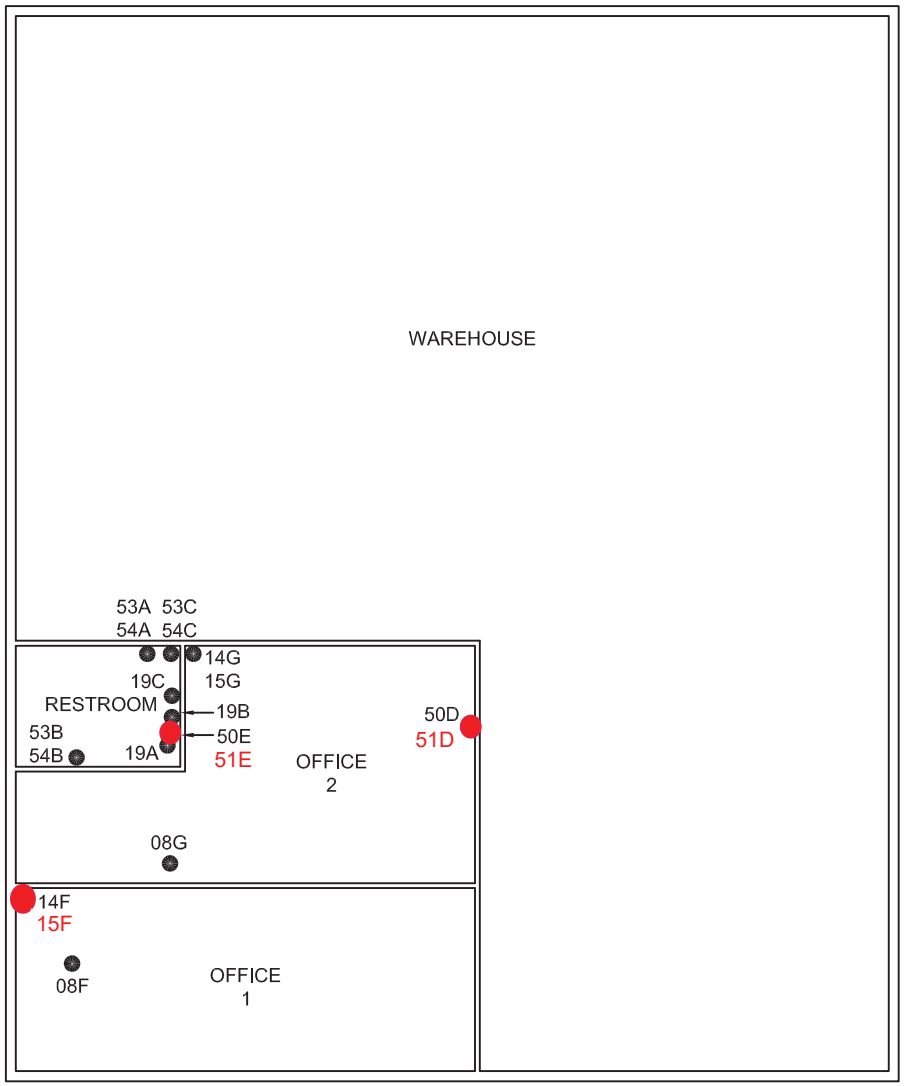
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Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060051
App'd By:	KE

Fig. No.: 11

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INTERIOR

LEGEND

- SUSPECT ACM SAMPLE LOCATION
- ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

11305 IRIS LANE, EL MONTE, CA

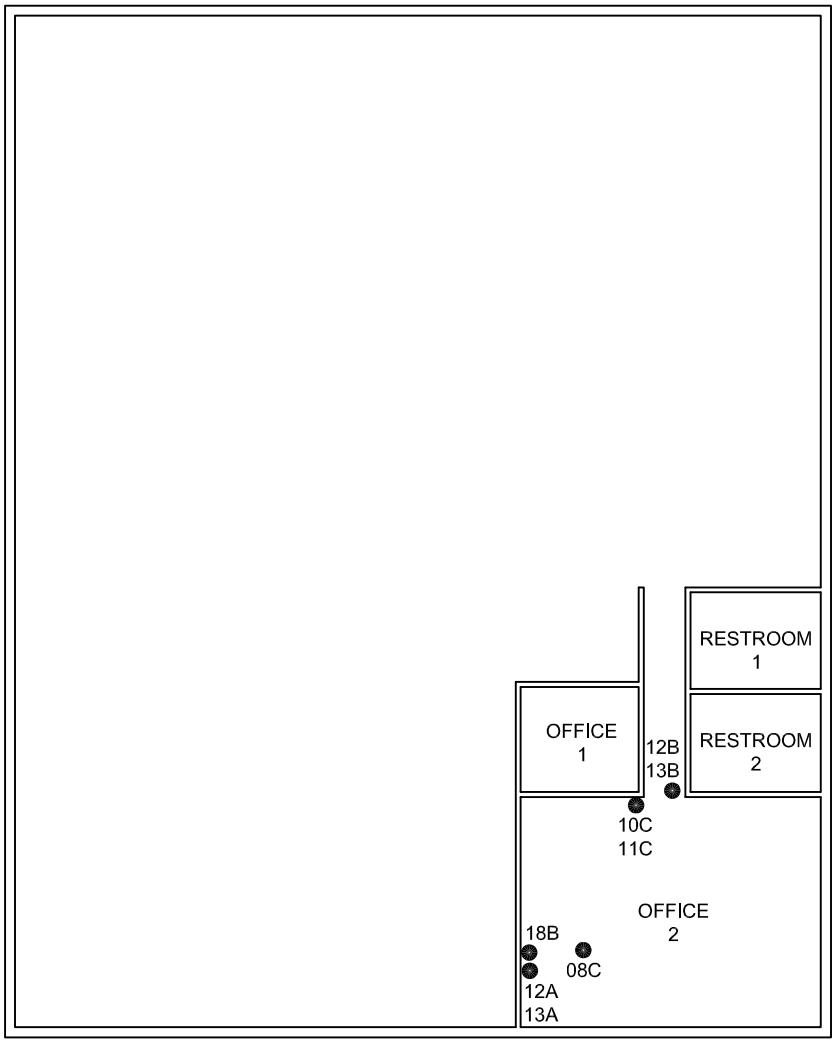
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Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060052
App'd By:	KE

Fig. No.: 12

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INTERIOR

LEGEND

● SUSPECT ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

11307 IRIS LANE, EL MONTE, CA

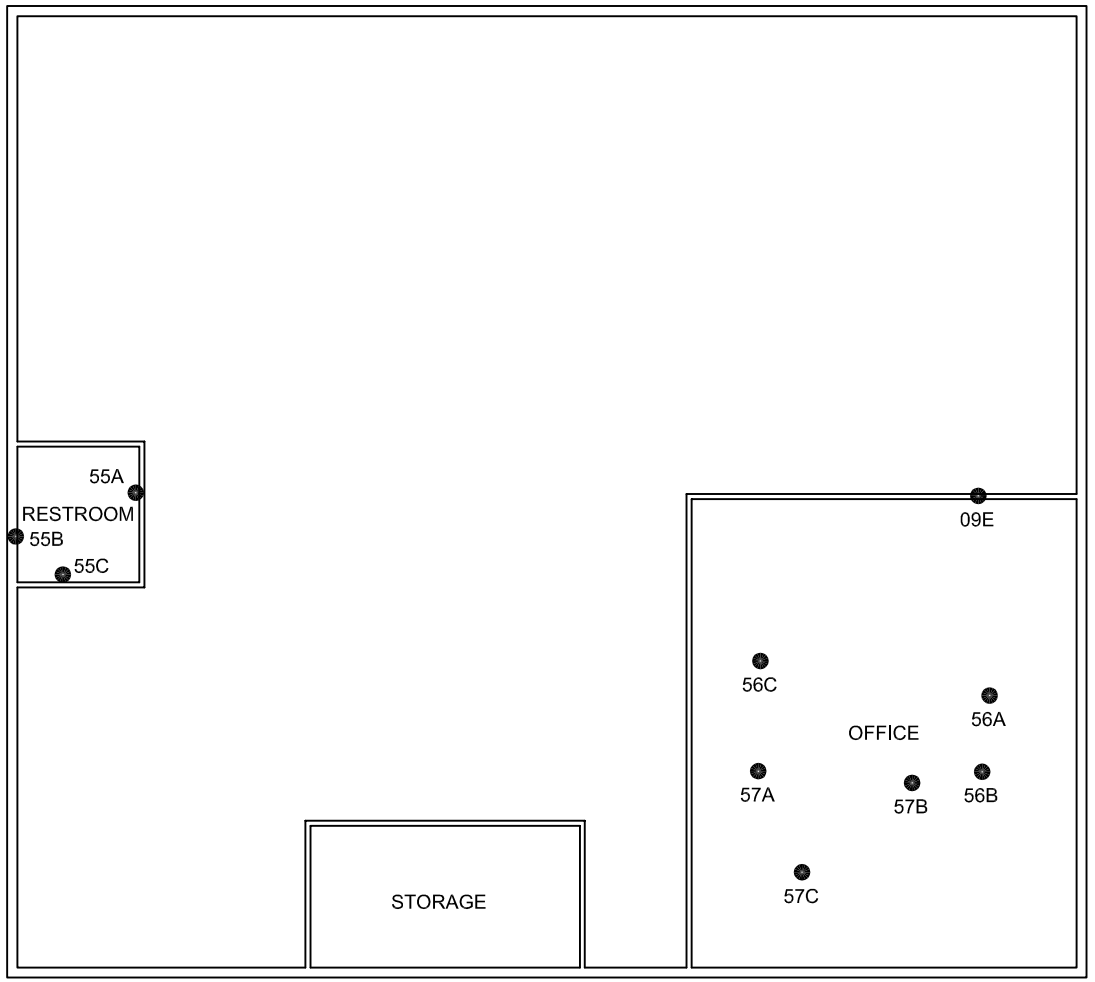
Client: KB HOME

Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060053
App'd By:	KE

Fig. No.: 13

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INTERIOR

LEGEND

● SUSPECT ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

11309A IRIS LANE, EL MONTE, CA

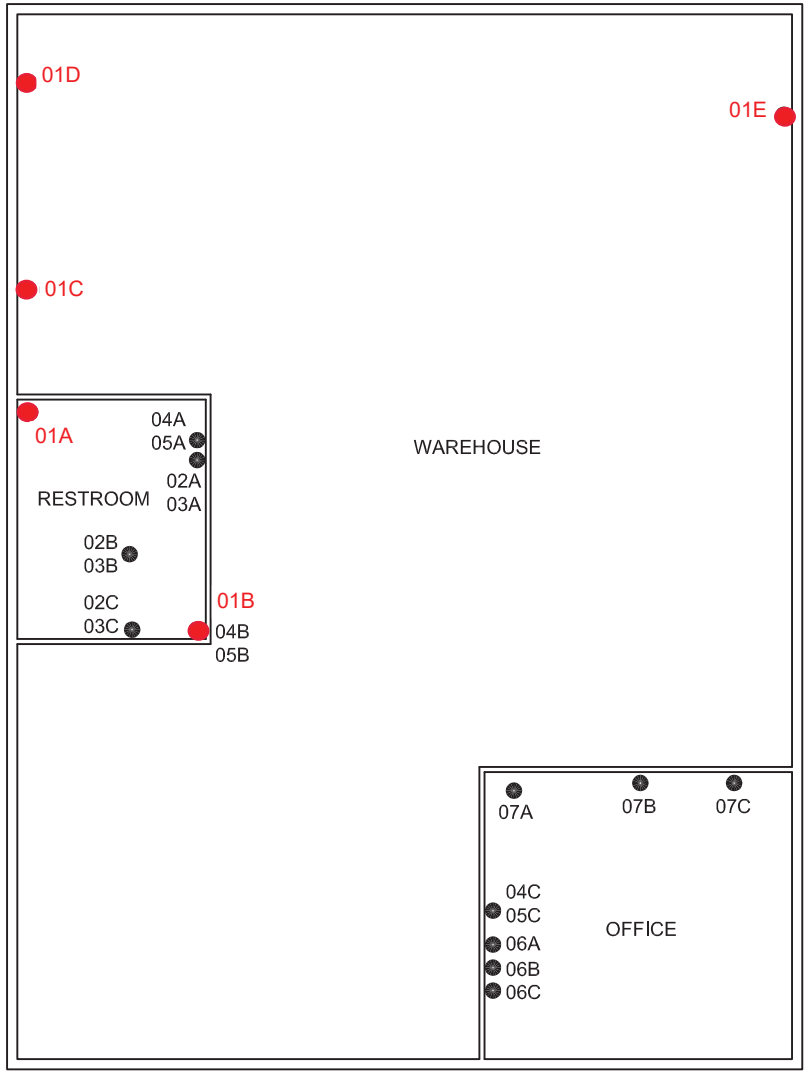
Client: KB HOME

Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060054
App'd By:	KE

Fig. No.: 14

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INTERIOR

LEGEND

- SUSPECT ACM SAMPLE LOCATION
- ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

11309B IRIS LANE, EL MONTE, CA

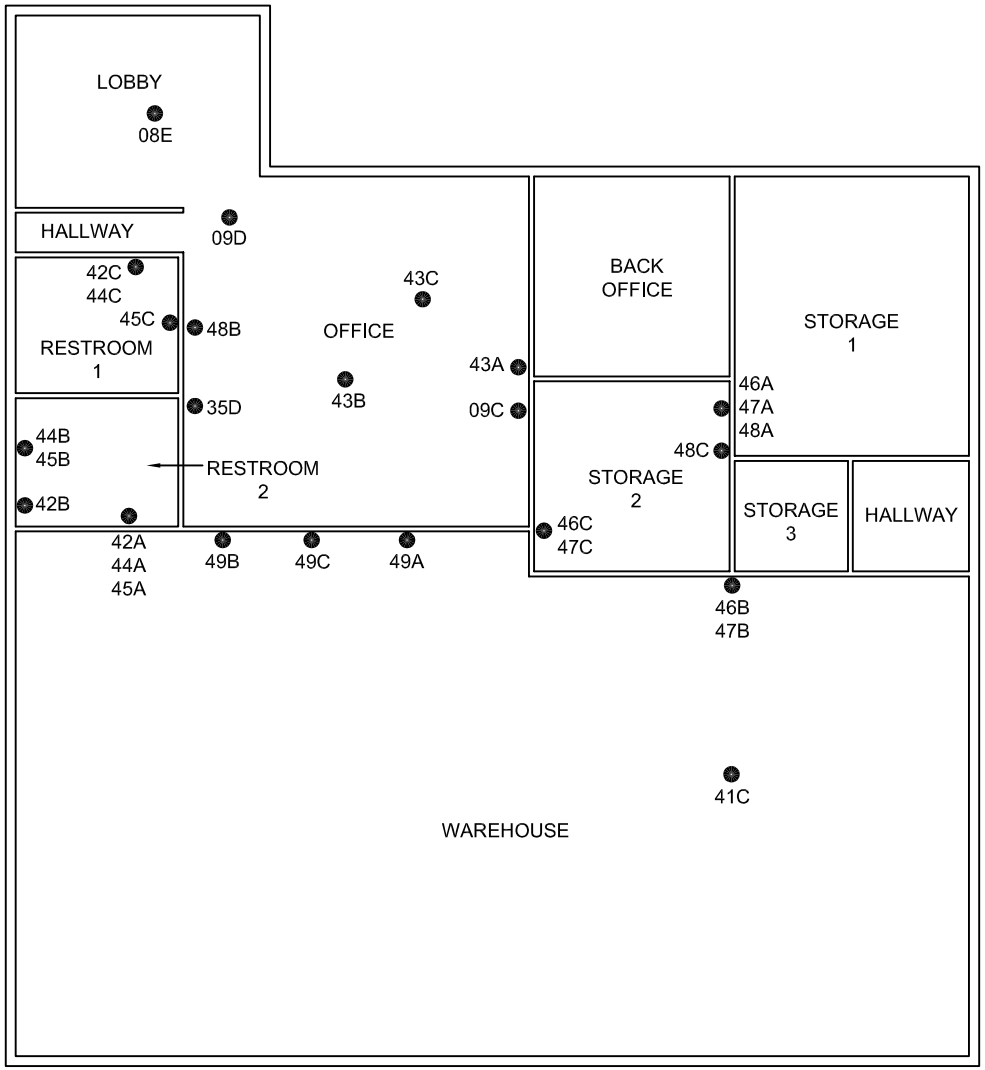
Client: KB HOME

Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060055
App'd By:	KE

Fig. No.: 15

Stantec

Stantec Consulting Ltd. © 2019



INTERIOR

LEGEND

● SUSPECT ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

11312A ORCHARD STREET, EL MONTE, CA

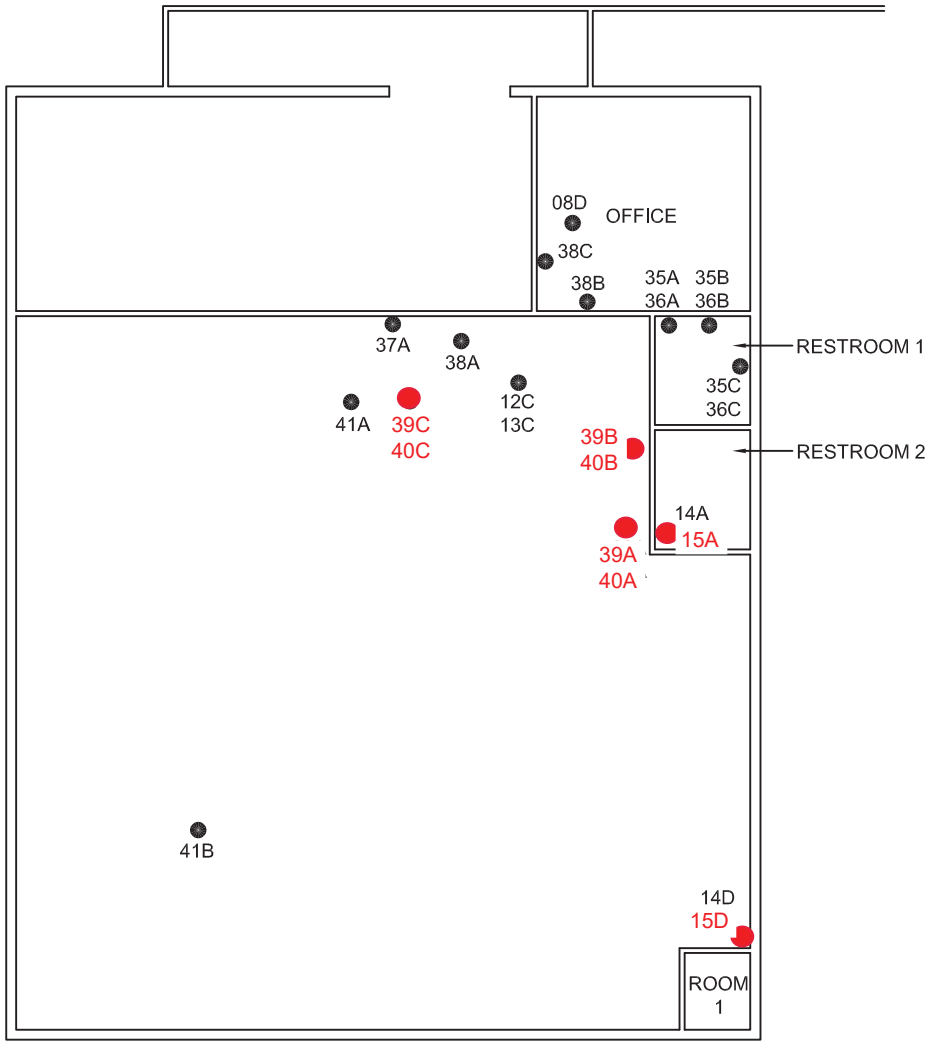
Client: KB HOME

Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060056
App'd By:	KE

Fig. No.: 16

Stantec

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INTERIOR

LEGEND

- SUSPECT ACM SAMPLE LOCATION
- ACM SAMPLE LOCATION

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

11312B ORCHARD STREET, EL MONTE, CA

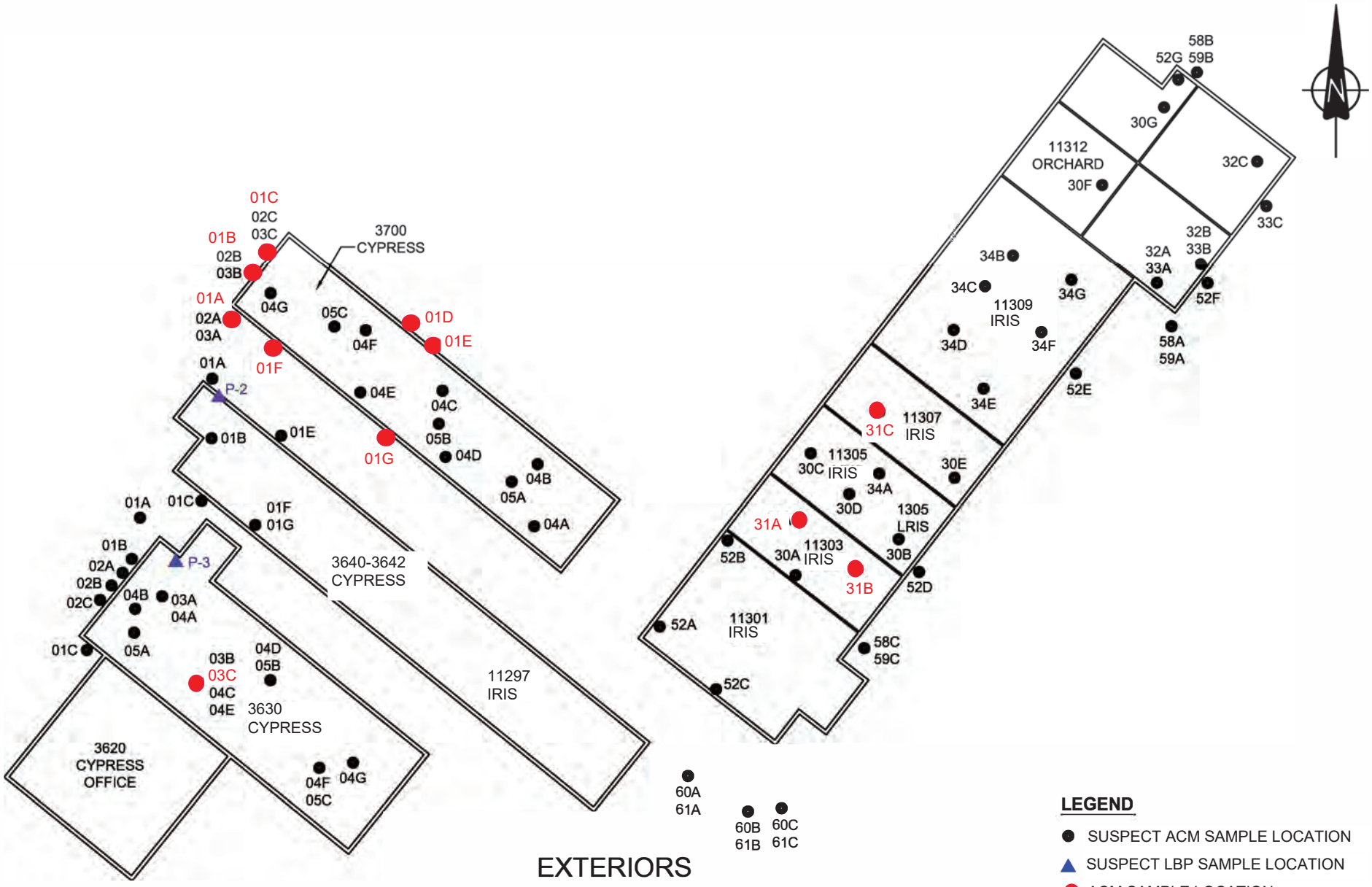
Client: KB HOME

Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060057
App'd By:	KE

Fig. No.: 17

Stantec

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NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

PRE-DEMOLITION ACM AND LBP SURVEY

3630, 3640, 3700 CYPRESS AVENUE, 11297-11309 IRIS LANE, AND 11312 ORCHARD STREET, EL MONTE, CA

Client: KB HOME

Project No.:	185804357
Scale:	AS SHOWN
Date:	19/06/27
Dwn. By:	CD CS SC2019060058
App'd By:	KE

Fig. No.: 18

Stantec

July 5, 2019

Reference: **Pre-Demolition Asbestos and Lead-Based Paint Survey**
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

Attachment C
Personnel Certifications and Laboratory Accreditations

State of California Department of Public Health

Lead-Related Construction Certificate

Certificate Type

Sampling Technician

Expiration Date

04/22/2020



Melissa A. Baernstein

ID #: 26903

STATE OF CALIFORNIA Edmund G. Brown, Jr. *Governor*

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health
Asbestos Unit
2424 Arden Way, Suite 495
Sacramento, CA 95825-2417
(916) 574-2993 Office (916) 483-0572 Fax
http://www.dir.ca.gov/dirdatabases.html actu@dir.ca.gov

502055377T 396

January 04, 2019

Melissa A Baernstein
[redacted]

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address, fax number or email; of any changes in your contact/mailing information within 15 days of the change.

Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File



STATE OF CALIFORNIA GAVIN NEWSOM, *Governor*

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health
Asbestos Certification & Training Unit
2424 Arden Way, Suite 495
Sacramento, CA 95825-2417
(916) 574-2993 Office (916) 483-0572 Fax
http://www.dir.ca.gov/dosh/asbestos.html acru@dir.ca.gov

502095379C 396 398

February 04, 2019

Alicia R Jansen
14032 Tedemory Dr.
Whittier CA 90605

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address or email with any changes in your contact/mailing information within 15 days of the change.

Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File



Renewal – Card Attached (Revised 01/10/2019)

State of California Department of Public Health

Lead-Related Construction Certificate

Certificate Type: Inspector/Assessor

Expiration Date: 04/03/2020



Alicia R. Jansen

ID #: 19526

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL ANALYTICAL, INC.
200 Route 130 North
Cinnaminson, NJ 08077
Nicholas Straccione Phone: 856 303 2550

ENVIRONMENTAL

Valid To: May 31, 2021 Certificate Number: 2845.01

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance with ISO/IEC 17025:2017, the 2009 TNI Environmental Testing Laboratory Standard, the requirements of the Department of Energy Consolidated Audit Program (DOECAP) as detailed in version 5.3 of the DoD/DOE Quality Systems Manual for Environmental Laboratories) accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below; for the test methods applicable to the National Environmental Lead Laboratory Accreditation Program (NLLAP).

ENVIRONMENTAL LEAD	
Test	**Test Method(s)**
Total Lead (Pb) in Dust Wipes	EMSL Analytical, Inc. LM-007C (Modified EPA 7000B - (FLAA), 3050 Hotblock Digestion)
Total Lead (Pb) in Paint Chips	EMSL Analytical, Inc. LM-007B (Modified EPA 7000B - (FLAA), 3050 Hotblock Digestion)
Total Lead (Pb) in Soil	EMSL Analytical, Inc. LM-007A (Modified EPA 7000B - (FLAA), 3050 Hotblock Digestion)

AIR MATRIX*		
Test	**Test Method(s)**	**Parameter/Analyte**
Acetic Acid	NIOSH 1603 mod.	Acetic Acid
Acid Mist	OSHA 165SG	Nitric acid Hydrochloric acid Sulfuric acid Hydrofluoric acid Hydrobromic acid
Alcohols I	NIOSH 1400 mod.	Isopropyl alcohol Ethanol Tert-butyl alcohol
Aldrin and Lindane	NIOSH 5502 mod.	Aldrin and Lindane

Test	Test Method(s)	Parameter/Analyte
Aromatic Hydrocarbons	NIOSH 1501 mod.	Benzene p-tert-butyltoluene Cumene Ethylbenzene α-methylstyrene β-methylstyrene Toluene o-Xylene p-Xylene m-Xylene Styrene (vinylbenzene)
Chlordane	NIOSH 5510 mod.	Chlordane
Chlorine	NIOSH 6011	Chlorine
Combustion-by-Products (black carbon/soot, char, and ash)	ASTM D6602	Black Carbon/Soot Char Ash
Diesel Particulate Matter (As Elemental Carbon)	NIOSH 5040	Organic and Elemental Carbon
Dipropylene Glycol Methyl Ether	OSHA 101 mod.	Dipropylene Glycol Methyl Ether

Test	Test Method(s)	Parameter/Analyte
Elements by ICP	NIOSH 7300, NIOSH 7300 mod., NIOSH 7303, NIOSH 7303 mod.	Aluminum (Al) Antimony (Sb) Arsenic (As) Barium (Ba) Beryllium (Be) Bismith (Bi) Boron (B) Cadmium (Cd) Cerium (Ce) Chromium (Cr) Cobalt (Co) Copper (Cu) Iron (Fe) Lead (Pb) Lithium (Li) Magnesium (Mg) Manganese (Mn) Molybdenum Nickel (Ni) Phosphorous (P) Potassium (K) Selenium (Se) Silver (Ag) Sodium (Na) Strontium (Sr) Sulfide (S) Thalium (Tl) Tin (Sn) Titanium (Ti) Tungsten (W) Vanadium (V) Zinc (Zn) Zircon (Zr)
Formaldehyde	NIOSH 2016 mod.	Formaldehyde
Halogenated Hydrocarbons	NIOSH 1003 mod.	1,2-dichlorobenzene 1,4-dichlorobenzene Chlorobenzene 1,1-dichloroethane 1,1-dichloroethene 1,2-dichloroethane 1,2-dichloropropane Carbon Tetrachloride Chloroform Tetrachloroethene
Hexavalent Chromium	OSHA 215	Hexavalent Chromium
Hydrogen Cyanide	NIOSH 6010 mod.	Hydrogen Cyanide

Test	Test Method(s)	Parameter/Analyte
Inorganic Acids	NIOSH 7903	Flourine (F) Bromine (Br) Chlorine (Cl) Nitrate (NO3) Nitrite (NO2) Sulfate (SO4) Phosphate (PO4)
Inorganic Fibrous Particles by SEM method	German VDI 3492	Fibrous glass Mineral wool Refractory ceramic fibers Asbestos
Inorganic Fibrous Particles by SEM method	ISO 14966	Fibrous glass Mineral wool Refractory ceramic fibers Asbestos
Mercury	NIOSH 6009 mod., OSHA 140 mod.	Mercury
Metalworking Fluids (MWF) All Categories	NIOSH 5524	Metal Working Fluids N.O.S.
Methamphetamine on Wipes	NIOSH 9111	Methamphetamine
Methanol	NIOSH 2000 mod.	Methanol
Methylene Chloride	NIOSH 1005	Methylene Chloride
Naphthas	NIOSH 1550 mod.	VMP Naphtha
Ozone	OSHA 214	Ozone
Polychlorinated Biphenyls	NIOSH 5503 mod.	Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268

Test	Test Method(s)	Parameter/Analyte
Polynuclear Aromatic Hydrocarbons by HPLC	NIOSH 5506 mod.	Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)anthracene Chrysene Benzo(e)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Dibenzo(a,h)anthracene Benzo(g,h,i)perylene Indeno(1,2,3-c,d)pyrene
Silica, Crystalline	NIOSH 7500 mod., OSHA 142	a-quartze, cristobalite, trydimite
Sulfur Dioxide	NIOSH 6004 mod.	Sulfur Dioxide
Total Lead (Pb) in Air	NIOSH 7082 - (FLAA)	Lead
Total Lead (Pb) in Air	NIOSH 7105 - (GFAA)	Lead
Total Metals in Air	EMSL Analytical, Inc. LM-003 (Modified NIOSH 7300 for ICP/ICP-MS)	Beryllium Oxide (BeO) Beryllium (Be)
Volatile Organic Compounds in Air	TO-15	Acetaldehyde Acetone Acetonitrile Acetophenone Acrolein Acrylamide Acrylic acid Acrylonitrile Allyl chloride Aniline Benzene Benzyl chloride Bis (2-chloroethyl) ether Bis (chloromethyl) ether Bromodichloromethane Bromoform Bromomethane Butadiene (1,3-) Butadiene (2-chloro-1,3-) Carbon disulfide Carbon oxysulfide (Carbonyl sulfide) Carbon tetrachloride

Test	Test Method(s)	Parameter/Analyte
Volatile Organic Compounds in Air (cont)	TO-15	Catechol Chloroacetic acid Chlorobenzene Chloroethane Chloroform Chloromethane Chloromethyl methyl ether Chlorotoluene (2-) Cresols/Cresylic acid Cyclohexane Diazomethane Dibromo-3-chloropropane (1,2-) Dibromochloromethane Dibromoethane (1,2-) (EDB) Dichlorobenzene (1,2-) Dichlorobenzene (1,3-) Dichlorobenzene (1,4-) Dichlorodifluoromethane Dichloroethane (1,1-) Dichloroethane (1,2-) Dichloroethene (1,1-) Dichloroethene (cis-1,2-) Dichloroethene (trans-1,2-) Dichlorofluoromethane Dichloropropane (1,2-) Dichloropropene (cis-1,3-) Dichloropropene (trans-1,3-) Dichlorotetrafluoroethane (1,2-) Diethyl sulfate Dimethyl formamide (N, N-) Dimethyl hydrazine (1,1-) Dimethyl sulfate Dimethylaniline (N, N-) Dimethylcarbamoyl chloride Dioxane (1,4-) Epichlorohydrin Epoxybutane (1,2-) Ethanol Ethyl acetate Ethyl acrylate Ethyl carbamate (Urethane) Ethylbenzene Ethylene Oxide Ethyleneimine Ethyltoluene (4-) Formaldehyde Heptane (n-) Hexachlorobutadiene (1,3-) Hexachloroethane

Test	Test Method(s)	Parameter/Analyte
Volatile Organic Compounds in Air (cont)	TO-15	Hexane (n-) Hexanone (2-) Isophorone Isopropanol Isopropylbenzene Methyl alcohol (Methanol) Methyl ethyl ketone (MEK) Methyl iodide Methyl isobutyl ketone (MIBK) Methyl isocyanate Methyl methacrylate Methyl tert-butyl ether Methylene chloride (Dichloromethane) Methylhydrazine Methylphenol (2-) Naphthalene Nitrobenzene Nitropropane (2-) N-Nitrosodimethylamine N-Nitrosomorpholine N-Nitroso-N-methylurea Phenol Phosgene Propane sultone (1,3-) Propiolactone (beta-) Propionaldehyde Propylene Propylene oxide Propyleneimine (1,2-) Styrene Styrene oxide Tert-butyl alcohol Tetrachloroethane (1,1,2,2-) Tetrachloroethene Tetrahydrofuran Toluene Trichloro (1,1,2-) trifluoroethane (1,2,2-) Trichlorobenzene (1,2,4-) Trichloroethane (1,1,1-) Trichloroethane (1,1,2-) Trichloroethene Trichlorofluoromethane Triethylamine Trifluoromethane Trimethylbenzene (1,2,4-) Trimethylbenzene (1,3,5-) Trimethylpentane (2,2,4-) Vinyl acetate Vinyl bromide

Test	Test Method(s)	Parameter/Analyte
Volatile Organic Compounds in Air (cont)	TO-15	Vinyl chloride Xylene (m-) Xylene (o-) Xylenes (total) Xylene (p-)

SOIL/SOLIDS/BULK MATRIX*		
Test	**Test Method(s)**	**Parameter/Analyte**
Combustion-by-Products (black carbon/soot, char and ash)	ASTM D6602	Black Carbon/Soot Char Ash
Determination of Asbestos in Technical Products by SEM method	German VDI 3866 Part 5	Asbestos
Microwave Sample Preparation	EPA 3546	
Polychlorinated Biphenyls (PCBs)	EPA 8082A	Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268
Silica Gel Cleanup	EPA 3630C	
Soxhlet Sample Preparation	EPA 3540C	
Sulfur Extract Cleanup	EPA 3660B	
Sulfuric Acid Cleanup	EPA 3665A	
Waste Dilution Sample Preparation	EPA 3580A	

*Not NLLAP program

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on Brake Friction Materials:

ASBESTOS ANALYSIS*		
Test	**Test Method(s)**	**Parameter/Analyte**
Phase Contrast Microscopy	NIOSH 7400	Asbestos: Chrysotile Asbestos: Amosite Asbestos: Crocidolite Asbestos: Anthophyllite Asbestos: Tremolite Asbestos: Actinolite Asbestos: Other non-regulated amphibole fibers
Polarized Light Microscopy	SAE J2975, EPA 600/R-93/116	Asbestos: Chrysotile Asbestos: Amosite Asbestos: Crocidolite Asbestos: Anthophyllite Asbestos: Tremolite Asbestos: Actinolite Asbestos: Other non-regulated amphibole fibers
Sample Preparation by Drilling	SAE J2975	Asbestos: Chrysotile Asbestos: Amosite Asbestos: Crocidolite Asbestos: Anthophyllite Asbestos: Tremolite Asbestos: Actinolite Asbestos: Other non-regulated amphibole fibers
Transmission Electron Microscopy – Air	ISO 10312 (direct method)	Asbestos: Chrysotile Asbestos: Amosite Asbestos: Crocidolite Asbestos: Anthophyllite Asbestos: Tremolite Asbestos: Actinolite Asbestos: Other non-regulated amphibole fibers
Transmission Electron Microscopy – Bulk	ISO 13794 (indirect method)	Asbestos: Chrysotile Asbestos: Amosite Asbestos: Crocidolite Asbestos: Anthophyllite Asbestos: Tremolite Asbestos: Actinolite Asbestos: Other non-regulated amphibole fibers

POTABLE, NON-POTABLE WATER MATRIX		
Test	**Test Method(s)**	**Parameter/Analyte**
Transmission Electron Microscopy	EPA 100.2	Asbestos: Chrysotile Asbestos: Amosite Asbestos: Crocidolite Asbestos: Anthophyllite Asbestos: Tremolite Asbestos: Actinolite Asbestos: Other non-regulated amphibole fibers

RADIOCHEMISTRY DRINKING WATER, NON_POTABLE, SOLID/CHEMICAL MATRIX	
Parameter/Analyte	**Test Method(s)**
Alpha Spectroscopy (Pu-238, Pu-239/240, U-235, U-234/238, Am-241, Th-230/232)	EMSL RC-SOP-007, EPA 907.0 mod.
Alpha/Beta Scan	EMSL RC-SOP-003, EPA 900 mod.
Gamma Scan	EMSL RC-SOP-002, EPA 901.1 mod.
Gross Alpha/Beta	EPA 900, EPA 900 mod.
Nickel (Ni-63)	EMSL RC-SOP-200
Radium (Ra-226)	EPA 903, EPA 903 mod.
Radium (Ra-228)	EPA 904, EPA 904 mod.
Strontium (Sr-89/-90)	EPA 905, EPA 905 mod.
Tritium	EPA 906, EPA 906 mod.
Uranium (Total)	EPA 908, EPA 908 mod.

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on Children's Products: (1)

CHEMICAL	
Test	**Test Method(s)**
Lead in Paint and Surface Coatings	16 CFR 1303 (using ASTM E1613 and E1645); CPSC-CH-E1003-09.1
Test	**Test Method(s)**
Phthalates	CPSC-CH-C1001-09.3 (using EPA SW-846 8270)
Soluble Heavy Metals Content (As, Ba, Cd, Cr, Pb, Hg, Sb, Se)	ASTM F 963-11 Section 4.3.5.1 & Section 4.3.5.2
Total Cadmium in Children's Metal Products Including Children's Metal Jewelry	EMSL Analytical, Inc. LM-016, (Modified CPSC-CH-E1001-08.1)
Total Cadmium in Children's Non-Metal Products	EMSL Analytical, Inc. LM-016, (Modified CPSC-CH-E1002-08)
Total Lead in Children's Metal Jewelry	CPSC-CH-E1001-08.1
Total Lead in Children's Metal Products	CPSC-CH-E1001-08.1
Total Lead in Children's Non-Metal Products	CPSC-CH-E1002-08

[1] The Consumer Product Safety Improvement Act (CPSIA) requires that every children's product subject to a federal consumer product safety requirement be tested by a Consumer Product Safety Commission (CPSC) accepted laboratory for compliance with the applicable federal children's product safety requirements. Accreditation by A2LA does not infer acceptance by the CPSC. Please verify this organization's acceptance status by using the CPSC's searchable database, located at http://www.cpsc.gov/cgi-bin/labsearch/.

Accredited Laboratory

A2LA has accredited

EMSL ANALYTICAL, INC.

Cinnaminson, NJ

for technical competence in the field of

Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2017, the 2009 TNI Environmental Testing Laboratory Standard, and the requirements of the Department of Energy Consolidated Audit Program (DOECAP) as detailed in version 5.3 of the DoD Quality System Manual for Environmental Laboratories (QSM), accreditation is granted to this laboratory to perform recognized EPA methods as defined on the associated A2LA Environmental Scope of Accreditation. This accreditation demonstrates technical competence for this defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated *April 2017*).

Presented this 24th day of May 2019.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2845.01
Valid to May 31, 2021

For the tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

✓	**INDUSTRIAL HYGIENE**	Accreditation Expires: November 01, 2020
✓	**ENVIRONMENTAL LEAD**	Accreditation Expires: November 01, 2020
✓	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires: November 01, 2020
☐	**FOOD**	Accreditation Expires:
☐	**UNIQUE SCOPES**	Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Beth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**
Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Environmental Microbiology Laboratory Accreditation Program (EMLAP)

Initial Accreditation Date: 09/01/2002

EMLAP Category	Field of Testing (FoT)	Method	Method Description (*for internal methods only*)
Fungal	Air - Culturable	Micro-SOP-202	Detection and Enumeration of Culturable Fungi from Environmental Samples
	Bulk - Culturable	Micro-SOP-202	Detection and Enumeration of Culturable Fungi from Environmental Samples
	Surface - Culturable	Micro-SOP-202	Detection and Enumeration of Culturable Fungi from Environmental Samples
	Air - Direct Examination	Micro-SOP-201	Standard Operating Procedure for the Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, Pollen, Insect Fragments, and Fibrous Particulate from Surface Samples
	Bulk - Direct Examination	Micro-SOP-200	Standard Operating Procedure for the Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, Pollen, Insect Fragments, and Fibrous Particulate from Surface Samples
	Surface - Direct Examination	Micro-SOP-200	Standard Operating Procedure for the Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, Pollen, Insect Fragments, and Fibrous Particulate from Surface Samples
Bacterial	Air - Culturable	Micro-SOP-132	Detection and Enumeration of Culturable Bacteria from Environmental Samples
	Bulk - Culturable	Micro-SOP-132	Detection and Enumeration of Culturable Bacteria from Environmental Samples

EMLAP Category	Field of Testing (FoT)	Method	Method Description (*for internal methods only*)
Bacterial	Surface - Culturable	Micro-SOP-132	Detection and Enumeration of Culturable Bacteria from Environmental Samples
	Legionella	05-TP-002	Recovery of Legionella from the Environment Using the Center for Disease Control and Prevention's Culture Method
		MICRO-SOP-105	ISO 11731:2017 and ISO 11731 Methods
Molecular	PCR – Bacteriodes	M095	Procedure for Rapid Identification of Total Bacteroides by TaqMan Real-Time PCR
	PCR – Human Bacteriodes	M199	SOP for Rapid Identification of Human Bacteroides by TaqMan Real-Time PCR
	qPCR – Legionella pneumophila	PCR-SOP-127	SOP for Identification and Quantification of Legionella Species, Legionella pneumophila and Legionella pneumophila Serogroup 1 by Real-Time Quantitative PCR (qPCR)
	qPCR – Mold Specific qPCR	PCR-SOP-202	SOP for Identification and Quantitation of Fungi by Real-Time Mold Specific Quantitative PCR (MSQPCR)

A complete listing of currently accredited Environmental Microbiology laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

EMSL Analytical Inc.

Cinnaminson

200 Route 130 North

Cinnaminson, NJ 08077

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1877**

Expiration Date: **6/30/2019**

Effective Date: **7/1/2018**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

EMSL Analytical Inc.
Cinnaminson
200 Route 130 North
Cinnaminson, NJ 08077
Phone: (800) 220-3675

Certificate No. 1877
Expiration Date 6/30/2019

Field of Testing: 102 - Inorganic Chemistry of Drinking Water

102.026	001	Calcium	EPA 200.7
102.026	002	Magnesium	EPA 200.7
102.026	003	Potassium	EPA 200.7
102.026	004	Silica	EPA 200.7
102.026	005	Sodium	EPA 200.7
102.026	006	Hardness (calculation)	EPA 200.7
102.030	001	Bromide	EPA 300.0
102.030	003	Chloride	EPA 300.0
102.030	005	Fluoride	EPA 300.0
102.030	006	Nitrate (as N)	EPA 300.0
102.030	007	Nitrite (as N)	EPA 300.0
102.030	008	Phosphate, Ortho (as P)	EPA 300.0
102.030	009	Sulfate	EPA 300.0
102.100	001	Alkalinity	SM2320B-1997
102.130	001	Conductivity	SM2510B-1997
102.140	001	Residue, Filterable TDS	SM2540C-1997
102.175	001	Chlorine, Free	SM4500-Cl G-2000
102.190	001	Cyanide, Total	SM4500-CN E-1999
102.262	001	Total Organic Carbon TOC	SM5310C-2000
102.270	001	Surfactants	SM5540 C-2000

Field of Testing: 103 - Toxic Chemical Elements of Drinking Water

103.130	007	Chromium	EPA 200.7
103.130	008	Copper	EPA 200.7
103.130	009	Iron	EPA 200.7
103.130	011	Manganese	EPA 200.7
103.130	015	Silver	EPA 200.7
103.130	017	Zinc	EPA 200.7
103.140	001	Aluminum	EPA 200.8
103.140	002	Antimony	EPA 200.8
103.140	003	Arsenic	EPA 200.8
103.140	004	Barium	EPA 200.8
103.140	005	Beryllium	EPA 200.8
103.140	006	Cadmium	EPA 200.8
103.140	007	Chromium	EPA 200.8
103.140	008	Copper	EPA 200.8
103.140	009	Lead	EPA 200.8
103.140	010	Manganese	EPA 200.8
103.140	012	Nickel	EPA 200.8

As of 6/28/2018 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

103.140	013	Selenium	EPA 200.8
103.140	014	Silver	EPA 200.8
103.140	015	Thallium	EPA 200.8
103.140	016	Zinc	EPA 200.8
103.160	001	Mercury	EPA 245.1
103.300	001	Asbestos	EPA 100.1
103.301	001	Asbestos	EPA 100.2

Field of Testing: 104 - Volatile Organic Chemistry of Drinking Water

104.040	000	Volatile Organic Compounds	EPA 524.2
104.040	001	Benzene	EPA 524.2
104.040	007	n-Butylbenzene	EPA 524.2
104.040	008	sec-Butylbenzene	EPA 524.2
104.040	009	tert-Butylbenzene	EPA 524.2
104.040	010	Carbon Tetrachloride	EPA 524.2
104.040	011	Chlorobenzene	EPA 524.2
104.040	015	2-Chlorotoluene	EPA 524.2
104.040	016	4-Chlorotoluene	EPA 524.2
104.040	019	1,3-Dichlorobenzene	EPA 524.2
104.040	020	1,2-Dichlorobenzene	EPA 524.2
104.040	021	1,4-Dichlorobenzene	EPA 524.2
104.040	022	Dichlorodifluoromethane	EPA 524.2
104.040	023	1,1-Dichloroethane	EPA 524.2
104.040	024	1,2-Dichloroethane	EPA 524.2
104.040	025	1,1-Dichloroethene (1,1-Dichloroethylene)	EPA 524.2
104.040	026	cis-1,2-Dichloroethene	EPA 524.2
104.040	027	trans-1,2-Dichloroethene	EPA 524.2
104.040	028	Dichloromethane (Methylene Chloride)	EPA 524.2
104.040	029	1,2-Dichloropropane	EPA 524.2
104.040	033	cis-1,3-Dichloropropene	EPA 524.2
104.040	034	trans-1,3-Dichloropropene	EPA 524.2
104.040	035	Ethylbenzene	EPA 524.2
104.040	037	Isopropylbenzene	EPA 524.2
104.040	039	Naphthalene	EPA 524.2
104.040	041	N-propylbenzene	EPA 524.2
104.040	042	Styrene	EPA 524.2
104.040	044	1,1,2,2-Tetrachloroethane	EPA 524.2
104.040	045	Tetrachloroethylene (Perchloroethylene)	EPA 524.2
104.040	046	Toluene	EPA 524.2
104.040	048	1,2,4-Trichlorobenzene	EPA 524.2
104.040	049	1,1,1-Trichloroethane	EPA 524.2
104.040	050	1,1,2-Trichloroethane	EPA 524.2
104.040	051	Trichloroethene	EPA 524.2
104.040	052	Trichlorofluoromethane	EPA 524.2
104.040	054	1,2,4-Trimethylbenzene	EPA 524.2
104.040	055	1,3,5-Trimethylbenzene	EPA 524.2
104.040	056	Vinyl Chloride	EPA 524.2
104.040	057	Xylenes, Total	EPA 524.2

104.040	061	Carbon Disulfide	EPA 524.2
104.045	001	Bromodichloromethane	EPA 524.2
104.045	002	Bromoform	EPA 524.2
104.045	003	Chloroform	EPA 524.2
104.045	004	Dibromochloromethane	EPA 524.2
104.050	002	Methyl tert-butyl Ether (MTBE)	EPA 524.2
104.050	006	tert-Butyl Alcohol (TBA)	EPA 524.2

Field of Testing: 109 - Toxic Chemical Elements of Wastewater

109.010	001	Aluminum	EPA 200.7
109.010	002	Antimony	EPA 200.7
109.010	003	Arsenic	EPA 200.7
109.010	004	Barium	EPA 200.7
109.010	005	Beryllium	EPA 200.7
109.010	007	Cadmium	EPA 200.7
109.010	009	Chromium	EPA 200.7
109.010	010	Cobalt	EPA 200.7
109.010	011	Copper	EPA 200.7
109.010	012	Iron	EPA 200.7
109.010	013	Lead	EPA 200.7
109.010	015	Manganese	EPA 200.7
109.010	016	Molybdenum	EPA 200.7
109.010	017	Nickel	EPA 200.7
109.010	019	Selenium	EPA 200.7
109.010	021	Silver	EPA 200.7
109.010	023	Thallium	EPA 200.7
109.010	024	Tin	EPA 200.7
109.010	025	Titanium	EPA 200.7
109.010	026	Vanadium	EPA 200.7
109.010	027	Zinc	EPA 200.7
109.020	001	Aluminum	EPA 200.8
109.020	002	Antimony	EPA 200.8
109.020	003	Arsenic	EPA 200.8
109.020	004	Barium	EPA 200.8
109.020	005	Beryllium	EPA 200.8
109.020	006	Cadmium	EPA 200.8
109.020	007	Chromium	EPA 200.8
109.020	008	Cobalt	EPA 200.8
109.020	009	Copper	EPA 200.8
109.020	010	Lead	EPA 200.8
109.020	011	Manganese	EPA 200.8
109.020	012	Molybdenum	EPA 200.8
109.020	013	Nickel	EPA 200.8
109.020	014	Selenium	EPA 200.8
109.020	015	Silver	EPA 200.8
109.020	016	Thallium	EPA 200.8
109.020	017	Vanadium	EPA 200.8
109.020	018	Zinc	EPA 200.8

109.020	021	Iron	EPA 200.8	
109.020	022	Tin	EPA 200.8	
109.020	023	Titanium	EPA 200.8	
109.190	001	Mercury	EPA 245.1	
Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste				
114.010	001	Antimony	EPA 6010B	
114.010	002	Arsenic	EPA 6010B	
114.010	003	Barium	EPA 6010B	
114.010	004	Beryllium	EPA 6010B	
114.010	005	Cadmium	EPA 6010B	
114.010	006	Chromium	EPA 6010B	
114.010	007	Cobalt	EPA 6010B	
114.010	008	Copper	EPA 6010B	
114.010	009	Lead	EPA 6010B	
114.010	010	Molybdenum	EPA 6010B	
114.010	011	Nickel	EPA 6010B	
114.010	012	Selenium	EPA 6010B	
114.010	013	Silver	EPA 6010B	
114.010	014	Thallium	EPA 6010B	
114.010	015	Vanadium	EPA 6010B	
114.010	016	Zinc	EPA 6010B	
114.020	001	Antimony	EPA 6020	
114.020	002	Arsenic	EPA 6020	
114.020	003	Barium	EPA 6020	
114.020	004	Beryllium	EPA 6020	
114.020	005	Cadmium	EPA 6020	
114.020	006	Chromium	EPA 6020	
114.020	007	Cobalt	EPA 6020	
114.020	008	Copper	EPA 6020	
114.020	009	Lead	EPA 6020	
114.020	010	Molybdenum	EPA 6020	
114.020	011	Nickel	EPA 6020	
114.020	012	Selenium	EPA 6020	
114.020	013	Silver	EPA 6020	
114.020	014	Thallium	EPA 6020	
114.020	015	Vanadium	EPA 6020	
114.020	016	Zinc	EPA 6020	
114.103	001	Chromium (VI)	EPA 7196A	Aqueous Only
114.130	001	Lead	EPA 7420	
114.140	001	Mercury	EPA 7470A	Aqueous Only
114.141	001	Mercury	EPA 7471A	
Field of Testing: 115 - Extraction Test of Hazardous Waste				
115.020	001	Toxicity Characteristic Leaching Procedure (TC	EPA 1311 (TCLP)	
115.021	001	TCLP Inorganics	EPA 1311 (TCLP)	
115.022	001	TCLP Extractables	EPA 1311 (TCLP)	
115.023	001	TCLP Volatiles	EPA 1311 (TCLP)	

115.030	001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II
Field of Testing: 116 - Volatile Organic Chemistry of Hazardous Waste			
116.020	030	Nonhalogenated Volatiles	EPA 8015B
116.020	031	Ethanol and Methanol	EPA 8015B
116.030	001	Gasoline-range Organics	EPA 8015B
116.080	000	Volatile Organic Compounds	EPA 8260B
116.080	120	Oxygenates	EPA 8260B
Field of Testing: 117 - Semi-volatile Organic Chemistry of Hazardous Waste			
117.010	001	Diesel-range Total Petroleum Hydrocarbons	EPA 8015B
117.110	000	Extractable Organics	EPA 8270C
117.210	000	Organochlorine Pesticides	EPA 8081A
117.220	000	PCBs	EPA 8082
Field of Testing: 121 - Bulk Asbestos Analysis of Hazardous Waste			
121.010	001	Bulk Asbestos	EPA 600/M4-82-020
Field of Testing: 129 - Cryptosporidium & Giardia			
129.030	001	Cryptosporidium and Giardia	EPA 1623.1

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.

Cinnaminson, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2019-07-01 through 2020-06-30

Effective Dates

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

For the National Voluntary Laboratory Accreditation Program

NVLAP® National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

EMSL Analytical, Inc.
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http://www.emsl.com

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

July 5, 2019

Reference: **Pre-Demolition Asbestos and Lead-Based Paint Survey**
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

Attachment D
Photographic Log



Photo #1 View of the roof of 3630 Cypress Avenue where a stray roof shingle tested positive for asbestos content. HA#03C – Shingle, 3% Chrysotile.



Photo #2 View of interior of 3630 Cypress Ave, acoustic ceiling spray (painted black) positive for asbestos content. HA#06, 3% Chrysotile.



Photo #3 View of interior, 2nd floor of 3640 Cypress Avenue, green vinyl floor sheeting positive for asbestos content, and adhesive below. HA#08 and #14, 30% and 2% Chrysotile, respectively.



Photo #4 View of interior, 2nd floor of 3640 Cypress Avenue, beige (pictured left) vinyl floor sheeting positive for asbestos content, and adhesive below. HA#11 and #14, 30% and 2% Chrysotile, respectively.



Photo #5 View of interior 11297 Iris Lane, 2nd Floor, acoustic ceiling spray positive for asbestos content. HA#19, 4% Chrysotile.



Photo #6 View of exterior of 3700 Cypress Ave, stucco positive for asbestos content. HA#01, 3% Chrysotile.



Photo #7 View of interior of 3700A Cypress Ave, plaster walls positive for asbestos content. HA#08, 3% Chrysotile.

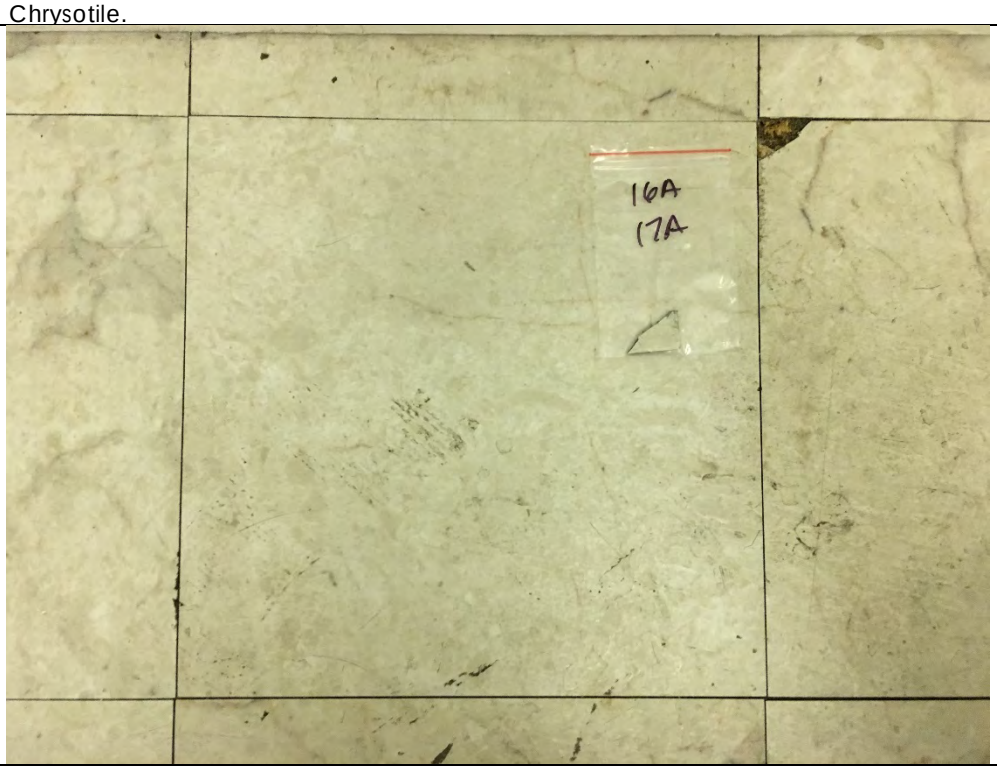


Photo #8 View of interior of 3700A Cypress Ave, plaster walls positive for asbestos content. HA#17, 2% Chrysotile.

July 5, 2019

Reference: **Pre-Demolition Asbestos and Lead-Based Paint Survey**
Orchard Street, Iris Lane, and Cypress Avenue, El Monte, California

Attachment E
CDPH Form 8552

State of California—Health and Human Services Agency | California Department of Public Health

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation June 19 and 20, 2019

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☐ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☑ Other (specify) LBP Survey

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
3630, 3640-3642, 3700 Cypress Ave, 11297-11309 Iris Ln and 11312 Orchard St	El Monte	Los Angeles	91731

Construction date (year) of structure	Type of structure		Children living in structure?	
unknown	☑ Multi-unit building	☐ School or daycare	☐ Yes	☑ No
	☐ Single family dwelling	☐ Other_____	☐ Don't Know	

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
Positive Investments, Inc.	626-321-4860

Address [number, street, apartment (if applicable)]	City	State	Zip Code

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☐ No lead-based paint detected ☐ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☑ Other Beige and White Lead Containing Paint

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Stantec Consulting Services / Alicia Jansen	909-255-8213

Address [number, street, apartment (if applicable)]	City	State	Zip Code
735 E. Carnegie Drive, Suite 280	San Bernardino	CA	92408

CDPH certification number	Signature	Date
LRCIA# 19526		7/3/2019

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Appendix G4

Remedial Action Plan



REMEDIAL ACTION PLAN

3630, 3640, 3700 Cypress Avenue and
11312 Orchard Street

November 15, 2019

Prepared for:

KB Home Southern California
25152 Springfield Court Suite 180
Valencia, California 91335

Prepared by:

Stantec Consulting Services Inc.
735 East Carnegie Drive, Suite 280
San Bernardino CA 92408

This document entitled REMEDIAL ACTION PLAN was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of KB Home Southern California (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by  (signature)

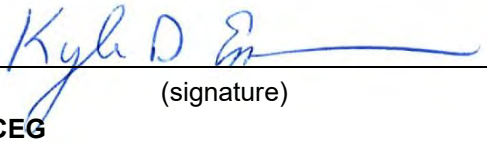
Joshua Sargent, PG

Geologist

Reviewed by  (signature)

Jim DeWoody

Senior Scientist

Approved by  (signature)

Kyle Emerson, CEG

Managing Principal Geologist

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1.0 INTRODUCTION

Stantec Consulting Services, Inc. (Stantec) prepared this Remedial Action Plan (RAP) on behalf of KB Home Southern California (KB Home) for the property located 3630, 3640, 3700 Cypress Avenue and 11312 Orchard Street in El Monte, California (Property or Site). The Property consists of approximately 5.2 acres of land developed with four occupied multi-tenant commercial/light industrial buildings with asphalt parking lots. The current tenants include import/export warehouses, furniture warehouses, woodworking, print press, and storage/maintenance of forklifts and other various machines. Silo structures attached to ventilation ducts appeared on the roof of 3700 Cypress Avenue. Surrounding properties include residential structures and the City of El Monte Transportation Service Yard. A former oil well is reportedly located on the City of El Monte Transportation Service Yard property. A Property location map is illustrated on Figure 1. A Property map illustrating the main features of the Property is provided as Figure 2.

The Subject Property has conducted previous assessments under the oversight of the California Regional Water Quality Control Board, Los Angeles Region (CRWQCB). Those assessments resulted in this Property obtaining a no further action letter from the CRWQCB dated February 21, 1997. Three groundwater monitoring wells remain on the Property as a result of those assessments. Those wells are currently dry and part of the U.S. EPA groundwater monitoring well network for the El Monte groundwater contamination plume that underlies the Property.

Stantec conducted a Phase I Environmental Site Assessment on the Property and issued a report on March 26, 2019. Based on that Phase I ESA a Phase II ESA was completed that identified impact to soil and soil vapor that required action to allow the residential development of the Property. This Remedial Action Plan (RAP) was developed at the request of KB Home and Kimley Horn to complete a self-directive clean-up for the Property with the intent of rendering it suitable for residential development. The RAP has been developed consistent with standard procedures and cleanup objectives issued by government agencies that provide oversight of environmental remediation. It is Stantec's understanding that no government oversight will occur on this Property during the implementation of the RAP.

1.1 PURPOSE

The purpose of this RAP is to use the investigations completed to date and present a plan for remedial actions to address constituents of concern (COCs) in excess of cleanup goals for the purpose of redeveloping the Site for multi-tenant residential use.

1.2 RAP SCOPE

This RAP was developed to remedy detected COCs above typical regulatory screening or cleanup levels identified on the Property. These constituents include volatile organic compounds (VOCs) in all soil vapor and sub-slab vapor samples. The detected VOCs include; chloroform, benzene, and tetrachloroethene (PCE) above the San Francisco Bay Region Water Quality Control Board's (SFBRWQCB) newly published Environmental Screening Levels (ESLs) (January 2019) based on an attenuation factor of 0.03 (Table 1).

Additionally, low levels of diesel range organics (DRO), motor oil range organics (ORO), and arsenic were detected above the residential screening levels in two areas of the Property (Tables 2 and 3).

This RAP describes the methodology, findings and results of the multiple rounds of Phase II ESAs performed at the Property by Stantec between February 28 and March 5, 2019 and presents remedial measures to address elevated COCs in soil and soil vapor. It should be noted that the Property is located over a widespread groundwater contamination plume that has been identified on the National Priority List (NPL) Site and is identified as the San Gabriel Valley Superfund Site. The subject Property is not a named responsible party to this superfund action. Groundwater in the area of the Property has been documented to be impacted with various VOCs including PCE, trichloroethene (TCE), perchlorate, and carbon tetrachloride (CT). Off-gassing of VOCs from the contaminated groundwater could potentially affect soil vapor conditions at the Site and will be addressed in this RAP, but investigation and remediation of VOC impacted groundwater is not included. The procedures and protocols outlined herein are based on the results of previous field investigations performed at the Property (Section 3.0). This RAP includes the following:

- Summary of site conditions
- Summary of site history including environmental site assessments
- Identification and description of COCs and Areas of Concerns (AOCs)
- Description of the proposed remedial alternatives to be implemented to mitigate COCs
- Summary of proposed cleanup goals
- Description of the proposed remedial approach, and
- Summary of reporting requirements

The following describes the organization of the RAP:

- Section 2.0 - Historical Operations - describes historical Site development and operations at the Site.
- Section 3.0 - Historical Investigations - describes historical environmental assessments and investigations at the Site.
- Section 4.0 - Additional Investigations – summarizes the methodology, results and findings of recent investigations.
- Section 5.0 - Remediation Cleanup Goals and General Approach - Describes the cleanup goals that will be implemented during remediation and the general approach to remediation. This includes a general description of the proposed remedial alternatives and a description of engineering controls that will be implemented to mitigate unacceptable health and environmental risks.
- Section 6.0 - Remedial Action Program - Describes the methodology, protocols, and procedures that will be implemented to achieve remediation goals.
- Section 7.0 - Project Reporting - describes the types of reports that may be generated during remediation.
- Section 8.0 - Implementation Schedule – proposes a schedule for implementing remedial actions.
- Section 9.0 – Lists references used in the development of the RAP.

2.0 RECENT AND HISTORICAL OPERATIONS

2.1 RECENT SITE ASSESSMENT

Stantec performed a Phase I ESA for the Property in early 2019. That assessment identified several RECs in connection the with Property. The current and historical site operations observed were considered a RECs that warrant further assessment to evaluate if a release has occurred from these structures to the underlying soil. These RECs are outlined by Property address in the following subsections.

2.1.1 11312-B Orchard Street – Clarifier/Sump

During a site reconnaissance performed in February 2019, Stantec observed a large concrete pad with four metal grates along the northern exterior and a vault in the interior of 11312-B Orchard Street. Four additional metal grates were observed adjacent to the concrete pad. The grates on the concrete pad appear to be a clarifier associated with the former commercial laundry/dry facility and Electra Food operation activities.

According to a report summarizing soil remediation at Electra Foods Machinery, dated February 17, 1995, three areas of contamination were identified including:

- Area 1 – total petroleum hydrocarbons (TPH), toluene, ethylbenzene, total xylenes, and hexavalent chrome in the vicinity of an underground sump;
- Area 2 – hexavalent chromium impacted soil in the vicinity of boring B11; and,
- Area 3 – Shallow TPH impacted soil in the vicinity of borings B2 and B5.

The concrete sump was cleaned and removed on December 12 and 13, 1994. Impacted soil from the three areas was excavated and disposed off-site. Confirmation soil samples were collected, and the excavations were backfilled upon receipt of results. A soil vapor probe was installed into the sump excavation backfill at 15 feet below ground surface (bgs). Aromatic and halogenated compounds were not detected in the soil gas sample suggesting that the sump is not a source of VOC contamination.

According to a Subsurface Soil-Gas Investigation Report, prepared by The Reynolds Group dated August 1995, 15 soil vapor samples from 10 locations from 5 to 40 feet bgs were collected. Only one contaminant (1,1,1-Trichloroethane [TCA]) was detected below the site screening levels. Therefore, no further action related to the soil and soil vapor assessment was recommended.

2.1.2 3700 Cypress Avenue – Former Chemical Storage Areas

According to a map dated April 29, 2002, trench drains were installed for Jayar Manufacturing at approximately this time period. This map identified four (4) trenches listed as 1-foot deep, 63 feet in length, and 15 feet apart. The trenches discharged into an existing clarifier. The location of the clarifier was not depicted on the map. Records showed that Jayar Manufacturing occupied the building for manufacturing of countertop materials until June 30, 2010.

According to the Property Owner representative, the building was recently occupied by a furniture warehouse. An exterior storage shed, and a former flammable storage area were observed along the southeastern exterior of the vacant 3700-B Cypress Avenue building (Figure 2). However, the trenches and clarifier were not observed during the site assessment.

2.1.3 3640 Cypress – Paint Spray Booth

A paint spray booth was identified at the Property address of 3640 Cypress. Although no violations were reported for this unit, releases are known to occur from these features.

2.1.4 11305 Iris Lane - Printing Press Operations

Printing press machinery was observed at the Property address of 11305 Iris Lane. Although no hazardous materials were observed in this space, this machinery are known to leak hydraulic fluid

2.1.5 On-Site Groundwater Monitoring Wells

Stantec also observed two groundwater monitoring wells in the asphalt parking lot east of the 11301-11309 Iris Lane multi-tenant commercial building and one monitoring well southeast of 3700 Cypress Avenue. The three groundwater monitoring wells were installed as part of the site assessment for the former Electra Food Machinery. The former Electra Food Machinery company received a NFA letter from the Los Angeles Regional Water Quality Control related to the soil, soil gas and groundwater monitoring in 1997 and the groundwater monitoring well were transferred to the United States Environmental Protection Agency (EPA) to monitor the regional plume.

2.1.6 Off-Site Oil Well.

According to the Los Angeles Department of Public Works, Solid Waste Management System database, the Property is within 300 feet of an inactive oil well, which is located west of the Property beyond Cypress Avenue on the City of El Monte Transportation Service Yard. Given the proximity of the Property to the inactive oil well, methane mitigation systems for future site buildings may be required.

3.0 SITE INVESTIGATIONS

Between February 28th and March 5, 2019 Stantec provided the services of a field geologist to supervise and direct all on-site assessment activities. Stantec advanced a total of twenty-three (23) soil borings in the areas of concern listed above to a maximum depth of fifteen (15) feet (Figure 2). Soil samples were collected, and soil and sub-slab vapor probes were installed on February 28th and March 1st, 2019. The objective of these investigations was to identify environmental conditions posing a threat to human health or the environment as a result of historical property use. Figure 2 identifies historical Site investigation locations.

The soil vapor samples were collected and analyzed on-site by a mobile laboratory or off-site by a fixed base laboratory for VOCs by method TO-15 selective ion monitoring (SIM). In addition to the soil vapor survey, Stantec field screened the Property for the presence of methane. No methane was detected above background levels during the field screening.

Select soil samples were submitted for analysis of TPH by USEPA method 8015, VOCs by USEPA method 8260, California Title 22 metals by USEPA method 6010, and hexavalent chromium (Cr IV) by USEPA 7196.

A summary of the analytical data from this assessment are summarized in attached Tables 1 through 3. The laboratory test results from this investigation are discussed below and were compared to the more conservative value between the California Department of Toxic Substances Control (DTSC) Human and Ecologic Risk Office (HERO) Note 3 screening levels for residential sites (DTSC, 2019) and the USEPA Regional Screening Levels (RSLs) for residential sites (USEPA, 2019). Soil vapor results were compared to the SFBRWQCB newly published ESLs (January 2019) using an attenuation factor of 0.03.

3.1 SOIL VAPOR ASSESSMENT

Twenty (20) soil vapor or sub-slab probes were installed just below the concrete foundation or asphalt parking lot to a maximum depth of 15 feet below ground surface (bgs) to evaluate soil vapor conditions. The locations selected to address the RECs are shown on Figure 3, attached.

The laboratory reported low levels of volatile organic compounds (VOCs) in all soil vapor and sub-slab vapor samples, including chloroform, benzene, and PCE above the SFBRWQCB ESL's based on an attenuation factor of 0.03 (Table 1). The reported concentrations are as follows:

- Chloroform ranged from less than the laboratory reporting limit to 1,000 micrograms per cubic meter (µg/m^3) in soil vapor sample SV-2-15', located near the sump/clarifiers and associated trenching at 11312 Orchard, Unit B. Elevated concentrations of chloroform, above the background levels, were reported in all six soil vapor samples collected near the sump/clarifier.
- Low levels of Benzene ranged from less than the laboratory reporting limit to 7.6 µg/m^3 in soil vapor sample SV-11-5', located near the storm water vault in the southern corner of the Property.

- PCE ranged from less than the laboratory reporting limit to 180 µg/m^3 in soil vapor sample SV-6-15', located in the parking lot area of 11308 Orchard. SV-6 was one of three soil vapor probes installed away from on-site RECs to assess the regional San Gabriel Valley Superfund plume.

3.2 SOIL ASSESSMENT

Ten soil borings were advanced to a maximum depth of 15 feet bgs to determine if there were any concentrations of COCs in shallow soil that may impact the subsurface at the Property. Low levels of diesel range organics (DRO), motor oil range organics (ORO), and arsenic were detected above the residential screening levels in two areas of the Property (Table 2 and 3).

- Low levels of DRO were detected above the residential screening levels in shallow soil samples HA-2 and HA-3 collected along the interior trench drains connected to the sump/clarifiers at the 11312 Orchard Street (Table 2).
- Arsenic were detected above the residential screening levels in the shallow soil samples SV-9 and SV-10 collected from the flammable exterior storage area located at 3700 Cypress Ave.

The petroleum and arsenic impacts appear limited to the upper few feet of soil in this area, as the five (5) foot soil samples collected from these areas reported DRO, ORO, and arsenic below the residential screening levels.

3.3 POTENTIAL CHEMICALS OF CONCERN

Investigations have been performed at the Site to evaluate the location, extent, and distribution of potential COCs in subsurface media (*i.e.* soil and soil vapor listed above). Historical investigation results were used to facilitate the evaluation of potential COCs. COCs were identified by comparing analyte concentrations reported in onsite media with potential on-site sources. The potential vapor migration of VOCs from the regional plume is an "off-site" source and will be addressed by the proposed vapor barrier design. Contributions from other unknown "off-site" sources are not considered in the evaluation of Site COCs. Onsite analyte concentrations are compared with regulatory screening guidelines to identify whether a particular chemical should be considered a COC.

The screening levels presented below were used to identify potential COCs. These values should not be construed as cleanup goals. The table below identifies potential COCs that were reported in one or more samples above screening levels.

Potential Chemical-of-Concern	Guideline	Concentration
Soil Vapor (VOCs)		
Benzene	DTSC HERO NOTE #3 with modified attenuation factor of 0.03 (April 2019)	3.2 µg/m^3
Chloroform	USEPA RSLs with modified attenuation factor of 0.03 (April 2019)	4.1 µg/m^3

PCE	DTSC HERO NOTE #3 with modified attenuation factor of 0.03 (April 2019)	15 µg/m^3
Soil		
Arsenic	Southern California Background Determination	12 mg/kg
TPH (Diesel Range Organics)	USEPA RSLs (January 2015)	96 mg/kg
TPH (Oil Range Organics)	USEPA RSLs (January 2015)	2,500 mg/kg

Historical and recent investigations consisting of evaluation of soil and soil vapor have reported the potential presence of COCs above preliminary soil screening levels. Based on review of the collected data, and in comparison to the screening levels presented above, the following media are potentially affected by COCs above screening levels.

3.3.1 Soil Vapor

Shallow soil vapor concentrations of VOCs including varying concentrations of benzene, chloroform, and PCE, have been reported above current screening levels based on future residential development across the Site. Figures 3 provide spatial distribution of soil vapor VOC concentrations.

3.3.2 Soil

Based on historical and recent investigation data, DRO and ORO, and arsenic were reported in several soil samples at concentrations above the screening levels presented above (Figure 4). It is noted that ambient or background arsenic concentrations in California typically exceed RSLs (Table 3).

3.3.3 Groundwater

The Property is located over a NPL Site identified as the San Gabriel Valley Superfund Site. Groundwater in the area of the Property has been documented to be impacted with various VOCs including PCE, TCE, perchlorate, and CT.

3.4 CONCEPTUAL SITE MODEL

In order to evaluate potential exposure pathways, a Conceptual Site Model (CSM) was developed that presents potential sources and routes of exposure. The following sections present the details of the completed CSM.

3.4.1 Receptors

This section identifies those receptors that may be exposed to chemicals of potential concern at the Site. Potential receptors include onsite and offsite residential and commercial receptors.

3.4.1.1 Potential Onsite Receptors

Based on development plans for the Site, the future land use will be multi-family residential. No gardening or raising of food on site is anticipated. In preparation for construction, the upper five feet of soil will be

excavated and recompacted. The on-Site residential receptor represents the most sensitively exposed population for direct contact, ingestion and inhalation pathways of exposure.

3.4.1.2 Potential Off-Site Receptors

Potential off-Site receptors include residential and industrial/commercial.

3.4.2 Exposure Pathways

Potential exposure pathways include ingestion, inhalation, and dermal sorption of COCs. The following subsections evaluate the potential for completion of these exposure pathways.

3.4.2.1 Ingestion

COCs may be ingested through contaminated soil, dust, and water. The Property is located over a National Priority List (NPL) Site identified as the San Gabriel Valley Superfund Site. Groundwater in the area of the Property has been documented to be impacted with various VOCs including PCE, TCE, perchlorate, and CT.

However, drinking water is provided to the Site by the City of El Monte who receives its water from City municipal wells and through water purchased from the Metropolitan Water District. No other active wells are located near the Site. Under current conditions, impacted soil has the potential to be ingested by property users and is considered a potentially complete exposure pathway.

The Site will be developed with town homes and no gardening will be performed at the facility.

3.4.2.2 Inhalation

Inhalation of organic vapors and contaminated dust is a potential pathway of exposure for on- and off-site property users. Soil gas data indicate that subsurface organic vapors exist across the entire site at concentrations above preliminary screening levels. Exposure to vapors is currently limited as a result of Site use (industrial) and the presence of surface covers (*i.e.* floor slabs and pavement). Off-gassing of VOCs from the contaminated groundwater could potentially affect soil vapor conditions at the Property. The inhalation pathway is considered potentially complete, based on the presence of VOC concentrations that exceed preliminary screening levels based on the planned residential use scenario. Consequently, mitigation is deemed necessary to address this potential exposure pathway.

3.4.2.3 Direct Contact

Dermal contact requires direct contact with contaminated media. Shallow soil concentrations of arsenic, and to a lesser extent TPH, exceed screening levels, indicating that this exposure pathway is potentially complete. Consequently, mitigation of soil is considered necessary to close this exposure pathway.

4.0 REMEDIATION CLEANUP GOALS AND GENERAL APPROACH

KB Home intends to raze the current Site structures and redevelop the entire Site as residential housing. As stated previously, KB Home's goal is to mitigate health and environmental concerns to levels consistent with residential Site.

Preliminary cleanup goals will follow published regulatory risk-based guidance documents. The cleanup goals for COCs and potential COCs in soil and soil vapor will be consistent with USEPA residential RSL and DTSC HERO residential Note 3, should such impacts be identified.

4.1 PRELIMINARY CLEANUP GOALS

The proposed preliminary cleanup goals for each COC are described below:

4.1.1 Arsenic

Background arsenic in California exceeds the conservative RSLs. Accordingly, the Site cleanup goal for residual arsenic in soil will be based on the DTSC Southern California regional background level of 12 mg/kg (DTSC, 2018).

4.1.2 Total Petroleum Hydrocarbon

TPH has been detected historically in Site soils. The Site cleanup goals for TPH will be the USEPA RSL for residential soil. The Site cleanup goal for TPH are proposed at:

- TPH-g: 82 mg/kg
- TPH-d: 96 mg/kg
- TPH-o: 2,500 mg/kg

4.1.3 Volatile Organic Compounds

Preliminary Site cleanup goals for VOCs in soil will follow the USEPA RSLs or DTSC HERO Note #3. Chloroform, benzene and PCE are the primary VOCs of concern at the Site. The USEPA RSLs or DTSC HERO Note #3 for these compounds are listed at:

- Chloroform: 0.32 mg/kg
- Benzene: 0.33 mg/kg
- PCE: 0.59 mg/kg

Preliminary Site cleanup goals for VOCs in soil vapor will follow the USEPA RSLs or DTSC HERO Note #3. Chloroform, benzene and PCE are the primary VOCs of concern at the Site. The USEPA RSLs or DTSC HERO Note #3 for these compounds are listed at:



- Benzene: 3.2 ug/m3
- Chloroform: 3.1 ug/m3
- PCE: 15 ug/m3

4.2 GENERAL REMEDIAL ACTION

KB Home is in the process of redeveloping the Site into residential housing. Remediation will be accomplished through the implementation of engineering controls. Engineering controls and actions to mitigate impacts from COCs will include physical and engineering development controls as discussed below:

4.2.1 Excavation

Excavation of soil COCs will be conducted to reduce the COCs to levels below the RSL or HERO Note 3. Excavated materials will stockpiled, sampled and properly disposed of off-site.

4.2.2 Engineered Development Controls

Development controls are recommended to reduce the potential for exposure. Development design controls may include recommendations for the construction of vapor barriers under new construction to reduce the potential for vapor intrusion.



5.0 REMEDIAL ACTION PROGRAM

This section describes the methodology and approach to remediation of COCs. In general, the following remedial methodologies have been adopted for each of the COCs and area of concern (AOC). The remedial action areas are depicted on Figures 5 and 6.

AREAS OF CONCERN TABLE

Remedial Approach at Identified Areas of Concern

Area of Concern	Potential COC	Remedial Approach
11312 Orchard – Clarifier/Sump • Floor Drain • Clarifier	VOCs TPH-d	Removal of clarifiers/sump and floor drains along. Performed supplemental excavation of impacted soil immediately around remove structures. Collect soil samples following excavation to confirm no COCs exist above the Site cleanup goals.
3700 Cypress – Former Flammable Storage Area • Flammable Storage Area Storage • Potential Drains and Clarifier	TPH-d TPH-o Arsenic	Shallow excavation of soil impacted with COCs above the Site cleanup goals. Collect soil samples following excavation to confirm no COCs exist above the Site cleanup goals
Site Wide • Low Levels of VOCs in Soil Vapor	Benzene PCE TCE Chloroform	Engineering controls during redevelopment (vapor barriers)

In general, the remediation program will follow the sequence outlined below. However, flexibility will be an important factor in the remediation process to optimize resources as environmental conditions are better understood throughout the demolition and remediation process. In general, the activities described in this RAP will be performed in the sequence described below:

- Removal of drains and clarifier along with shallow impacted soil by excavation.
- Removal of shallow impacted soil by excavation near former flammable storage area.
- Demolition of other structures at the Site.
- Additional investigations and characterization of unknown source area if discovered during demolition will be included in a Soil Management Plan submitted under separate cover.
- Confirmation soil sampling of COCs, as necessary.

5.1 PRE-REMEDIATION ACTIVITIES

Prior to beginning removal operations, appropriate permits will be procured, including clarifier removal permits. All work will be conducted with at least one week's notice to KB Home prior to beginning remedial activities.

A Site-specific health and safety plan (HASP) will be prepared for remedial activities. The HASP will cover Stantec's employees, contractors, support personnel, Site visitors, vendors, and suppliers who may enter the Site during the course of remediation activities. All personnel who are covered by the HASP will be appropriately trained and will be required to sign off on the HASP.

The HASP will, at a minimum, meet the requirements established in 29 CFR 1910.120(b)(4), and will address the following:

- Description of the work
- Project organization
- Site access and controls, including sign-in procedures
- Emergency contact information (24-hour)
- Locations and phone numbers for emergency services
- Identification of potential exposure hazards
- Measures to be implemented to mitigate potential hazards
- Health and safety monitoring (including monitoring instruments and equipment and procedures for use)
- Emergency procedures and information for personnel injury or fire
- Personnel and equipment decontamination procedures prior to leaving the work zones

Health and safety tailgate meetings will be performed at the beginning of each day. The meetings will be documented, signed by attendees, and copies kept with the HASP onsite.

5.2 DEMOLITION

Demolition and removal of the clarifier will start in the northeast corner of the Site. Demolition will be conducted as property ownership is transferred to KB Home. Any USTs encountered during demolition and grading will be removed under the oversight, and in accordance with the requirements, of the City of El Monte Fire Department and/or Los Angeles County Department of Public Works. Prior to removal, a UST removal permit will be procured for any USTs discovered during demolition. Septic tanks will be evacuated and cleaned prior to removal to prevent discharge of contents to the environment.

If USTs are discovered, soil samples will be collected below these structures in accordance with the requirements of the City of El Monte Fire Department and/or Los Angeles County Department of Public Works. Samples will be delivered to the laboratory for analysis of suspect contaminants. Analyses may include, but not limited to, TPH, VOCs, and Title 22 metals. Depending on the results of these analyses, additional testing may be conducted for soluble metals (where total concentrations exceed 5 times the California Soluble Threshold Limit Concentration), pesticides and/or polychlorinated biphenyls (PCBs).

Inspections will be conducted throughout the demolition process to identify potential sources or areas of potential staining or chemical odor. In addition, periodic screening for VOCs using a photo ionization detector (PID) will be conducted to assure compliance with South Coast Air Quality Management District (SCAQMD) requirements, and to evaluate the potential existence of volatile COCs.

Soil samples will be collected below potential sources and from stained/odorous soils to assess whether additional remedial actions are warranted in these areas. Soil samples will be analyzed for metals, TPH, and VOCs. Additional analysis for PCBs will be conducted should staining be encountered in transformer areas.

5.3 REMEDIATION OF CHEMICALS-OF-CONCERN

As indicated in Section 4.1 above, the COCs requiring remediation include arsenic and TPH in soil, and VOC in soil vapor. The following subsections describe the proposed remedial actions for COCs. The final remedy for each COC will be based on multiple factors including economic feasibility, professional judgment, the parameters of the CSM, accessibility, and time constraints.

5.3.1 Excavation

Excavation of COCs and potential COCs to reduce the on-Site UCL95 in the upper five feet to below the RSL will be conducted using excavation equipment (*i.e.* backhoes, excavators, bobcats, etc.). The open face of the exposed excavation may be limited to reduce the potential for vapor and dust migration. The potential for exposure to airborne COCs will be controlled during excavation using suppressants. Suppressants may include water, plastic sheeting, or other chemical suppressants. It is believed that water and plastic coverings will be sufficient to control dust and other COCs at this time.

Areas of active remedial excavation will be considered exclusion zones to control access and to reduce the potential for migration of contamination. Berms or sandbags will be placed around open excavations prior to any rain event to prevent runoff from entering the excavations and/or spreading contamination in the exclusion zones.

All remedial excavations and remedial activities will be performed under appropriate regulatory permits, but without regulatory oversight. Excavation of impacted soil will begin in those areas that have known impacts (above cleanup goals) based on the results of previous investigations. Specifically, excavation will begin at the point of highest known concentration based on previous investigations and will move outward and downward until Site soil cleanup goals are achieved, or until deeper excavation is not feasible.

5.3.1.1 Excavation Screening

Screening activities performed during excavation will entail visual and olfactory observations, VOC monitoring using a PID (where appropriate). Continuous oversight of excavation activities will be conducted to assess the potential for chemical impacts based on evidence of staining, discoloration, chemical odors, etc. A PID will be used in the field to screen for VOCs in accordance with SCAQMD Rule 1166 air permit requirements. The PID will be calibrated to hexane, in accordance with the Rule 1166 permit, on a daily basis in accordance with manufacturer specifications. The PID will be used throughout excavation to



monitor for potential VOC impacts and to guide remediation and investigation. Field observations and PID measurements will be documented in field notes. In addition, the dust will be monitored in accordance with SCAQMD rule 1466.

5.3.1.2 Excavation Confirmatory Samples

Subsequent to excavation, soil samples from the sidewalls and bottom of each excavation will be collected and analyzed for the COCs documented for that area. The purpose of this sampling will be to evaluate whether typical regulatory cleanup goals shown above have been achieved and whether additional investigation and excavation will be needed. Backfilling of these areas will only be performed following confirmation that the soil sample results are below the Site cleanup goal and/or as directed by the client.

Confirmation soil samples will be collected in a glass jar or drive sampler lined with clean brass, stainless steel, or acetate liners. Where access to the bottom and sidewalls is unsafe, grab samples will be collected directly from the excavator bucket. Grab samples will be sealed in laboratory grade glass jars using Teflon lined screw cap lids. Samples collected in brass or stainless-steel tubes will be capped on each end with a Teflon sheet, followed by a tight-fitting plastic cap, and sealed with self-adhering silicon tape. Samples will be labeled with a unique identification number, type of sample, the sample location, the sample depth, and the sample sequence, if applicable. The sample number will be legibly entered on the chain-of-custody form and the sample label. Soil samples will be analyzed at either an offsite laboratory or onsite mobile laboratory certified by the California Environmental Laboratory Accreditation Program (ELAP) for the COCs in the area of excavation.

The number of samples required to confirm cleanup will be determined based on the surface area of the excavation (wall or floor) to be sampled or as directed by the appropriate regulatory authority. Unless directed otherwise , a minimum of one sample per 25 lineal feet of sidewall or one sample per 100 square feet of exposed sidewall face (whichever is greater) will be collected for laboratory analysis, with a minimum of one sample collected per sidewall. Samples will be collected randomly within the sidewall area to be sampled. For the excavation bottom, the surface will be gridded into 20-foot square grids and a sample will be collected randomly within each grid square, with a minimum of one sample collected from the excavation bottom.

Duplicate QA/QC samples will be included for analysis of soil samples. QA/QC samples will be labeled and sent to the laboratory along with the actual samples for analysis. The collection and handling of all QA/QC samples will be documented in the field notebook. Approximately one field duplicate will be submitted per 20 soil samples (5 percent – minimum of one sample).

5.3.1.3 Stockpile/Waste Management

Management of excavated material that will be disposed of offsite will include handling, classification, profiling, loading, and final disposition.

Excavated material will be stockpiled for characterization in bermed and plastic lined stockpile cells to prevent spreading of contamination. Additionally, stockpiles will be covered with plastic sheeting to contain the waste materials and to reduce fugitive dust or VOC emissions.

Excavated wastes will be stockpiled and segregated, if necessary, based on visual characteristics (i.e., debris, soil, soil-like material, concrete, etc.). Similarly, potentially clean materials will be segregated from potentially TPH and VOC impacted materials. Further segregation of the excavated materials will then be based on PID response. As stockpiles are generated, each stockpile will be assigned an identification number that will be logged in the project field file and painted on the plastic stockpile cover.

5.3.1.4 Waste Classification and Profiling

Subsequent to segregation and stockpiling, any waste streams will be profiled by collecting representative grab samples and sending the samples to the analytical laboratory for analysis. The number of samples and analyses performed will be determined by the disposal facility's waste acceptance criteria (WAC). The facility waste profiling requirements will likely include chemical characteristics (TPH, pH, metals, pesticides, PCBs, VOCs, etc.), and physical characteristics (i.e. density, moisture content, etc.). Once the analyses are completed, waste profile forms will be submitted to the disposal facility. Analytical results will be reviewed and compared to state and federal regulatory waste classification guidelines and acceptance criteria of the disposal facility.

5.3.1.5 Loading and Final Disposition

Once the waste profile for a given waste stream is approved by the disposal facility, wastes will be scheduled for shipment. Wastes will be loaded into trucks using a loader or excavator and all shipments will be conducted in accordance with applicable state and federal regulations including DOT regulations and guidelines. A bill of lading, waste manifest, labels, and placards (if applicable) will accompany each waste shipment. A manifest log will be maintained onsite.

All hazardous wastes (RCRA and non-RCRA) generated at the Site will be managed in compliance with KB Home requirements and shipped by an approved waste disposal contractor to an approved waste treatment, storage and disposal facility.

Trucks and excavators will be swept or brushed prior to leaving the Site to remove loose soil. Similarly, equipment will be decontaminated by pressure washing in a containment area. All liquids will be contained, profiled, and disposed offsite in accordance with federal, state, and local regulations.

5.3.2 VAPOR BARRIERS

The soil vapor data collected from multiple rounds of assessment indicated that there is a potential concern to the proposed residential development due to the risk of vapor intrusion as the result of off-gassing of the residual contaminant concentrations. Therefore, Stantec recommended vapor mitigation, in the form of vapor barriers, below all the proposed units planned for the Site. The vapor barrier will be incorporated into the design of the buildings and will also include below grade piping for venting should venting be necessary. All vapor barrier designed will be developed by another consultant and provided to Stantec for review prior to placement. Inspection of the barriers should occur after installation to insure performance.



5.4 CLOSURE

With confirmation that soil in the upper five feet to below Site cleanup goals closure will be recommended. Closure will be conditioned on the fact that vapor barriers will be installed below future inhabitable structures. It is anticipated that closure will be achieved first for the soil portion of the Site and then soil vapor following review and approval by the City of El Monte Building Department. Soil vapor barriers will be installed beneath the future developments at the Site to significantly decrease the exposure pathways to any onsite receptor.

6.0 PROJECT REPORTING

Sufficient documentation of project activities will be provided in a final Site closure report. Such documentation will include the use of photographs and written descriptions of work activities to support Site closure. This section outlines the various forms of documentation and the fundamental considerations included within the documentation program.

6.1 PHOTOGRAPHIC DOCUMENTATION

Photographic documentation will be used to provide chronological documentation of Site remediation activities. Photographs will provide a cataloged sequence for each specific activity.

6.2 WRITTEN DOCUMENTATION

Written field documentation will summarize the following major activities:

- Site safety meetings
- Progress of work in relation to the proposed scope of work
- Factors or conditions that may affect the remediation activities
- Field observations and results of onsite sampling and/or field measurements
- Disposition of wastes

The documentation will provide comprehensive tracking of all remediation operations, Site locations, management of impacted materials, and any field measurements.

6.3 FINAL REPORT

At the completion of remediation activities, a final report will be prepared and submitted to the KB Home. The final report will include:

- A summary and sequence of activities performed during remediation;
- Analytical results from any additional investigations, step-out boring, and stockpile sampling;
- Results of confirmation sampling, including quantities of materials excavated and analytical results;
- Record of contamination remaining onsite, including burial pit locations, burial pit depth and dimensions, survey data, and benchmark reference points;
- Final disposition of any wastes removed from the Site, including weigh tickets, bills of lading, and/or manifests;
- Summary of deviations and resolution of deviations from the protocols described in this RAP; and,
- A recommendation for closure.

The final report will be issued in draft form to the KB Home and Kimley Horn, and will be revised, as necessary, based on comments from the KB Home and Kimley Horn.

7.0 REFERENCES

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TABLES

TABLE 1
SUMMARY OF SOIL VAPOR ANALYTICAL RESULTS
KB Home - El Monte - Cypress Ave
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Volume [1]	Sample Date	DCFM (F12) (µg/m3)	Chloromethane (µg/m3)	Bromomethane (µg/m3)	TCFM (F11) (µg/m3)	TBA (µg/m3)	1,1,2-TCTFM (µg/m3)	Methylene chloride (µg/m3)	Carbon Disulfide (µg/m3)	2-Butanone (MEK) (µg/m3)	Chloroform (µg/m3)	1,1,1-TCA (µg/m3)	Benzene (µg/m3)	Carbon tetrachloride (µg/m3)	TCE (µg/m3)	Bromodichloromethane (µg/m3)	4-Methyl-2-pentanone (µg/m3)	Toluene (µg/m3)
Soil Vapor Samples																				
Residential Screening Level for Soil Vapor using RSL or HERO NOTE 3 and Attenuation Factor of 0.001 (µg/m^3) [2] [3]				100,000	94,000	NE	*1,300,000*	NE	NE	*1,000*	730,000	5,200,000	120	*1,000,000*	*97*	*67*	480	*76*	3,100,000	*310,000*
Residential Screening Level for Soil Vapor comparing RSL, HERO Note 3, or ESLs (µg/m^3) [2] [3]				*100,000*	*3,100*	*170*	*1,300,000*	*NE*	*NE*	*34*	*730,000*	*170,000*	*4.1*	*35,000*	*3.2*	*2.2*	*16*	*2.5*	*3,100,000*	*10,000*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	2313cc- 3 Vol Purge	3/5/2019	3.2 J	0.3 J	<3.2	2.8 J	<12	6.0 J	<2.8	7.6	5.5	26	0.4 J	3.2	<2.6	<4.4	<2.7	3.2 J	54
	SV-1-15	2358cc - 3 Vol Purge	3/5/2019	2.8 J	0.3 J	<1.6	4.1	<6.1	11	<1.4	1.0 J	3.6	860	1.4 J	0.5 J	<1.3	0.2 J	<2.7	0.4 J	4.0
	SV-2-5	2313cc- 3 Vol Purge	3/5/2019	2.7 J	0.3 J	<1.6	6.5	0.9 J	5.2	0.3 J	11	14	19	<3.1	4.2	0.4 J	0.5 J	<2.7	5.9	36
	SV-2-15	2358cc - 3 Vol Purge	3/5/2019	2.9 J	0.4 J	<1.6	3.7	<6.1	9.6	<1.4	32	8.6	1,000	1.4 J	3.2	0.3 J	0.5 J	<2.7	0.4 J	20
	SV-3-5	2313cc- 3 Vol Purge	3/5/2019	2.2 J	<0.8	<1.6	1.6 J	0.9 J	2.7 J	0.4 J	9.1	3.9	51	0.4 J	4.5	<1.3	<2.2	<2.7	5.6	34
	SV-3-15	2358cc - 3 Vol Purge	3/5/2019	2.3 J	0.3 J	<1.6	2.5	<6.1	5.8	<1.4	6.2	15	960	1.0 J	1.5	<1.3	<2.2	<2.7	14	12
11309 Iris Lane	SV-6-5	2313cc- 3 Vol Purge	3/5/2019	3.3 J	0.3 J	<1.6	4.7	1.1 J	18	0.2 J	8.8	13	<1.0	2.7	1.7	<1.3	0.3 J	<2.7	1.9 J	17
	SV-6-15	2358cc - 3 Vol Purge	3/5/2019	<4.0	0.4 J	<1.6	8.6	<6.1	34	<1.4	1.5	11	<1.0	9.7	0.6 J	<1.3	0.3 J	<2.7	0.4 J	3.1
3630 Cypress Ave. (Near Former Oil Well)	SV-7-5	2313cc- 3 Vol Purge	3/5/2019	4.1 J	<0.8	<1.6	2.6 J	<6.1	4.2 J	<1.4	0.3 J	4.5 J	<1.0	2.3 J	0.5 J	<1.3	<2.2	<2.7	<3.3	2.3 J
	SV-7-15	2358cc - 3 Vol Purge	3/5/2019	3.2 J	0.1 J	<1.6	2.6	1.0 J	5.3	0.2 J	1.1 J	14	<1.0	3.4	0.5 J	<1.3	<2.2	<2.7	1.6 J	5.4
3640 Cypress Ave. (Near Former Oil Well	SV-8-5	2313cc- 3 Vol Purge	3/5/2019	4.3 J	<1.7	<3.2	2.8 J	<12	6.2	<1.4	<2.5	5.7	<2.0	3.8	0.5 J	<2.6	<4.4	<5.4	4.6 J	6.6
	SV-8-15	2358cc - 3 Vol Purge	3/5/2019	3.8 J	0.3 J	<1.6	3.6	1.0 J	10	0.4 J	0.3 J	14	<1.0	7.7	0.8	<1.3	<2.2	<2.7	1.0 J	3.1
3700 Cypress Ave. (Flammable Storage Are)	SV-9-5	2313cc- 3 Vol Purge	3/5/2019	<4.0	0.3 J	<1.6	1.5 J	3.1 J	2.1 J	0.2 J	10	6.6	0.5 J	21	3.4	<1.3	0.3 J	0.3 J	4.8	34
	SV-9-15	2358cc - 3 Vol Purge	3/5/2019	3.5 J	1.6 J	<3.2	2.7 J	<12	4.8 J	0.4 J	12	5.5	<2.0	73	2.1	<2.6	0.4 J	<5.4	<6.6	20
	SV-9-15 REP	2358cc - 3 Vol Purge	3/5/2019	3.8 J	1.1 J	<1.6	2.8 J	<6.1	6.0 J	<2.8	7.6	2.8	<2.0	89	1.2 J	<2.6	<4.4	<5.4	<6.6	14
	SV-10-5	2313cc- 3 Vol Purge	3/5/2019	2.2 J	0.9	0.3 J	1.9 J	3.0 J	2.6 J	1.1 J	5.4	9.4	0.7 J	30	3.4	0.3 J	<2.2	0.5 J	1.7 J	14
	SV-10-15	2358cc - 3 Vol Purge	3/5/2019	2.2 J	0.4 J	<1.6	2.9	2.2 J	6.4	0.3 J	0.7 J	8.8	<1.0	86	1.3	<1.3	<2.2	<2.7	0.7	7.3
South Corner of Site (Stormwater Vault)	SV-11-5	2313cc- 3 Vol Purge	3/5/2019	2.1 J	0.4 J	<1.6	1.7 J	1.5 J	1.0 J	0.3 J	20.0	5.1	1.5 J	2.3	7.6	<1.3	0.5 J	0.6 J	2.9	74
	SV-11-15	2358cc - 3 Vol Purge	3/5/2019	2.0 J	0.4 J	<1.6	1.5 J	<6.1	1.0 J	0.4 J	1.9	8.4	<1.0	5.3	0.8	<1.3	<2.2	<2.7	0.3 J	5.2

Boring Location	Sample ID	Sample Volume [1]	Sample Date	DCFM (F12) (µg/m3)	Chloromethane (µg/m3)	Bromomethane (µg/m3)	TCFM (F11) (µg/m3)	TBA (µg/m3)	1,1,2-TCTFM (µg/m3)	Methylene chloride (µg/m3)	Carbon Disulfide (µg/m3)	2-Butanone (µg/m3)	Chloroform (µg/m3)	1,1,1-TCA (µg/m3)	Benzene (µg/m3)	Carbon tetrachloride (µg/m3)	TCE (µg/m3)	Bromodichloromethane (µg/m3)	4-Methyl-2-pentanone (µg/m3)	Toluene (µg/m3)
Sub-slab Vapor Samples																				
Residential Screening Level for Soil Vapor with ESLs (µg/m^3) [4]				*NE*	*3,100*	*170*	*NE*	*NE*	*NE*	*34*	*NE*	*170,000*	*4.1*	*35,000*	*3.2*	*2.2*	*16*	*2.5*	*NE*	*10,000*
11305 Iris Lane	SV-4	121cc- 3 Vol Purge	3/5/2019	4.9 J	0.6 J	<3.2	2.4 J	46	4.0 J	1.3 J	1.1 J	67	<2.0	34	8.3	<2.6	0.4 J	<5.4	17	24
Paint Spray Booth	SV-5	121cc- 3 Vol Purge	3/5/2019	2.9 J	1.1 J	<3.2	3.7 J	2.9 J	1.1 J	0.5 J	0.8 J	18	0.5 J	1.2 J	1.7	<2.6	<4.4	<5.4	3.1 J	3.7 J

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KB Home - El Monte - Cypress Ave
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Volume [1]	Sample Date	2-Hexanone (µg/m3)	PCE (µg/m3)	Chlorobenzene (µg/m3)	Ethylbenzene (µg/m3)	m.p-Xylene (µg/m3)	Styrene (µg/m3)	o-Xylene (µg/m3)	4-Ethyltoluene (µg/m3)	1,3,5-TMB (µg/m3)	1,2,4-TMB (µg/m3)	1,4-DCB (µg/m3)	Naphthalene (µg/m3)	Hexachlorobutadiene (µg/m3)	Other VOCs	Methane (%)
Soil Vapor Samples																		
Residential Screening Level for Soil Vapor using RSL or HERO NOTE 3 and Attenuation Factor of 0.001 (µg/m^3) [2] [3]				31,000	*460*	52,000	1,100	100,000	*940,000*	100,000	*NE*	63,000	63,000	260	83	130	*various*	*NE*
Residential Screening Level for Soil Vapor comparing RSL, HERO Note 3, or ESLs (µg/m^3) [2] [3]				*31,000*	*15*	*1,700*	*37*	*3,500*	*31,000*	*3,500*	*NE*	*63,000*	*63,000*	*8.5*	*2.8*	*4.3*	*various*	*5.0*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	13	<3.7	30	110	1.9 J	33	2.4 J	2.2 J	8.1	1.1 J	1.0 J	<21	< *various*	0.0
	SV-1-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	53	<1.9	1.4 J	8.0	0.9 J	2.5	0.3 J	0.4 J	3.3	1.1 J	0.7 J	<11	< *various*	0.0
	SV-2-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	9.4	0.7 J	8.0	25	1.3 J	8.1	0.8 J	1.0 J	3.3	0.3 J	0.3 J	<11	< *various*	0.0
	SV-2-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	39	<1.9	2.9	21	1.3 J	6.5	0.3 J	1.0 J	3.3	0.9 J	0.3 J	<11	< *various*	0.0
	SV-3-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	7.3	<1.9	6.3	21	2.1	6.9	1.1 J	0.9 J	4.1	0.9 J	0.6 J	<11	< *various*	0.0
	SV-3-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	31	<1.9	4.4	15	3.8	4.7	1.1 J	0.9 J	4.2	1.7 J	1.1 J	<11	< *various*	0.0
11309 Iris Lane	SV-6-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	54	<1.9	6.7	22	1.6 J	6.9	1.2 J	1.5 J	4.9	0.3 J	0.5 J	0.9 J	< *various*	0.0
	SV-6-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	180	<1.9	1.2 J	5.0	2.4	1.8	0.4 J	0.4 J	2.0	1.6 J	0.7 J	<11	< *various*	0.0
3630 Cypress Ave. (Near Former Oil Well)	SV-7-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	6.1	<3.7	0.7 J	3.1 J	1.0 J	1.3 J	<4.0	0.5 J	1.9 J	0.7 J	0.6 J	<21	< *various*	0.0
	SV-7-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	16	<1.9	2.6	9.8	2.9	3.8	1.1 J	1.2 J	5.6	1.2 J	0.9 J	<11	< *various*	0.0
3640 Cypress Ave. (Near Former Oil Well	SV-8-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	14	<3.7	2.8	14	1.7	3.6	1.8 J	3.2 J	12	1.6 J	1.7 J	<21	< *various*	0.0
	SV-8-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	39	<1.9	1.2 J	3.4	3.0	1.3	0.4 J	0.5 J	2.1	1.6 J	1.0 J	<11	< *various*	0.0
3700 Cypress Ave. (Flammable Storage Are)	SV-9-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	5.0	1.0 J	9.7	30	14	9.4	2.0	2.4	8.1	0.5 J	0.8 J	<11	< *various*	0.0
	SV-9-15	2358cc - 3 Vol Purge	3/5/2019	<6.6	30	<3.7	5.5	21	8.4	5.8	1.3 J	1.2 J	6.1	2.2 J	1.0 J	<21	< *various*	0.0
	SV-9-15 REP	2358cc - 3 Vol Purge	3/5/2019	<6.6	37	<3.7	4.0	16	7.1	4.6	1.3 J	0.9 J	4.4	1.6 J	0.6 J	<21	< *various*	0.0
	SV-10-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	11	<1.9	2.6	5.3	<1.7	1.9	0.2 J	0.2 J	0.5 J	<2.4	<2.1	<11	< *various*	0.0
	SV-10-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	47	0.5	2.9	9.6	5.7	3.2	1.0 J	0.7 J	3.1	1.0 J	0.3 J	<11	< *various*	0.0
South Corner of Site (Stormwater Vault)	SV-11-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	3.9	<1.9	27	76	27	26	<2.0	<2.0	<2.0	<2.4	<2.1	<11	< *various*	0.0
	SV-11-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	9.4	<1.9	4.3	19	2.2	8.5	1.1 J	2.8	22	1.2 J	0.7 J	<11	< *various*	0.0

Boring Location	Sample ID	Sample Volume [1]	Sample Date	2-Hexanone (µg/m3)	PCE (µg/m3)	Chlorobenzene (µg/m3)	Ethylbenzene (µg/m3)	m.p-Xylene (µg/m3)	Styrene (µg/m3)	o-Xylene (µg/m3)	4-Ethyltoluene (µg/m3)	1,3,5-TMB (µg/m3)	1,2,4-TMB (µg/m3)	1,4-DCB (µg/m3)	Naphthalene (µg/m3)	Hexachlorobutadiene (µg/m3)	Other VOCs	Methane (%)
Sub-slab Vapor Samples																		
Residential Screening Level for Soil Vapor with ESLs (µg/m^3) [4]				*NE*	*15*	*1,700*	*37*	*3,500*	*31,000*	*3,500*	*NE*	*NE*	*NE*	*8.5*	*2.8*	*4.3*	*various*	*5.0*
11305 Iris Lane	SV-4	121cc- 3 Vol Purge	3/5/2019	9.4	15	<1.9	6.2	21	1.5	9.8	7.2	13	38	<4.9	2.4 J	<21	< *various*	0.0
Paint Spray Booth	SV-5	121cc- 3 Vol Purge	3/5/2019	<3.3	21	<1.9	4.0	18	1.6 J	5.5	0.7 J	0.8 J	2.8 J	<4.9	0.5 J	<21	< *various*	0.0

Notes:
(1) - Sample collected via 1L summa canister.
(2) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) using an Attenuation Factor of 0.001 and Cancer Risk of 1e-06 and a Hazard Quotient of 1.
(3) - Residential DTSC HERO HHRA Note #3 (June 2018) using an Attenuation Factor of 0.001 and Cancer Risk of 1e-06 and a Hazard Quotient of 1. (DTSC CAL EPA, October 2011 Final Guidance for the Evaluation and Mitigation of Substance Vapor Intrusion to Indoor Air).
(4) - SFRWQCB ESLs - Sub slab/ Soil Gas (µg/m3) January 2019
"<" - Results reported below Laboratory Reporting Limit.
CA EPA - California Environmental Protection Agency
DTSC - Department of Toxic Substance Control
HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment
Orange shading indicates value above the ESLs (0.03 attenuation factor) residential screening level.
Red shading indicates value above the RSLs or HERO Note 3 (0.001 attenuation factor) residential screening level.

PCE - Tetrachloroethene
1,2,4 - 1,2,4-Trimethylbenzene
1,3,5 - 1,3,5-Trimethylbenzene
DCFM - Dichlorodifluoromethane (F12)
TCFM - Trichlorodifluoromethane (F11)
TBA - Trichlorodifluoromethane (F11)
1,1,2-TCTFM- Tertiary-butyl alcohol
TCDFM - Trichlorodifluoromethane

µg/m3 - Micrograms per Cubic Meter
NE - Not Established
EPA - United States Environmental Protection Agency
ESLs - Environmental Screening Levels
SFRWQCB - San Francisco Bay Regional Water Quality Control Board

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS -TPH VOCs
KB Home El Monte -Cypress Ave., CALIFORNIA

Boring Location	Sample ID	Sample Depth	Sample Date	TPH (8015B) (mg/Kg)						
				GRO	DRO	ORO	Ethylbenzene	p/m-Xylene	o-Xylene	Various
Residential US EPA RSL (mg/kg) (1)				*82*	*96*	*2,500*	*5.8*	*550*	*650*	*Various*
Residential DTSC HERO Note No. 3 (mg/kg) (1)				*NE*	*NE*	*NE*	*NE*	*NE*	*NE*	*Various*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	5	2/28/2019	<1.0	27	31	6.1	32	13	<various
	SV-1-10	10		<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-2-5	5	2/28/2019	<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-2-10	10		<1.0	46	<10	<5.0	<10	<5.0	<various
	SV-3-5	5	2/28/2019	<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-3-10	10		<1.0	<10	<10	<5.0	<10	<5.0	<various
	HA-2-2	2	2/28/2019	<1.0	110	220	<5.0	<10	<10	<various
	HA-3-2	2	2/28/2019	<1.0	100	220	<5.0	<10	<10	<various
11305 Iris Lane	SV-4-1	1	2/28/2019	<1.0	40	65	NA	NA	NA	<various
	HA-1-1	1	2/28/2019	<1.0	26	57	NA	NA	NA	<various
Paint Spray Booth	SV-5-1	1	2/28/2019	<1.0	59	120	<5.0	<10	<10	<various
3700 Cypress Ave. (Flammable Storage Are)	SV-9-1	1	3/1/2019	<1.0	84	160	<5.0	<10	<10	<various
	SV-9-5	5	3/1/2019	<1.0	<10	<10	<5.0	<10	<10	<various
	SV-10-1	1	3/1/2019	<1.0	2,300	7,500	<5.0	<10	<10	<various
	SV-10-5	5	3/1/2019	<1.0	<10	<10	<5.0	<10	<10	<various

Notes:

(1) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) and the Residential CAL EPA DTSC HERO Note #3 (June 2018).

CA EPA - California Environmental Protection Agency

DTSC - Department of Toxic Substance Control

HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment

mg/Kg - milligrams per kilograms

US EPA - United States Environmental Protection Agency

NA - Not Analyzed

NE - Not Established

VOC - Volatile Organic Compounds

Red shading indicates value above the residential screening level.

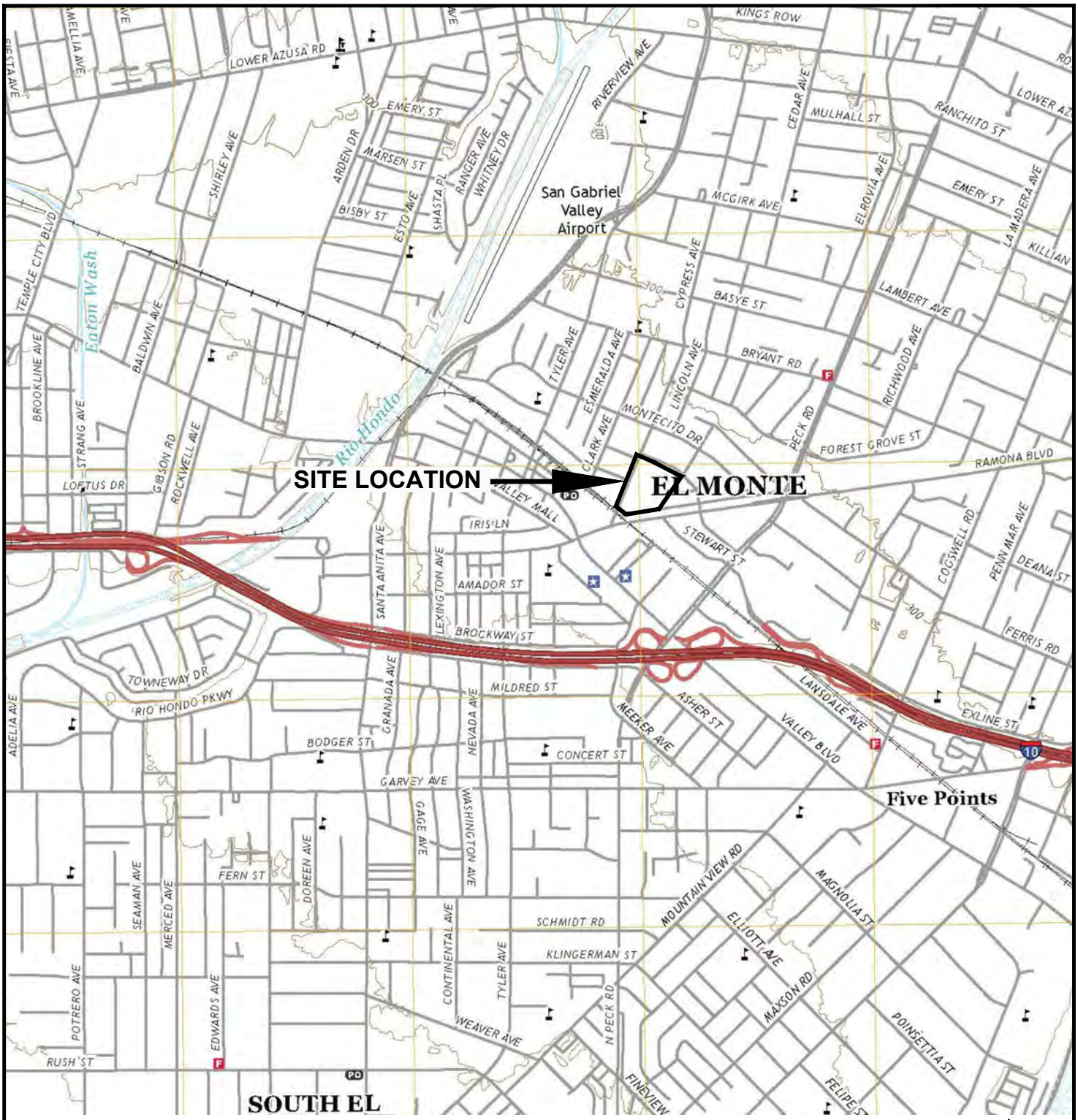
TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS - METALS
KB Home - EL Monte -Cypress Ave.
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Depth	Sample Date	Metals (6010B) (mg/Kg)																	
				Antimony	Arsenic [2]	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Residential US EPA RSL (mg/kg) [1]				*470*	*0.68*	*15,000*	*2,300*	*2,100*	*NE*	*0.3*	*230*	*3,100*	*400*	*11*	*390*	*NE*	*390*	*5,800*	*0.78*	*390*	*23,000*
Residential DTSC HERO Note No. 3 (mg/kg) [1]				*NE*	*0.11*	*NE*	*210*	*5.2*	*NE*	*NE*	*NE*	*NE*	*80*	*1.0*	*NE*	*490*	*NE*	*1,500*	*NE*	*390*	*NE*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	5	2/28/2019	<2.0	1.3	93	<1.0	<1.0	12	<1.0	6.8	13	1.4	<0.10	<1.0	9.7	<1.0	<1.0	<1.0	21	34
	SV-1-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SV-2-5	5	2/28/2019	<2.0	2.6	130	<1.0	<1.0	19	<1.0	6.8	52	4.9	<0.10	<1.0	13	<1.0	<1.0	<1.0	25	140
	SV-2-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SV-3-5	5	2/28/2019	<2.0	1.7	110	<1.0	<1.0	13	<1.0	7.1	18	6.5	<0.10	<1.0	11	<1.0	<1.0	<1.0	24	56
	SV-3-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HA-2-2	2	2/28/2019	<2.0	2.7	90	<1.0	<1.0	17	<1.0	8.9	46	48	0.13	<1.0	16	<1.0	<1.0	<1.0	23	320
	HA-3-2	2	2/28/2019	<2.0	3.3	94	<1.0	<1.0	21	<1.0	8.4	33	25	<0.10	<1.0	17	<1.0	<1.0	<1.0	27	130
11305 Iris Lane	SV-4-1	1	2/28/2019	<2.0	1.1	66	<1.0	<1.0	13	<1.0	6.5	13	8.8	<0.10	<1.0	8.8	<1.0	<1.0	<1.0	23	37
	HA-1-1	1	2/28/2019	<2.0	1.3	75	<1.0	<1.0	11	NA	8.0	13	6.7	<0.10	<1.0	11	<1.0	<1.0	<1.0	26	28
Paint Spray Booth	SV-5-1	1	2/28/2019	<2.0	1.2	340	<1.0	<1.0	14	<1.0	9.6	21	8.3	<0.10	<1.0	12	<1.0	<1.0	<1.0	33	40
3700 Cypress Ave. (Flammable Storage Are)	SV-9-1	1	3/1/2019	<2.0	45	110	<1.0	<1.0	14	NA	7.6	24	22	<0.10	<1.0	11	<1.0	<1.0	<1.0	24	85
	SV-9-5	5	3/1/2019	<2.0	2.7	110	<1.0	<1.0	16	NA	8.7	21	3.6	<0.10	<1.0	12	<1.0	<1.0	<1.0	30	40
	SV-10-1	1	3/1/2019	<2.0	24	64	<1.0	<1.0	12	NA	6.7	63	23	<0.10	<1.0	11	<1.0	<1.0	<1.0	21	33
	SV-10-5	5	3/1/2019	<2.0	2.8	83	<1.0	<1.0	14	NA	8.4	17	2.9	0.17	<1.0	11	<1.0	<1.0	<1.0	29	36

Notes:
(1) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) and the Residential CAL EPA DTSC HERO Note #3 (June 2018).
(2) - Background range for Arsenic is 11 mg/kg within Southern California.
CA EPA - California Environmental Protection Agency
DTSC - Department of Toxic Substance Control
HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment

NA - Not Analyzed
NE - Not Established
mg/Kg - milligrams per kilograms
US EPA - United States Environmental Protection Agency
Red shading indicates value above the residential screening level.

FIGURES





QUADRANGLE LOCATION

0 2000 4000

APPROXIMATE SCALE (FEET)

N

SOURCE:
USGS 7.5 MINUTE
TOPOGRAPHIC MAP–
EL MONTE, CA QUADRANGLE, 2018

Stantec
735 E. CARNEGIE DRIVE, SUITE 280
SAN BERNARDINO, CALIFORNIA 92408
PHONE: (909) 335-6116 FAX:(909) 335-6120

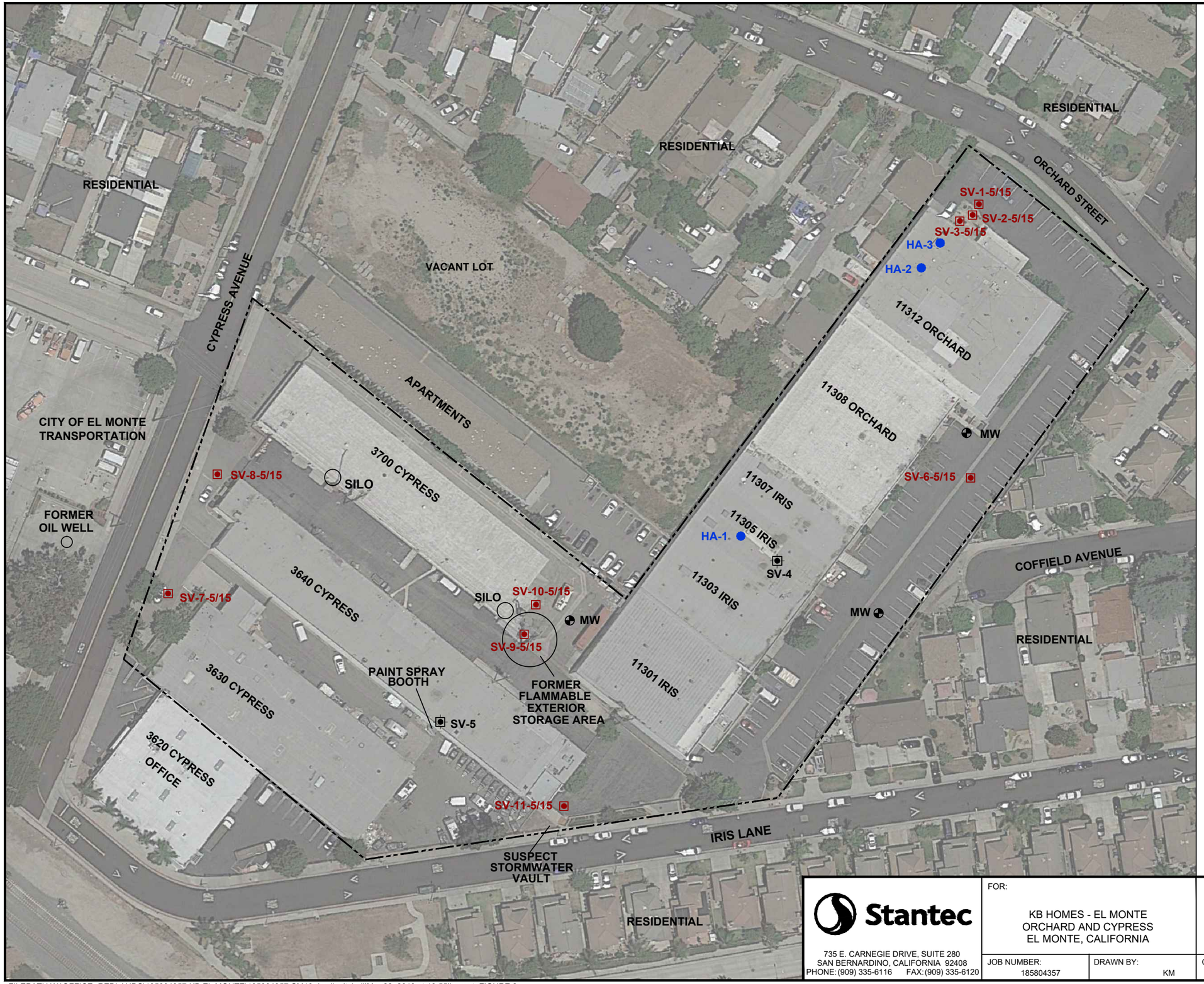
FOR:
KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SITE LOCATION MAP

FIGURE:
1

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SLM19.dwg|kmitchell|Mar 20, 2019 at 13:06|Layout: FIGURE 1



LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

0 80 160

APPROXIMATE SCALE (FEET)

N

Stantec
735 E. CARNEGIE DRIVE, SUITE 280
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PHONE:(909) 335-6116 FAX:(909) 335-6120

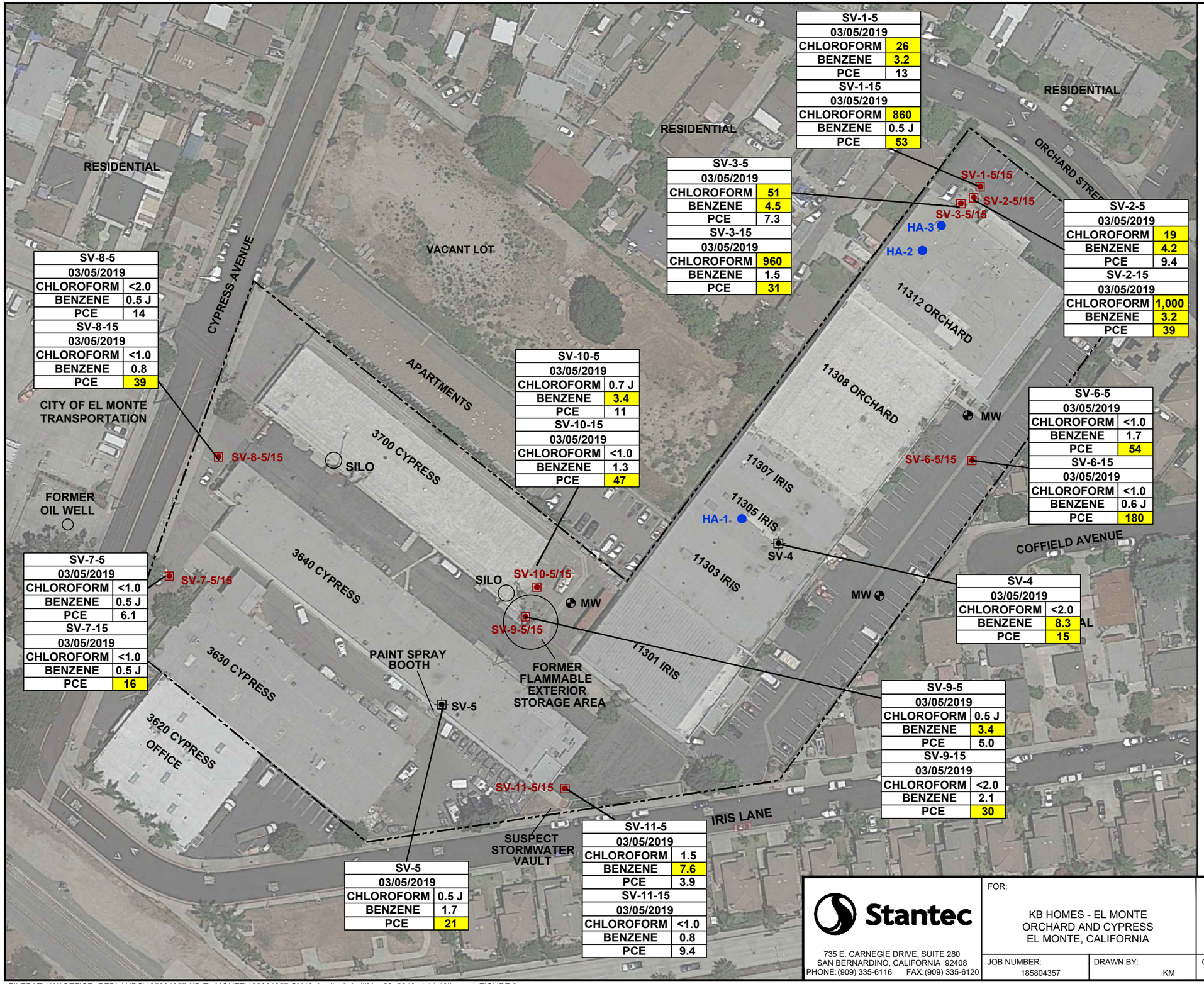
FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SITE MAP

FIGURE: 2

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SM19.dwg|kmitchell|Mar 22, 2019 at 13:55|Layout: FIGURE 2



SV-8-5	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	0.5 J
PCE	14
SV-8-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.8
PCE	39

SV-7-5	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.5 J
PCE	6.1
SV-7-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.5 J
PCE	16

SV-10-5	
03/05/2019	
CHLOROFORM	0.7 J
BENZENE	3.4
PCE	11
SV-10-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	1.3
PCE	47

SV-1-5	
03/05/2019	
CHLOROFORM	26
BENZENE	3.2
PCE	13
SV-1-15	
03/05/2019	
CHLOROFORM	860
BENZENE	0.5 J
PCE	53

SV-3-5	
03/05/2019	
CHLOROFORM	51
BENZENE	4.5
PCE	7.3
SV-3-15	
03/05/2019	
CHLOROFORM	960
BENZENE	1.5
PCE	31

SV-2-5	
03/05/2019	
CHLOROFORM	19
BENZENE	4.2
PCE	9.4
SV-2-15	
03/05/2019	
CHLOROFORM	1,000
BENZENE	3.2
PCE	39

SV-6-5	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	1.7
PCE	54
SV-6-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.6 J
PCE	180

SV-4	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	8.3
PCE	15

SV-9-5	
03/05/2019	
CHLOROFORM	0.5 J
BENZENE	3.4
PCE	5.0
SV-9-15	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	2.1
PCE	30

SV-5	
03/05/2019	
CHLOROFORM	0.5 J
BENZENE	1.7
PCE	21

SV-11-5	
03/05/2019	
CHLOROFORM	1.5
BENZENE	7.6
PCE	3.9
SV-11-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.8
PCE	9.4

LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

SV-4	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	8.3
PCE	15

SAMPLE ID
SAMPLE DATE

ALL RESULTS IN MICROGRAMS PER CUBIC METER (ug/m ^{3})

PCE = TETRACHLOROETHENE

J = ESTIMATED VALUE

RESULT ABOVE RESIDENTIAL SCREENING LEVEL

< = CONCENTRATION LESS THAN THE INDICATED LABORATORY REPORTING LIMIT

0 80 160

APPROXIMATE SCALE (FEET)

N

Stantec
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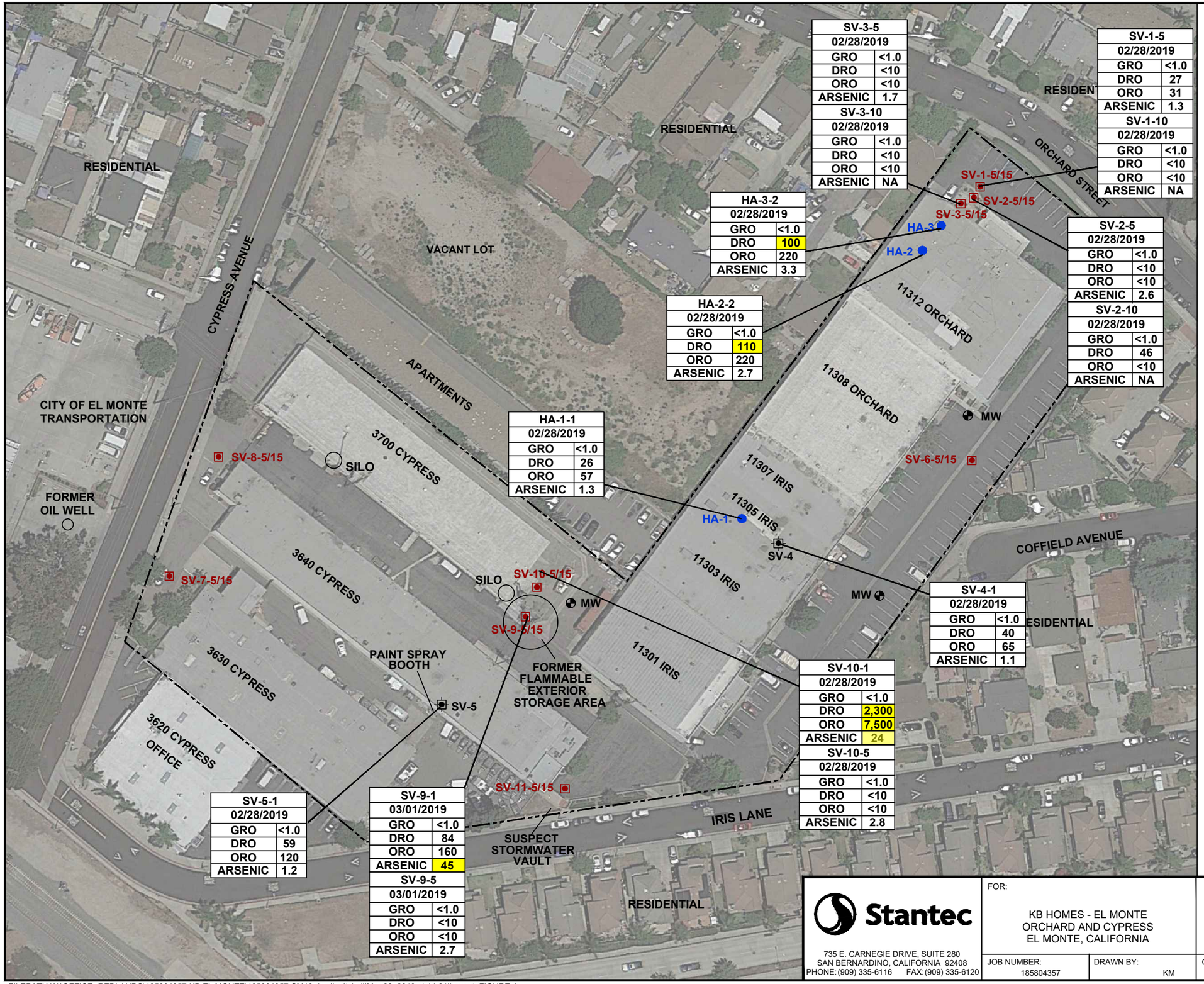
FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SOIL VAPOR ANALYTICAL RESULTS

FIGURE: 3

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SM19.dwg|kmitchell|Mar 22, 2019 at 14:13|Layout: FIGURE 3



SV-3-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	1.7

SV-3-10	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	NA

SV-1-5	
02/28/2019	
GRO	<1.0
DRO	27
ORO	31
ARSENIC	1.3

SV-1-10	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	NA

HA-3-2	
02/28/2019	
GRO	<1.0
DRO	100
ORO	220
ARSENIC	3.3

SV-2-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.6

SV-2-10	
02/28/2019	
GRO	<1.0
DRO	46
ORO	<10
ARSENIC	NA

HA-2-2	
02/28/2019	
GRO	<1.0
DRO	110
ORO	220
ARSENIC	2.7

HA-1-1	
02/28/2019	
GRO	<1.0
DRO	26
ORO	57
ARSENIC	1.3

SV-4-1	
02/28/2019	
GRO	<1.0
DRO	40
ORO	65
ARSENIC	1.1

SV-10-1	
02/28/2019	
GRO	<1.0
DRO	2,300
ORO	7,500
ARSENIC	24

SV-10-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.8

SV-5-1	
02/28/2019	
GRO	<1.0
DRO	59
ORO	120
ARSENIC	1.2

SV-9-1	
03/01/2019	
GRO	<1.0
DRO	84
ORO	160
ARSENIC	45

SV-9-5	
03/01/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.7

LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

HA-3-2	SAMPLE ID
02/28/2019	SAMPLE DATE
GRO	<1.0
DRO	100
ORO	220
ARSENIC	3.3

ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

GRO- GASOLINE RANGE ORGANICS
DRO- DIESEL RANGE ORGANICS
ORO- OIL RANGE ORGANICS
NA- NOT ANALYZED

RESULT ABOVE RESIDENTIAL SCREENING LEVEL

< = CONCENTRATION LESS THAN THE INDICATED LABORATORY REPORTING LIMIT

0 80 160

APPROXIMATE SCALE (FEET)

N

Stantec
735 E. CARNEGIE DRIVE, SUITE 280
SAN BERNARDINO, CALIFORNIA 92408
PHONE:(909) 335-6116 FAX:(909) 335-6120

FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SOIL BORING ANALYTICAL RESULTS

FIGURE: 4

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SM19.dwg|kmitchell|Mar 22, 2019 at 14:21|Layout: FIGURE 4



LEGEND:

MW — MONITORING WELL LOCATION

SV-3-5/15 — SOIL VAPOR BORING LOCATION

APPROXIMATE EXCAVATION AREA TO 3' BELOW GROUND SURFACE

0 10 20

APPROXIMATE SCALE (FEET)

N

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PHONE:(909) 335-6116 FAX:(909) 335-6120

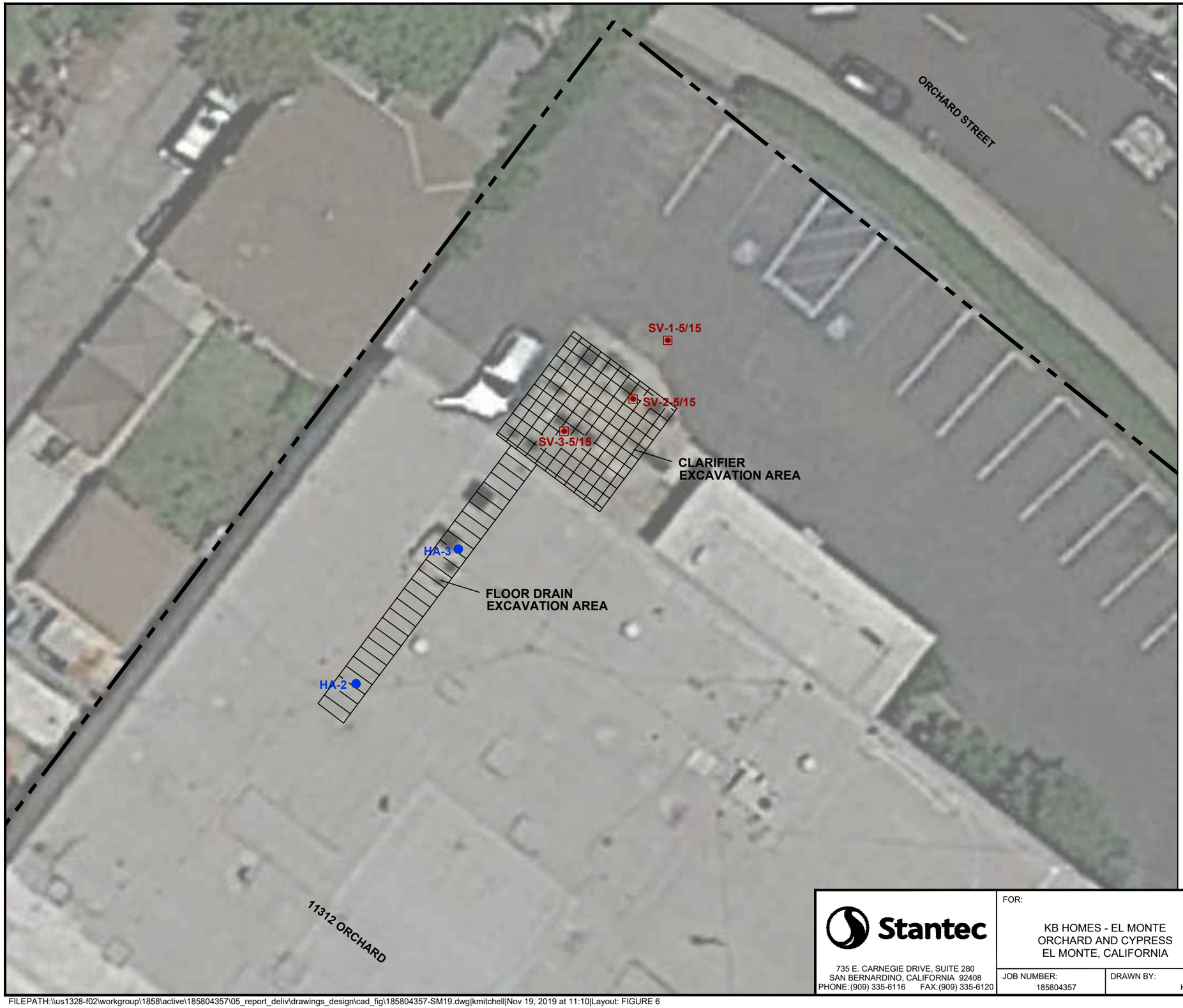
FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

EXCAVATION AREA
FLAMMABLE STORAGE AREA

FIGURE: 5

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JS	JD	11/19/19

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LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- APPROXIMATE EXCAVATION AREA TO 3' BELOW GROUND SURFACE
- APPROXIMATE CLARIFIER EXCAVATION AREA TO 10' BELOW GROUND SURFACE

0 15 30

APPROXIMATE SCALE (FEET)

N

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FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

EXCAVATION AREAS
CLARIFIER AND FLOOR DRAIN REMOVAL

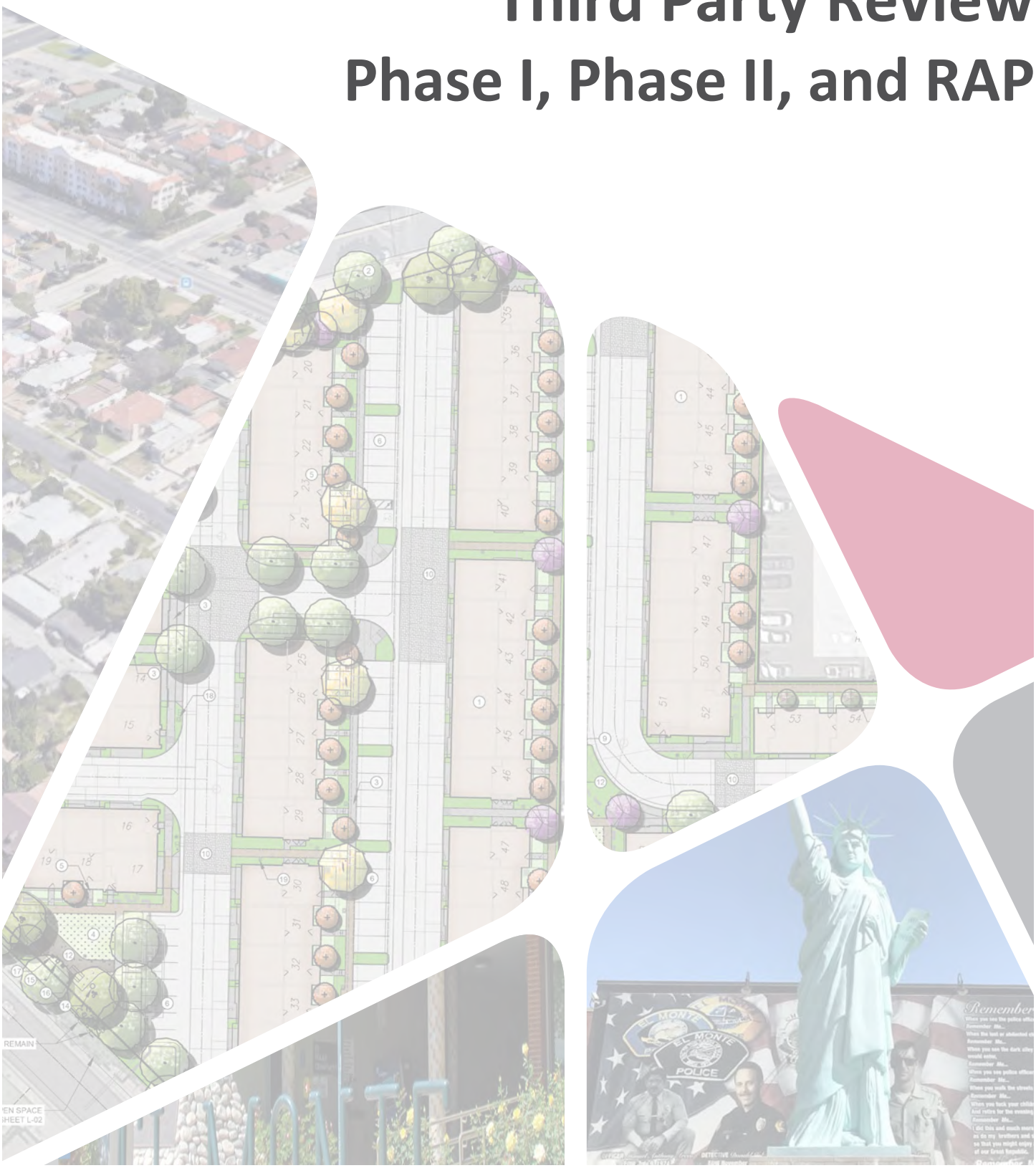
FIGURE: 6

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JS	JD	11/19/19

FILEPATH:\\us1328-f02\workgroup\1858\active\185804357\05_report_deliv\drawings_design\cad_fig\185804357-SM19.dwg|kmitchell|Nov 19, 2019 at 11:10|Layout: FIGURE 6

Appendix G5

Third Party Review
Phase I, Phase II, and RAP



Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

January 14, 2020
Project No. 211168002

Ms. Nancy Lee
City of El Monte
11333 Valley Boulevard
El Monte, California 91731

Subject: Review of Environmental Documents
3630, 3640, and 3700 Cypress Avenue and
11312 Orchard Street
El Monte, California

References: Stantec Consulting Services, Inc., 2019, Phase II Environmental Site Assessment Memo, 3630, 3640, 3700 Cypress Avenue and 11312 Orchard Street, El Monte, California 91731, dated March 22.

Stantec Consulting Services, Inc., 2019, Phase I Environmental Site Assessment, 3700, 3640, 3630 Cypress Avenue and 11312 Orchard Street, El Monte, California 91731, dated March 25.

Stantec Consulting Services, Inc., 2019, Remedial Action Plan, 3630, 3640, 3700 Cypress Avenue and 11312 Orchard Street, dated November 15.

Dear Ms. Lee:

In accordance with your authorization received via email dated January 7, 2020, Ninyo & Moore is pleased to provide the results of our review of the referenced environmental reports prepared by Stantec Consulting Services, Inc. (Stantec). The documents were prepared for the approximately 5.69-acre property on the northeast corner of Cypress Avenue and Iris Lane at 3630, 3640, and 3700 Cypress Avenue and 11312 Orchard Street in El Monte, California (site). We understand the site is currently developed with several multi-tenant commercial/light industrial buildings with asphalt parking lots and is planned to be developed with a new 110-townhome development. Ninyo & Moore has not visited the site or independently ascertained the information contained in the referenced documents.

REVIEW OF ENVIRONMENTAL DOCUMENTS

The following sections summarize our review of the referenced Phase I Environmental Site Assessment (ESA), Phase II ESA, and Remedial Action Plan (RAP). Our conclusions and recommendations for each document are provided at the end of our summaries.

Stantec Phase I ESA Report

In 2019, Stantec prepared a Phase I ESA for the site. At the time of the Phase I ESA, the site was an approximately 5.2-acre property developed with four occupied multi-tenant commercial/light industrial buildings with asphalt parking lots. Tenants included import/export warehouses, furniture warehouses, woodworking, print press, and storage/maintenance of forklifts and other various machines.

Based on their Phase I ESA findings, Stantec concluded the following:

- **Current and Historical Site Operations**: During the site reconnaissance, Stantec observed:
    - A potential clarifier at 11312-B Orchard Street associated with a former laundry/dry facility;
    - An exterior storage shed and a former flammable storage area at 3700-B Cypress Avenue;
    - Current site operations, including a printing press at 11305 Iris Lane and woodworking at 3640 Cypress Avenue;
    - New trench drains installed for Jayar Manufacturing at 3700 Cypress Avenue, according to a 2002 building permit map. The trenches discharged into an existing clarifier, which was not depicted on the map.
    - In 1995, the site address 11312 Orchard Street received a notice of violation from the City of El Monte for lack of plumbing permit for the installation of an underground clarifier. According to Stantec, the notice of violation also mentioned that an existing abandoned underground tank must be removed or filled with sand. According to Stantec, "no additional information regarding the location of this abandoned underground tank was provided."

  Stantec considered the current and historical site operations listed above as a recognized environmental condition (REC) and recommended further assessment to evaluate if a release occurred from these structures to the underlying soil. Although not specified as a REC in their report, Stantec observed a paint spray booth during the site reconnaissance at 3640 Cypress Avenue. Stantec advanced a sub-slab soil boring in the vicinity of the paint spray booth during their Phase II ESA.

- **Off-Site Oil Well**: An inactive oil well was listed at the City of El Monte Transportation Service Yard, approximately 250 feet west of the site. Based on its proximity to the site, Stantec indicated that methane mitigation systems may be required for future site buildings by the Los Angeles Department of Public Works.

- **Database Listings**: The site was listed for the disposal of oil wastes to approved disposal facilities; discharge of water to the sanitary sewer; and the installation of groundwater monitoring wells associated with the former Electra Foods Machinery Inc. facility (11312 Orchard Street) and the regional groundwater contamination in the area. The site address 11312 Orchard Street was also listed in the drycleaner database as Anitsa Inc., Valet Services, DBA. Additional information was not provided. Stantec considered the drycleaner database listing and previous environmental investigations as a REC and recommended a soil vapor survey.

- **Contaminated Groundwater**: The site was located within the El Monte Operable Unit (OU) of the San Gabriel Valley Superfund Site (Area 1). The OU was an 11-square-mile area of contaminated groundwater impacted with various volatile organic compounds (VOCs) including tetrachloroethene (PCE), trichloroethene (TCE), perchlorate, and carbon tetrachloride (CT). According to Stantec, groundwater at the site was deeper than 100 feet below ground surface

(bgs), but off-gassing of VOCs from the contaminated groundwater could potentially affect soil vapor conditions at the site. Based on this information, Stantec considered the presence of documented contaminated groundwater in the area of the site as a REC.

Stantec also reported the following non-ASTM issues with the site:

- **Hazardous Building Materials**: Based on the age of the site buildings (circa 1950s), Stantec considered lead-based paint (LBP) and asbestos containing materials (ACMs) likely to be present in site buildings. Stantec recommended a comprehensive, pre-demolition LBP and ACM survey prior to any activities with the potential to disturb building materials to determine if ACMs were present. Stantec also recommends proper removal and disposal of ACMs prior to renovation or demolition, if encountered.

- **Asphalt**: According to Stantec, a stress-absorbing fabric suspect for asbestos (Petromat®) may be present within the asphalt areas of the site. The stress absorbing fabric is a felt underlayment and is sometimes used to increase the strength and longevity of asphalt surfaces. Petromat® was not observed in the four locations Stantec cored in the parking lots associated with the site.

Stantec Phase II ESA Memo

In February and March 2019, Stantec conducted a Phase II ESA to evaluate multiple RECs in connection with the site that required further assessment based on the prior Phase I ESA. The RECs identified at the site in the Phase I ESA included:

- Suspect Sump/Clarifiers.
- Former Chemical Storage Areas.
- Paint Spray Booth.
- Printing Press Operations.
- Off-Site Oil Well.
- Contaminated Groundwater.

The Phase II ESA used interchanged terms for “sump/clarifiers”, “clarifier/sump” and “sump/clarifier”.

Stantec prepared a brief memo with the results of their Phase II ESA. The Stantec memo included only a brief summary of the field investigation, laboratory service, analytical results, their conclusions and recommendations, analytical data summary tables and figures. No analytical laboratory reports or boring logs were provided for our review to confirm the presented findings. Copies of Stantec’s tables and figures from the memo are provided in Attachment A for reference.

Field Investigation

Between February 28th and March 5, 2019, Stantec provided field oversight of the advancement of twenty-three (23) soil borings in the areas of concern listed above, to a maximum depth of approximately fifteen (15) feet bgs (Figure 2).

The memo noted that soil samples were collected, and soil vapor/sub-slab probes were installed on February 28 and March 1, 2019. Per California Department of Toxic Substances Control (DTSC) guidance, Stantec returned to the site on March 5, 2019, following a minimum of 48-hour equilibration period, to perform soil vapor and sub-slab sampling from the newly-installed vapor points.

Our review of Table 1 - Summary of Soil Vapor Analytical Results, indicates that soil vapor samples from nine borings (SV-1 to SV-3 and SV-6 to SV-11) were analyzed from depths of approximately 5 and 15 feet bgs. One sub-slab sample each was collected from borings SV-4 and SV-5, a total of two sub-slab samples; however, no depth was provided for these samples.

Our review Table 2 - Summary of Soil Analytical Results – TPH VOCs and Table 3 – Summary of Soil Analytical Results – Metals, shows that soil samples were analyzed from ten borings: SV-1 to SV-3 at depths of 5 foot and 10 foot bgs; SV-9 and SV-10 at 1 foot and 5 foot bgs; SV-4, SV-5, and HA-1 at 1 foot bgs; and HA-2 and HA-3 at 1 foot bgs.

Laboratory Service

Stantec reported that the soil vapor samples were collected and analyzed on-site by a mobile or off-site fixed-base laboratory for VOCs by United States Environmental Protection Agency (USEPA) Method TO-15 Selective Ion Monitoring (SIM). In addition to the soil vapor survey, Stantec "field screened" the site for the presence of methane. Stantec stated that "no methane was detected above background levels" during the field screening.

Stantec stated that "select" soil samples were submitted for analysis of TPH by USEPA Method 8015, VOCs by USEPA method 8260, California Title 22 metals by USEPA method 6010, and hexavalent chromium (Cr IV) by USEPA 7196. The memo stated that the remaining soil samples collected during the Phase II ESA investigation were placed on hold.

Soil Vapor Results

Stantec reported that twenty (20) soil vapor or sub-slab probes were installed just below the concrete foundation or asphalt parking lot to a maximum depth of approximately 15 feet bgs to evaluate soil vapor concentrations in shallow soil. The locations selected to address the RECs were shown on Figure 3.

Stantec stated the laboratory reported "low levels" of VOCs in all soil vapor and subslab vapor samples. The VOCs chloroform, benzene, and PCE were reported by Stantec as being above the San Francisco Bay Region Water Quality Control Board's newly published Environmental

Screening Levels (ESLs) (January 2019) based on an attenuation factor of 0.03 (Table 1). The reported concentrations were as follows:

- Chloroform ranged from less than the laboratory reporting limit to 1,000 micrograms per cubic meter (ug/m3) in soil vapor sample SV-2-15' located near the sump/clarifiers and associated trenching at 11312 Orchard, Unit B. Elevated concentrations of chloroform, "above the background levels", were reported in "all six soil vapor samples" collected near the sump/clarifiers.

- Stantec stated that "low levels" of benzene ranged from less than the laboratory reporting limit to 7.6 ug/m3 in soil vapor sample SV-11-5' located near the storm water vault in the southern corner of the site.

- PCE ranged from less than the laboratory reporting limit to 180 ug/m3 in soil vapor sample SV-6-15' located in the parking lot area of 11308 Orchard. SV-6 was one (1) of three (3) soil vapor probes installed away from on-site RECs to assess the regional San Gabriel Valley Superfund plume.

Soil Results

Stantec reported that ten (10) soil borings were advanced to a maximum depth of approximately 15 feet bgs to determine if there are any concentrations in shallow soil that may impact the subsurface at the site (Figure 4). The memo stated that "low levels" of diesel range organics (DRO), motor oil range organics (ORO), and arsenic were detected above the residential screening levels in two areas of the site (Table 2 and 3).

- Stantec reported that "low levels" of DRO were detected above the residential screening levels in the shallow soil samples (HA-2 and HA-3) collected along the interior trench drains connected to the sump/clarifiers at the 11312 Orchard Street (Table 2).

- The memo stated that concentrations of DRO, ORO, and arsenic were detected "above the residential screening levels" in the shallow soil samples (SV-9 and SV-10) collected from the flammable exterior storage area located at 3700 Cypress Ave. Stantec reported that the petroleum and arsenic impacts "appear limited to the upper few feet of soil in this area", as the five (5) feet samples reported DRO, ORO, and arsenic below the residential screening levels.

Stantec's Conclusions and Recommendations

Based on their Phase II ESA findings, Stantec concluded the following:

> The Stantec memo stated that soil vapor concentrations for chloroform, benzene, and PCE are "elevated" near the sump/clarifiers and "only slightly above" the ESLs for the remaining areas of the site. The site is located over the San Gabriel Valley Superfund plume area, therefore, Stantec recommended that a risk assessment be performed to determine if vapor barriers with passive vents are required for new residential developments in these "two areas" of the site. The memo stated that final recommendations for vapor barriers with passive vents will be determined by the risk assessment, but to be conservative, KB Home should assume for their developments cost that vapor barriers with passive vents will be required based on the newly published ESLs and the recent soil vapor results.

The memo stated that the sump/clarifiers area of the site located at 11312 Orchard reported "elevated" concentrations of chloroform and PCE in the soil vapor and "low levels" of DRO in the soil samples. PCE and chloroform were not reported in the soil samples collected around the sump/clarifiers and drains. However; Stantec stated that releases are "known to occur from these structures". Therefore, Stantec recommended that during removal of these structures, over excavation followed by confirmation soil sampling be performed. The memo stated that based on the confirmation soil sampling, additional remedial actions may be recommended for this REC.

Stantec reported that soil boring SV-9 and SV-10 reported "elevated" DRO, ORO, and arsenic in the one (1) foot soil samples above the residential screening levels. The memo stated that given that the "five (5) soil sample reported all analytes below their corresponding residential screening levels", a limited and shallow excavation followed by confirmation soil sampling of this flammable exterior storage area was recommended.

Stantec RAP

In November 2019, Stantec prepared a RAP that described the methodology, findings and results of the multiple rounds of Phase II ESAs performed at the site between February 28 and March 5, 2019, by Stantec, and presented remedial measures to address elevated COCs in soil and soil vapor.

The RAP noted that the site is located over a widespread groundwater contamination plume that has been identified on the NPL Sites list and is identified as the San Gabriel Valley Superfund Site. The RAP stated that the site is not a named responsible party to this superfund action but has three dry wells associated with the NPL site monitoring.

Groundwater in the area of the site has been documented to be impacted with various VOCs including PCE, TCE, perchlorate, and CT. Off-gassing of VOCs from the contaminated groundwater could potentially affect soil vapor conditions at the site and were addressed in the RAP. Investigation and remediation of VOC impacted groundwater was not included in the RAP. The procedures and protocols outlined in the RAP are based on the results of previous field investigations performed at the site.

Stantec identified potential COCs by comparing analyte concentrations reported in onsite media with potential on-site sources. Stantec stated that the potential vapor migration of VOCs from the regional plume is an "off-site" source and will be addressed by the proposed vapor barrier design. Contributions from other unknown "off-site" sources were not considered in the evaluation of site COCs. Onsite analyte concentrations were compared with regulatory screening guidelines to identify whether a particular chemical should be considered a COC.

The RAP stated that preliminary cleanup goals followed published regulatory risk-based guidance documents. The proposed cleanup goals for COCs and potential COCs in soil and soil vapor are

consistent with USEPA residential RSL and DTSC HERO residential Note 3, should such impacts be identified.

Historical and recent investigations consisting of evaluation of soil and soil vapor have reported the potential presence of COCs above preliminary soil screening levels. Based on Stantec's review of the collected data, and in comparison to the applied screening levels, the following media were potentially affected by COCs above screening levels.

Soil Vapor - Shallow soil vapor concentrations of VOCs including varying concentrations of benzene, chloroform, and PCE, have been reported above current screening levels based on future residential development across the Site.

Soil - Based on historical and recent investigation data, DRO and ORO, and arsenic were reported in several soil samples at concentrations above the screening levels. The RAP noted that "ambient or background" arsenic concentrations in California soils typically exceed RSLs.

Groundwater - The site is located over a NPL Site identified as the San Gabriel Valley Superfund Site. Groundwater in the area of the site has been documented to be impacted with various VOCs including PCE, TCE, perchlorate, and CT.

In general, the following remedial methodologies were adopted by Stantec for each of the COCs and area of concern (AOC).

Remedial Approach at Identified Areas of Concern

Area of Concern	Potential COC	Remedial Approach
11312 Orchard – Clarifier/Sump • Floor Drain • Clarifier	VOCs TPH-d	Removal of clarifiers/sump and floor drains along. Performed supplemental excavation of impacted soil immediately around remove structures. Collect soil samples following excavation to confirm no COCs exist above the Site cleanup goals.
3700 Cypress – Former Flammable Storage Area • Flammable Storage Area Storage • Potential Drains and Clarifier	TPH-d TPH-o Arsenic	Shallow excavation of soil impacted with COCs above the Site cleanup goals. Collect soil samples following excavation to confirm no COCs exist above the Site cleanup goals.
Site Wide • Low Levels of VOCs in Soil Vapor	Benzene PCE TCE Chloroform	Engineering controls during redevelopment (vapor barriers).

Excavation

The RAP stated that the excavation of COCs and potential COCs to reduce the "on-Site UCL95" in the upper five feet to below the RSL will be conducted using excavation equipment (i.e. backhoes, excavators, bobcats, etc.).

The RAP stated that excavation of impacted soil will begin in those areas that have known impacts (above cleanup goals) based on the results of previous investigations. Specifically, excavation will begin at the point of highest known concentration based on previous investigations and will move outward and downward until Site soil cleanup goals are achieved, or until deeper excavation is not feasible.

The RAP provided descriptions for demolition, excavation screening, confirmatory samples, stockpile/waste management, waste classification and profiling and for loading and final disposition.

Vapor Barriers

Vapor barriers will be incorporated into the design of the buildings and will also include below grade piping for venting should venting be necessary. The RAP stated that "all" vapor barrier design will be developed by another consultant and provided to Stantec for review prior to placement. Inspection of the barriers should occur after installation to insure performance.

Closure

The RAP stated that "with confirmation that soil in the upper five feet was remediated to below Site cleanup goals, closure will be recommended." Closure will be conditioned on the fact that vapor barriers will be installed below future inhabitable structures. It is anticipated that closure will be achieved first for the soil portion of the Site and then soil vapor following review and approval by the City of El Monte Building Department. Soil vapor barriers will be installed beneath the future developments at the Site to significantly decrease the exposure pathways to any onsite receptor.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the review of the referenced documents, Ninyo & Moore provides the following conclusions and recommendations:

Stantec Phase I ESA

- According to historical aerial photographs, the western portion of the site had a U-shaped road and potentially disturbed soil in 1928 and 1938. This could be associated with former landfill operations. According to a Subsurface Investigation Report for the Jayar Manufacturing Company (3700 Cypress Avenue), prepared by Remedial Engineering, Inc. and dated September 20, 1990, "it has been rumored that prior to 1959, this site perhaps had been a landfill or dump site that had been filled, although no substantiation of this as fact was obtainable through City building records." Ninyo & Moore reviewed the California Department of Resources Recycling and Recovery (CalRecycle) Solid Waste Information System (SWIS) database for information on this potential landfill. According to the SWIS database, the site is not listed. The nearest landfill was approximately 0.67 mile west of the site. The report also stated that Standard

Oil used the site for oil exploration, but only natural gas was discovered, and that there was an Ironworks Foundry "immediately adjacent to Jayar Manufacturing Company to the northeast" prior to 1957. The potential former landfill on the site was not addressed in Stantec's report and should be considered a REC.

- Most of the current site buildings were developed on the site between 1964 and 1977, not the 1950s as Stantec stated. This would not alter their non-ASTM recommendation of performing a LBP and ACM survey of the site buildings.

- Ninyo & Moore reviewed the California Geologic Energy Management Division (CalGEM, formerly DOGGR) website for information on the reported adjoining oil well west of the site. According to CalGEM, "Ferris 1" was plotted approximately 100 feet west of the site and was listed as plugged and abandoned. However, according to the well records for "Ferris 1" available on the CalGEM website, the oil well was located in the approximate center of the site (Attachment B). Therefore, in accordance with the Los Angeles County Department of Public Works Gas Hazard Mitigation Policy and Standards, dated December 18, 2019, "permits shall not be issued for new buildings…regulated by this code on, or adjacent to, or within 300 feet of active, abandoned or idle oil or gas well(s) unless designed according to recommendations contained in a report prepared by a registered design professional, such as a licensed civil engineer and/or licensed petroleum engineer, to evaluate whether such wells are being properly operated or maintained, or are abandoned."

- According to historical topographic maps, the Pacific Electric rail line adjoined the site to the south from 1923 to 1966. In addition, a railroad spur terminated at the southwest corner of the site in 1948. The historical presence of a ROW adjoining the site presents a potential for contamination resulting from leaks or spills from the railcars or historic application of surface chemicals during railroad operations. Based on Ninyo & Moore's experience, the suspected presence of railroad related chemicals in shallow site soils due to operation of the railroad tracks would be considered a REC for the site. PAHs, TPHs, PCBs, OCPs, chlorinated herbicides, and metals are typically detected along railroad easements from operational activities, spills, and use of herbicides

- Ninyo & Moore agrees with the Phase I ESA conclusions on the remaining existing RECs for the site.

- Since RECs were reported for the site and based on the historic site use, a Soil Management Plan should be prepared to handle the potential for encountering unknown structures and contaminated soil at the site during site redevelopment.

- Potential liability for cleaning up petroleum impacts at the site continue through site transfer. This is affected by future changes in regulatory considerations. In addition, there is potential liability for off-site exposure due to stated references to historical off-site migration of contamination emanating from the site. Additional research and/or subsurface sampling would need to be conducted to evaluate these potential liabilities.

Stantec Phase II ESA Memo

- Based on our review of the Phase II ESA, no analytical laboratory reports or boring logs were provided for our review to confirm the presented findings.

- RECs noted in the Phase II ESA memo used interchanged terms for sump/clarifiers, clarifier/sump and sump/clarifier. The oil well identification or status from the California Department of Conservation Geologic Energy Management (CalGEM) website was not provided in the memo.

- Methodology of drilling, sample collection, decontamination, decommission of the vapor probes and borings, and waste disposal documentation were not provided in Stantec's memo. Depths of analyzed samples were noted in Tables 1 to 3.

- Stantec stated that "no methane was detected above background levels" during the field screening. However, Stantec's memo did not indicate where on the site, the methodology, equipment, or background level concentration used to monitor for the presence of methane.

- Depths of the sub-slab vapor probes were not provided in the memo.

- Stantec stated that "select" soil samples were submitted for analysis of TPH by USEPA Method 8015, VOCs by USEPA method 8260, California Title 22 metals by USEPA method 6010, and hexavalent chromium (Cr IV) by USEPA 7196. The memo did not provide criteria for selection of which soil samples were to be analyzed for COCs.

- Elevated concentrations of chloroform, "above the background levels", were reported in "all six soil vapor samples" collected near the sump/clarifiers. The Stantec memo did not identify a "background level" for chloroform in soil vapor at the sump/clarifiers area.

- PCE ranged from less than the laboratory reporting limit to 180 ug/m^3 in soil vapor sample SV-6-15' located in the parking lot area of 11308 Orchard. SV-6 was one (1) of three (3) soil vapor probes installed away from on-site RECs to assess the regional San Gabriel Valley Superfund plume. The memo did not identify the other two soil vapor probes used to assess the regional San Gabriel Valley Superfund plume or report on their results.

- Vertical extent of chloroform, benzene and PCE in soil gas throughout the site was not reported in the memo. Based on our review of Table 1, in the analyzed soil vapor samples, chloroform and PCE concentrations generally increased with depth while benzene concentrations generally decreased. It appears that the vertical extent of VOCs in soil vapor has not been defined.

- Lateral extent of PCE in soil gas was not evaluated in the memo. From our review of Table 1, PCE in soil gas exceeded the applied screening levels throughout the site areas except the south corner of the site (stormwater vault). It appears that the lateral extent of VOCs in soil vapor has not been defined.

- PCE and chloroform were not reported in the soil samples collected around the sump/clarifiers and drains. TPH was not detected at concentrations exceeding the applied screening levels.

- Our review of Tables 2 and 3 shows that the deepest soil depth assessed in borings HA-3 and HA-3 is 2 feet bgs and that DRO has not been delineated. DRO did not exceed the applied residential RSL in boring SV-9. However, arsenic in soil at borings SV-9 and SVE-10 did exceed the applied RSL and DTSC HERO screening levels at a depth of five feet bgs. We agree that confirmation sampling is warranted to fully delineate the extent of DRO, ORO and arsenic impacts at the flammable storage area and the DRO impacts at the sump/clarifiers area.

- Stantec reported that soil boring SV-9 and SV-10 reported "elevated" DRO, ORO, and arsenic in the one (1) foot soil samples above the residential screening levels. The memo stated that given that the "five (5) soil sample reported all analytes below their corresponding residential screening levels", a limited and shallow excavation followed by confirmation soil sampling of this flammable exterior storage area was recommended. The memo should clarify if the previous statement means the 'five foot bgs' samples as the depth units were omitted.

- We agree that a health-based risk assessment should be performed to evaluate if a vapor barrier with passive or active venting may be required for the proposed multi-tenant residential development

Stantec RAP

- Based on our review of the RAP, we generally agree with the proposed remedial approach. However, Stantec's Phase II ESA recommended that a risk assessment be performed to determine if vapor barriers with passive vents are required for the proposed multi-tenant residential developments at the site. The RAP did not specifically incorporate a risk assessment in their remedial approach.

- The "on-Site UCL95" or upper confidence limit reference in the excavation section may imply use the USEPA's ProUCL software to evaluate exposure, however, there is no further description of UCL95 use in the RAP.

- The RAP stated that the potential vapor migration of VOCs from the regional plume is an "off-site" source and will be addressed by the proposed vapor barrier design. Contributions from other unknown "off-site" sources were not considered in the evaluation of Site COCs. However, our review of Stantec's Phase II ESA indicated that collected soil samples were not analyzed for VOCs and therefore, should not be ruled out as a potential on-site source for VOCs.

- For the proposed excavation activities, the RAP provided adequate descriptions for demolition, excavation screening, confirmatory samples, stockpile/waste management, waste classification and profiling and for loading and final disposition.

- The RAP should include a description on how the three "dry" NPL wells will be protected during the proposed remedial excavation and vapor barrier activities. No information regarding well identification or depths for these "dry" wells were provided in the RAP.

- The RAP stated that "with confirmation that soil in the upper five feet to below Site cleanup goals, closure will be recommended." The statement suggests that closure will be recommended when confirmation that the upper five feet of soil is below the Site cleanup goals.

- The RAP stated that it is anticipated that closure will be achieved first for the soil portion of the Site and then soil vapor following review and approval by the City of El Monte Building Department. Soil vapor barriers will be installed beneath the future developments at the Site to significantly decrease the exposure pathways to any onsite receptor. Based on our review of the RAP, Stantec may want to perform a health-based risk assessment to assist in design of the proposed vapor barrier.

LIMITATIONS

The environmental services described in this letter have been conducted in general accordance with current regulatory guidelines and the standard-of-care exercised by environmental consultants performing similar work in the project area. No warranty, expressed or implied, is made regarding the professional opinions presented in this report. No site visit was conducted by Ninyo & Moore. Variations in site conditions reported by others may exist and conditions and not described in this report may be encountered during subsequent activities.

Ninyo & Moore's opinions and recommendations regarding environmental conditions, as presented in this report, are based on results reported by others. Further assessment of potential adverse environmental impacts from past on-site and/or nearby use of hazardous materials may be accomplished by a more comprehensive assessment. Independent review of laboratory results reported by others has not been conducted; however, conditions can vary significantly between

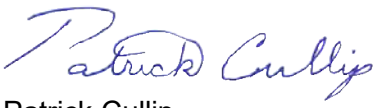
sampling locations. Variations in soil and/or groundwater conditions will exist beyond the points explored during previous investigations. Ninyo & Moore has no involvement in, or control over, such testing and analysis. Ninyo & Moore, therefore, disclaims responsibility for any inaccuracy in such laboratory results.

Our conclusions, recommendations, and opinions are based on an analysis of the reported site conditions. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires any additional information, or has questions regarding content, interpretations presented, or completeness of this document.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

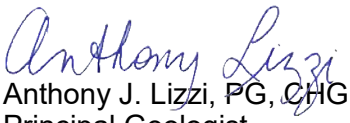
Respectfully submitted,
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Attachments: Attachment A – Phase II ESA Tables and Figures
Attachment B – CalGEM "Ferris 1" Map

Distribution: (1) Addressee (via e-mail)

ATTACHMENT A

Phase II ESA Tables and Figures

TABLE 1
SUMMARY OF SOIL VAPOR ANALYTICAL RESULTS
KB Home - El Monte - Cypress Ave
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Volume [1]	Sample Date	DCFM (F12) (µg/m3)	Chloromethane (µg/m3)	Bromomethane (µg/m3)	TCFM (F11) (µg/m3)	TBA (µg/m3)	1,1,2-TCTFM (µg/m3)	Methylene chloride (µg/m3)	Carbon Disulfide (µg/m3)	2-Butanone (MEK) (µg/m3)	Chloroform (µg/m3)	1,1,1-TCA (µg/m3)	Benzene (µg/m3)	Carbon tetrachloride (µg/m3)	TCE (µg/m3)	Bromodichloromethane (µg/m3)	4-Methyl-2-pentanone (µg/m3)	Toluene (µg/m3)
Soil Vapor Samples																				
Residential Screening Level for Soil Vapor using RSL or HERO NOTE 3 and Attenuation Factor of 0.001 (µg/m^3) [2] [3]				100,000	94,000	NE	*1,300,000*	NE	NE	*1,000*	730,000	5,200,000	120	*1,000,000*	*97*	*67*	480	*76*	3,100,000	*310,000*
Residential Screening Level for Soil Vapor comparing RSL, HERO Note 3, or ESLs (µg/m^3) [2] [3]				*100,000*	*3,100*	*170*	*1,300,000*	*NE*	*NE*	*34*	*730,000*	*170,000*	*4.1*	*35,000*	*3.2*	*2.2*	*16*	*2.5*	*3,100,000*	*10,000*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	2313cc- 3 Vol Purge	3/5/2019	3.2 J	0.3 J	<3.2	2.8 J	<12	6.0 J	<2.8	7.6	5.5	26	0.4 J	3.2	<2.6	<4.4	<2.7	3.2 J	54
	SV-1-15	2358cc - 3 Vol Purge	3/5/2019	2.8 J	0.3 J	<1.6	4.1	<6.1	11	<1.4	1.0 J	3.6	860	1.4 J	0.5 J	<1.3	0.2 J	<2.7	0.4 J	4.0
	SV-2-5	2313cc- 3 Vol Purge	3/5/2019	2.7 J	0.3 J	<1.6	6.5	0.9 J	5.2	0.3 J	11	14	19	<3.1	4.2	0.4 J	0.5 J	<2.7	5.9	36
	SV-2-15	2358cc - 3 Vol Purge	3/5/2019	2.9 J	0.4 J	<1.6	3.7	<6.1	9.6	<1.4	32	8.6	1,000	1.4 J	3.2	0.3 J	0.5 J	<2.7	0.4 J	20
	SV-3-5	2313cc- 3 Vol Purge	3/5/2019	2.2 J	<0.8	<1.6	1.6 J	0.9 J	2.7 J	0.4 J	9.1	3.9	51	0.4 J	4.5	<1.3	<2.2	<2.7	5.6	34
	SV-3-15	2358cc - 3 Vol Purge	3/5/2019	2.3 J	0.3 J	<1.6	2.5	<6.1	5.8	<1.4	6.2	15	960	1.0 J	1.5	<1.3	<2.2	<2.7	14	12
11309 Iris Lane	SV-6-5	2313cc- 3 Vol Purge	3/5/2019	3.3 J	0.3 J	<1.6	4.7	1.1 J	18	0.2 J	8.8	13	<1.0	2.7	1.7	<1.3	0.3 J	<2.7	1.9 J	17
	SV-6-15	2358cc - 3 Vol Purge	3/5/2019	<4.0	0.4 J	<1.6	8.6	<6.1	34	<1.4	1.5	11	<1.0	9.7	0.6 J	<1.3	0.3 J	<2.7	0.4 J	3.1
3630 Cypress Ave. (Near Former Oil Well)	SV-7-5	2313cc- 3 Vol Purge	3/5/2019	4.1 J	<0.8	<1.6	2.6 J	<6.1	4.2 J	<1.4	0.3 J	4.5 J	<1.0	2.3 J	0.5 J	<1.3	<2.2	<2.7	<3.3	2.3 J
	SV-7-15	2358cc - 3 Vol Purge	3/5/2019	3.2 J	0.1 J	<1.6	2.6	1.0 J	5.3	0.2 J	1.1 J	14	<1.0	3.4	0.5 J	<1.3	<2.2	<2.7	1.6 J	5.4
3640 Cypress Ave. (Near Former Oil Well	SV-8-5	2313cc- 3 Vol Purge	3/5/2019	4.3 J	<1.7	<3.2	2.8 J	<12	6.2	<1.4	<2.5	5.7	<2.0	3.8	0.5 J	<2.6	<4.4	<5.4	4.6 J	6.6
	SV-8-15	2358cc - 3 Vol Purge	3/5/2019	3.8 J	0.3 J	<1.6	3.6	1.0 J	10	0.4 J	0.3 J	14	<1.0	7.7	0.8	<1.3	<2.2	<2.7	1.0 J	3.1
3700 Cypress Ave. (Flammable Storage Are)	SV-9-5	2313cc- 3 Vol Purge	3/5/2019	<4.0	0.3 J	<1.6	1.5 J	3.1 J	2.1 J	0.2 J	10	6.6	0.5 J	21	3.4	<1.3	0.3 J	0.3 J	4.8	34
	SV-9-15	2358cc - 3 Vol Purge	3/5/2019	3.5 J	1.6 J	<3.2	2.7 J	<12	4.8 J	0.4 J	12	5.5	<2.0	73	2.1	<2.6	0.4 J	<5.4	<6.6	20
	SV-9-15 REP	2358cc - 3 Vol Purge	3/5/2019	3.8 J	1.1 J	<1.6	2.8 J	<6.1	6.0 J	<2.8	7.6	2.8	<2.0	89	1.2 J	<2.6	<4.4	<5.4	<6.6	14
	SV-10-5	2313cc- 3 Vol Purge	3/5/2019	2.2 J	0.9	0.3 J	1.9 J	3.0 J	2.6 J	1.1 J	5.4	9.4	0.7 J	30	3.4	0.3 J	<2.2	0.5 J	1.7 J	14
	SV-10-15	2358cc - 3 Vol Purge	3/5/2019	2.2 J	0.4 J	<1.6	2.9	2.2 J	6.4	0.3 J	0.7 J	8.8	<1.0	86	1.3	<1.3	<2.2	<2.7	0.7	7.3
South Corner of Site (Stormwater Vault)	SV-11-5	2313cc- 3 Vol Purge	3/5/2019	2.1 J	0.4 J	<1.6	1.7 J	1.5 J	1.0 J	0.3 J	20.0	5.1	1.5 J	2.3	7.6	<1.3	0.5 J	0.6 J	2.9	74
	SV-11-15	2358cc - 3 Vol Purge	3/5/2019	2.0 J	0.4 J	<1.6	1.5 J	<6.1	1.0 J	0.4 J	1.9	8.4	<1.0	5.3	0.8	<1.3	<2.2	<2.7	0.3 J	5.2

Boring Location	Sample ID	Sample Volume [1]	Sample Date	DCFM (F12) (µg/m3)	Chloromethane (µg/m3)	Bromomethane (µg/m3)	TCFM (F11) (µg/m3)	TBA (µg/m3)	1,1,2-TCTFM (µg/m3)	Methylene chloride (µg/m3)	Carbon Disulfide (µg/m3)	2-Butanone (µg/m3)	Chloroform (µg/m3)	1,1,1-TCA (µg/m3)	Benzene (µg/m3)	Carbon tetrachloride (µg/m3)	TCE (µg/m3)	Bromodichloromethane (µg/m3)	4-Methyl-2-pentanone (µg/m3)	Toluene (µg/m3)
Sub-slab Vapor Samples																				
Residential Screening Level for Soil Vapor with ESLs (µg/m^3) [4]				*NE*	*3,100*	*170*	*NE*	*NE*	*NE*	*34*	*NE*	*170,000*	*4.1*	*35,000*	*3.2*	*2.2*	*16*	*2.5*	*NE*	*10,000*
11305 Iris Lane	SV-4	121cc- 3 Vol Purge	3/5/2019	4.9 J	0.6 J	<3.2	2.4 J	46	4.0 J	1.3 J	1.1 J	67	<2.0	34	8.3	<2.6	0.4 J	<5.4	17	24
Paint Spray Booth	SV-5	121cc- 3 Vol Purge	3/5/2019	2.9 J	1.1 J	<3.2	3.7 J	2.9 J	1.1 J	0.5 J	0.8 J	18	0.5 J	1.2 J	1.7	<2.6	<4.4	<5.4	3.1 J	3.7 J

TABLE 1
SUMMARY OF SOIL VAPOR ANALYTICAL RESULTS
KB Home - El Monte - Cypress Ave
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Volume [1]	Sample Date	2-Hexanone (µg/m3)	PCE (µg/m3)	Chlorobenzene (µg/m3)	Ethylbenzene (µg/m3)	m.p-Xylene (µg/m3)	Styrene (µg/m3)	o-Xylene (µg/m3)	4-Ethyltoluene (µg/m3)	1,3,5-TMB (µg/m3)	1,2,4-TMB (µg/m3)	1,4-DCB (µg/m3)	Naphthalene (µg/m3)	Hexachlorobutadiene (µg/m3)	Other VOCs	Methane (%)
Soil Vapor Samples																		
Residential Screening Level for Soil Vapor using RSL or HERO NOTE 3 and Attenuation Factor of 0.001 (µg/m^3) [2] [3]				31,000	*460*	52,000	1,100	100,000	*940,000*	100,000	*NE*	63,000	63,000	260	83	130	*various*	*NE*
Residential Screening Level for Soil Vapor comparing RSL, HERO Note 3, or ESLs (µg/m^3) [2] [3]				*31,000*	*15*	*1,700*	*37*	*3,500*	*31,000*	*3,500*	*NE*	*63,000*	*63,000*	*8.5*	*2.8*	*4.3*	*various*	*5.0*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	13	<3.7	30	110	1.9 J	33	2.4 J	2.2 J	8.1	1.1 J	1.0 J	<21	< *various*	0.0
	SV-1-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	53	<1.9	1.4 J	8.0	0.9 J	2.5	0.3 J	0.4 J	3.3	1.1 J	0.7 J	<11	< *various*	0.0
	SV-2-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	9.4	0.7 J	8.0	25	1.3 J	8.1	0.8 J	1.0 J	3.3	0.3 J	0.3 J	<11	< *various*	0.0
	SV-2-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	39	<1.9	2.9	21	1.3 J	6.5	0.3 J	1.0 J	3.3	0.9 J	0.3 J	<11	< *various*	0.0
	SV-3-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	7.3	<1.9	6.3	21	2.1	6.9	1.1 J	0.9 J	4.1	0.9 J	0.6 J	<11	< *various*	0.0
	SV-3-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	31	<1.9	4.4	15	3.8	4.7	1.1 J	0.9 J	4.2	1.7 J	1.1 J	<11	< *various*	0.0
11309 Iris Lane	SV-6-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	54	<1.9	6.7	22	1.6 J	6.9	1.2 J	1.5 J	4.9	0.3 J	0.5 J	0.9 J	< *various*	0.0
	SV-6-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	180	<1.9	1.2 J	5.0	2.4	1.8	0.4 J	0.4 J	2.0	1.6 J	0.7 J	<11	< *various*	0.0
3630 Cypress Ave. (Near Former Oil Well)	SV-7-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	6.1	<3.7	0.7 J	3.1 J	1.0 J	1.3 J	<4.0	0.5 J	1.9 J	0.7 J	0.6 J	<21	< *various*	0.0
	SV-7-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	16	<1.9	2.6	9.8	2.9	3.8	1.1 J	1.2 J	5.6	1.2 J	0.9 J	<11	< *various*	0.0
3640 Cypress Ave. (Near Former Oil Well	SV-8-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	14	<3.7	2.8	14	1.7	3.6	1.8 J	3.2 J	12	1.6 J	1.7 J	<21	< *various*	0.0
	SV-8-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	39	<1.9	1.2 J	3.4	3.0	1.3	0.4 J	0.5 J	2.1	1.6 J	1.0 J	<11	< *various*	0.0
3700 Cypress Ave. (Flammable Storage Are)	SV-9-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	5.0	1.0 J	9.7	30	14	9.4	2.0	2.4	8.1	0.5 J	0.8 J	<11	< *various*	0.0
	SV-9-15	2358cc - 3 Vol Purge	3/5/2019	<6.6	30	<3.7	5.5	21	8.4	5.8	1.3 J	1.2 J	6.1	2.2 J	1.0 J	<21	< *various*	0.0
	SV-9-15 REP	2358cc - 3 Vol Purge	3/5/2019	<6.6	37	<3.7	4.0	16	7.1	4.6	1.3 J	0.9 J	4.4	1.6 J	0.6 J	<21	< *various*	0.0
	SV-10-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	11	<1.9	2.6	5.3	<1.7	1.9	0.2 J	0.2 J	0.5 J	<2.4	<2.1	<11	< *various*	0.0
	SV-10-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	47	0.5	2.9	9.6	5.7	3.2	1.0 J	0.7 J	3.1	1.0 J	0.3 J	<11	< *various*	0.0
South Corner of Site (Stormwater Vault)	SV-11-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	3.9	<1.9	27	76	27	26	<2.0	<2.0	<2.0	<2.4	<2.1	<11	< *various*	0.0
	SV-11-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	9.4	<1.9	4.3	19	2.2	8.5	1.1 J	2.8	22	1.2 J	0.7 J	<11	< *various*	0.0

Boring Location	Sample ID	Sample Volume [1]	Sample Date	2-Hexanone (µg/m3)	PCE (µg/m3)	Chlorobenzene (µg/m3)	Ethylbenzene (µg/m3)	m.p-Xylene (µg/m3)	Styrene (µg/m3)	o-Xylene (µg/m3)	4-Ethyltoluene (µg/m3)	1,3,5-TMB (µg/m3)	1,2,4-TMB (µg/m3)	1,4-DCB (µg/m3)	Naphthalene (µg/m3)	Hexachlorobutadiene (µg/m3)	Other VOCs	Methane (%)
Sub-slab Vapor Samples																		
Residential Screening Level for Soil Vapor with ESLs (µg/m^3) [4]				*NE*	*15*	*1,700*	*37*	*3,500*	*31,000*	*3,500*	*NE*	*NE*	*NE*	*8.5*	*2.8*	*4.3*	*various*	*5.0*
11305 Iris Lane	SV-4	121cc- 3 Vol Purge	3/5/2019	9.4	15	<1.9	6.2	21	1.5	9.8	7.2	13	38	<4.9	2.4 J	<21	< *various*	0.0
Paint Spray Booth	SV-5	121cc- 3 Vol Purge	3/5/2019	<3.3	21	<1.9	4.0	18	1.6 J	5.5	0.7 J	0.8 J	2.8 J	<4.9	0.5 J	<21	< *various*	0.0

Notes:
(1) - Sample collected via 1L summa canister.
(2) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) using an Attenuation Factor of 0.001 and Cancer Risk of 1e-06 and a Hazard Quotient of 1.
(3) - Residential DTSC HERO HHRA Note #3 (June 2018) using an Attenuation Factor of 0.001 and Cancer Risk of 1e-06 and a Hazard Quotient of 1. (DTSC CAL EPA, October 2011 Final Guidance for the Evaluation and Mitigation of Substance Vapor Intrusion to Indoor Air).
(4) - SFRWQCB ESLs - Sub slab/ Soil Gas (µg/m3) January 2019
"<" - Results reported below Laboratory Reporting Limit.
CA EPA - California Environmental Protection Agency
DTSC - Department of Toxic Substance Control
HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment
Orange shading indicates value above the ESLs (0.03 attenuation factor) residential screening level.
Red shading indicates value above the RSLs or HERO Note 3 (0.001 attenuation factor) residential screening level.

PCE - Tetrachloroethene
1,2,4 - 1,2,4-Trimethylbenzene
1,3,5 - 1,3,5-Trimethylbenzene
DCFM - Dichlorodifluoromethane (F12)
TCFM - Trichlorodifluoromethane (F11)
TBA - Trichlorodifluoromethane (F11)
1,1,2-TCTFM- Tertiary-butyl alcohol
TCDFM - Trichlorodifluoromethane

µg/m3 - Micrograms per Cubic Meter
NE - Not Established
EPA - United States Environmental Protection Agency
ESLs - Environmental Screening Levels
SFRWQCB - San Francisco Bay Regional Water Quality Control Board

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS -TPH VOCs
KB Home El Monte -Cypress Ave., CALIFORNIA

Boring Location	Sample ID	Sample Depth	Sample Date	TPH (8015B) (mg/Kg)						
				GRO	DRO	ORO	Ethylbenzene	p/m-Xylene	o-Xylene	Various
Residential US EPA RSL (mg/kg) (1)				*82*	*96*	*2,500*	*5.8*	*550*	*650*	*Various*
Residential DTSC HERO Note No. 3 (mg/kg) (1)				*NE*	*NE*	*NE*	*NE*	*NE*	*NE*	*Various*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	5	2/28/2019	<1.0	27	31	6.1	32	13	<various
	SV-1-10	10		<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-2-5	5	2/28/2019	<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-2-10	10		<1.0	46	<10	<5.0	<10	<5.0	<various
	SV-3-5	5	2/28/2019	<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-3-10	10		<1.0	<10	<10	<5.0	<10	<5.0	<various
	HA-2-2	2	2/28/2019	<1.0	110	220	<5.0	<10	<10	<various
	HA-3-2	2	2/28/2019	<1.0	100	220	<5.0	<10	<10	<various
11305 Iris Lane	SV-4-1	1	2/28/2019	<1.0	40	65	NA	NA	NA	<various
	HA-1-1	1	2/28/2019	<1.0	26	57	NA	NA	NA	<various
Paint Spray Booth	SV-5-1	1	2/28/2019	<1.0	59	120	<5.0	<10	<10	<various
3700 Cypress Ave. (Flammable Storage Are)	SV-9-1	1	3/1/2019	<1.0	84	160	<5.0	<10	<10	<various
	SV-9-5	5	3/1/2019	<1.0	<10	<10	<5.0	<10	<10	<various
	SV-10-1	1	3/1/2019	<1.0	2,300	7,500	<5.0	<10	<10	<various
	SV-10-5	5	3/1/2019	<1.0	<10	<10	<5.0	<10	<10	<various

Notes:

(1) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) and the Residential CAL EPA DTSC HERO Note #3 (June 2018).

CA EPA - California Environmental Protection Agency

DTSC - Department of Toxic Substance Control

HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment

mg/Kg - milligrams per kilograms

US EPA - United States Environmental Protection Agency

NA - Not Analyzed

NE - Not Established

VOC - Volatile Organic Compounds

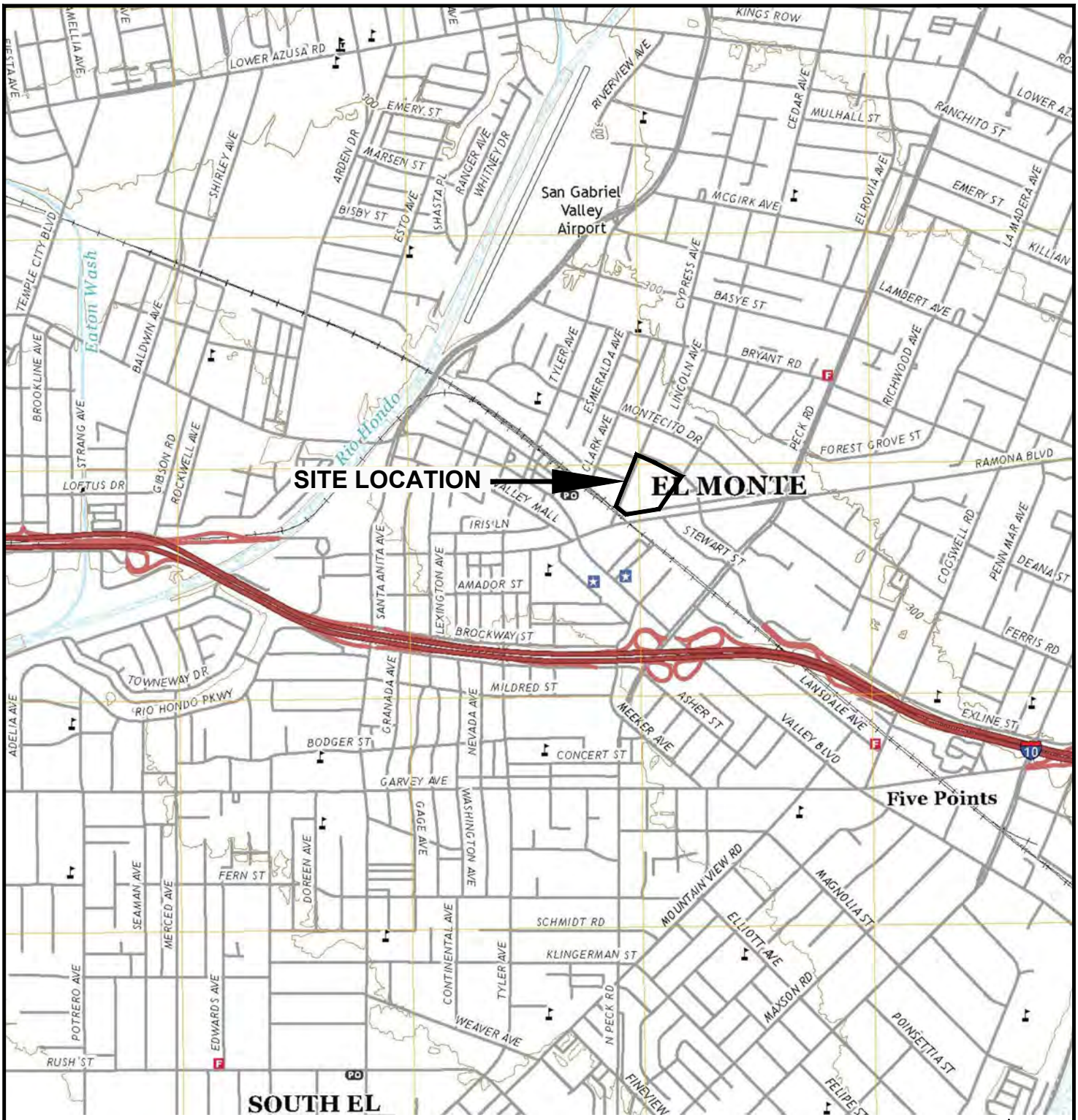
Red shading indicates value above the residential screening level.

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS - METALS
KB Home - EL Monte -Cypress Ave.
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Depth	Sample Date	Metals (6010B) (mg/Kg)																	
				Antimony	Arsenic [2]	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Residential US EPA RSL (mg/kg) [1]				*470*	*0.68*	*15,000*	*2,300*	*2,100*	*NE*	*0.3*	*230*	*3,100*	*400*	*11*	*390*	*NE*	*390*	*5,800*	*0.78*	*390*	*23,000*
Residential DTSC HERO Note No. 3 (mg/kg) [1]				*NE*	*0.11*	*NE*	*210*	*5.2*	*NE*	*NE*	*NE*	*NE*	*80*	*1.0*	*NE*	*490*	*NE*	*1,500*	*NE*	*390*	*NE*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	5	2/28/2019	<2.0	1.3	93	<1.0	<1.0	12	<1.0	6.8	13	1.4	<0.10	<1.0	9.7	<1.0	<1.0	<1.0	21	34
	SV-1-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SV-2-5	5	2/28/2019	<2.0	2.6	130	<1.0	<1.0	19	<1.0	6.8	52	4.9	<0.10	<1.0	13	<1.0	<1.0	<1.0	25	140
	SV-2-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SV-3-5	5	2/28/2019	<2.0	1.7	110	<1.0	<1.0	13	<1.0	7.1	18	6.5	<0.10	<1.0	11	<1.0	<1.0	<1.0	24	56
	SV-3-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HA-2-2	2	2/28/2019	<2.0	2.7	90	<1.0	<1.0	17	<1.0	8.9	46	48	0.13	<1.0	16	<1.0	<1.0	<1.0	23	320
	HA-3-2	2	2/28/2019	<2.0	3.3	94	<1.0	<1.0	21	<1.0	8.4	33	25	<0.10	<1.0	17	<1.0	<1.0	<1.0	27	130
11305 Iris Lane	SV-4-1	1	2/28/2019	<2.0	1.1	66	<1.0	<1.0	13	<1.0	6.5	13	8.8	<0.10	<1.0	8.8	<1.0	<1.0	<1.0	23	37
	HA-1-1	1	2/28/2019	<2.0	1.3	75	<1.0	<1.0	11	NA	8.0	13	6.7	<0.10	<1.0	11	<1.0	<1.0	<1.0	26	28
Paint Spray Booth	SV-5-1	1	2/28/2019	<2.0	1.2	340	<1.0	<1.0	14	<1.0	9.6	21	8.3	<0.10	<1.0	12	<1.0	<1.0	<1.0	33	40
3700 Cypress Ave. (Flammable Storage Are)	SV-9-1	1	3/1/2019	<2.0	45	110	<1.0	<1.0	14	NA	7.6	24	22	<0.10	<1.0	11	<1.0	<1.0	<1.0	24	85
	SV-9-5	5	3/1/2019	<2.0	2.7	110	<1.0	<1.0	16	NA	8.7	21	3.6	<0.10	<1.0	12	<1.0	<1.0	<1.0	30	40
	SV-10-1	1	3/1/2019	<2.0	24	64	<1.0	<1.0	12	NA	6.7	63	23	<0.10	<1.0	11	<1.0	<1.0	<1.0	21	33
	SV-10-5	5	3/1/2019	<2.0	2.8	83	<1.0	<1.0	14	NA	8.4	17	2.9	0.17	<1.0	11	<1.0	<1.0	<1.0	29	36

Notes:
(1) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) and the Residential CAL EPA DTSC HERO Note #3 (June 2018).
(2) - Background range for Arsenic is 11 mg/kg within Southern California.
CA EPA - California Environmental Protection Agency
DTSC - Department of Toxic Substance Control
HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment

NA - Not Analyzed
NE - Not Established
mg/Kg - milligrams per kilograms
US EPA - United States Environmental Protection Agency
Red shading indicates value above the residential screening level.





QUADRANGLE LOCATION

0 2000 4000

APPROXIMATE SCALE (FEET)

N

SOURCE:
USGS 7.5 MINUTE
TOPOGRAPHIC MAP–
EL MONTE, CA QUADRANGLE, 2018

Stantec
735 E. CARNEGIE DRIVE, SUITE 280
SAN BERNARDINO, CALIFORNIA 92408
PHONE: (909) 335-6116 FAX:(909) 335-6120

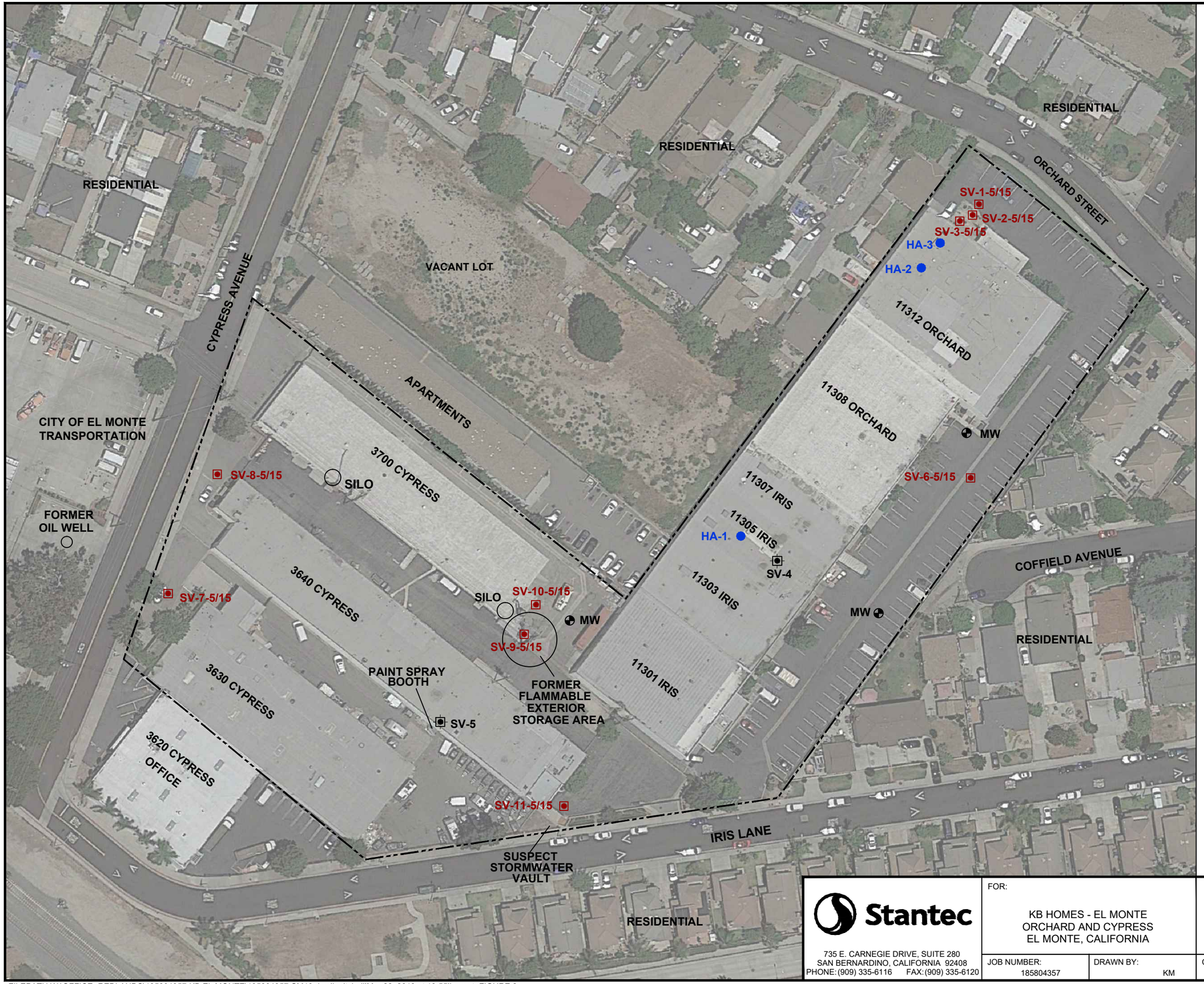
FOR:
KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SITE LOCATION MAP

FIGURE:
1

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SLM19.dwg|kmitchell|Mar 20, 2019 at 13:06|Layout: FIGURE 1



LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

0 80 160

APPROXIMATE SCALE (FEET)

N

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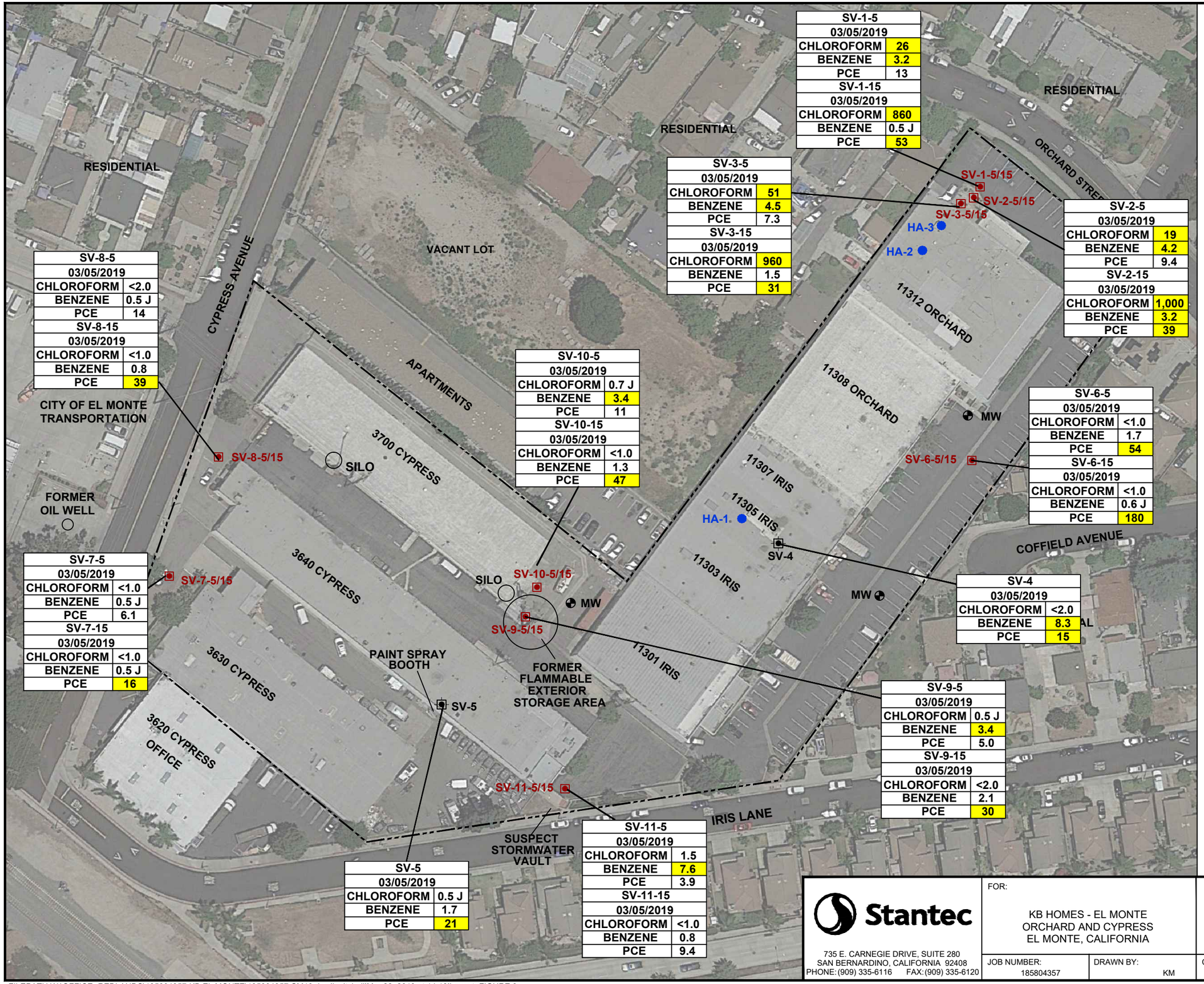
FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SITE MAP

FIGURE: 2

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SM19.dwg|kmitchell|Mar 22, 2019 at 13:55|Layout: FIGURE 2



SV-8-5	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	0.5 J
PCE	14
SV-8-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.8
PCE	39

SV-7-5	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.5 J
PCE	6.1
SV-7-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.5 J
PCE	16

SV-10-5	
03/05/2019	
CHLOROFORM	0.7 J
BENZENE	3.4
PCE	11
SV-10-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	1.3
PCE	47

SV-1-5	
03/05/2019	
CHLOROFORM	26
BENZENE	3.2
PCE	13
SV-1-15	
03/05/2019	
CHLOROFORM	860
BENZENE	0.5 J
PCE	53

SV-3-5	
03/05/2019	
CHLOROFORM	51
BENZENE	4.5
PCE	7.3
SV-3-15	
03/05/2019	
CHLOROFORM	960
BENZENE	1.5
PCE	31

SV-2-5	
03/05/2019	
CHLOROFORM	19
BENZENE	4.2
PCE	9.4
SV-2-15	
03/05/2019	
CHLOROFORM	1,000
BENZENE	3.2
PCE	39

SV-6-5	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	1.7
PCE	54
SV-6-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.6 J
PCE	180

SV-4	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	8.3
PCE	15

SV-9-5	
03/05/2019	
CHLOROFORM	0.5 J
BENZENE	3.4
PCE	5.0
SV-9-15	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	2.1
PCE	30

SV-5	
03/05/2019	
CHLOROFORM	0.5 J
BENZENE	1.7
PCE	21

SV-11-5	
03/05/2019	
CHLOROFORM	1.5
BENZENE	7.6
PCE	3.9
SV-11-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.8
PCE	9.4

LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

SV-4	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	8.3
PCE	15

SAMPLE ID
SAMPLE DATE

ALL RESULTS IN MICROGRAMS PER CUBIC METER (ug/m ^{3})

PCE = TETRACHLOROETHENE

J = ESTIMATED VALUE

RESULT ABOVE RESIDENTIAL SCREENING LEVEL

< = CONCENTRATION LESS THAN THE INDICATED LABORATORY REPORTING LIMIT

0 80 160

APPROXIMATE SCALE (FEET)

N

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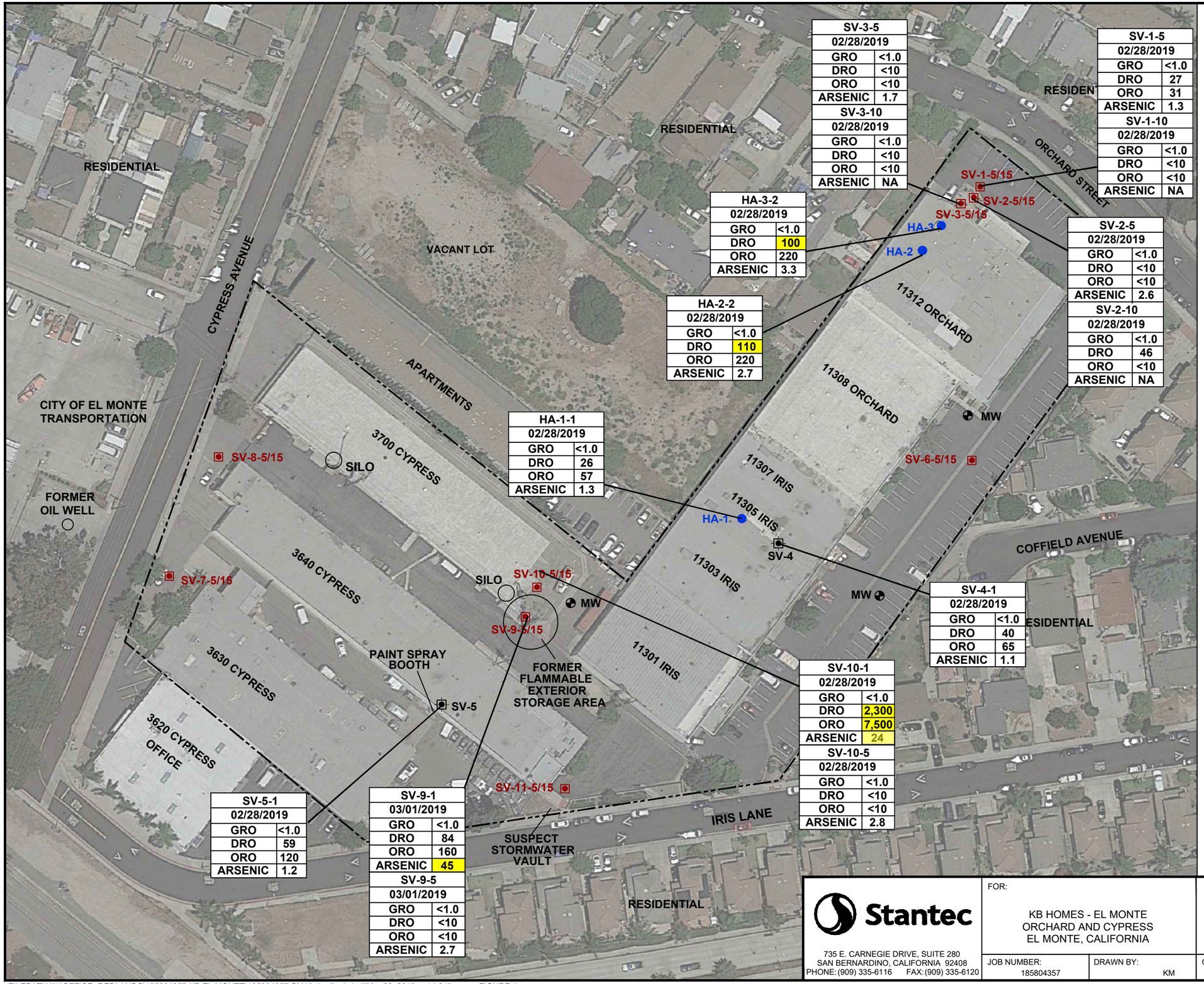
FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SOIL VAPOR ANALYTICAL RESULTS

FIGURE: 3

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

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SV-3-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	1.7

SV-3-10	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	NA

SV-1-5	
02/28/2019	
GRO	<1.0
DRO	27
ORO	31
ARSENIC	1.3

SV-1-10	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	NA

HA-3-2	
02/28/2019	
GRO	<1.0
DRO	100
ORO	220
ARSENIC	3.3

SV-2-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.6

SV-2-10	
02/28/2019	
GRO	<1.0
DRO	46
ORO	<10
ARSENIC	NA

HA-2-2	
02/28/2019	
GRO	<1.0
DRO	110
ORO	220
ARSENIC	2.7

HA-1-1	
02/28/2019	
GRO	<1.0
DRO	26
ORO	57
ARSENIC	1.3

SV-4-1	
02/28/2019	
GRO	<1.0
DRO	40
ORO	65
ARSENIC	1.1

SV-10-1	
02/28/2019	
GRO	<1.0
DRO	2,300
ORO	7,500
ARSENIC	24

SV-10-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.8

SV-5-1	
02/28/2019	
GRO	<1.0
DRO	59
ORO	120
ARSENIC	1.2

SV-9-1	
03/01/2019	
GRO	<1.0
DRO	84
ORO	160
ARSENIC	45

SV-9-5	
03/01/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.7

LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

HA-3-2	SAMPLE ID
02/28/2019	SAMPLE DATE
GRO	<1.0
DRO	100
ORO	220
ARSENIC	3.3

ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

GRO- GASOLINE RANGE ORGANICS
DRO- DIESEL RANGE ORGANICS
ORO- OIL RANGE ORGANICS
NA- NOT ANALYZED

RESULT ABOVE RESIDENTIAL SCREENING LEVEL

< = CONCENTRATION LESS THAN THE INDICATED LABORATORY REPORTING LIMIT

0 80 160

APPROXIMATE SCALE (FEET)

N

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FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SOIL BORING ANALYTICAL RESULTS

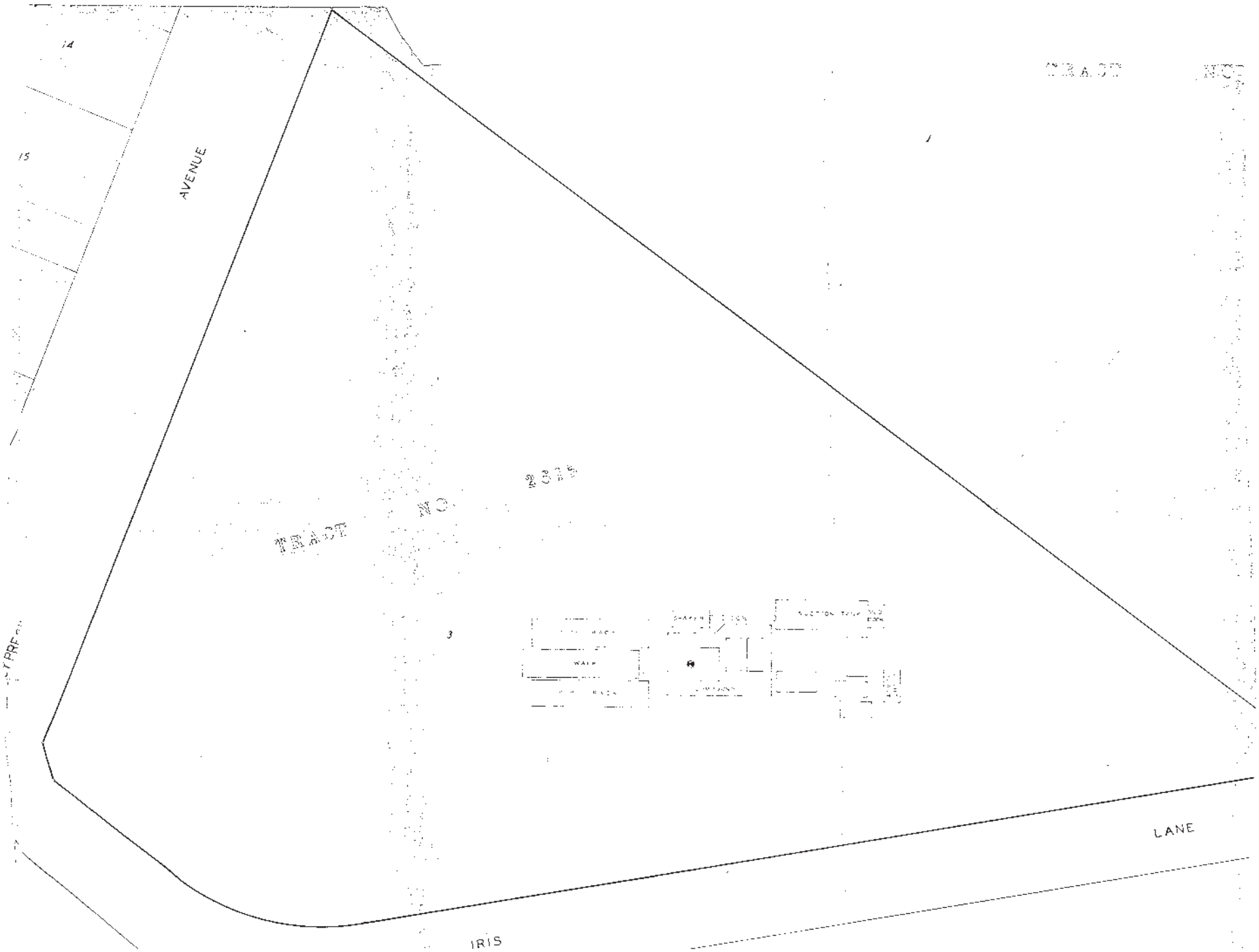
FIGURE: 4

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SM19.dwg|kmitchell|Mar 22, 2019 at 14:21|Layout: FIGURE 4

ATTACHMENT B

CalGEM “Ferris 1” Map


AVENUE
LANE
IRIS

Appendix G6

Stantec Response to Review



Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

January 14, 2020
Project No. 211168002

Ms. Nancy Lee
City of El Monte
11333 Valley Boulevard
El Monte, California 91731

Subject: Review of Environmental Documents
3630, 3640, and 3700 Cypress Avenue and
11312 Orchard Street
El Monte, California

References: Stantec Consulting Services, Inc., 2019, Phase II Environmental Site Assessment Memo, 3630, 3640, 3700 Cypress Avenue and 11312 Orchard Street, El Monte, California 91731, dated March 22.

Stantec Consulting Services, Inc., 2019, Phase I Environmental Site Assessment, 3700, 3640, 3630 Cypress Avenue and 11312 Orchard Street, El Monte, California 91731, dated March 25.

Stantec Consulting Services, Inc., 2019, Remedial Action Plan, 3630, 3640, 3700 Cypress Avenue and 11312 Orchard Street, dated November 15.

Dear Ms. Lee:

In accordance with your authorization received via email dated January 7, 2020, Ninyo & Moore is pleased to provide the results of our review of the referenced environmental reports prepared by Stantec Consulting Services, Inc. (Stantec). The documents were prepared for the approximately 5.69-acre property on the northeast corner of Cypress Avenue and Iris Lane at 3630, 3640, and 3700 Cypress Avenue and 11312 Orchard Street in El Monte, California (site). We understand the site is currently developed with several multi-tenant commercial/light industrial buildings with asphalt parking lots and is planned to be developed with a new 110-townhome development. Ninyo & Moore has not visited the site or independently ascertained the information contained in the referenced documents.

REVIEW OF ENVIRONMENTAL DOCUMENTS

The following sections summarize our review of the referenced Phase I Environmental Site Assessment (ESA), Phase II ESA, and Remedial Action Plan (RAP). Our conclusions and recommendations for each document are provided at the end of our summaries.

Stantec Phase I ESA Report

In 2019, Stantec prepared a Phase I ESA for the site. At the time of the Phase I ESA, the site was an approximately 5.2-acre property developed with four occupied multi-tenant commercial/light industrial buildings with asphalt parking lots. Tenants included import/export warehouses, furniture warehouses, woodworking, print press, and storage/maintenance of forklifts and other various machines.

Based on their Phase I ESA findings, Stantec concluded the following:

- **Current and Historical Site Operations**: During the site reconnaissance, Stantec observed:
    - A potential clarifier at 11312-B Orchard Street associated with a former laundry/dry facility;
    - An exterior storage shed and a former flammable storage area at 3700-B Cypress Avenue;
    - Current site operations, including a printing press at 11305 Iris Lane and woodworking at 3640 Cypress Avenue;
    - New trench drains installed for Jayar Manufacturing at 3700 Cypress Avenue, according to a 2002 building permit map. The trenches discharged into an existing clarifier, which was not depicted on the map.
    - In 1995, the site address 11312 Orchard Street received a notice of violation from the City of El Monte for lack of plumbing permit for the installation of an underground clarifier. According to Stantec, the notice of violation also mentioned that an existing abandoned underground tank must be removed or filled with sand. According to Stantec, "no additional information regarding the location of this abandoned underground tank was provided."

  Stantec considered the current and historical site operations listed above as a recognized environmental condition (REC) and recommended further assessment to evaluate if a release occurred from these structures to the underlying soil. Although not specified as a REC in their report, Stantec observed a paint spray booth during the site reconnaissance at 3640 Cypress Avenue. Stantec advanced a sub-slab soil boring in the vicinity of the paint spray booth during their Phase II ESA.

- **Off-Site Oil Well**: An inactive oil well was listed at the City of El Monte Transportation Service Yard, approximately 250 feet west of the site. Based on its proximity to the site, Stantec indicated that methane mitigation systems may be required for future site buildings by the Los Angeles Department of Public Works.

- **Database Listings**: The site was listed for the disposal of oil wastes to approved disposal facilities; discharge of water to the sanitary sewer; and the installation of groundwater monitoring wells associated with the former Electra Foods Machinery Inc. facility (11312 Orchard Street) and the regional groundwater contamination in the area. The site address 11312 Orchard Street was also listed in the drycleaner database as Anitsa Inc., Valet Services, DBA. Additional information was not provided. Stantec considered the drycleaner database listing and previous environmental investigations as a REC and recommended a soil vapor survey.

- **Contaminated Groundwater**: The site was located within the El Monte Operable Unit (OU) of the San Gabriel Valley Superfund Site (Area 1). The OU was an 11-square-mile area of contaminated groundwater impacted with various volatile organic compounds (VOCs) including tetrachloroethene (PCE), trichloroethene (TCE), perchlorate, and carbon tetrachloride (CT). According to Stantec, groundwater at the site was deeper than 100 feet below ground surface

(bgs), but off-gassing of VOCs from the contaminated groundwater could potentially affect soil vapor conditions at the site. Based on this information, Stantec considered the presence of documented contaminated groundwater in the area of the site as a REC.

Stantec also reported the following non-ASTM issues with the site:

- **Hazardous Building Materials**: Based on the age of the site buildings (circa 1950s), Stantec considered lead-based paint (LBP) and asbestos containing materials (ACMs) likely to be present in site buildings. Stantec recommended a comprehensive, pre-demolition LBP and ACM survey prior to any activities with the potential to disturb building materials to determine if ACMs were present. Stantec also recommends proper removal and disposal of ACMs prior to renovation or demolition, if encountered.

- **Asphalt**: According to Stantec, a stress-absorbing fabric suspect for asbestos (Petromat®) may be present within the asphalt areas of the site. The stress absorbing fabric is a felt underlayment and is sometimes used to increase the strength and longevity of asphalt surfaces. Petromat® was not observed in the four locations Stantec cored in the parking lots associated with the site.

Stantec Phase II ESA Memo

In February and March 2019, Stantec conducted a Phase II ESA to evaluate multiple RECs in connection with the site that required further assessment based on the prior Phase I ESA. The RECs identified at the site in the Phase I ESA included:

- Suspect Sump/Clarifiers.
- Former Chemical Storage Areas.
- Paint Spray Booth.
- Printing Press Operations.
- Off-Site Oil Well.
- Contaminated Groundwater.

The Phase II ESA used interchanged terms for “sump/clarifiers”, “clarifier/sump” and “sump/clarifier”.

Stantec prepared a brief memo with the results of their Phase II ESA. The Stantec memo included only a brief summary of the field investigation, laboratory service, analytical results, their conclusions and recommendations, analytical data summary tables and figures. No analytical laboratory reports or boring logs were provided for our review to confirm the presented findings. Copies of Stantec’s tables and figures from the memo are provided in Attachment A for reference.

Field Investigation

Between February 28th and March 5, 2019, Stantec provided field oversight of the advancement of twenty-three (23) soil borings in the areas of concern listed above, to a maximum depth of approximately fifteen (15) feet bgs (Figure 2).

The memo noted that soil samples were collected, and soil vapor/sub-slab probes were installed on February 28 and March 1, 2019. Per California Department of Toxic Substances Control (DTSC) guidance, Stantec returned to the site on March 5, 2019, following a minimum of 48-hour equilibration period, to perform soil vapor and sub-slab sampling from the newly-installed vapor points.

Our review of Table 1 - Summary of Soil Vapor Analytical Results, indicates that soil vapor samples from nine borings (SV-1 to SV-3 and SV-6 to SV-11) were analyzed from depths of approximately 5 and 15 feet bgs. One sub-slab sample each was collected from borings SV-4 and SV-5, a total of two sub-slab samples; however, no depth was provided for these samples.

Our review Table 2 - Summary of Soil Analytical Results – TPH VOCs and Table 3 – Summary of Soil Analytical Results – Metals, shows that soil samples were analyzed from ten borings: SV-1 to SV-3 at depths of 5 foot and 10 foot bgs; SV-9 and SV-10 at 1 foot and 5 foot bgs; SV-4, SV-5, and HA-1 at 1 foot bgs; and HA-2 and HA-3 at 1 foot bgs.

Laboratory Service

Stantec reported that the soil vapor samples were collected and analyzed on-site by a mobile or off-site fixed-base laboratory for VOCs by United States Environmental Protection Agency (USEPA) Method TO-15 Selective Ion Monitoring (SIM). In addition to the soil vapor survey, Stantec "field screened" the site for the presence of methane. Stantec stated that "no methane was detected above background levels" during the field screening.

Stantec stated that "select" soil samples were submitted for analysis of TPH by USEPA Method 8015, VOCs by USEPA method 8260, California Title 22 metals by USEPA method 6010, and hexavalent chromium (Cr IV) by USEPA 7196. The memo stated that the remaining soil samples collected during the Phase II ESA investigation were placed on hold.

Soil Vapor Results

Stantec reported that twenty (20) soil vapor or sub-slab probes were installed just below the concrete foundation or asphalt parking lot to a maximum depth of approximately 15 feet bgs to evaluate soil vapor concentrations in shallow soil. The locations selected to address the RECs were shown on Figure 3.

Stantec stated the laboratory reported "low levels" of VOCs in all soil vapor and subslab vapor samples. The VOCs chloroform, benzene, and PCE were reported by Stantec as being above the San Francisco Bay Region Water Quality Control Board's newly published Environmental

Screening Levels (ESLs) (January 2019) based on an attenuation factor of 0.03 (Table 1). The reported concentrations were as follows:

- Chloroform ranged from less than the laboratory reporting limit to 1,000 micrograms per cubic meter (ug/m3) in soil vapor sample SV-2-15' located near the sump/clarifiers and associated trenching at 11312 Orchard, Unit B. Elevated concentrations of chloroform, "above the background levels", were reported in "all six soil vapor samples" collected near the sump/clarifiers.

- Stantec stated that "low levels" of benzene ranged from less than the laboratory reporting limit to 7.6 ug/m3 in soil vapor sample SV-11-5' located near the storm water vault in the southern corner of the site.

- PCE ranged from less than the laboratory reporting limit to 180 ug/m3 in soil vapor sample SV-6-15' located in the parking lot area of 11308 Orchard. SV-6 was one (1) of three (3) soil vapor probes installed away from on-site RECs to assess the regional San Gabriel Valley Superfund plume.

Soil Results

Stantec reported that ten (10) soil borings were advanced to a maximum depth of approximately 15 feet bgs to determine if there are any concentrations in shallow soil that may impact the subsurface at the site (Figure 4). The memo stated that "low levels" of diesel range organics (DRO), motor oil range organics (ORO), and arsenic were detected above the residential screening levels in two areas of the site (Table 2 and 3).

- Stantec reported that "low levels" of DRO were detected above the residential screening levels in the shallow soil samples (HA-2 and HA-3) collected along the interior trench drains connected to the sump/clarifiers at the 11312 Orchard Street (Table 2).

- The memo stated that concentrations of DRO, ORO, and arsenic were detected "above the residential screening levels" in the shallow soil samples (SV-9 and SV-10) collected from the flammable exterior storage area located at 3700 Cypress Ave. Stantec reported that the petroleum and arsenic impacts "appear limited to the upper few feet of soil in this area", as the five (5) feet samples reported DRO, ORO, and arsenic below the residential screening levels.

Stantec's Conclusions and Recommendations

Based on their Phase II ESA findings, Stantec concluded the following:

> The Stantec memo stated that soil vapor concentrations for chloroform, benzene, and PCE are "elevated" near the sump/clarifiers and "only slightly above" the ESLs for the remaining areas of the site. The site is located over the San Gabriel Valley Superfund plume area, therefore, Stantec recommended that a risk assessment be performed to determine if vapor barriers with passive vents are required for new residential developments in these "two areas" of the site. The memo stated that final recommendations for vapor barriers with passive vents will be determined by the risk assessment, but to be conservative, KB Home should assume for their developments cost that vapor barriers with passive vents will be required based on the newly published ESLs and the recent soil vapor results.

The memo stated that the sump/clarifiers area of the site located at 11312 Orchard reported "elevated" concentrations of chloroform and PCE in the soil vapor and "low levels" of DRO in the soil samples. PCE and chloroform were not reported in the soil samples collected around the sump/clarifiers and drains. However; Stantec stated that releases are "known to occur from these structures". Therefore, Stantec recommended that during removal of these structures, over excavation followed by confirmation soil sampling be performed. The memo stated that based on the confirmation soil sampling, additional remedial actions may be recommended for this REC.

Stantec reported that soil boring SV-9 and SV-10 reported "elevated" DRO, ORO, and arsenic in the one (1) foot soil samples above the residential screening levels. The memo stated that given that the "five (5) soil sample reported all analytes below their corresponding residential screening levels", a limited and shallow excavation followed by confirmation soil sampling of this flammable exterior storage area was recommended.

Stantec RAP

In November 2019, Stantec prepared a RAP that described the methodology, findings and results of the multiple rounds of Phase II ESAs performed at the site between February 28 and March 5, 2019, by Stantec, and presented remedial measures to address elevated COCs in soil and soil vapor.

The RAP noted that the site is located over a widespread groundwater contamination plume that has been identified on the NPL Sites list and is identified as the San Gabriel Valley Superfund Site. The RAP stated that the site is not a named responsible party to this superfund action but has three dry wells associated with the NPL site monitoring.

Groundwater in the area of the site has been documented to be impacted with various VOCs including PCE, TCE, perchlorate, and CT. Off-gassing of VOCs from the contaminated groundwater could potentially affect soil vapor conditions at the site and were addressed in the RAP. Investigation and remediation of VOC impacted groundwater was not included in the RAP. The procedures and protocols outlined in the RAP are based on the results of previous field investigations performed at the site.

Stantec identified potential COCs by comparing analyte concentrations reported in onsite media with potential on-site sources. Stantec stated that the potential vapor migration of VOCs from the regional plume is an "off-site" source and will be addressed by the proposed vapor barrier design. Contributions from other unknown "off-site" sources were not considered in the evaluation of site COCs. Onsite analyte concentrations were compared with regulatory screening guidelines to identify whether a particular chemical should be considered a COC.

The RAP stated that preliminary cleanup goals followed published regulatory risk-based guidance documents. The proposed cleanup goals for COCs and potential COCs in soil and soil vapor are

consistent with USEPA residential RSL and DTSC HERO residential Note 3, should such impacts be identified.

Historical and recent investigations consisting of evaluation of soil and soil vapor have reported the potential presence of COCs above preliminary soil screening levels. Based on Stantec's review of the collected data, and in comparison to the applied screening levels, the following media were potentially affected by COCs above screening levels.

Soil Vapor - Shallow soil vapor concentrations of VOCs including varying concentrations of benzene, chloroform, and PCE, have been reported above current screening levels based on future residential development across the Site.

Soil - Based on historical and recent investigation data, DRO and ORO, and arsenic were reported in several soil samples at concentrations above the screening levels. The RAP noted that "ambient or background" arsenic concentrations in California soils typically exceed RSLs.

Groundwater - The site is located over a NPL Site identified as the San Gabriel Valley Superfund Site. Groundwater in the area of the site has been documented to be impacted with various VOCs including PCE, TCE, perchlorate, and CT.

In general, the following remedial methodologies were adopted by Stantec for each of the COCs and area of concern (AOC).

Remedial Approach at Identified Areas of Concern

Area of Concern	Potential COC	Remedial Approach
11312 Orchard – Clarifier/Sump • Floor Drain • Clarifier	VOCs TPH-d	Removal of clarifiers/sump and floor drains along. Performed supplemental excavation of impacted soil immediately around remove structures. Collect soil samples following excavation to confirm no COCs exist above the Site cleanup goals.
3700 Cypress – Former Flammable Storage Area • Flammable Storage Area Storage • Potential Drains and Clarifier	TPH-d TPH-o Arsenic	Shallow excavation of soil impacted with COCs above the Site cleanup goals. Collect soil samples following excavation to confirm no COCs exist above the Site cleanup goals.
Site Wide • Low Levels of VOCs in Soil Vapor	Benzene PCE TCE Chloroform	Engineering controls during redevelopment (vapor barriers).

Excavation

The RAP stated that the excavation of COCs and potential COCs to reduce the "on-Site UCL95" in the upper five feet to below the RSL will be conducted using excavation equipment (i.e. backhoes, excavators, bobcats, etc.).

The RAP stated that excavation of impacted soil will begin in those areas that have known impacts (above cleanup goals) based on the results of previous investigations. Specifically, excavation will begin at the point of highest known concentration based on previous investigations and will move outward and downward until Site soil cleanup goals are achieved, or until deeper excavation is not feasible.

The RAP provided descriptions for demolition, excavation screening, confirmatory samples, stockpile/waste management, waste classification and profiling and for loading and final disposition.

Vapor Barriers

Vapor barriers will be incorporated into the design of the buildings and will also include below grade piping for venting should venting be necessary. The RAP stated that "all" vapor barrier design will be developed by another consultant and provided to Stantec for review prior to placement. Inspection of the barriers should occur after installation to insure performance.

Closure

The RAP stated that "with confirmation that soil in the upper five feet was remediated to below Site cleanup goals, closure will be recommended." Closure will be conditioned on the fact that vapor barriers will be installed below future inhabitable structures. It is anticipated that closure will be achieved first for the soil portion of the Site and then soil vapor following review and approval by the City of El Monte Building Department. Soil vapor barriers will be installed beneath the future developments at the Site to significantly decrease the exposure pathways to any onsite receptor.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the review of the referenced documents, Ninyo & Moore provides the following conclusions and recommendations:

Stantec Phase I ESA

- According to historical aerial photographs, the western portion of the site had a U-shaped road and potentially disturbed soil in 1928 and 1938. This could be associated with former landfill operations. According to a Subsurface Investigation Report for the Jayar Manufacturing Company (3700 Cypress Avenue), prepared by Remedial Engineering, Inc. and dated September 20, 1990, "it has been rumored that prior to 1959, this site perhaps had been a landfill or dump site that had been filled, although no substantiation of this as fact was obtainable through City building records." Ninyo & Moore reviewed the California Department of Resources Recycling and Recovery (CalRecycle) Solid Waste Information System (SWIS) database for information on this potential landfill. According to the SWIS database, the site is not listed. The nearest landfill was approximately 0.67 mile west of the site. The report also stated that Standard

Oil used the site for oil exploration, but only natural gas was discovered, and that there was an Ironworks Foundry "immediately adjacent to Jayar Manufacturing Company to the northeast" prior to 1957. The potential former landfill on the site was not addressed in Stantec's report and should be considered a REC. SEE STANTEC'S REVISED PHASE I ESA Sections 4.3.2 and 4.4.2.2

- Most of the current site buildings were developed on the site between 1964 and 1977, not the 1950s as Stantec stated. This would not alter their non-ASTM recommendation of performing a LBP and ACM survey of the site buildings. SEE STANTEC'S REVISED PHASE I ESA Sections 8.1, 8.3, 9.2, and 9.1

- Ninyo & Moore reviewed the California Geologic Energy Management Division (CalGEM, formerly DOGGR) website for information on the reported adjoining oil well west of the site. According to CalGEM, "Ferris 1" was plotted approximately 100 feet west of the site and was listed as plugged and abandoned. However, according to the well records for "Ferris 1" available on the CalGEM website, the oil well was located in the approximate center of the site (Attachment B). Therefore, in accordance with the Los Angeles County Department of Public Works Gas Hazard Mitigation Policy and Standards, dated December 18, 2019, "permits shall not be issued for new buildings…regulated by this code on, or adjacent to, or within 300 feet of active, abandoned or idle oil or gas well(s) unless designed according to recommendations contained in a report prepared by a registered design professional, such as a licensed civil engineer and/or licensed petroleum engineer, to evaluate whether such wells are being properly operated or maintained, or are abandoned." SEE STANTEC'S REVISED PHASE I ESA WITH INFORMATION FROM RECENT WELL SURVEY in SUMMARY AND SECTION 4.3.1, 7.0, AND 8.3.
- According to historical topographic maps, the Pacific Electric rail line adjoined the site to the south from 1923 to 1966. In addition, a railroad spur terminated at the southwest corner of the site in 1948. The historical presence of a ROW adjoining the site presents a potential for contamination resulting from leaks or spills from the railcars or historic application of surface chemicals during railroad operations. Based on Ninyo & Moore's experience, the suspected presence of railroad related chemicals in shallow site soils due to operation of the railroad tracks would be considered a REC for the site. PAHs, TPHs, PCBs, OCPs, chlorinated herbicides, and metals are typically detected along railroad easements from operational activities, spills, and use of herbicides SEE STANTEC'S REVISED PHASE I ESA, SECTION 4.4.5

- Ninyo & Moore agrees with the Phase I ESA conclusions on the remaining existing RECs for the site.

- Since RECs were reported for the site and based on the historic site use, a Soil Management Plan should be prepared to handle the potential for encountering unknown structures and contaminated soil at the site during site redevelopment. SEE STANTEC'S REVISED RAP SECTION 5.3.11

- Potential liability for cleaning up petroleum impacts at the site continue through site transfer. This is affected by future changes in regulatory considerations. In addition, there is potential liability for off-site exposure due to stated references to historical off-site migration of contamination emanating from the site. Additional research and/or subsurface sampling would need to be conducted to evaluate these potential liabilities. ADDITIONAL SUBSURFACE SAMPLING WILL BE DISCUSSED TO DECREASE POTENTIAL LIABILITIES

Stantec Phase II ESA Memo

- Based on our review of the Phase II ESA, no analytical laboratory reports or boring logs were provided for our review to confirm the presented findings. SEE STANTEC'S REVISED PHASE II REPORT WHICH INCLUDES ANALYTICAL AND BORING LOG APPENDICES
- RECs noted in the Phase II ESA memo used interchanged terms for sump/clarifiers, clarifier/sump and sump/clarifier. The oil well identification or status from the California Department of Conservation Geologic Energy Management (CalGEM) website was not provided in the memo. SEE STANTEC'S REVISED PHASE II REPORT WITH SUMP/CLARIFIERS USED IN REPORT

- Methodology of drilling, sample collection, decontamination, decommission of the vapor probes and borings, and waste disposal documentation were not provided in Stantec's memo. Depths of analyzed samples were noted in Tables 1 to 3. SEE SECTION 3.0 FIELD INVESTIGATION OF STANTEC'S REVISED PHASE II REPORT
- Stantec stated that "no methane was detected above background levels" during the field screening. However, Stantec's memo did not indicate where on the site, the methodology, equipment, or background level concentration used to monitor for the presence of methane. SEE STANTEC'S REVISED PHASE II REPORT SECTION 3.2.4
- Depths of the sub-slab vapor probes were not provided in the memo. SEE STANTEC'S REVISED PHASE II REPORT SECTION 5.2.1 AND DEPTH OF PROBES ARE INCLUDED IN SAMPLE ID ON TABLE 1(i.e SV-2-15 is 15'
- Stantec stated that "select" soil samples were submitted for analysis of TPH by USEPA Method 8015, VOCs by USEPA method 8260, California Title 22 metals by USEPA method 6010, and hexavalent chromium (Cr IV) by USEPA 7196. The memo did not provide criteria for selection of which soil samples were to be analyzed for COCs. SEE STANTEC'S REVISED PHASE II REPORT SECTION 4.0
- Elevated concentrations of chloroform, "above the background levels", were reported in "all six soil vapor samples" collected near the sump/clarifiers. The Stantec memo did not identify a "background level" for chloroform in soil vapor at the sump/clarifiers area. "ABOVE THE BACKGROUND LEVEL REPLACED WITHE " ABOVE THE LABORARTOY REPORTING LIMIT" SEE STANTEC'S REVISED PHASE II REPORT SECTION 5.2.1
- PCE ranged from less than the laboratory reporting limit to 180 ug/m^3 in soil vapor sample SV-6-15' located in the parking lot area of 11308 Orchard. SV-6 was one (1) of three (3) soil vapor probes installed away from on-site RECs to assess the regional San Gabriel Valley Superfund plume. The memo did not identify the other two soil vapor probes used to assess the regional San Gabriel Valley Superfund plume or report on their results. SEE SECTION 5.2.1 FOR OTHER SOIL VAPOR PROBES TO ASSESS THE REGIONAL PLUME
- Vertical extent of chloroform, benzene and PCE in soil gas throughout the site was not reported in the memo. Based on our review of Table 1, in the analyzed soil vapor samples, chloroform and PCE concentrations generally increased with depth while benzene concentrations generally decreased. It appears that the vertical extent of VOCs in soil vapor has not be ADDITIONAL VERTICAL ASSESSMENT WILL BE DISCUSSED DURING THE DEMOB TO DETERMINE THE NEED FOR FURTHER ASSESSMENT.
- Lateral extent of PCE in soil gas was not evaluated in the memo. From our review of Table 1, PCE in soil gas exceeded the applied screening levels throughout the site areas except the south corner of the site (stormwater vault). It appears that the lateral extent of VOCs in soil vapor has not been defined. ADDITIONAL LATERAL ASSESSMENT WILL BE DISCUSSED DURING THE DEMOB TO DETERMINE THE NEED FOR FURTHER ASSESSMENT
- PCE and chloroform were not reported in the soil samples collected around the sump/clarifiers and drains. TPH was not detected at concentrations exceeding the applied screening levels. LOW LEVEL OF TPH AS DIESEL (DRO) WERE REPORTED BOVE SCREENING IN TWO SAMPLES NEAR SUMP/CLARIFIERS
- Our review of Tables 2 and 3 shows that the deepest soil depth assessed in borings HA-3 and HA-3 is 2 feet bgs and that DRO has not been delineated. DRO did not exceed the applied residential RSL in boring SV-9. However, arsenic in soil at borings SV-9 and SVE-10 did exceed the applied RSL and DTSC HERO screening levels at a depth of five feet bgs. We agree that confirmation sampling is warranted to fully delineate the extent of DRO, ORO and arsenic impacts at the flammable storage area and the DRO impacts at the sump/clarifiers area.
- Stantec reported that soil boring SV-9 and SV-10 reported "elevated" DRO, ORO, and arsenic in the one (1) foot soil samples above the residential screening levels. The memo stated that given that the "five (5) soil sample reported all analytes below their corresponding residential screening levels", a limited and shallow excavation followed by confirmation soil sampling of this flammable exterior storage area was recommended. The memo should clarify if the previous statement means the 'five foot bgs' samples as the depth units were omitted. DEPTH UNIT ADDED. SEE STANTEC'S REVISED PHASE II REPORT SEE SECTION 3.2.3
- We agree that a health-based risk assessment should be performed to evaluate if a vapor barrier with passive or active venting may be required for the proposed multi-tenant residential development

Stantec RAP

- Based on our review of the RAP, we generally agree with the proposed remedial approach. However, Stantec's Phase II ESA recommended that a risk assessment be performed to determine if vapor barriers with passive vents are required for the proposed multi-tenant residential developments at the site. The RAP did not specifically incorporate a risk assessment in their remedial approach.

A RISK ASSESSMENT WILL BE PERFORMED AT THE COMPLETION OF THE REMEDIAL ACTIVITIES. SEE SECTION 5.3.2 FOR DETAILS

- The "on-Site UCL95" or upper confidence limit reference in the excavation section may imply use the USEPA's ProUCL software to evaluate exposure, however, there is no further description of UCL95 use in the RAP.

SEE STANTEC'S REVISED RAP SECTION 5.3.1

- The RAP stated that the potential vapor migration of VOCs from the regional plume is an "off-site" source and will be addressed by the proposed vapor barrier design. Contributions from other unknown "off-site" sources were not considered in the evaluation of Site COCs. However, our review of Stantec's Phase II ESA indicated that collected soil samples were not analyzed for VOCs and therefore, should not be ruled out as a potential on-site source for VOCs.

ANY ON-SITE SOURCE OF VOCS DISCOVERED DURING ADDITION ASSESSMENT OR GRADING WILL BE REMEDIATED AS PER THE SMP, SEE SECTION 5.3.1.1

- For the proposed excavation activities, the RAP provided adequate descriptions for demolition, excavation screening, confirmatory samples, stockpile/waste management, waste classification and profiling and for loading and final disposition.

- The RAP should include a description on how the three "dry" NPL wells will be protected during the proposed remedial excavation and vapor barrier activities. No information regarding well identification or depths for these "dry" wells were provided in the RAP.

SEE STANTEC'S REVISED RAP SECTION 1.0 AND 2.1.5

- The RAP stated that "with confirmation that soil in the upper five feet to below Site cleanup goals, closure will be recommended." The statement suggests that closure will be recommended when confirmation that the upper five feet of soil is below the Site cleanup goals.

SEE STANTEC'S REVISED RAP, SECTION 5.4

- The RAP stated that it is anticipated that closure will be achieved first for the soil portion of the Site and then soil vapor following review and approval by the City of El Monte Building Department. Soil vapor barriers will be installed beneath the future developments at the Site to significantly decrease the exposure pathways to any onsite receptor. Based on our review of the RAP, Stantec may want to perform a health-based risk assessment to assist in design of the proposed vapor barrier.

HHRA INCLUDED IN THE RAP, SEE REVISED RAP SECTION 5.3.2.

LIMITATIONS

The environmental services described in this letter have been conducted in general accordance with current regulatory guidelines and the standard-of-care exercised by environmental consultants performing similar work in the project area. No warranty, expressed or implied, is made regarding the professional opinions presented in this report. No site visit was conducted by Ninyo & Moore. Variations in site conditions reported by others may exist and conditions and not described in this report may be encountered during subsequent activities.

Ninyo & Moore's opinions and recommendations regarding environmental conditions, as presented in this report, are based on results reported by others. Further assessment of potential adverse environmental impacts from past on-site and/or nearby use of hazardous materials may be accomplished by a more comprehensive assessment. Independent review of laboratory results reported by others has not been conducted; however, conditions can vary significantly between

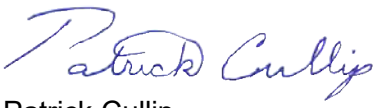
sampling locations. Variations in soil and/or groundwater conditions will exist beyond the points explored during previous investigations. Ninyo & Moore has no involvement in, or control over, such testing and analysis. Ninyo & Moore, therefore, disclaims responsibility for any inaccuracy in such laboratory results.

Our conclusions, recommendations, and opinions are based on an analysis of the reported site conditions. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires any additional information, or has questions regarding content, interpretations presented, or completeness of this document.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

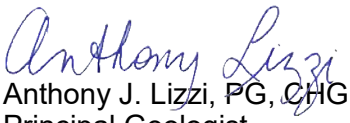
Respectfully submitted,
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Attachments: Attachment A – Phase II ESA Tables and Figures
Attachment B – CalGEM "Ferris 1" Map

Distribution: (1) Addressee (via e-mail)

ATTACHMENT A

Phase II ESA Tables and Figures

TABLE 1
SUMMARY OF SOIL VAPOR ANALYTICAL RESULTS
KB Home - El Monte - Cypress Ave
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Volume [1]	Sample Date	DCFM (F12) (µg/m3)	Chloromethane (µg/m3)	Bromomethane (µg/m3)	TCFM (F11) (µg/m3)	TBA (µg/m3)	1,1,2-TCTFM (µg/m3)	Methylene chloride (µg/m3)	Carbon Disulfide (µg/m3)	2-Butanone (MEK) (µg/m3)	Chloroform (µg/m3)	1,1,1-TCA (µg/m3)	Benzene (µg/m3)	Carbon tetrachloride (µg/m3)	TCE (µg/m3)	Bromodichloromethane (µg/m3)	4-Methyl-2-pentanone (µg/m3)	Toluene (µg/m3)
Soil Vapor Samples																				
Residential Screening Level for Soil Vapor using RSL or HERO NOTE 3 and Attenuation Factor of 0.001 (µg/m^3) [2] [3]				100,000	94,000	NE	*1,300,000*	NE	NE	*1,000*	730,000	5,200,000	120	*1,000,000*	*97*	*67*	480	*76*	3,100,000	*310,000*
Residential Screening Level for Soil Vapor comparing RSL, HERO Note 3, or ESLs (µg/m^3) [2] [3]				*100,000*	*3,100*	*170*	*1,300,000*	*NE*	*NE*	*34*	*730,000*	*170,000*	*4.1*	*35,000*	*3.2*	*2.2*	*16*	*2.5*	*3,100,000*	*10,000*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	2313cc- 3 Vol Purge	3/5/2019	3.2 J	0.3 J	<3.2	2.8 J	<12	6.0 J	<2.8	7.6	5.5	26	0.4 J	3.2	<2.6	<4.4	<2.7	3.2 J	54
	SV-1-15	2358cc - 3 Vol Purge	3/5/2019	2.8 J	0.3 J	<1.6	4.1	<6.1	11	<1.4	1.0 J	3.6	860	1.4 J	0.5 J	<1.3	0.2 J	<2.7	0.4 J	4.0
	SV-2-5	2313cc- 3 Vol Purge	3/5/2019	2.7 J	0.3 J	<1.6	6.5	0.9 J	5.2	0.3 J	11	14	19	<3.1	4.2	0.4 J	0.5 J	<2.7	5.9	36
	SV-2-15	2358cc - 3 Vol Purge	3/5/2019	2.9 J	0.4 J	<1.6	3.7	<6.1	9.6	<1.4	32	8.6	1,000	1.4 J	3.2	0.3 J	0.5 J	<2.7	0.4 J	20
	SV-3-5	2313cc- 3 Vol Purge	3/5/2019	2.2 J	<0.8	<1.6	1.6 J	0.9 J	2.7 J	0.4 J	9.1	3.9	51	0.4 J	4.5	<1.3	<2.2	<2.7	5.6	34
	SV-3-15	2358cc - 3 Vol Purge	3/5/2019	2.3 J	0.3 J	<1.6	2.5	<6.1	5.8	<1.4	6.2	15	960	1.0 J	1.5	<1.3	<2.2	<2.7	14	12
11309 Iris Lane	SV-6-5	2313cc- 3 Vol Purge	3/5/2019	3.3 J	0.3 J	<1.6	4.7	1.1 J	18	0.2 J	8.8	13	<1.0	2.7	1.7	<1.3	0.3 J	<2.7	1.9 J	17
	SV-6-15	2358cc - 3 Vol Purge	3/5/2019	<4.0	0.4 J	<1.6	8.6	<6.1	34	<1.4	1.5	11	<1.0	9.7	0.6 J	<1.3	0.3 J	<2.7	0.4 J	3.1
3630 Cypress Ave. (Near Former Oil Well)	SV-7-5	2313cc- 3 Vol Purge	3/5/2019	4.1 J	<0.8	<1.6	2.6 J	<6.1	4.2 J	<1.4	0.3 J	4.5 J	<1.0	2.3 J	0.5 J	<1.3	<2.2	<2.7	<3.3	2.3 J
	SV-7-15	2358cc - 3 Vol Purge	3/5/2019	3.2 J	0.1 J	<1.6	2.6	1.0 J	5.3	0.2 J	1.1 J	14	<1.0	3.4	0.5 J	<1.3	<2.2	<2.7	1.6 J	5.4
3640 Cypress Ave. (Near Former Oil Well	SV-8-5	2313cc- 3 Vol Purge	3/5/2019	4.3 J	<1.7	<3.2	2.8 J	<12	6.2	<1.4	<2.5	5.7	<2.0	3.8	0.5 J	<2.6	<4.4	<5.4	4.6 J	6.6
	SV-8-15	2358cc - 3 Vol Purge	3/5/2019	3.8 J	0.3 J	<1.6	3.6	1.0 J	10	0.4 J	0.3 J	14	<1.0	7.7	0.8	<1.3	<2.2	<2.7	1.0 J	3.1
3700 Cypress Ave. (Flammable Storage Are)	SV-9-5	2313cc- 3 Vol Purge	3/5/2019	<4.0	0.3 J	<1.6	1.5 J	3.1 J	2.1 J	0.2 J	10	6.6	0.5 J	21	3.4	<1.3	0.3 J	0.3 J	4.8	34
	SV-9-15	2358cc - 3 Vol Purge	3/5/2019	3.5 J	1.6 J	<3.2	2.7 J	<12	4.8 J	0.4 J	12	5.5	<2.0	73	2.1	<2.6	0.4 J	<5.4	<6.6	20
	SV-9-15 REP	2358cc - 3 Vol Purge	3/5/2019	3.8 J	1.1 J	<1.6	2.8 J	<6.1	6.0 J	<2.8	7.6	2.8	<2.0	89	1.2 J	<2.6	<4.4	<5.4	<6.6	14
	SV-10-5	2313cc- 3 Vol Purge	3/5/2019	2.2 J	0.9	0.3 J	1.9 J	3.0 J	2.6 J	1.1 J	5.4	9.4	0.7 J	30	3.4	0.3 J	<2.2	0.5 J	1.7 J	14
	SV-10-15	2358cc - 3 Vol Purge	3/5/2019	2.2 J	0.4 J	<1.6	2.9	2.2 J	6.4	0.3 J	0.7 J	8.8	<1.0	86	1.3	<1.3	<2.2	<2.7	0.7	7.3
South Corner of Site (Stormwater Vault)	SV-11-5	2313cc- 3 Vol Purge	3/5/2019	2.1 J	0.4 J	<1.6	1.7 J	1.5 J	1.0 J	0.3 J	20.0	5.1	1.5 J	2.3	7.6	<1.3	0.5 J	0.6 J	2.9	74
	SV-11-15	2358cc - 3 Vol Purge	3/5/2019	2.0 J	0.4 J	<1.6	1.5 J	<6.1	1.0 J	0.4 J	1.9	8.4	<1.0	5.3	0.8	<1.3	<2.2	<2.7	0.3 J	5.2

Boring Location	Sample ID	Sample Volume [1]	Sample Date	DCFM (F12) (µg/m3)	Chloromethane (µg/m3)	Bromomethane (µg/m3)	TCFM (F11) (µg/m3)	TBA (µg/m3)	1,1,2-TCTFM (µg/m3)	Methylene chloride (µg/m3)	Carbon Disulfide (µg/m3)	2-Butanone (µg/m3)	Chloroform (µg/m3)	1,1,1-TCA (µg/m3)	Benzene (µg/m3)	Carbon tetrachloride (µg/m3)	TCE (µg/m3)	Bromodichloromethane (µg/m3)	4-Methyl-2-pentanone (µg/m3)	Toluene (µg/m3)
Sub-slab Vapor Samples																				
Residential Screening Level for Soil Vapor with ESLs (µg/m^3) [4]				*NE*	*3,100*	*170*	*NE*	*NE*	*NE*	*34*	*NE*	*170,000*	*4.1*	*35,000*	*3.2*	*2.2*	*16*	*2.5*	*NE*	*10,000*
11305 Iris Lane	SV-4	121cc- 3 Vol Purge	3/5/2019	4.9 J	0.6 J	<3.2	2.4 J	46	4.0 J	1.3 J	1.1 J	67	<2.0	34	8.3	<2.6	0.4 J	<5.4	17	24
Paint Spray Booth	SV-5	121cc- 3 Vol Purge	3/5/2019	2.9 J	1.1 J	<3.2	3.7 J	2.9 J	1.1 J	0.5 J	0.8 J	18	0.5 J	1.2 J	1.7	<2.6	<4.4	<5.4	3.1 J	3.7 J

TABLE 1
SUMMARY OF SOIL VAPOR ANALYTICAL RESULTS
KB Home - El Monte - Cypress Ave
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Volume [1]	Sample Date	2-Hexanone (µg/m3)	PCE (µg/m3)	Chlorobenzene (µg/m3)	Ethylbenzene (µg/m3)	m.p-Xylene (µg/m3)	Styrene (µg/m3)	o-Xylene (µg/m3)	4-Ethyltoluene (µg/m3)	1,3,5-TMB (µg/m3)	1,2,4-TMB (µg/m3)	1,4-DCB (µg/m3)	Naphthalene (µg/m3)	Hexachlorobutadiene (µg/m3)	Other VOCs	Methane (%)
Soil Vapor Samples																		
Residential Screening Level for Soil Vapor using RSL or HERO NOTE 3 and Attenuation Factor of 0.001 (µg/m^3) [2] [3]				31,000	*460*	52,000	1,100	100,000	*940,000*	100,000	*NE*	63,000	63,000	260	83	130	*various*	*NE*
Residential Screening Level for Soil Vapor comparing RSL, HERO Note 3, or ESLs (µg/m^3) [2] [3]				*31,000*	*15*	*1,700*	*37*	*3,500*	*31,000*	*3,500*	*NE*	*63,000*	*63,000*	*8.5*	*2.8*	*4.3*	*various*	*5.0*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	13	<3.7	30	110	1.9 J	33	2.4 J	2.2 J	8.1	1.1 J	1.0 J	<21	< *various*	0.0
	SV-1-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	53	<1.9	1.4 J	8.0	0.9 J	2.5	0.3 J	0.4 J	3.3	1.1 J	0.7 J	<11	< *various*	0.0
	SV-2-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	9.4	0.7 J	8.0	25	1.3 J	8.1	0.8 J	1.0 J	3.3	0.3 J	0.3 J	<11	< *various*	0.0
	SV-2-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	39	<1.9	2.9	21	1.3 J	6.5	0.3 J	1.0 J	3.3	0.9 J	0.3 J	<11	< *various*	0.0
	SV-3-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	7.3	<1.9	6.3	21	2.1	6.9	1.1 J	0.9 J	4.1	0.9 J	0.6 J	<11	< *various*	0.0
	SV-3-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	31	<1.9	4.4	15	3.8	4.7	1.1 J	0.9 J	4.2	1.7 J	1.1 J	<11	< *various*	0.0
11309 Iris Lane	SV-6-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	54	<1.9	6.7	22	1.6 J	6.9	1.2 J	1.5 J	4.9	0.3 J	0.5 J	0.9 J	< *various*	0.0
	SV-6-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	180	<1.9	1.2 J	5.0	2.4	1.8	0.4 J	0.4 J	2.0	1.6 J	0.7 J	<11	< *various*	0.0
3630 Cypress Ave. (Near Former Oil Well)	SV-7-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	6.1	<3.7	0.7 J	3.1 J	1.0 J	1.3 J	<4.0	0.5 J	1.9 J	0.7 J	0.6 J	<21	< *various*	0.0
	SV-7-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	16	<1.9	2.6	9.8	2.9	3.8	1.1 J	1.2 J	5.6	1.2 J	0.9 J	<11	< *various*	0.0
3640 Cypress Ave. (Near Former Oil Well	SV-8-5	2313cc- 3 Vol Purge	3/5/2019	<6.6	14	<3.7	2.8	14	1.7	3.6	1.8 J	3.2 J	12	1.6 J	1.7 J	<21	< *various*	0.0
	SV-8-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	39	<1.9	1.2 J	3.4	3.0	1.3	0.4 J	0.5 J	2.1	1.6 J	1.0 J	<11	< *various*	0.0
3700 Cypress Ave. (Flammable Storage Are)	SV-9-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	5.0	1.0 J	9.7	30	14	9.4	2.0	2.4	8.1	0.5 J	0.8 J	<11	< *various*	0.0
	SV-9-15	2358cc - 3 Vol Purge	3/5/2019	<6.6	30	<3.7	5.5	21	8.4	5.8	1.3 J	1.2 J	6.1	2.2 J	1.0 J	<21	< *various*	0.0
	SV-9-15 REP	2358cc - 3 Vol Purge	3/5/2019	<6.6	37	<3.7	4.0	16	7.1	4.6	1.3 J	0.9 J	4.4	1.6 J	0.6 J	<21	< *various*	0.0
	SV-10-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	11	<1.9	2.6	5.3	<1.7	1.9	0.2 J	0.2 J	0.5 J	<2.4	<2.1	<11	< *various*	0.0
	SV-10-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	47	0.5	2.9	9.6	5.7	3.2	1.0 J	0.7 J	3.1	1.0 J	0.3 J	<11	< *various*	0.0
South Corner of Site (Stormwater Vault)	SV-11-5	2313cc- 3 Vol Purge	3/5/2019	<3.3	3.9	<1.9	27	76	27	26	<2.0	<2.0	<2.0	<2.4	<2.1	<11	< *various*	0.0
	SV-11-15	2358cc - 3 Vol Purge	3/5/2019	<3.3	9.4	<1.9	4.3	19	2.2	8.5	1.1 J	2.8	22	1.2 J	0.7 J	<11	< *various*	0.0

Boring Location	Sample ID	Sample Volume [1]	Sample Date	2-Hexanone (µg/m3)	PCE (µg/m3)	Chlorobenzene (µg/m3)	Ethylbenzene (µg/m3)	m.p-Xylene (µg/m3)	Styrene (µg/m3)	o-Xylene (µg/m3)	4-Ethyltoluene (µg/m3)	1,3,5-TMB (µg/m3)	1,2,4-TMB (µg/m3)	1,4-DCB (µg/m3)	Naphthalene (µg/m3)	Hexachlorobutadiene (µg/m3)	Other VOCs	Methane (%)
Sub-slab Vapor Samples																		
Residential Screening Level for Soil Vapor with ESLs (µg/m^3) [4]				*NE*	*15*	*1,700*	*37*	*3,500*	*31,000*	*3,500*	*NE*	*NE*	*NE*	*8.5*	*2.8*	*4.3*	*various*	*5.0*
11305 Iris Lane	SV-4	121cc- 3 Vol Purge	3/5/2019	9.4	15	<1.9	6.2	21	1.5	9.8	7.2	13	38	<4.9	2.4 J	<21	< *various*	0.0
Paint Spray Booth	SV-5	121cc- 3 Vol Purge	3/5/2019	<3.3	21	<1.9	4.0	18	1.6 J	5.5	0.7 J	0.8 J	2.8 J	<4.9	0.5 J	<21	< *various*	0.0

Notes:
(1) - Sample collected via 1L summa canister.
(2) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) using an Attenuation Factor of 0.001 and Cancer Risk of 1e-06 and a Hazard Quotient of 1.
(3) - Residential DTSC HERO HHRA Note #3 (June 2018) using an Attenuation Factor of 0.001 and Cancer Risk of 1e-06 and a Hazard Quotient of 1. (DTSC CAL EPA, October 2011 Final Guidance for the Evaluation and Mitigation of Substance Vapor Intrusion to Indoor Air).
(4) - SFRWQCB ESLs - Sub slab/ Soil Gas (µg/m3) January 2019
"<" - Results reported below Laboratory Reporting Limit.
CA EPA - California Environmental Protection Agency
DTSC - Department of Toxic Substance Control
HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment
Orange shading indicates value above the ESLs (0.03 attenuation factor) residential screening level.
Red shading indicates value above the RSLs or HERO Note 3 (0.001 attenuation factor) residential screening level.

PCE - Tetrachloroethene
1,2,4 - 1,2,4-Trimethylbenzene
1,3,5 - 1,3,5-Trimethylbenzene
DCFM - Dichlorodifluoromethane (F12)
TCFM - Trichlorodifluoromethane (F11)
TBA - Trichlorodifluoromethane (F11)
1,1,2-TCTFM- Tertiary-butyl alcohol
TCDFM - Trichlorodifluoromethane

µg/m3 - Micrograms per Cubic Meter
NE - Not Established
EPA - United States Environmental Protection Agency
ESLs - Environmental Screening Levels
SFRWQCB - San Francisco Bay Regional Water Quality Control Board

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS -TPH VOCs
KB Home El Monte -Cypress Ave., CALIFORNIA

Boring Location	Sample ID	Sample Depth	Sample Date	TPH (8015B) (mg/Kg)						
				GRO	DRO	ORO	Ethylbenzene	p/m-Xylene	o-Xylene	Various
Residential US EPA RSL (mg/kg) (1)				*82*	*96*	*2,500*	*5.8*	*550*	*650*	*Various*
Residential DTSC HERO Note No. 3 (mg/kg) (1)				*NE*	*NE*	*NE*	*NE*	*NE*	*NE*	*Various*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	5	2/28/2019	<1.0	27	31	6.1	32	13	<various
	SV-1-10	10		<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-2-5	5	2/28/2019	<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-2-10	10		<1.0	46	<10	<5.0	<10	<5.0	<various
	SV-3-5	5	2/28/2019	<1.0	<10	<10	<5.0	<10	<5.0	<various
	SV-3-10	10		<1.0	<10	<10	<5.0	<10	<5.0	<various
	HA-2-2	2	2/28/2019	<1.0	110	220	<5.0	<10	<10	<various
	HA-3-2	2	2/28/2019	<1.0	100	220	<5.0	<10	<10	<various
11305 Iris Lane	SV-4-1	1	2/28/2019	<1.0	40	65	NA	NA	NA	<various
	HA-1-1	1	2/28/2019	<1.0	26	57	NA	NA	NA	<various
Paint Spray Booth	SV-5-1	1	2/28/2019	<1.0	59	120	<5.0	<10	<10	<various
3700 Cypress Ave. (Flammable Storage Are)	SV-9-1	1	3/1/2019	<1.0	84	160	<5.0	<10	<10	<various
	SV-9-5	5	3/1/2019	<1.0	<10	<10	<5.0	<10	<10	<various
	SV-10-1	1	3/1/2019	<1.0	2,300	7,500	<5.0	<10	<10	<various
	SV-10-5	5	3/1/2019	<1.0	<10	<10	<5.0	<10	<10	<various

Notes:

(1) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) and the Residential CAL EPA DTSC HERO Note #3 (June 2018).

CA EPA - California Environmental Protection Agency

DTSC - Department of Toxic Substance Control

HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment

mg/Kg - milligrams per kilograms

US EPA - United States Environmental Protection Agency

NA - Not Analyzed

NE - Not Established

VOC - Volatile Organic Compounds

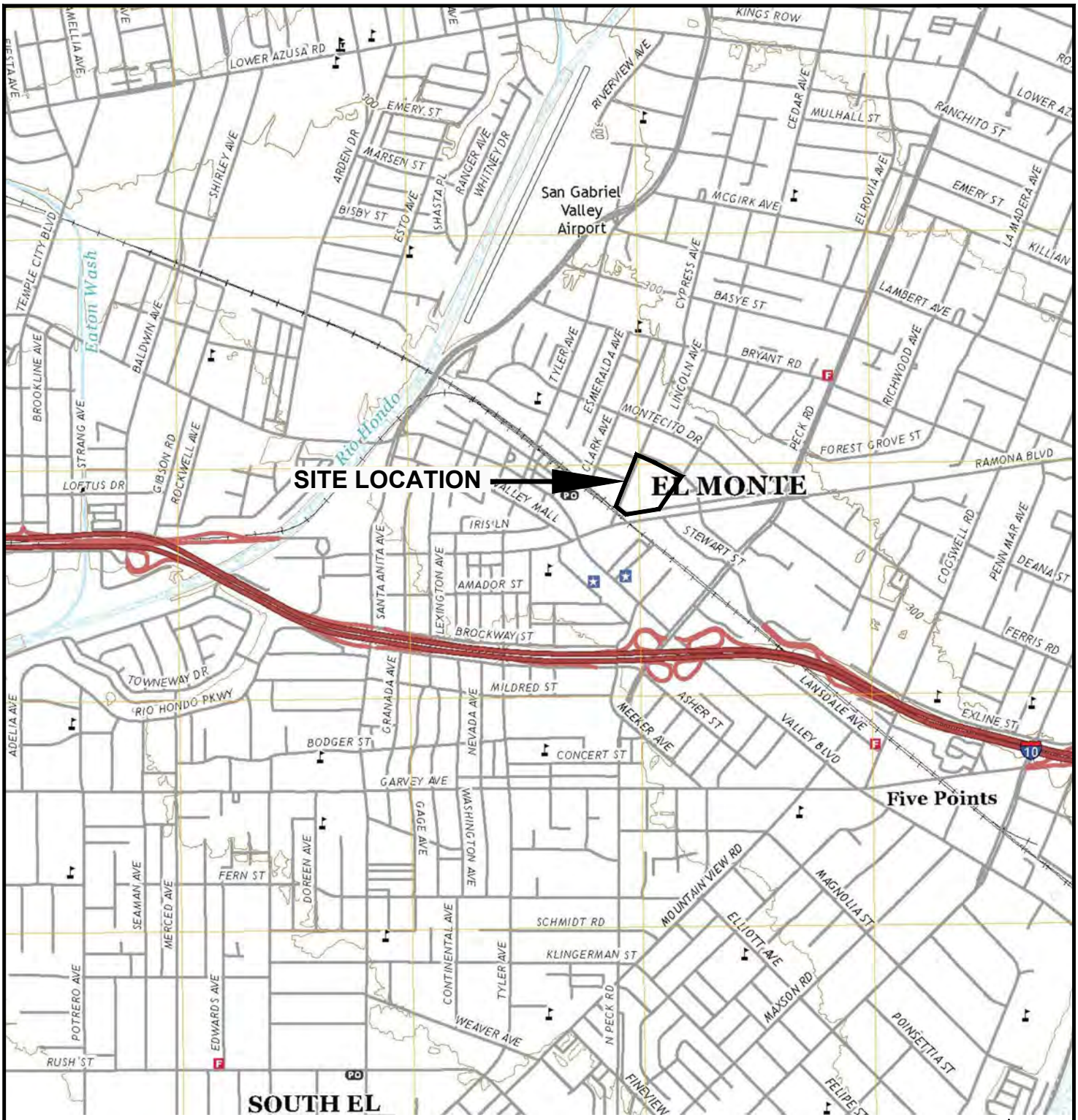
Red shading indicates value above the residential screening level.

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS - METALS
KB Home - EL Monte -Cypress Ave.
LOS ANGELES, CALIFORNIA

Boring Location	Sample ID	Sample Depth	Sample Date	Metals (6010B) (mg/Kg)																	
				Antimony	Arsenic [2]	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Residential US EPA RSL (mg/kg) [1]				*470*	*0.68*	*15,000*	*2,300*	*2,100*	*NE*	*0.3*	*230*	*3,100*	*400*	*11*	*390*	*NE*	*390*	*5,800*	*0.78*	*390*	*23,000*
Residential DTSC HERO Note No. 3 (mg/kg) [1]				*NE*	*0.11*	*NE*	*210*	*5.2*	*NE*	*NE*	*NE*	*NE*	*80*	*1.0*	*NE*	*490*	*NE*	*1,500*	*NE*	*390*	*NE*
11312 Orchard St. (Clarifier/ Sump)	SV-1-5	5	2/28/2019	<2.0	1.3	93	<1.0	<1.0	12	<1.0	6.8	13	1.4	<0.10	<1.0	9.7	<1.0	<1.0	<1.0	21	34
	SV-1-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SV-2-5	5	2/28/2019	<2.0	2.6	130	<1.0	<1.0	19	<1.0	6.8	52	4.9	<0.10	<1.0	13	<1.0	<1.0	<1.0	25	140
	SV-2-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SV-3-5	5	2/28/2019	<2.0	1.7	110	<1.0	<1.0	13	<1.0	7.1	18	6.5	<0.10	<1.0	11	<1.0	<1.0	<1.0	24	56
	SV-3-10	10		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	HA-2-2	2	2/28/2019	<2.0	2.7	90	<1.0	<1.0	17	<1.0	8.9	46	48	0.13	<1.0	16	<1.0	<1.0	<1.0	23	320
	HA-3-2	2	2/28/2019	<2.0	3.3	94	<1.0	<1.0	21	<1.0	8.4	33	25	<0.10	<1.0	17	<1.0	<1.0	<1.0	27	130
11305 Iris Lane	SV-4-1	1	2/28/2019	<2.0	1.1	66	<1.0	<1.0	13	<1.0	6.5	13	8.8	<0.10	<1.0	8.8	<1.0	<1.0	<1.0	23	37
	HA-1-1	1	2/28/2019	<2.0	1.3	75	<1.0	<1.0	11	NA	8.0	13	6.7	<0.10	<1.0	11	<1.0	<1.0	<1.0	26	28
Paint Spray Booth	SV-5-1	1	2/28/2019	<2.0	1.2	340	<1.0	<1.0	14	<1.0	9.6	21	8.3	<0.10	<1.0	12	<1.0	<1.0	<1.0	33	40
3700 Cypress Ave. (Flammable Storage Are)	SV-9-1	1	3/1/2019	<2.0	45	110	<1.0	<1.0	14	NA	7.6	24	22	<0.10	<1.0	11	<1.0	<1.0	<1.0	24	85
	SV-9-5	5	3/1/2019	<2.0	2.7	110	<1.0	<1.0	16	NA	8.7	21	3.6	<0.10	<1.0	12	<1.0	<1.0	<1.0	30	40
	SV-10-1	1	3/1/2019	<2.0	24	64	<1.0	<1.0	12	NA	6.7	63	23	<0.10	<1.0	11	<1.0	<1.0	<1.0	21	33
	SV-10-5	5	3/1/2019	<2.0	2.8	83	<1.0	<1.0	14	NA	8.4	17	2.9	0.17	<1.0	11	<1.0	<1.0	<1.0	29	36

Notes:
(1) - Residential Screening Level (SL) USEPA Region 9 Regional Screening Levels (RSL - November 2018) and the Residential CAL EPA DTSC HERO Note #3 (June 2018).
(2) - Background range for Arsenic is 11 mg/kg within Southern California.
CA EPA - California Environmental Protection Agency
DTSC - Department of Toxic Substance Control
HERO HHRA - Human and Ecological Risk Office Human Health Risk Assessment

NA - Not Analyzed
NE - Not Established
mg/Kg - milligrams per kilograms
US EPA - United States Environmental Protection Agency
Red shading indicates value above the residential screening level.





QUADRANGLE LOCATION

0 2000 4000

APPROXIMATE SCALE (FEET)

N

SOURCE:
USGS 7.5 MINUTE
TOPOGRAPHIC MAP–
EL MONTE, CA QUADRANGLE, 2018

Stantec
735 E. CARNEGIE DRIVE, SUITE 280
SAN BERNARDINO, CALIFORNIA 92408
PHONE: (909) 335-6116 FAX:(909) 335-6120

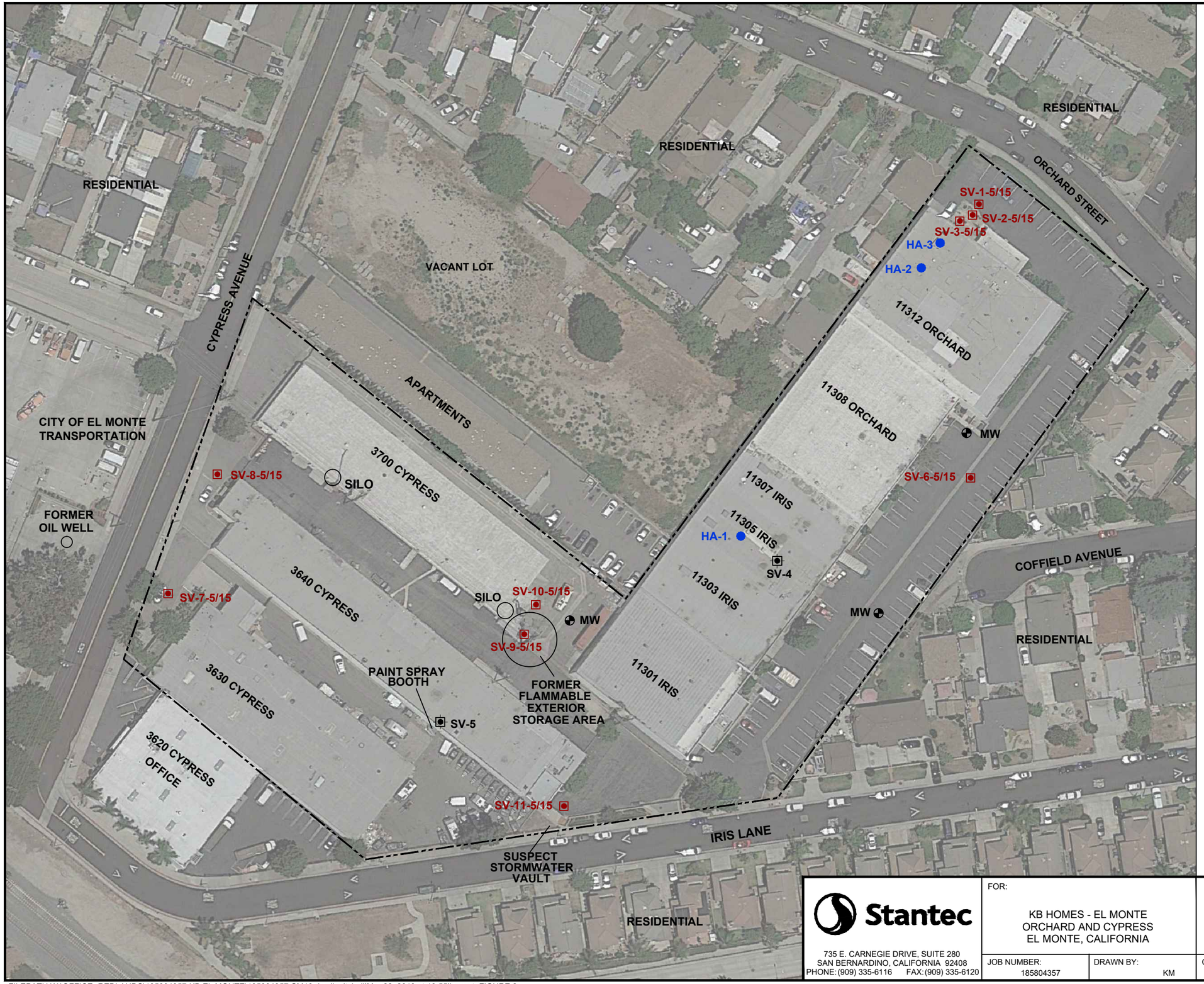
FOR:
KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SITE LOCATION MAP

FIGURE:
1

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

FILEPATH:W:\OFFICE- REDLANDS\185804357-KB EL MONTE\185804357-SLM19.dwg|kmitchell|Mar 20, 2019 at 13:06|Layout: FIGURE 1



LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

0 80 160

APPROXIMATE SCALE (FEET)

N

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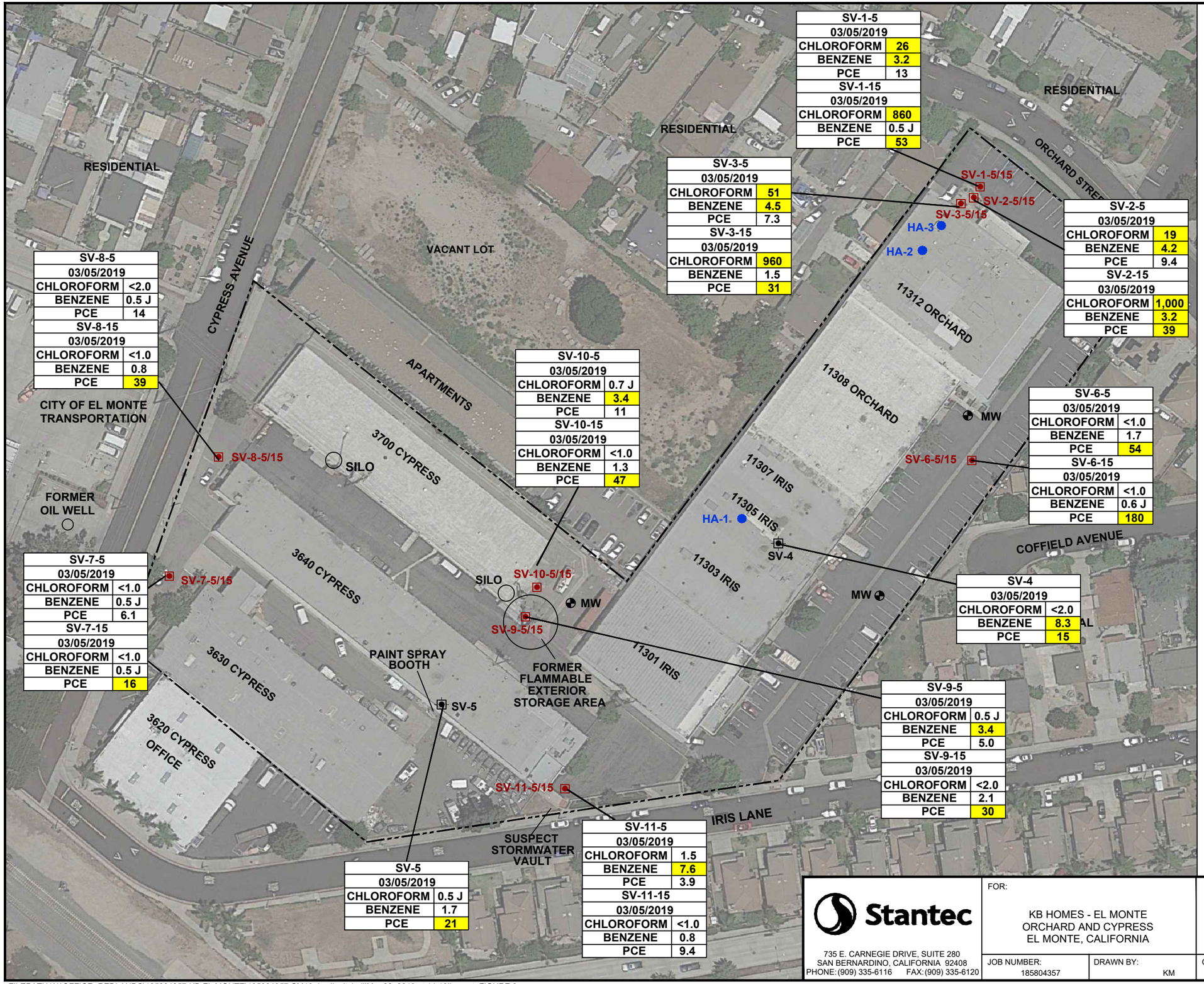
FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SITE MAP

FIGURE: 2

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804357	KM	JD	JD	03/18/19

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SV-8-5	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	0.5 J
PCE	14
SV-8-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.8
PCE	39

SV-7-5	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.5 J
PCE	6.1
SV-7-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.5 J
PCE	16

SV-10-5	
03/05/2019	
CHLOROFORM	0.7 J
BENZENE	3.4
PCE	11
SV-10-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	1.3
PCE	47

SV-1-5	
03/05/2019	
CHLOROFORM	26
BENZENE	3.2
PCE	13
SV-1-15	
03/05/2019	
CHLOROFORM	860
BENZENE	0.5 J
PCE	53

SV-3-5	
03/05/2019	
CHLOROFORM	51
BENZENE	4.5
PCE	7.3
SV-3-15	
03/05/2019	
CHLOROFORM	960
BENZENE	1.5
PCE	31

SV-2-5	
03/05/2019	
CHLOROFORM	19
BENZENE	4.2
PCE	9.4
SV-2-15	
03/05/2019	
CHLOROFORM	1,000
BENZENE	3.2
PCE	39

SV-6-5	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	1.7
PCE	54
SV-6-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.6 J
PCE	180

SV-4	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	8.3
PCE	15

SV-9-5	
03/05/2019	
CHLOROFORM	0.5 J
BENZENE	3.4
PCE	5.0
SV-9-15	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	2.1
PCE	30

SV-5	
03/05/2019	
CHLOROFORM	0.5 J
BENZENE	1.7
PCE	21

SV-11-5	
03/05/2019	
CHLOROFORM	1.5
BENZENE	7.6
PCE	3.9
SV-11-15	
03/05/2019	
CHLOROFORM	<1.0
BENZENE	0.8
PCE	9.4

LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

SV-4	
03/05/2019	
CHLOROFORM	<2.0
BENZENE	8.3
PCE	15

SAMPLE ID
SAMPLE DATE

ALL RESULTS IN MICROGRAMS PER CUBIC METER (ug/m ^{3})

PCE = TETRACHLOROETHENE

J = ESTIMATED VALUE

RESULT ABOVE RESIDENTIAL SCREENING LEVEL

< = CONCENTRATION LESS THAN THE INDICATED LABORATORY REPORTING LIMIT

0 80 160

APPROXIMATE SCALE (FEET)

N

Stantec
735 E. CARNEGIE DRIVE, SUITE 280
SAN BERNARDINO, CALIFORNIA 92408
PHONE:(909) 335-6116 FAX:(909) 335-6120

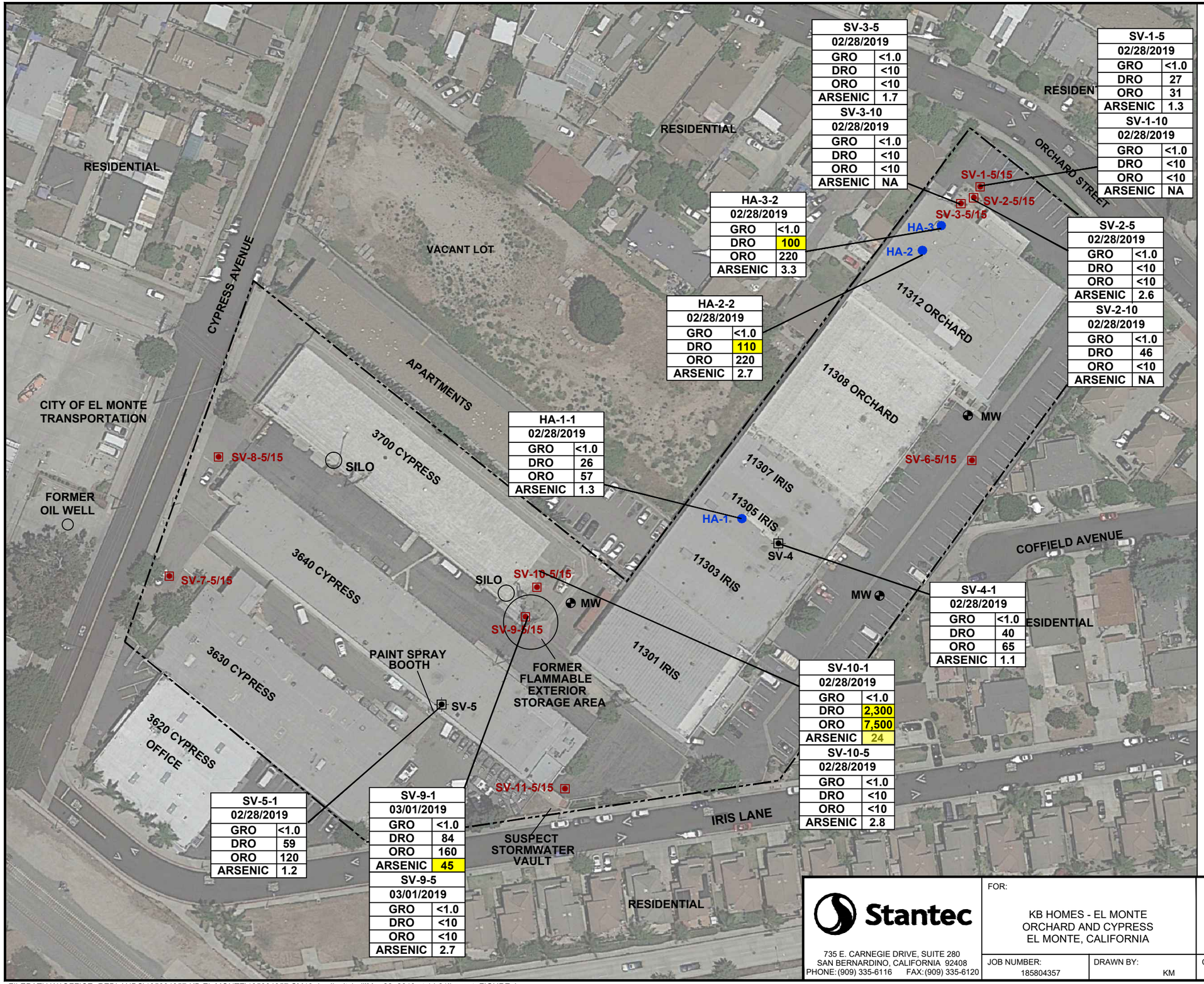
FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SOIL VAPOR ANALYTICAL RESULTS

FIGURE: 3

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SV-3-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	1.7

SV-3-10	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	NA

SV-1-5	
02/28/2019	
GRO	<1.0
DRO	27
ORO	31
ARSENIC	1.3

SV-1-10	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	NA

HA-3-2	
02/28/2019	
GRO	<1.0
DRO	100
ORO	220
ARSENIC	3.3

SV-2-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.6

SV-2-10	
02/28/2019	
GRO	<1.0
DRO	46
ORO	<10
ARSENIC	NA

HA-2-2	
02/28/2019	
GRO	<1.0
DRO	110
ORO	220
ARSENIC	2.7

HA-1-1	
02/28/2019	
GRO	<1.0
DRO	26
ORO	57
ARSENIC	1.3

SV-4-1	
02/28/2019	
GRO	<1.0
DRO	40
ORO	65
ARSENIC	1.1

SV-10-1	
02/28/2019	
GRO	<1.0
DRO	2,300
ORO	7,500
ARSENIC	24

SV-10-5	
02/28/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.8

SV-5-1	
02/28/2019	
GRO	<1.0
DRO	59
ORO	120
ARSENIC	1.2

SV-9-1	
03/01/2019	
GRO	<1.0
DRO	84
ORO	160
ARSENIC	45

SV-9-5	
03/01/2019	
GRO	<1.0
DRO	<10
ORO	<10
ARSENIC	2.7

LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW — MONITORING WELL LOCATION
- HA-2 — SOIL BORING LOCATION
- SV-3-5/15 — SOIL VAPOR BORING LOCATION
- SV-4 — SUB-SLAB SOIL VAPOR BORING LOCATION

HA-3-2	SAMPLE ID
02/28/2019	SAMPLE DATE
GRO	<1.0
DRO	100
ORO	220
ARSENIC	3.3

ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

GRO- GASOLINE RANGE ORGANICS
DRO- DIESEL RANGE ORGANICS
ORO- OIL RANGE ORGANICS
NA- NOT ANALYZED

RESULT ABOVE RESIDENTIAL SCREENING LEVEL

< = CONCENTRATION LESS THAN THE INDICATED LABORATORY REPORTING LIMIT

0 80 160

APPROXIMATE SCALE (FEET)

N

Stantec
735 E. CARNEGIE DRIVE, SUITE 280
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FOR: KB HOMES - EL MONTE
ORCHARD AND CYPRESS
EL MONTE, CALIFORNIA

SOIL BORING ANALYTICAL RESULTS

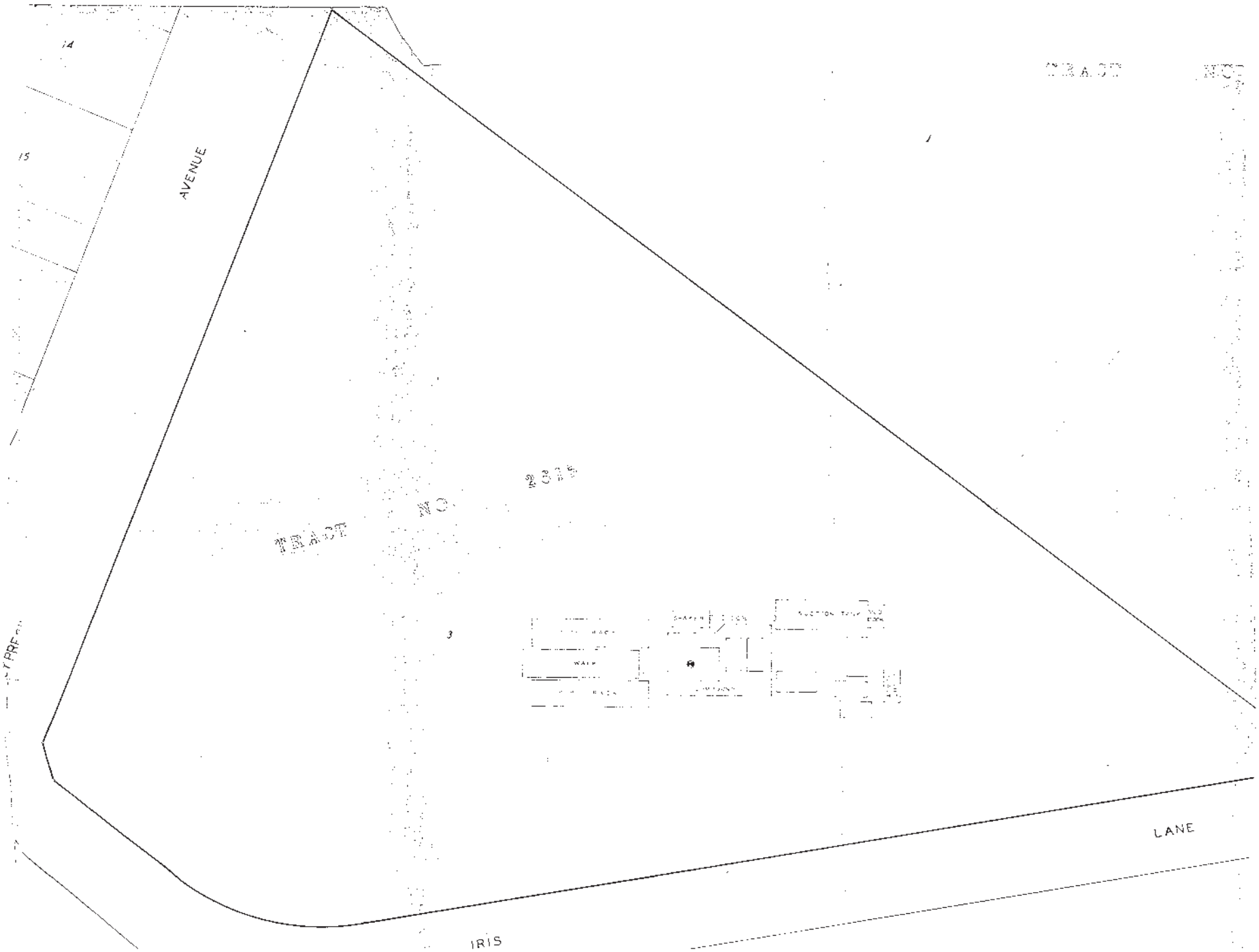
FIGURE: 4

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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ATTACHMENT B

CalGEM “Ferris 1” Map


AVENUE
LANE
IRIS

Appendix H1

Hydrology and LID Report



Hydrology & LID Report

VTTM 082797
11312 Orchard Street – 110 Townhomes
In the City of El Monte

Prepared for:

KB Home
25152 Springfield Ct, Suite 180
Valencia, CA 91355
Attn: Ben O'Neal
(661) 219-6843

Prepared by:

FORMA ENGINEERING INC.
CIVIL ENGINEERING SERVICES

Telephone: (818) 832-1710

Prepared under the supervision of



Aret Binatli Date
R.C.E. 64448 (Exp. 30 Jun 21)

September 5, 2019

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    2.2 Predeveloped Site Drainage Condition....2
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50-Year, 24-Hour Isohyet
Figure 2, Pre Developed Hydrology Map
Figure 3, Developed Hydrology Map
Geotech Report By RMA dated April 10, 2019
Infiltration Test Results By RMA dated August 19, 2019

1. INTRODUCTION

Tract 082797 is located within the City of El Monte, CA and includes APNs 8568-026-002, 8568-026-034, 8568-026-035 and 8568-026-053. The site is situated near the northeast corner of Cypress Avenue and Iris Lane; consisting of 5.69 acres within a residential and commercial/industrial area bound on the north and east by residential areas, on the south by Iris Lane, and on the west by Cypress Avenue. 110 attached condominium units are proposed to be constructed on the site. The residences are three stories in height and of wood and stucco construction. The site is currently occupied by light industrial buildings and the remaining area consists of paved parking. The general area is shown in Figure 1. Greater detail is available in Figures 2 and 3, in the pocket at the back of this report.

The purpose of this report is to analyze the pre and post development hydrologic conditions, and provide an analysis of Low Impact Development mitigation methods.

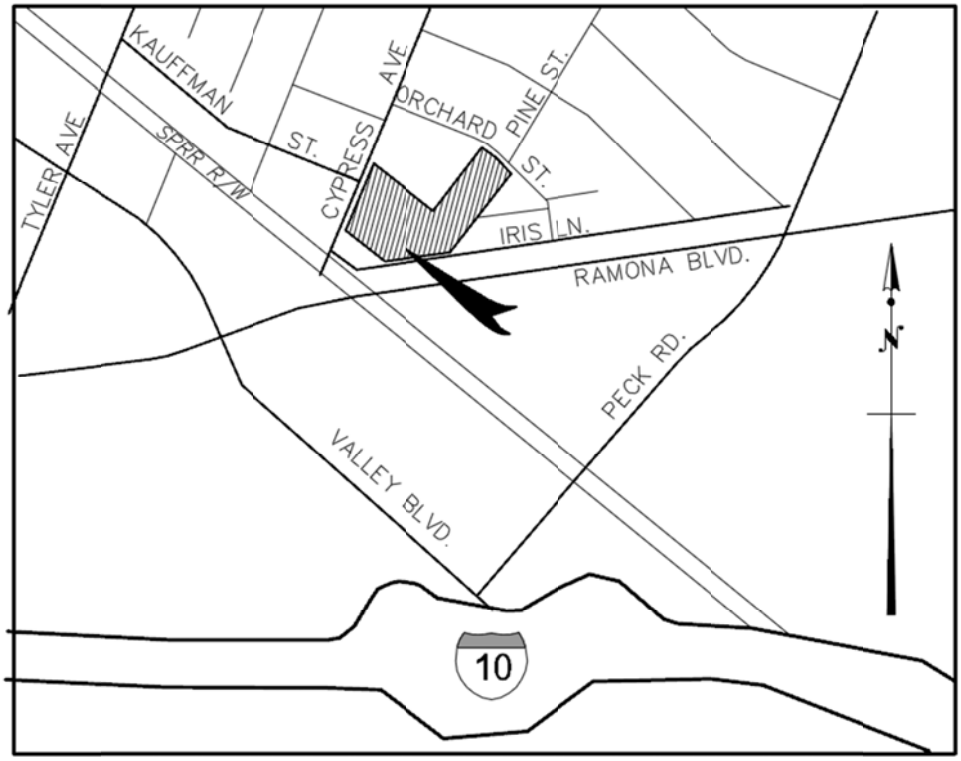


Figure 1. Vicinity map.

2.HYDROLOGY

2.1 Methodology

The hydrology analysis for this project is based on the Los Angeles County Department of Public Works Modified Rational Method and is in accordance with the 2006 Hydrology Manual. Runoff calculations are performed using the LADPW HydroCalc Program.

As determined from the Los Angeles County Hydrology Manual, the 50-year, 24-hour rainfall depth for the site is 6.4-inch; the project is located entirely within soil type 006. A copy of the 50-year, 24-hr rain event Isohyet Map is located in Appendix E of this report.

AutoCAD Civil 3D software was utilized to establish subarea boundaries and uniform imperviousness.

2.2 Predeveloped Site Drainage Condition

In the pre-developed condition, the site is measured to be 95% impervious, and drains south via surface drainage towards Iris Lane. The existing site is divided into 2 subareas; subarea 1 consists of approximately 55% of the site and drains to Iris Lane curb and gutter; subarea 2 consists of the remaining 45% of the site that drains to an existing Los Angeles County Flood Control District (LACFCD) catch basin located at the southwest corner of the property. See Figure 2 in the pocket at the back of this report.

Runoff from subarea 1 flows westerly along the northerly curb and gutter of Iris Lane to an existing City owned catch basin, which outlets to an existing LACFCD 72” storm drain. Runoff from subarea 2 captured by the existing LACFCD catch basin outlets to the same 72” storm drain, upstream of subarea 1.

The site is surrounded by existing buildings and blocks walls built at property lines that prevent run on and runoff from the site. Therefore, the existing property lines were used to define the limits of the study area. Land that will be dedicated to the City of El Monte as part of the proposed development is not generally included as part of the study area with the exception of a small strip of land, less than 0.01 acre, along the existing Orchard Street sidewalk. This strip of land drains to the north towards Orchard Street, but as it represents less than 0.2% of the total area is included as part of drainage area 2, which drains south. This strip of land is part of the land dedicated to the City as described in the developed condition.

2.3 Developed Site Drainage Condition

In the developed condition, overall imperviousness is decreased from 95% to 77%, and the drainage pattern remains generally the same as the predeveloped condition. Drainage continues to flow south towards Iris Lane via surface drainage and pipe flow and ultimately drain to an existing LACFCD 72” storm drain; however the existing drainage areas are combined into a single subarea and a new lateral connection is proposed to connect the site drainage directly to the LACFCD 72” storm drain. A parkway culvert will serve as overflow for the site to Iris Lane gutter. See Figure 3 in the pocket at the back of this report.

A street dedication along the northerly property line increases the drainage area to Orchard Street, this area is designated as subarea 2. The effect on existing City infrastructure from the street dedication is not part of this analysis.

Subarea 1 is the remainder of the site that drains south towards Iris Lane and is divided into two separate areas, 1a and 1b, for the purposes Low Impact Development. Runoff from 1a and 1b will be directed to separate structural BMPs as described in section 3. Flow rates and volumes in excess of the Low Impact Development requirement are diverted to the proposed LACFCD connection on Iris Street.

2.4 Results

Tables 1A and 1B summarize the developed condition runoff flowrates for the 25-year and the 50-year storm event. The Stormwater Peak Mitigation Flowrate, Q_{PM}, is used for LID design. HydroCalc Reports are located in Appendix B of this report.

Subarea	Area (Ac)	Q_{25} (ft^3/s)	Q_{50} (ft^3/s)	Outfall Location
1	2.90	6.00	7.16	LACFCD (via Iris St)
2	2.40	5.19	6.23	LACFCD CB

Table 1A. Pre Developed Runoff Flowrate Results.

Subarea	Area (Ac)	Q_{PM} (ft^3/s)	Q_{25} (ft^3/s)	Q_{50} (ft^3/s)	Outfall Location
1	5.20	n/a	9.62	11.51	Proposed LACFCD Connection
1a	3.90	0.58	7.85	9.44	LID BMP 1a
1b	1.29	0.25	3.53	4.06	LID BMP 1b
2	0.05	n/a	0.15	0.17	Orchard Street

Table 1B. Developed Runoff Flowrate Results.

Tables 2A and 2B summarize the developed condition runoff volumes for the 25-year and the 50-year storm event. The Stormwater Quality Design Volume, $SWQD_V$, is used to determine detention volume requirements for LID design. HydroCalc Reports are located in Appendix B of this report.

Subarea	Area (Ac)	V_{25} (ft^3)	V_{50} (ft^3)	Outfall Location
1	2.90	50,764	57,877	LACFCD (via Iris St)
2	2.40	42,012	47,899	LACFCD CB

Table 2A. Pre Developed Runoff Volume Results.

Subarea	Area (Ac)	$SWQD_V$ (ft^3)	V_{25} (ft^3)	V_{50} (ft^3)	Outfall Location
1	5.20	n/a	77,882	89,197	Proposed LACFCD Connection
1a	3.90	9,551	n/a	n/a	LID BMP 1a
1b	1.29	3,184	n/a	n/a	LID BMP 1b
2	0.05	n/a	749	858	Orchard Street

Table 2B. Developed Runoff Volume Results.

3. LOW IMPACT DEVELOPMENT

3.1 Introduction

The proposed project treats the runoff from the site in accordance with the Los Angeles County Low Impact Development Manual, 2014. To do so, the runoff resulting from the greater of the first 0.75-inch of rainfall or the 85th percentile rain event is treated prior to leaving the site. As determined from the Los Angeles County Hydrology GIS Maps, the 85-percentile rain event for the project site is 0.95 inches, which is used as the design storm for Low Impact Development because it is greater than 0.75 inches. Hydrology methodology, water quality design flowrates and volumes are presented in Section 2 of this report.

3.2 Project Category

The proposed development consists of 110 attached condominium, is 5.69 Acres of disturbed area, and adds more than 10,000 square feet of impervious surface area; as such, the project must follow the requirements for Designated Projects.

Category	YES	NO
1. Development [a] of a new project equal to 1 acre or greater of disturbed area and adding more than 10,000 square feet of impervious area [b]	☒	☐
2. Development [a] of a new industrial park with 10,000 square feet or more of surface area [c]	☐	☒
3. Development [a] of a new commercial mall with 10,000 square feet or more surface area [c]	☐	☒
4. Development [a] of a new retail gasoline outlet with 5,000 square feet or more of surface area [c]	☐	☒
5. Development [a] of a new restaurant (SIC 5812) with 5,000 square feet or more of surface area [c]	☐	☒
6. Development [a] of a new parking lot with either 5,000 ft^2 or more of impervious area [b] or with 25 or more parking spaces	☐	☒
7. Development [a] of a new automotive service facility (SIC 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) with 5,000 square feet or more of surface area [c]	☐	☒
8. Projects located in or directly adjacent to, or discharging directly to a Significant Ecological Area (SEA),[d] where the development will: a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and b. Create 2,500 square feet or more of impervious area [b]	☐	☒
9. Redevelopment [e] of 5,000 square feet or more in one of the categories listed above **If yes, list redevelopment category here:**	☐	☒
10. Redevelopment [e] of 10,000 square feet or more to a Single Family Home, without a change in land use.	☐	☒

a Development includes any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that results in land disturbance.

b Surfaces that do not allow stormwater runoff to percolate into the ground. Typical impervious surfaces include: concrete, asphalt, roofing materials, etc.

c The surface area is the total footprint of an area. Not to include the cumulative area above or below the ground surface.

d An area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and would be disturbed or degraded by human activities and developments. Also, an area designated by the City as approved by the Regional Water Quality Control Board.

e Land-disturbing activities that result in the creation, addition, or replacement of a certain amount of impervious surface area on an already developed site. Redevelopment does not include routine maintenance activities that are conducted to maintain the original line and grade, hydraulic capacity, or original purpose of facility, nor does it include modifications to existing single family structures, or emergency construction activities required to immediately protect public health and safety.

3.3 Hydrology and Drainage Pattern

As described in section 2 of this report, Subarea 1 is divided into two smaller subareas, 1a and 1b, as illustrated in Figure 3, Developed Condition Hydrology Map, located in Appendix E. Each subarea is treated using separate LID BMPs due to space limitations. Overflow from the proposed BMP(s) combines at an onsite catch basin and discharges to a proposed LACDCF connection. Water quality design volume (SWQDv) and flow rates (Qpm) resulting from the 85th percentile rain event, as described in Section 2, used for sizing of LID BMPs are summarized in Table 3.

Subarea	Area (Ac)	$SWQD_V$ (ft^3)	Q_{PM} (ft^3/s)	Outfall Location
1a	3.90	9,551	0.58	Proposed LACFCD Connection
1b	1.29	3,184	0.25	Proposed LACFCD Connection

Table 3. Low Impact Development, Stormwater Quality Design Volume and Flowrates

3.4 Hydromodification

The proposed project is considered exempt from the requirements of the hydromodification for the following reasons:

1) The proposed project site was previously developed in an urbanized area and does not increase the effective impervious area of the site as compared to the pre-project conditions. On the contrary, effective imperviousness of the site will be decreased from 95% to 77% once the site is developed.
2) The project decreases the runoff from the site as compared to the pre-project conditions per Tables 1A, 1B, 2A, 2B. For the 50 year event, the peak flowrate and volume discharging from the project site to the LACFCD storm drain system decreases from 13.39 cfs to 11.51 cfs and from 105,776 ft^3 to 89,197 ft^3, respectively.

3.5 Infiltration BMP

3.5.1 Feasibility Screening

Infiltration is the first option in Los Angeles County when screening potentially feasible LID BMPs. Infiltration systems collect storm water runoff and conducts it into permeable soils beneath the site; effectively reducing pollution, reducing runoff and flooding, and recharging ground water. Geotechnical and infiltration reports did not identify any hazards that would disallow infiltration onsite such as liquefaction, clay or expansive soils, high ground water, landslides, or polluted soils, etc.

Infiltration testing resulting in a corrected infiltration rate of 1.0 in/hr and 1.2 in/hr, which is greater than the minimum infiltration rate that is feasible per the County of Los Angeles Guidelines for Design, Investigation, and Reporting Low Impact Development Stormwater Infiltration, GS200.1, 0.3 in/hr.

3.5.2 Infiltration BMP Design

Design of the infiltration system is based upon LADPW LID Manual, 2014, RET-3, Infiltration Trench. Setbacks are based upon GS200.1. The infiltration trench is a StormTech system, a proprietary infiltration system by Advanced Drainage Systems, Inc. (ADS), or equivalent, which utilizes HDPE chambers surrounded by open graded gravel. The system incorporates an isolator row that serves as a settling basin for silt and debris and accessible for maintenance. The locations of the proposed BMPs are shown on Figure 2, Developed Condition Hydrology Map, located in Appendix E. The BMPs are located within open areas of the site. Sizing of the RET-3 Infiltration System is as follows:

Step 1: Determine the SWQDv

From HydroCalc, the SWQDv is the runoff volume resulting from the 85th percentile, 24-hour rain event for Subareas 1a and 1b as listed in Table 3 above.

Step 2: Determine the design infiltration rate

Percolation testing was performed at the location and depths of the proposed infiltration systems. From the percolation report, project number 19G-0075-00, dated August 19, 2019, the lowest design infiltration rate for this site is 1.0 in/hr.

Step 3: Calculate the bioretention area

Determine the size of the required infiltration surface by assuming the SWQDv will fill the available void spaces of the gravel storage layer. The maximum depth of stormwater runoff that can be infiltrated within the maximum retention time (96 hrs.) is calculated using the following equation:

$$d_{max} = \frac{f_{design}}{12} \times t$$

where:
- d_{max} = Maximum depth of water that can be infiltrated within the maximum retention time (ft.),
- f_{design} = Design infiltration rate (in/hr)
- t = Maximum retention time (max 96 hrs.) (hr).

A design infiltration rate of 1.0 in/hr was specified for the project site. The maximum allowable drawdown time for underground infiltration is 96 hrs. Determine the maximum depth of water that can be infiltrated.

$$d_{max} = \frac{1.0}{12} \times 96$$

$$= 8 \text{ ft}$$

Select the infiltration trench depth (dt) such that:

$$d_t \leq \frac{d_{max}}{n_t}$$

where:
- dt = Depth of infiltration trench (ft),
- $dmax$ = Maximum depth of water that can be infiltrated within the maximum retention time (ft),
- n_t = Infiltration trench gravel void ratio.

For this project, all infiltration trenches were designed to be filled with gravel with a void ratio of 40% (0.40) and plastic chamber. d_{max} was determined to be 8 feet for all trenches. Calculate the maximum allowable depth of gravel filled trench.

$$d_t \leq \frac{8}{0.4}$$

$\leq$ 20 ft (trenches for this site were designed to be less than 20 ft high per ADS StormTech drawings located in Appendix C)

Calculate the infiltration surface area (bottom of the infiltration trench) required:

$$A = \frac{SWQDv}{d_t \times n_t}$$

where:
A = Surface area of the bottom of the infiltration trench (ft^2),
SWQDv = Stormwater quality design volume (ft^3),
dt = Depth of infiltration trench (ft),
nt = Infiltration trench gravel void ratio.

Subarea 1a SWQDv is 9,551 ft^3, and subarea 1b SWQDv is 3,184 ft^3. The depth of gravel fill allowed is 20 ft. Calculate the infiltration surface area (bottom of the infiltration trench) required:

$$A_{SUBAREA\ 1a} = \frac{9{,}551}{20X0.4}$$

= 1,194 ft^2 (1,938 ft^2 provided, See Appendix C for Drawings by ADS)

$$A_{SUBAREA\ 1b} = \frac{3{,}184}{20X0.4}$$

= 398 ft^2 (914 ft^2 provided, See Appendix C for Drawings by ADS)

BMP Design Summary

StormTech details generated by ADS include the detention volume, area, and layout of the system, see Appendix C according the criteria above. The BMP sizing is summarized in Table 4.

Subarea	BMP	BMP Area Required (ft^2)	BMP Area Provided (ft^2)	BMP Volume Required, V_{85th} (SWQDv) (ft^3)	BMP Volume Provided (ft^3)
1a	StormTech Infiltration Trench (RET-3)	1,194	1,938	9,551	9,555
1b	StormTech Infiltration Trench (RET-3)	398	915	3,184	4,529

Table 4. Low Impact Development BMP Design Summary

3.6 Harvest and Reuse Feasibility Screening

Not applicable. Infiltration utilized.

3.7 Alternate Compliance Feasibility Screening

Not applicable. Infiltration utilized.

3.8 BMP Maintenance

To ensure the effectiveness of the water quality BMPs, routine maintenance will be required for both the structural BMPs and surround areas. The operation and maintenance program will include the following key components:

A. Regular sweeping and removal of debris:
Vehicle parking is provided in each unit and several guest parking lots are provided throughout the project. Litter, leaves, etc., should not be a significant problem. The streets and parking lots will be swept on a regular basis. Sediment and debris (litter, leaves, papers and cans, etc.) around the buildings, streets and parking lots, especially around the drainage inlets, will be collected and removed. The frequency of cleaning and sweeping will be based on the amount of sediment and debris generated.

B. Regular inspections:
The catch basins, manholes and the Infiltration systems will be inspected on a regular basis. The frequency of inspection will be based on pollutant loading, amount of debris, leaves, etc., and amount of runoff. At a minimum, there shall be three inspections per year.

C. Inlets and manholes:
Broom sweep around the inlets and manholes, and remove the grate or cover. Inspect the inlet, outlet and bottom. If called for, remove debris by hand, vector truck or other means of accumulated debris. Camera and/or snake drains if standing water persists for longer than 24 hours after end of rain event.

D. Infiltration system:
Operation and maintenance of the StormTech infiltration system is provided in Appendix C of this report and attached to the LID Covenant and Agreement.

E. Stenciling:
Legibility of stencils and/or signs at all storm drain inlets and catch basin within the project areas must be maintained at all times.

F. Maintenance Log:
Keep a log of all inspections and maintenance performed on the catch basins, filter inserts, trench drains, and the Infiltration systems. Keep this log on-site.

4. CONCLUSION

The proposed development improves the hydrology of the site by reducing runoff flow rates and volume from pre developed conditions. Runoff from developed site drains to the existing Los Angeles County Flood Control District storm drain in Iris Street either via a new direct connection. The proposed development will not have any adverse impacts to the surrounding streets or storm drain facilities. Drainage outlets from the site are capable of carrying the 50-year storm event as required for capital improvements. Two onsite underground infiltration trenches satisfy the Los Angeles County Low Impact Development requirements for this site.

5. REFERENCES

Los Angeles County Department of Public Works; *Hydrology Manual*: Alhambra, CA; 2006.

Los Angeles County Department of Public Works; *Low Impact Development Standards Manual*; Alhambra, CA; 2014.

Appendix A
Raw Hydrology Data

Subarea	Area (Ac)	Soil Type	% Imp	Isohyet	Length (ft)	Slope	Area (sq ft)	D z	Elevation Top	Bottom
1	2.90	006	**95**	6.40	876.0	0.006	125150.15	5.63	293.37	287.74
2	2.40	006	**95**	6.40	689.0	0.006	101753.62	4.13	292.96	288.84
						Sum sub-areas (ft2)	226903.77	5.21		
						Total study area (ft2)	226903.77	5.21		

Table A1. Raw hydrology data used for the pre developed condition in HydroCalc.

Subarea	Area (Ac)	Soil Type	% Imp	Isohyet	Length (ft)	Slope	Area (sq ft)	D z	Elevation Top	Bottom
1	5.20	006	**77**	6.40	1024.0	0.0063	224855.90	6.50	294.55	288.05
1a	3.90	006	**77**	6.40	868.0	0.0073	168776.47	6.36	294.55	288.19
1b	1.29	006	**77**	6.40	420.0	0.0115	56079.43	4.85	292.35	287.50
2	0.05	006	**77**	6.40	210.0	0.0065	2047.87	1.36	292.96	291.60
						Sum sub-areas (ft2)	226903.77	5.21		
						Total study area (ft2)	226903.77	5.21		

Table A2. Raw hydrology data used for the developed condition in HydroCalc.

Appendix B
HydroCalc Reports

Peak Flow Hydrologic Analysis

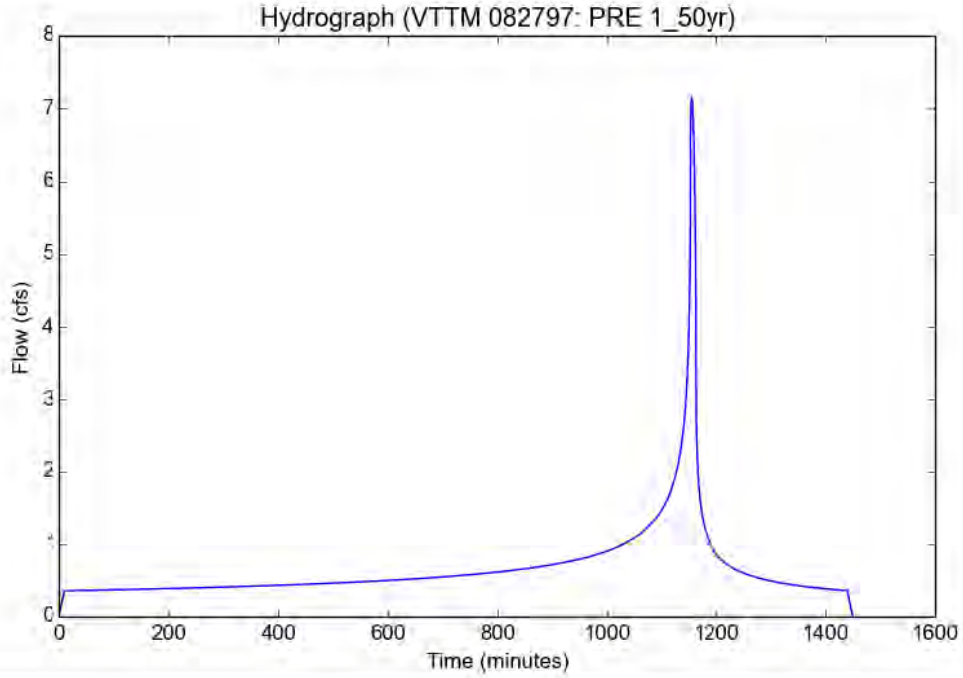
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	VTTM 082797
Subarea ID	PRE 1_50yr
Area (ac)	2.9
Flow Path Length (ft)	876.0
Flow Path Slope (vft/hft)	0.006
50-yr Rainfall Depth (in)	6.4
Percent Impervious	0.95
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.4
Peak Intensity (in/hr)	2.7568
Undeveloped Runoff Coefficient (Cu)	0.8052
Developed Runoff Coefficient (Cd)	0.8953
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	7.1573
Burned Peak Flow Rate (cfs)	7.1573
24-Hr Clear Runoff Volume (ac-ft)	1.3287
24-Hr Clear Runoff Volume (cu-ft)	57877.1783



Peak Flow Hydrologic Analysis

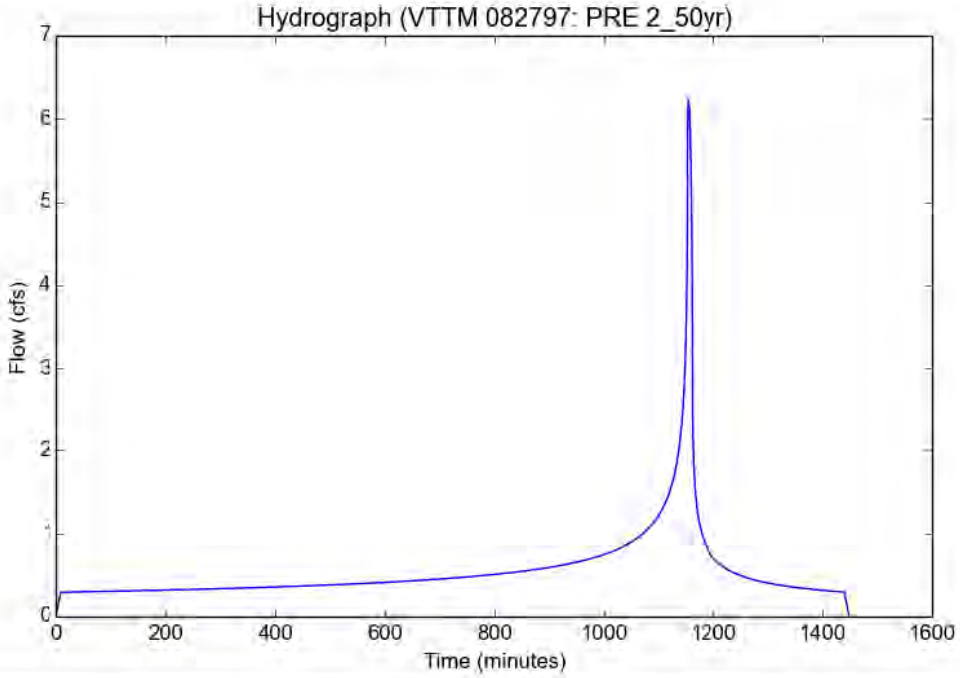
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	VTTM 082797
Subarea ID	PRE 2_50yr
Area (ac)	2.4
Flow Path Length (ft)	689.0
Flow Path Slope (vft/hft)	0.006
50-yr Rainfall Depth (in)	6.4
Percent Impervious	0.95
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.4
Peak Intensity (in/hr)	2.8967
Undeveloped Runoff Coefficient (Cu)	0.815
Developed Runoff Coefficient (Cd)	0.8958
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	6.2274
Burned Peak Flow Rate (cfs)	6.2274
24-Hr Clear Runoff Volume (ac-ft)	1.0996
24-Hr Clear Runoff Volume (cu-ft)	47898.9088



Peak Flow Hydrologic Analysis

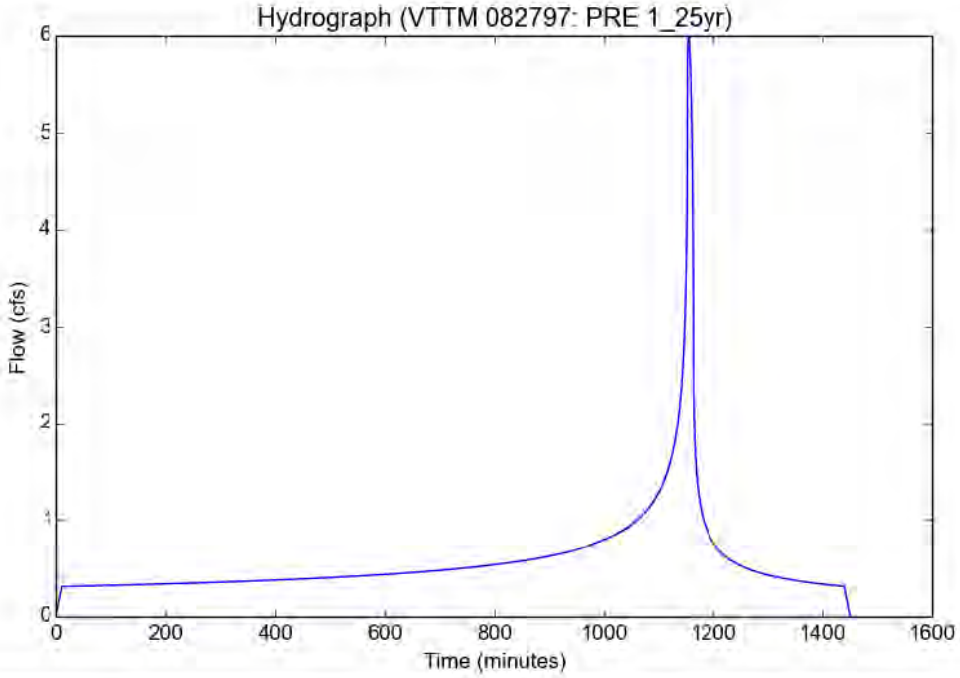
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	VTTM 082797
Subarea ID	PRE 1_25yr
Area (ac)	2.9
Flow Path Length (ft)	876.0
Flow Path Slope (vft/hft)	0.006
50-yr Rainfall Depth (in)	6.4
Percent Impervious	0.95
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.6192
Peak Intensity (in/hr)	2.3144
Undeveloped Runoff Coefficient (Cu)	0.7668
Developed Runoff Coefficient (Cd)	0.8933
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	5.9959
Burned Peak Flow Rate (cfs)	5.9959
24-Hr Clear Runoff Volume (ac-ft)	1.1654
24-Hr Clear Runoff Volume (cu-ft)	50763.7595



Peak Flow Hydrologic Analysis

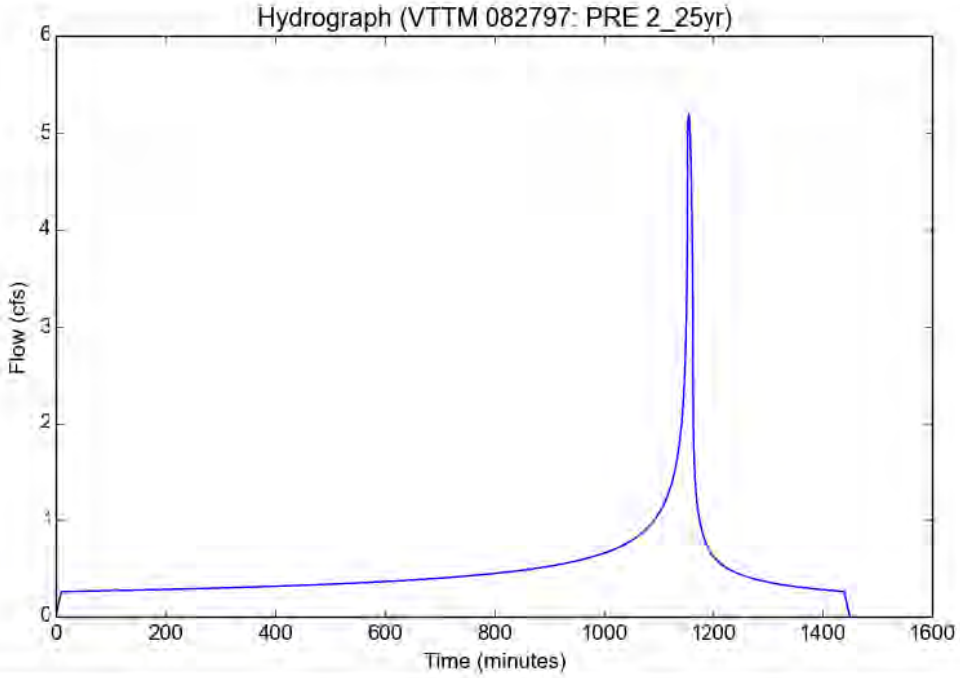
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	VTTM 082797
Subarea ID	PRE 2_25yr
Area (ac)	2.4
Flow Path Length (ft)	689.0
Flow Path Slope (vft/hft)	0.006
50-yr Rainfall Depth (in)	6.4
Percent Impervious	0.95
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.6192
Peak Intensity (in/hr)	2.4204
Undeveloped Runoff Coefficient (Cu)	0.7784
Developed Runoff Coefficient (Cd)	0.8939
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	5.1928
Burned Peak Flow Rate (cfs)	5.1928
24-Hr Clear Runoff Volume (ac-ft)	0.9645
24-Hr Clear Runoff Volume (cu-ft)	42012.0552



Peak Flow Hydrologic Analysis

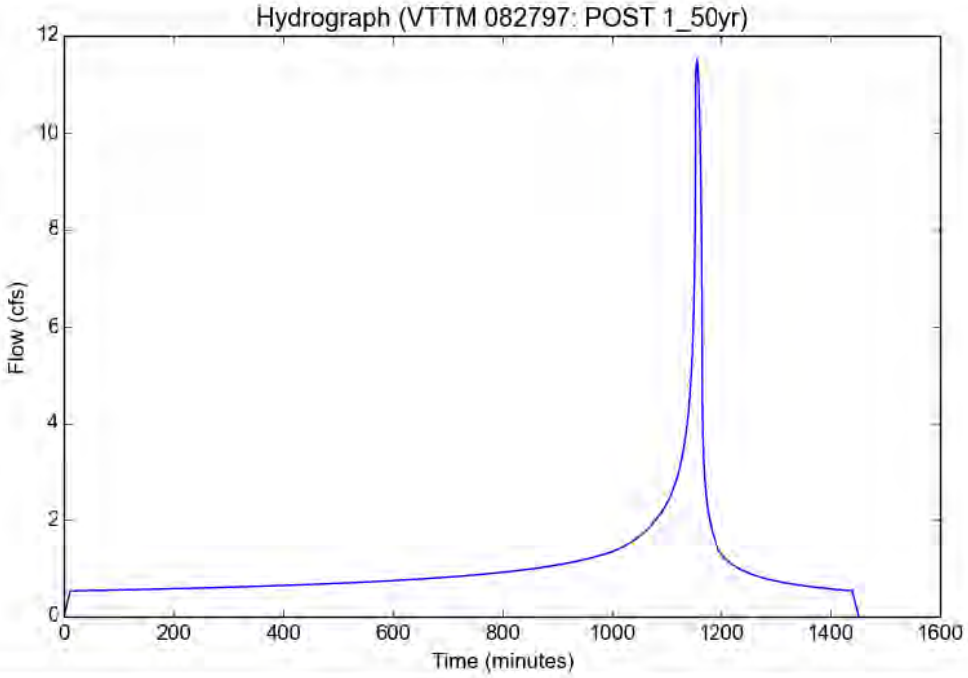
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	VTTM 082797
Subarea ID	POST 1_50yr
Area (ac)	5.2
Flow Path Length (ft)	1024.0
Flow Path Slope (vft/hft)	0.0059
50-yr Rainfall Depth (in)	6.4
Percent Impervious	0.77
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.4
Peak Intensity (in/hr)	2.5304
Undeveloped Runoff Coefficient (Cu)	0.7893
Developed Runoff Coefficient (Cd)	0.8745
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	11.5071
Burned Peak Flow Rate (cfs)	11.5071
24-Hr Clear Runoff Volume (ac-ft)	2.0477
24-Hr Clear Runoff Volume (cu-ft)	89197.4885



Peak Flow Hydrologic Analysis

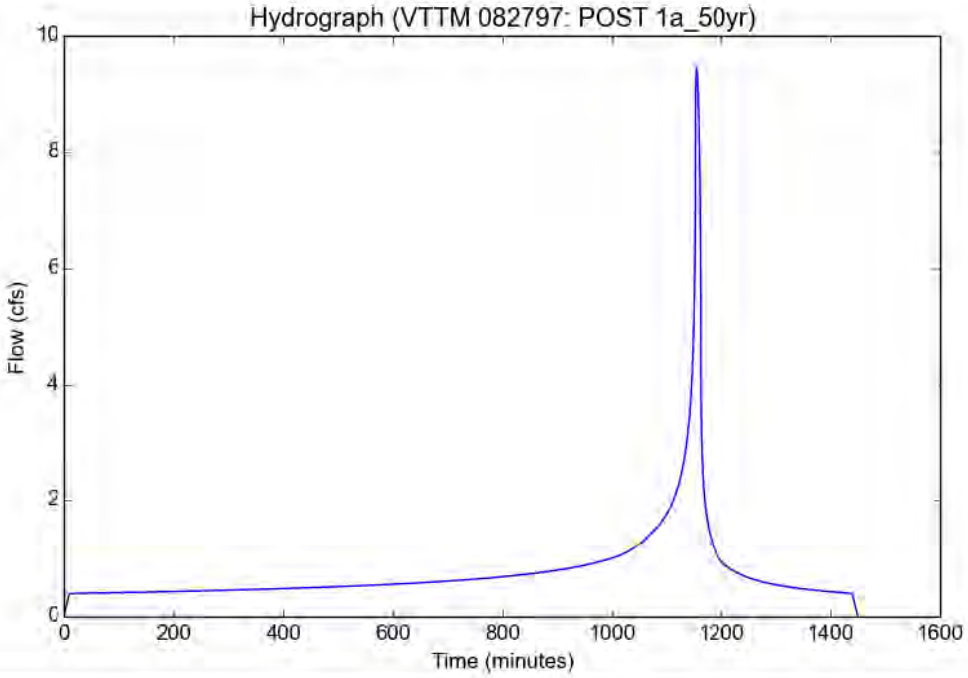
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	VTTM 082797
Subarea ID	POST 1a_50yr
Area (ac)	3.9
Flow Path Length (ft)	868.0
Flow Path Slope (vft/hft)	0.0073
50-yr Rainfall Depth (in)	6.4
Percent Impervious	0.77
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.4
Peak Intensity (in/hr)	2.7568
Undeveloped Runoff Coefficient (Cu)	0.8052
Developed Runoff Coefficient (Cd)	0.8782
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	9.4418
Burned Peak Flow Rate (cfs)	9.4418
24-Hr Clear Runoff Volume (ac-ft)	1.536
24-Hr Clear Runoff Volume (cu-ft)	66906.3929



Peak Flow Hydrologic Analysis

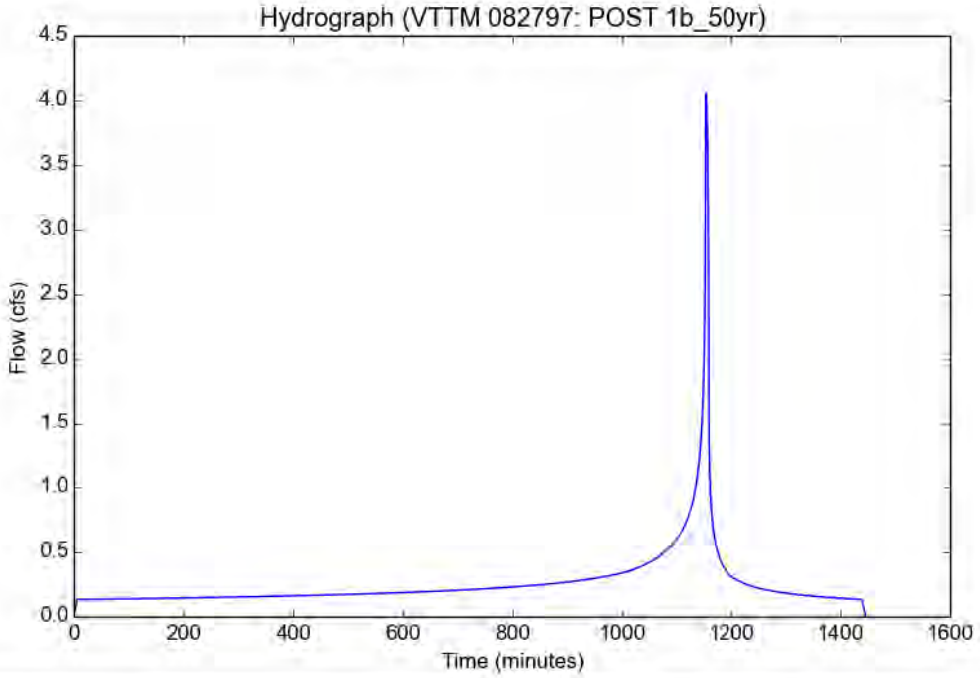
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	VTTM 082797
Subarea ID	POST 1b_50yr
Area (ac)	1.3
Flow Path Length (ft)	420.0
Flow Path Slope (vft/hft)	0.0115
50-yr Rainfall Depth (in)	6.4
Percent Impervious	0.77
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.4
Peak Intensity (in/hr)	3.5048
Undeveloped Runoff Coefficient (Cu)	0.8576
Developed Runoff Coefficient (Cd)	0.8902
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	4.0562
Burned Peak Flow Rate (cfs)	4.0562
24-Hr Clear Runoff Volume (ac-ft)	0.5122
24-Hr Clear Runoff Volume (cu-ft)	22309.3312



Peak Flow Hydrologic Analysis

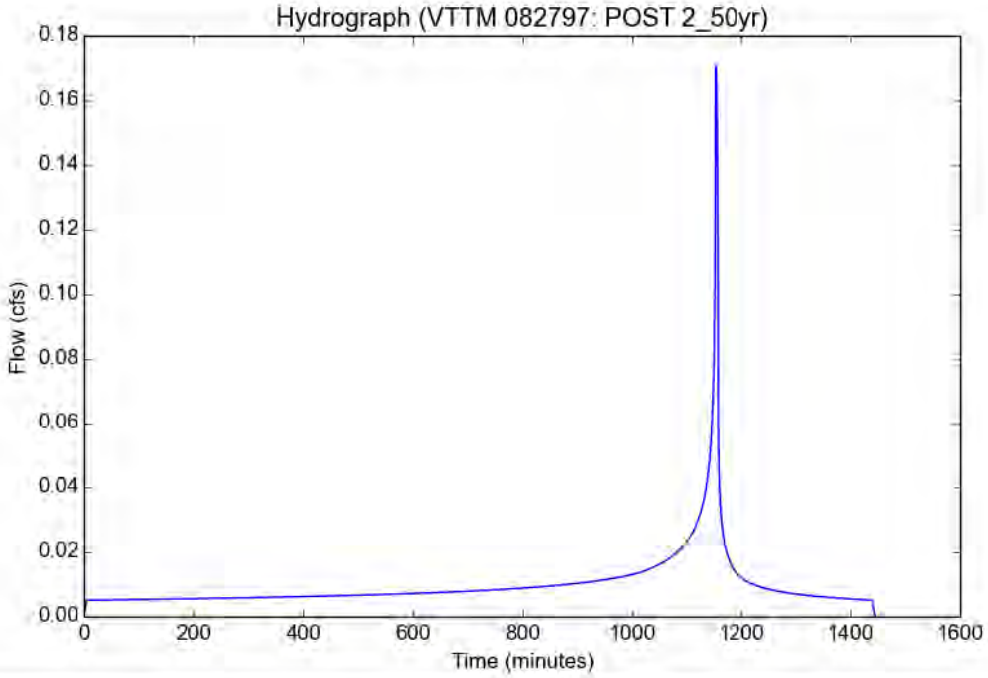
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	VTTM 082797
Subarea ID	POST 2_50yr
Area (ac)	0.05
Flow Path Length (ft)	210.0
Flow Path Slope (vft/hft)	0.0065
50-yr Rainfall Depth (in)	6.4
Percent Impervious	0.77
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.4
Peak Intensity (in/hr)	3.8184
Undeveloped Runoff Coefficient (Cu)	0.8696
Developed Runoff Coefficient (Cd)	0.893
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.1705
Burned Peak Flow Rate (cfs)	0.1705
24-Hr Clear Runoff Volume (ac-ft)	0.0197
24-Hr Clear Runoff Volume (cu-ft)	858.108



Peak Flow Hydrologic Analysis

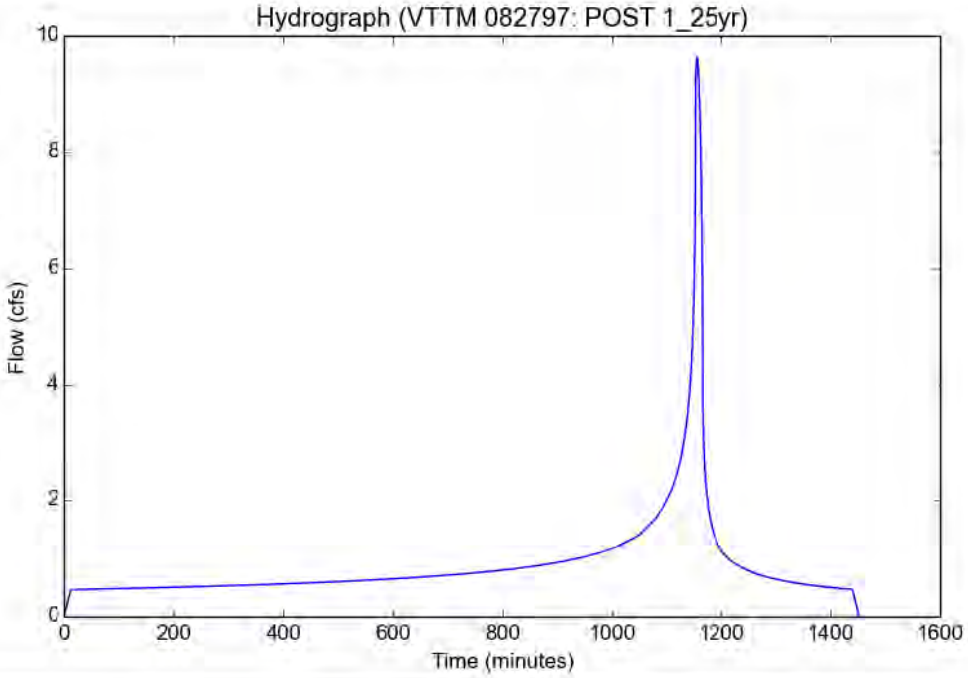
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	VTTM 082797
Subarea ID	POST 1_25yr
Area (ac)	5.2
Flow Path Length (ft)	1024.0
Flow Path Slope (vft/hft)	0.0059
50-yr Rainfall Depth (in)	6.4
Percent Impervious	0.77
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.6192
Peak Intensity (in/hr)	2.1396
Undeveloped Runoff Coefficient (Cu)	0.7476
Developed Runoff Coefficient (Cd)	0.865
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	9.6236
Burned Peak Flow Rate (cfs)	9.6236
24-Hr Clear Runoff Volume (ac-ft)	1.7879
24-Hr Clear Runoff Volume (cu-ft)	77882.058



Peak Flow Hydrologic Analysis

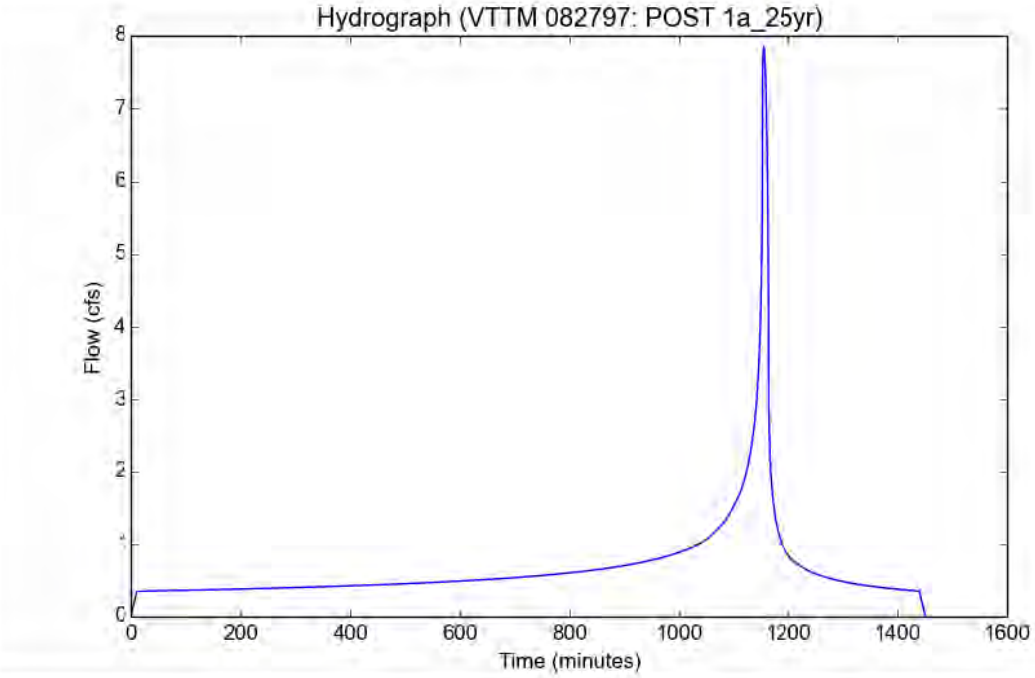
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	VTTM 082797
Subarea ID	POST 1a_25yr
Area (ac)	3.9
Flow Path Length (ft)	868.0
Flow Path Slope (vft/hft)	0.0073
50-yr Rainfall Depth (in)	6.4
Percent Impervious	0.77
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.6192
Peak Intensity (in/hr)	2.3144
Undeveloped Runoff Coefficient (Cu)	0.7668
Developed Runoff Coefficient (Cd)	0.8694
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	7.847
Burned Peak Flow Rate (cfs)	7.847
24-Hr Clear Runoff Volume (ac-ft)	1.3411
24-Hr Clear Runoff Volume (cu-ft)	58419.5689



Peak Flow Hydrologic Analysis

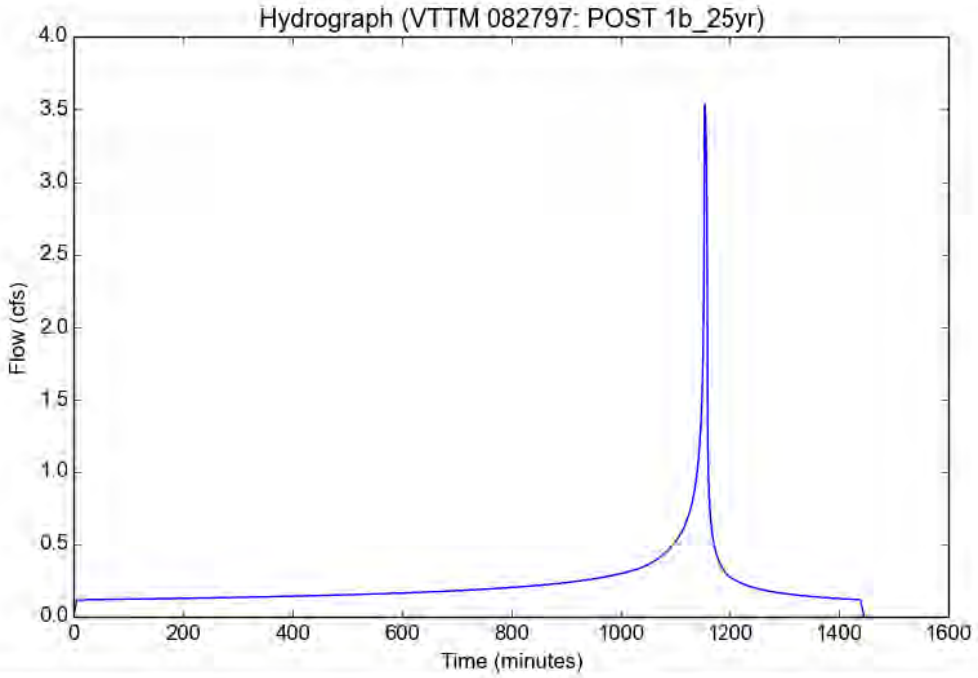
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Input Parameters

Project Name	VTTM 082797
Subarea ID	POST 1b_25yr
Area (ac)	1.3
Flow Path Length (ft)	420.0
Flow Path Slope (vft/hft)	0.0115
50-yr Rainfall Depth (in)	6.4
Percent Impervious	0.77
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.6192
Peak Intensity (in/hr)	3.0772
Undeveloped Runoff Coefficient (Cu)	0.8277
Developed Runoff Coefficient (Cd)	0.8834
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	3.5339
Burned Peak Flow Rate (cfs)	3.5339
24-Hr Clear Runoff Volume (ac-ft)	0.4472
24-Hr Clear Runoff Volume (cu-ft)	19481.0502



Peak Flow Hydrologic Analysis

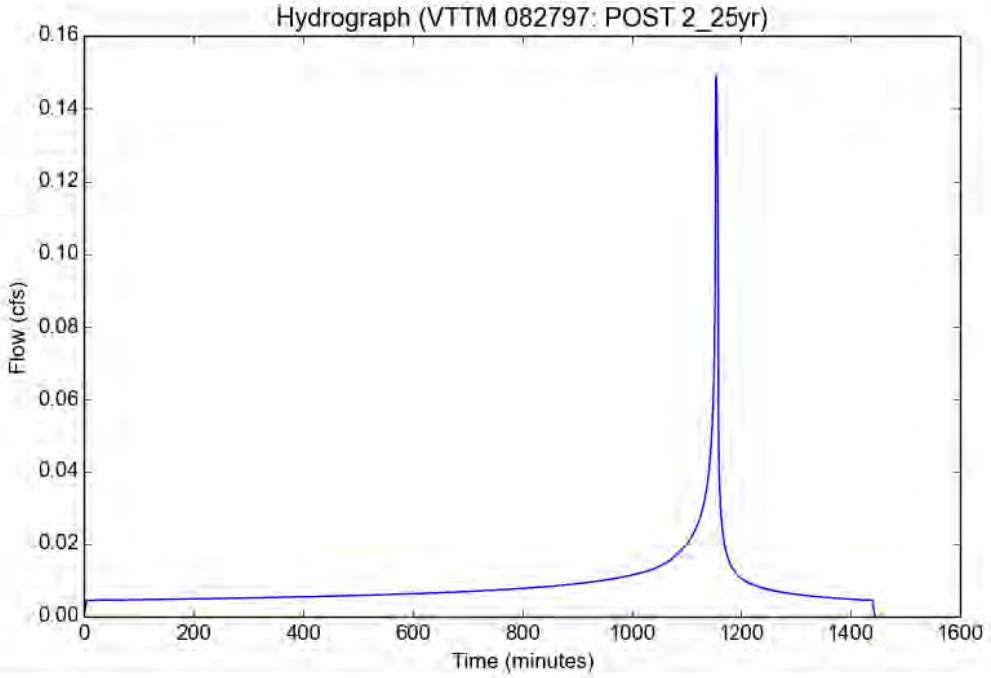
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Input Parameters

Project Name	VTTM 082797
Subarea ID	POST 2_25yr
Area (ac)	0.05
Flow Path Length (ft)	210.0
Flow Path Slope (vft/hft)	0.0065
50-yr Rainfall Depth (in)	6.4
Percent Impervious	0.77
Soil Type	6
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.6192
Peak Intensity (in/hr)	3.3526
Undeveloped Runoff Coefficient (Cu)	0.847
Developed Runoff Coefficient (Cd)	0.8878
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.1488
Burned Peak Flow Rate (cfs)	0.1488
24-Hr Clear Runoff Volume (ac-ft)	0.0172
24-Hr Clear Runoff Volume (cu-ft)	749.3477



Peak Flow Hydrologic Analysis

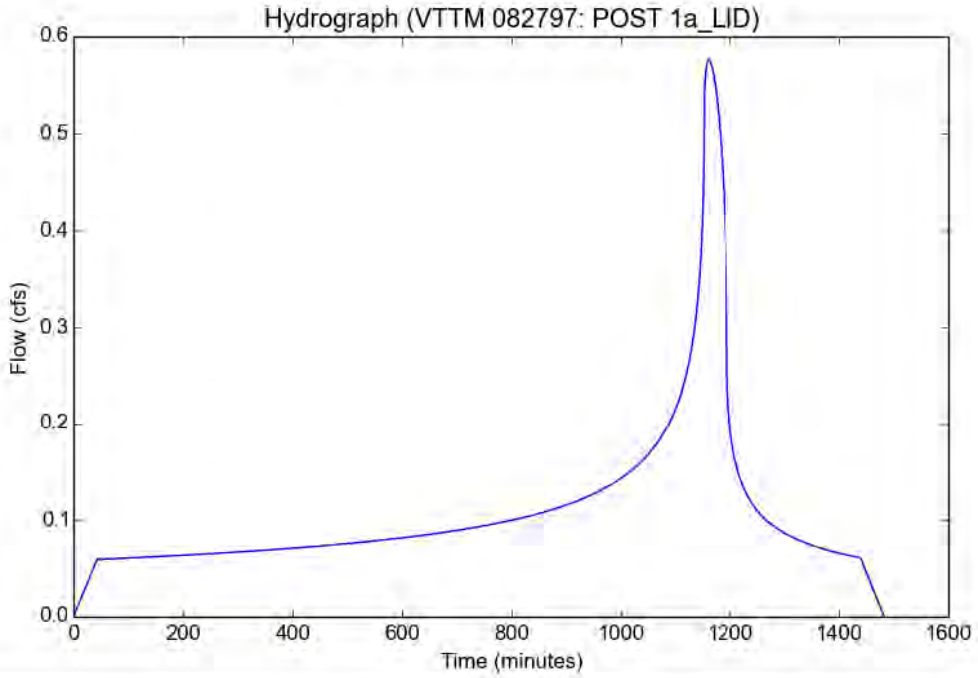
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	VTTM 082797
Subarea ID	POST 1a_LID
Area (ac)	3.9
Flow Path Length (ft)	868.0
Flow Path Slope (vft/hft)	0.0073
85th Percentile Rainfall Depth (in)	0.95
Percent Impervious	0.77
Soil Type	6
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.95
Peak Intensity (in/hr)	0.2062
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.716
Time of Concentration (min)	43.0
Clear Peak Flow Rate (cfs)	0.5757
Burned Peak Flow Rate (cfs)	0.5757
24-Hr Clear Runoff Volume (ac-ft)	0.2192
24-Hr Clear Runoff Volume (cu-ft)	9550.2352



Peak Flow Hydrologic Analysis

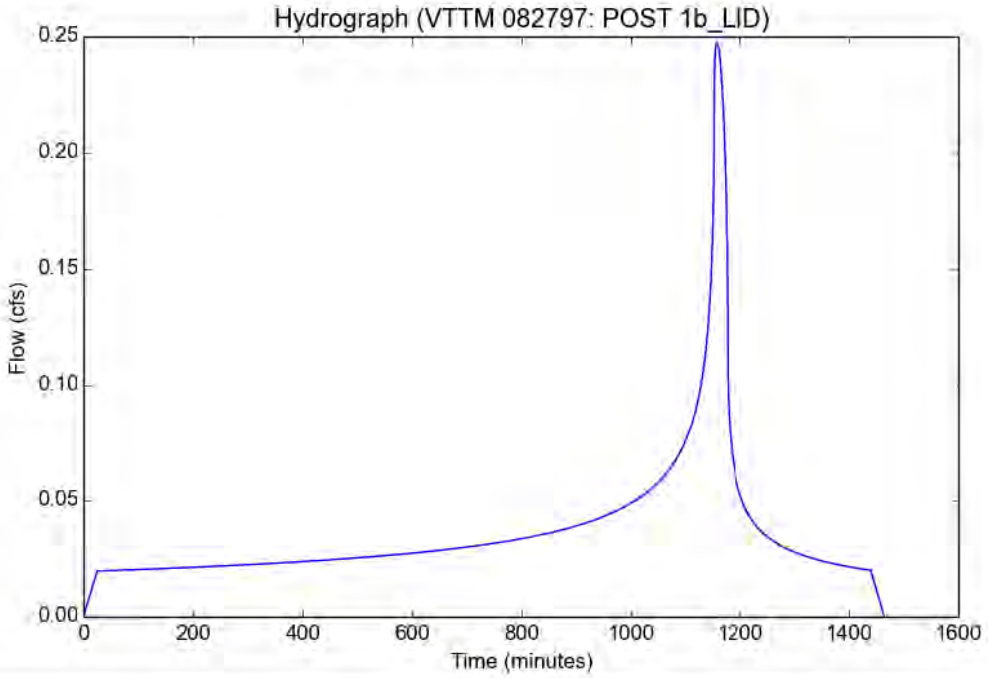
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	VTTM 082797
Subarea ID	POST 1b_LID
Area (ac)	1.3
Flow Path Length (ft)	420.0
Flow Path Slope (vft/hft)	0.0115
85th Percentile Rainfall Depth (in)	0.95
Percent Impervious	0.77
Soil Type	6
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.95
Peak Intensity (in/hr)	0.266
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.716
Time of Concentration (min)	25.0
Clear Peak Flow Rate (cfs)	0.2476
Burned Peak Flow Rate (cfs)	0.2476
24-Hr Clear Runoff Volume (ac-ft)	0.0731
24-Hr Clear Runoff Volume (cu-ft)	3183.3613



Appendix C
BMP Design Details

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	EPM NAME EPM NUMBER EPM EMAIL
ADS SALES REP	SALES NAME SALES NUMBER SALES EMAIL
PROJECT NO.	

ADVANCED DRAINAGE SYSTEMS, INC.

SiteASSIST by StormTech
FOR STORMTECH INSTRUCTIONS, DOWNLOAD THE INSTALLATION APP

VTTM 082797 - 11312 ORCHARD ST_1A COPY

EL MONTE, CA

MC-4500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-4500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

1. STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
12. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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PROPOSED LAYOUT

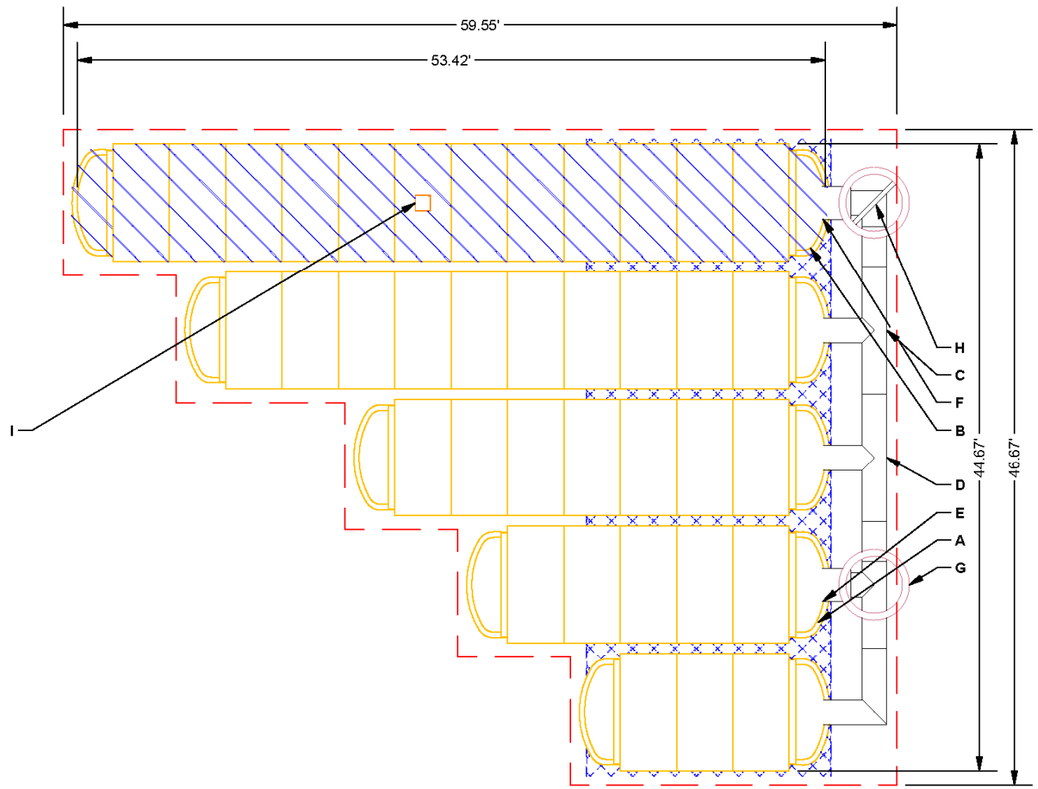
37	STORMTECH MC-4500 CHAMBERS	
10	STORMTECH MC-4500 END CAPS	
24	STONE ABOVE (in)	
24	STONE BELOW (in)	
40	% STONE VOID	
9555	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)	
1938	SYSTEM AREA (SF)	
212.43	SYSTEM PERIMETER (ft)	

PROPOSED ELEVATIONS

MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	294.00
MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	289.50
TOP OF STONE:	289.00
MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	289.00
MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	289.00
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	289.00
TOP OF MC-4500 CHAMBER:	287.00
24" ISOLATOR ROW INVERT:	282.19
24" ISOLATOR ROW INVERT:	282.19
18" x 18" BOTTOM MANIFOLD INVERT:	282.16
18" x 18" BOTTOM MANIFOLD INVERT:	282.16
BOTTOM OF MC-4500 CHAMBER:	282.00
BOTTOM OF STONE:	280.00

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED END CAP	A	24" BOTTOM CORED END CAP/TYP OF ALL 24" BOTTOM CONNECTIONS	2.26"	
PREFABRICATED END CAP	B	18" BOTTOM CORED END CAP/TYP OF ALL 18" BOTTOM CONNECTIONS AND ISOLATOR ROWS	1.97"	
MANIFOLD	C	18" X 18" BOTTOM, ADS N-12	1.97"	
MANIFOLD	D	18" X 18" BOTTOM, ADS N-12	1.97"	
PIPE CONNECTION	E	24" BOTTOM CONNECTION	2.26"	
PIPE CONNECTION	F	24" BOTTOM CONNECTION	2.26"	
CONCRETE STRUCTURE	G	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		16.5 CFS IN
CONCRETE STRUCTURE W/WEIR	H	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		22.0 CFS IN
INSPECTION PORT	I	4" SEE DETAIL		



ISOLATOR ROW
(SEE DETAIL)

PLACE MINIMUM 17.50' OF ADS GEOSYNTHETICS 315WTM WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH SHEET #7 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- NOT FOR CONSTRUCTION

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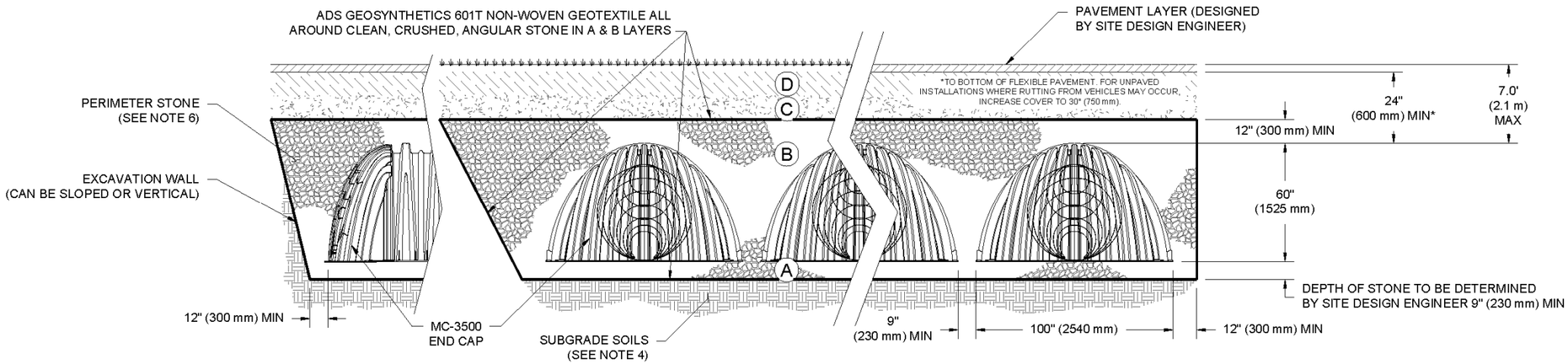
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ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

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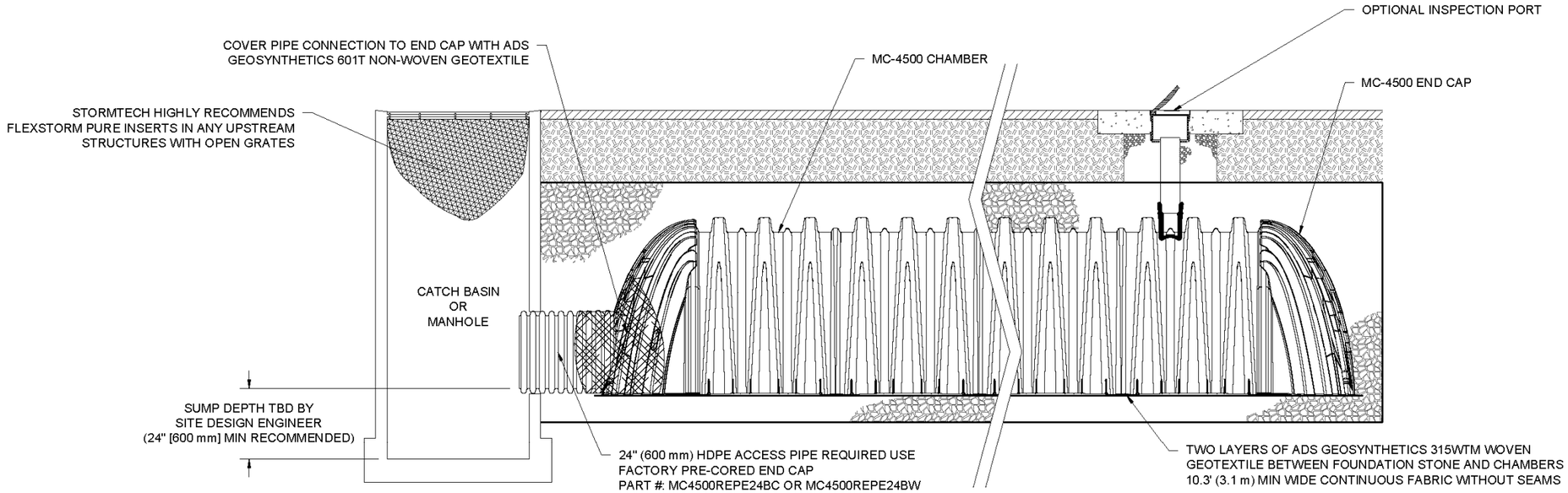
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MC-4500 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

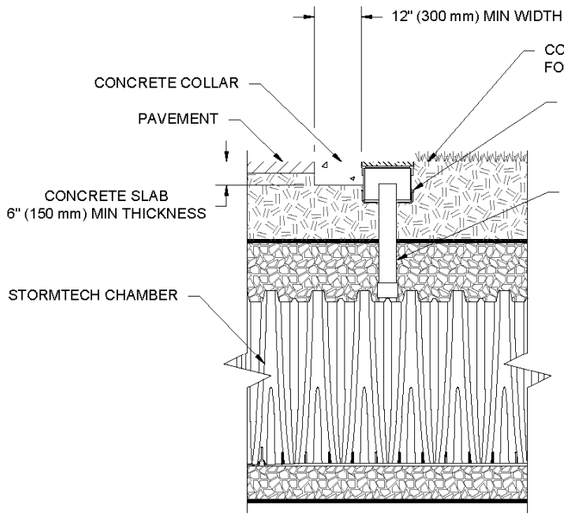
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

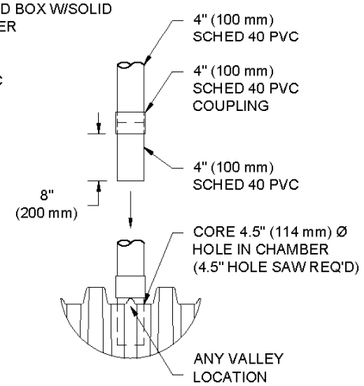
NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOTES:
1. INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.
2. ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED (4" PVC NOT PROVIDED BY ADS).

4" PVC INSPECTION PORT DETAIL
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CONNECTION DETAIL
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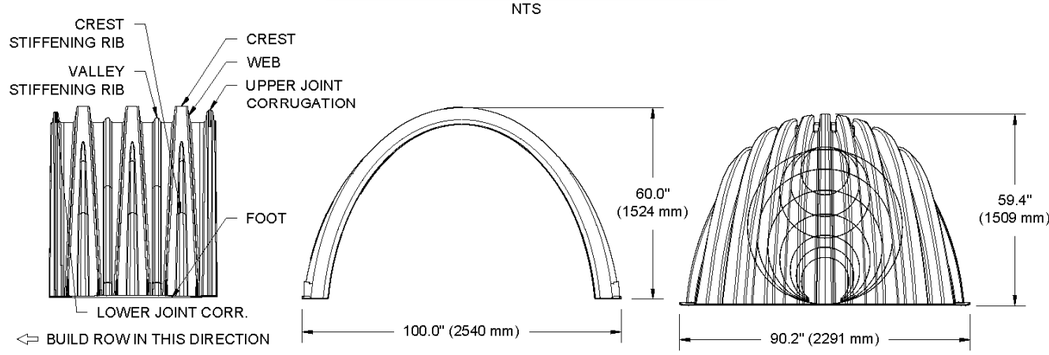
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MC-4500 TECHNICAL SPECIFICATION

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NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 48.3"	(2540 mm X 1524 mm X 1227 mm)
CHAMBER STORAGE	106.5 CUBIC FEET	(3.01 m³)
MINIMUM INSTALLED STORAGE*	162.6 CUBIC FEET	(4.60 m³)
WEIGHT	130.0 lbs.	(59.0 kg)

NOMINAL END CAP SPECIFICATIONS

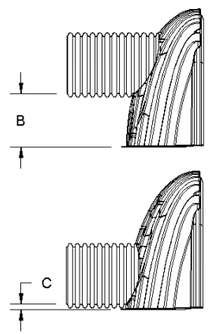
SIZE (W X H X INSTALLED LENGTH)	90.2" X 59.4" X 30.7"	(2291 mm X 1509 mm X 781 mm)
END CAP STORAGE	35.7 CUBIC FEET	(1.01 m³)
MINIMUM INSTALLED STORAGE*	108.7 CUBIC FEET	(3.08 m³)
WEIGHT	135.0 lbs.	(61.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC4500REPE06T	6" (150 mm)	42.54" (1.081 m)	---
MC4500REPE06B		---	0.86" (22 mm)
MC4500REPE08T	8" (200 mm)	40.50" (1.029 m)	---
MC4500REPE08B		---	1.01" (26 mm)
MC4500REPE10T	10" (250 mm)	38.37" (975 mm)	---
MC4500REPE10B		---	1.33" (34 mm)
MC4500REPE12T	12" (300 mm)	35.69" (907 mm)	---
MC4500REPE12B		---	1.55" (39 mm)
MC4500REPE15T	15" (375 mm)	32.72" (831 mm)	---
MC4500REPE15B		---	1.70" (43 mm)
MC4500REPE18TC	18" (450 mm)	29.36" (746 mm)	---
MC4500REPE18TW			
MC4500REPE18BC		---	1.97" (50 mm)
MC4500REPE18BW			
MC4500REPE24TC	24" (600 mm)	23.05" (585 mm)	---
MC4500REPE24TW			
MC4500REPE24BC		---	2.26" (57 mm)
MC4500REPE24BW			
MC4500REPE30BC	30" (750 mm)	---	2.95" (75 mm)
MC4500REPE36BC	36" (900 mm)	---	3.25" (83 mm)
MC4500REPE42BC	42" (1050 mm)	---	3.55" (90 mm)

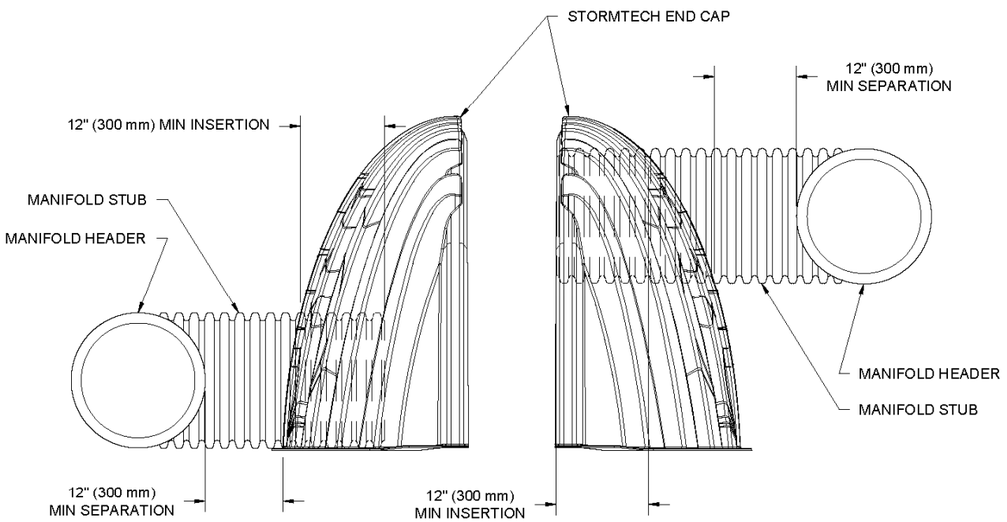
NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-4500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

MC-SERIES END CAP INSERTION DETAIL

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NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

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PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	EPM NAME EPM NUMBER EPM EMAIL
ADS SALES REP	SALES NAME SALES NUMBER SALES EMAIL
PROJECT NO.	

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MC-4500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-4500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

1. STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
12. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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PROPOSED LAYOUT

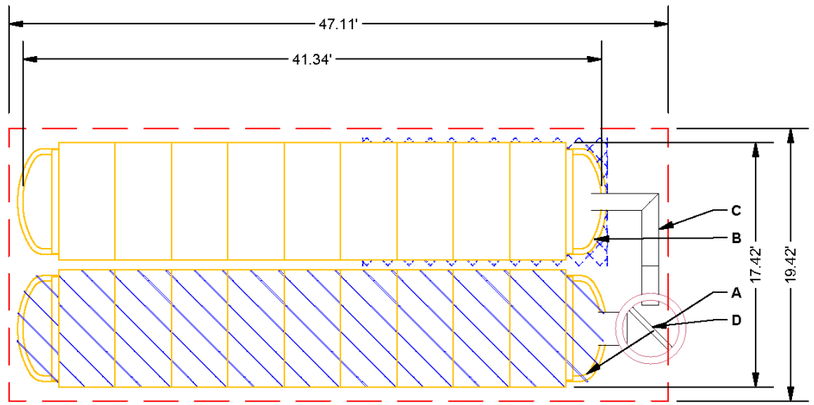
18	STORMTECH MC-4500 CHAMBERS
4	STORMTECH MC-4500 END CAPS
24	STONE ABOVE (in)
24	STONE BELOW (in)
40	% STONE VOID
4529	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)
915	SYSTEM AREA (SF)
133.05	SYSTEM PERIMETER (ft)

PROPOSED ELEVATIONS

MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	294.00
MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	289.50
TOP OF STONE:	289.00
MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	289.00
MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	289.00
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	289.00
TOP OF MC-4500 CHAMBER:	287.00
12" x 12" TOP MANIFOLD INVERT:	284.97
24" ISOLATOR ROW INVERT:	282.19
BOTTOM OF MC-4500 CHAMBER:	282.00
BOTTOM OF STONE:	280.00

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED END CAP	A	24" BOTTOM CORED END CAP/TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR ROWS	2.26"	
PREFABRICATED END CAP	B	12" TOP CORED END CAP/TYP OF ALL 12" TOP CONNECTIONS	35.69"	
MANIFOLD	C	12" X 12" TOP, ADS N-12	35.69"	
CONCRETE STRUCTURE W/WEIR	D	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		2.5 CFS IN



ISOLATOR ROW
(SEE DETAIL)

PLACE MINIMUM 17.50' OF ADS GEOSYNTHETICS 315WTM WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH SHEET #7 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- NOT FOR CONSTRUCTION

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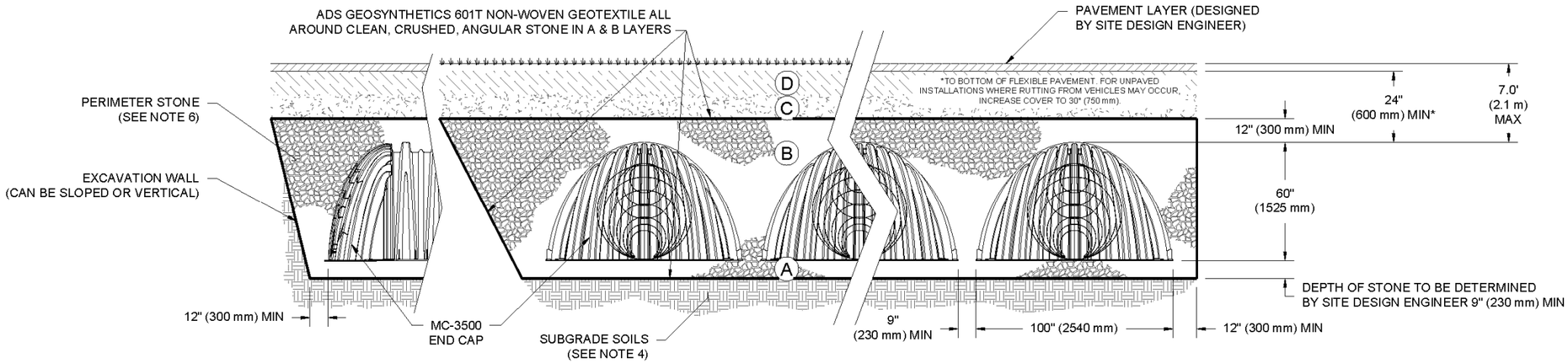
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ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

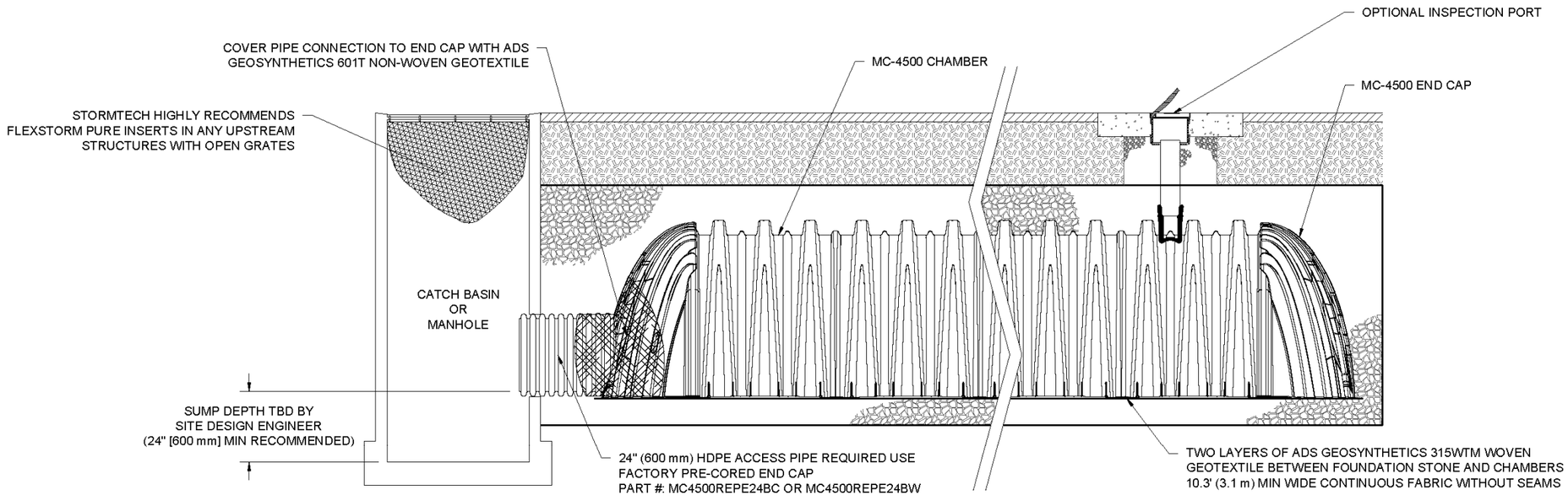
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MC-4500 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.

2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

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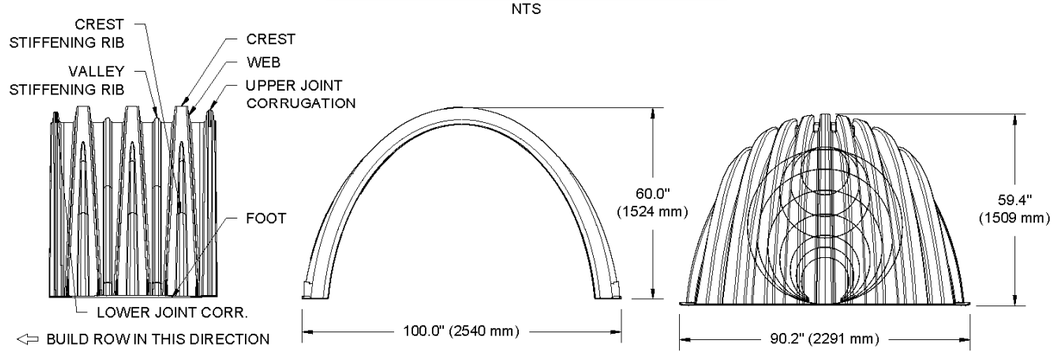
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MC-4500 TECHNICAL SPECIFICATION

NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 48.3"	(2540 mm X 1524 mm X 1227 mm)
CHAMBER STORAGE	106.5 CUBIC FEET	(3.01 m³)
MINIMUM INSTALLED STORAGE*	162.6 CUBIC FEET	(4.60 m³)
WEIGHT	130.0 lbs.	(59.0 kg)

NOMINAL END CAP SPECIFICATIONS

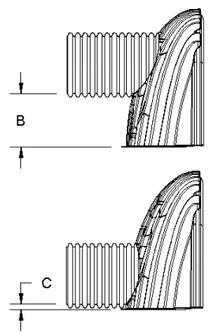
SIZE (W X H X INSTALLED LENGTH)	90.2" X 59.4" X 30.7"	(2291 mm X 1509 mm X 781 mm)
END CAP STORAGE	35.7 CUBIC FEET	(1.01 m³)
MINIMUM INSTALLED STORAGE*	108.7 CUBIC FEET	(3.08 m³)
WEIGHT	135.0 lbs.	(61.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC4500REPE06T	6" (150 mm)	42.54" (1.081 m)	---
MC4500REPE06B		---	0.86" (22 mm)
MC4500REPE08T	8" (200 mm)	40.50" (1.029 m)	---
MC4500REPE08B		---	1.01" (26 mm)
MC4500REPE10T	10" (250 mm)	38.37" (975 mm)	---
MC4500REPE10B		---	1.33" (34 mm)
MC4500REPE12T	12" (300 mm)	35.69" (907 mm)	---
MC4500REPE12B		---	1.55" (39 mm)
MC4500REPE15T	15" (375 mm)	32.72" (831 mm)	---
MC4500REPE15B		---	1.70" (43 mm)
MC4500REPE18TC	18" (450 mm)	29.36" (746 mm)	---
MC4500REPE18TW			
MC4500REPE18BC		---	1.97" (50 mm)
MC4500REPE18BW			
MC4500REPE24TC	24" (600 mm)	23.05" (585 mm)	---
MC4500REPE24TW			
MC4500REPE24BC		---	2.26" (57 mm)
MC4500REPE24BW			
MC4500REPE30BC	30" (750 mm)	---	2.95" (75 mm)
MC4500REPE36BC	36" (900 mm)	---	3.25" (83 mm)
MC4500REPE42BC	42" (1050 mm)	---	3.55" (90 mm)

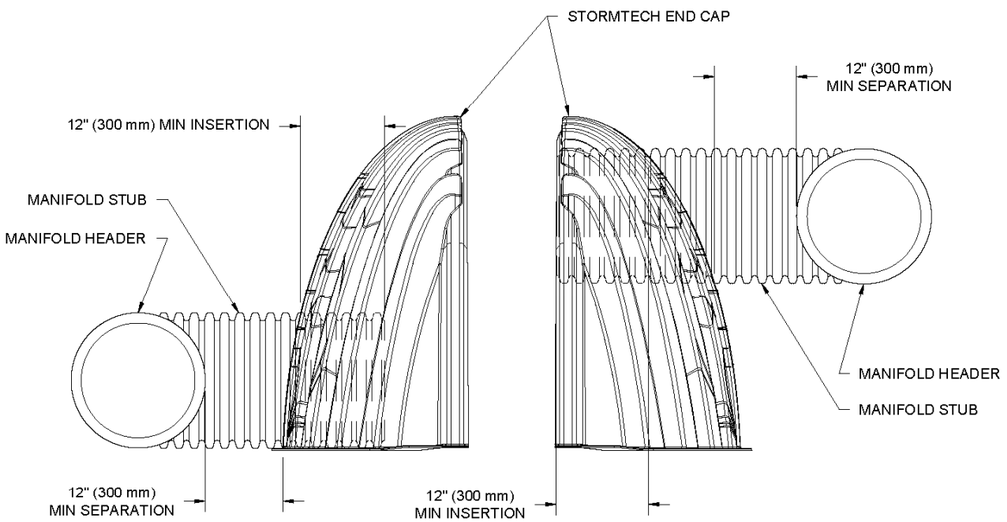
NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-4500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

MC-SERIES END CAP INSERTION DETAIL

NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

VTTM 082797 - 11312 ORCHARD ST_1B COPY
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Appendix D
BMP Maintenance

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Isolator® Row O&M Manual

StormTech® Chamber System for Stormwater Management

1.0 The Isolator® Row

1.1 INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a patented technique to inexpensively enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.



Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.

1.2 THE ISOLATOR ROW

The Isolator Row is a row of StormTech chambers, either SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-4500 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC-310-3 and SC-740 models) allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

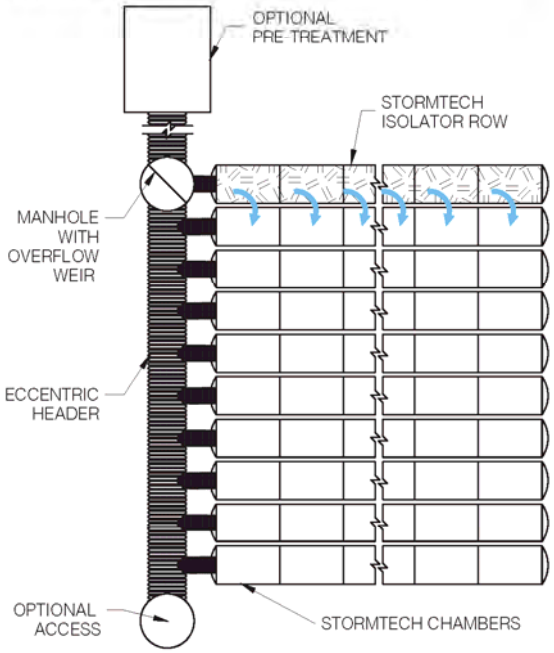
Two different fabrics are used for the Isolator Row. A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The tough geotextile provides a media for storm water filtration and provides a durable surface for maintenance operations. It is also designed to prevent scour of the underlying stone and remain intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber. The non-woven fabric is not required over the DC-780, MC-3500 or MC-4500 models as these chambers do not have perforated side walls.

The Isolator Row is typically designed to capture the "first flush" and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole not only provides access to the Isolator Row but typically includes a high flow weir such that storm water flowrates or volumes that exceed the capacity of the Isolator Row overtop the over flow weir and discharge through a manifold to the other chambers.

The Isolator Row may also be part of a treatment train. By treating storm water prior to entry into the chamber system, the service life can be extended and pollutants such as hydrocarbons can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins, oil-water separators or can be innovative storm water treatment devices. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.

StormTech Isolator Row with Overflow Spillway
(not to scale)



2.0 Isolator Row Inspection/Maintenance

2.1 INSPECTION

The frequency of Inspection and Maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

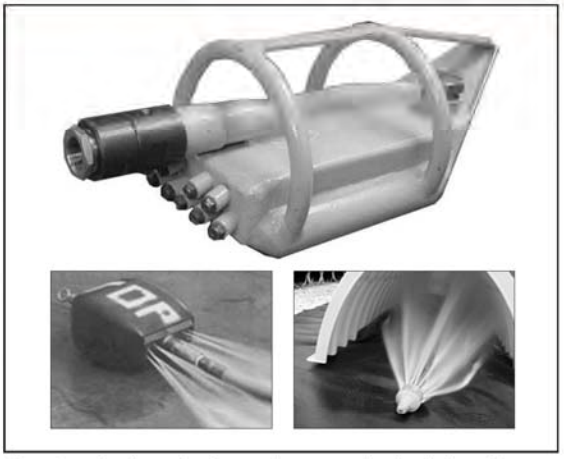
At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

2.2 MAINTENANCE

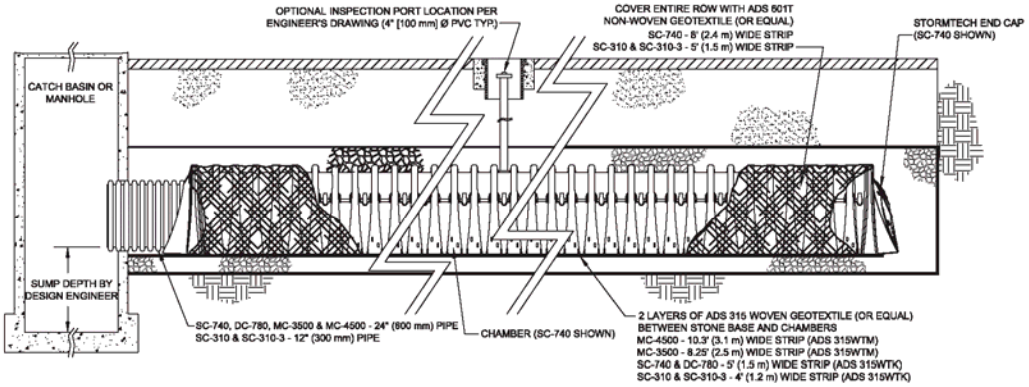
The Isolator Row was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.



Examples of culvert cleaning nozzles appropriate for Isolator Row maintenance. (These are not StormTech products.)

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**

StormTech Isolator Row (not to scale)

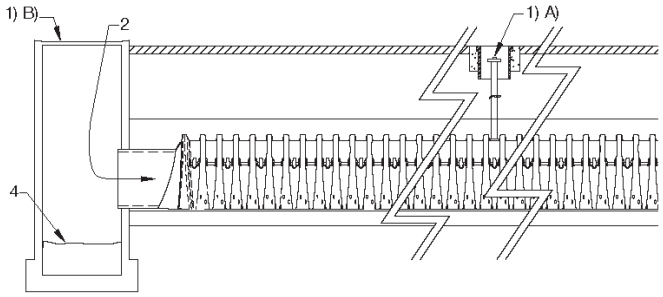


NOTE: NON-WOVEN FABRIC IS ONLY REQUIRED OVER THE INLET PIPE CONNECTION INTO THE END CAP FOR DC-780, MC-3500 AND MC-4500 CHAMBER MODELS AND IS NOT REQUIRED OVER THE ENTIRE ISOLATOR ROW.

3.0 Isolator Row Step By Step Maintenance Procedures

Step 1) Inspect Isolator Row for sediment
A) Inspection ports (if present)
i. Remove lid from floor box frame
ii. Remove cap from inspection riser
iii. Using a flashlight and stadia rod, measure depth of sediment and record results on maintenance log.
iv. If sediment is at, or above, 3 inch depth proceed to Step 2. If not proceed to step 3.
B) All Isolator Rows
i. Remove cover from manhole at upstream end of Isolator Row
ii. Using a flashlight, inspect down Isolator Row through outlet pipe
1. Mirrors on poles or cameras may be used to avoid a confined space entry
2. Follow OSHA regulations for confined space entry if entering manhole
iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches) proceed to Step 2. If not proceed to Step 3.

StormTech Isolator Row (not to scale)



Step 2) Clean out Isolator Row using the JetVac process
A) A fixed culvert cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
B) Apply multiple passes of JetVac until backflush water is clean
C) Vacuum manhole sump as required

Step 3) Replace all caps, lids and covers, record observations and actions

Step 4) Inspect & clean catch basins and manholes upstream of the StormTech system

Sample Maintenance Log

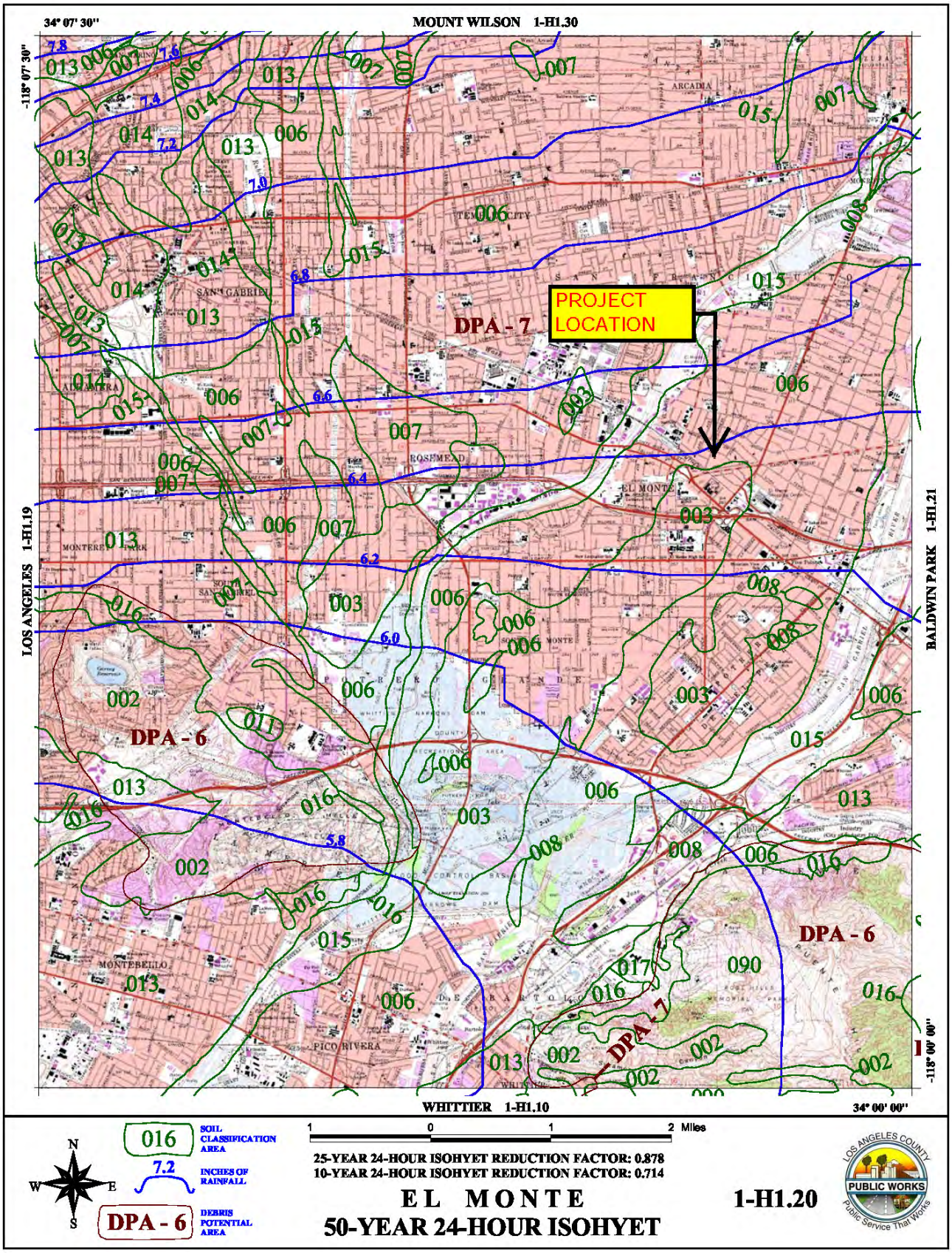
Date	Stadia Rod Readings		Sediment Depth (1) - (2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/01	6.3 ft.	none		New installation. Fixed point is CI frame at grade	djm
9/24/01		6.2	0.1 ft.	Some grit felt	sm
6/20/03		5.8	0.5 ft.	Mucky feel, debris visible in manhole and in isolator row, maintenance due	rv
7/7/03	6.3 ft.		0	System jetted and vacuumed	djm

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Stormtech® and the Isolator® Row are registered trademarks of StormTech, Inc.
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Appendix E
Referenced Material


34° 07' 30"
MOUNT WILSON 1-H1.30
-118° 07' 30"
LOS ANGELES 1-H1.19
BALDWIN PARK 1-H1.21
-118° 00' 00"
WHITTIER 1-H1.10
34° 00' 00"
PROJECT LOCATION
DPA - 7
DPA - 6
DPA - 7
DPA - 6
ARCADIA
SAN GABRIEL
ROSEMEAD
EL MONTE
MONTEBELLO
PICO RIVERA
016
SOIL CLASSIFICATION AREA
7.2
INCHES OF RAINFALL
DPA - 6
DEBRIS POTENTIAL AREA
N
W
E
S
1 0 1 2 Miles
25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878
10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714
EL MONTE
50-YEAR 24-HOUR ISOHYET
1-H1.20
LOS ANGELES COUNTY
PUBLIC WORKS
Public Service That Works

KAUFMAN STREET

CYPRESS AVENUE

EXISTING R/W

L=876'

(293.37)

EG

IRIS LANE

P/L

EXISTING CITY
42" RCP

EXISTING LACFCD
72" RCP

EXISTING CITY
36" CMP

EXISTING CITY
CATCH BASIN

EXISTING PERIMETER
BLOCK WALL

P/L

EXISTING PERIMETER
BLOCK WALL

ORCHARD STREET

(287.74)

EG

1 A=2.9 Ac
Q_{50} =7.16 cfs
Q_{25} =6.00 cfs

L=876'

7.00'
DEDICATION

PROPOSED R/W

50'

30'

15'

EXISTING
LACFCD
72" RCP

EXISTING R/W

IRIS LANE

L=589'

A=2.4 Ac
Q_{50} =6.23 cfs
Q_{25} =5.19 cfs
2

EXISTING
LACFCD
CATCH BASIN

EXISTING
LACFCD
27" RCP

EXISTING
LACFCD
72" RCP

P/L

EXISTING PERIMETER
BLOCK WALL

(292.96)

EG

L=589'

PROPOSED R/W

EXISTING R/W

ORCHARD STREET

10.00'
DEDICATION

PINE STREET

LEGEND:

- STUDY AREA BOUNDARY
- EXISTING SUBAREA BOUNDARY
- PROJECT BOUNDARY
- STREET RIGHT OF WAY
- STREET CENTERLINE
- EXISTING FLOW PATH
- EXISTING PUBLIC UNDERGROUND STORM DRAIN PIPE
- EXISTING PERIMETER WALL
- (290) EXISTING CONTOURS
- EXISTING IMPERVIOUS AREA
- L=605' FLOW LENGTH
- POINT OF CONCENTRATION
- PROPOSED SURFACE FLOW DIRECTION
- PROPOSED PIPE FLOW DIRECTION
- (1) SUBAREA CONCENTRATION POINT

GRAPHIC SCALE 1" = 30'

0 30 60 90 120

FORMA ENGINEERING INC.
400 San Fernando Mission Boulevard, Suite 200
San Fernando, California 91340
Phone: (818) 832-1710 · Fax: (818) 832-1740

Drawing Title:

Figure 2
VTTM 082797
PRE DEVELOPED CONDITION HYDROLOGY MAP

Work Order: 19023
Date: 9/05/2019
Scale: 1" = 30'
Designed: JT
Drawn: JT
Checked: AB
Sheet 1 of 1 Sheets

Prepared for:
KB HOME
25152 SPRINGFIELD CT, STE 180
VALENCIA, CA 91355
(661) 219-6843

This figure is a supplement to this report. It is not, nor is it intended to be, self-explanatory. Any data appearing on this map are taken from the text of this report. In the event of disagreement, the report text should be taken as correct.

Drawing Name: L:\19023\152\Hydrology\02-19023.dwg
Last Opened: Sep 05, 2019 - 8:14am by Joel

KAUFMAN STREET

CYPRESS AVENUE

EXISTING R/W

IRIS LANE

P/L

"A" LANE

"B" LANE

"C" LANE

"D" LANE

"E" LANE

"F" LANE

"G" LANE

"H" LANE

"J" LANE

ORCHARD STREET

PINE STREET

EXISTING CITY 42" RCP

EXISTING LACFCD 72" RCP

EXISTING CITY 36" CMP

EXISTING CITY CATCH BASIN

PROPOSED PERIMETER BLOCK WALL

EXISTING PERIMETER BLOCK WALL

INFILTRATION TRENCH BMP:
ADS STORMTECH SYSTEM:
SURAREA 1b:
$SWQD_V$=3,159 FT^3
V_{PROV}=4,529 FT^3

1B

1A

1C

L=420'

S=0.50%

24" RCP

288.00 FL
295.50 RIM

A=1.3 Ac
Q_{25} =3.53 cfs
Q_{PM} =0.25 cfs
(1b)

294.63 FL
298.15 RIM

A=3.9 Ac
Q_{25} =7.85 cfs
Q_{PM} =0.58 cfs
(1a)

L=864'

L=1026'

L=868'

EXISTING LACFCD 72" RCP

PROPOSED CATCH BASIN W/ MONOLITHIC CONNECTION.

PROPOSED 18" RCP CONNECTOR PIPE

PIPE CONNECTION TO EXISTING 72" RCP

288.09 FL
295.59 RIM

A=5.2 Ac
Q_{50} =11.51 cfs
Q_{25} =9.62 cfs
(1)

PROPOSED PARKWAY DRAIN OVERFLOW, S=72"

INFILTRATION TRENCH BMP:
ADS STORMTECH SYSTEM:
SURAREA 1a:
$SWQD_V$=9,551 FT^3
V_{PROV}=9,555 FT^3

EXISTING LACFCD 72" RCP

EXISTING LACFCD CATCH BASIN

EXISTING LACFCD 27" RCP

294.55 FL

A=0.05 Ac
Q_{50} =0.17 cfs
Q_{25} =0.15 cfs
(DEDICATION – N.A.P.)
(2)

10.00' DEDICATION

LEGEND:

- STUDY AREA BOUNDARY
- SUBAREA BOUNDARY
- PROJECT BOUNDARY
- STREET RIGHT OF WAY
- STREET CENTERLINE
- BUILDING UPPER FLOOR LIMITS
- PROPOSED FLOW PATH
- EXISTING PUBLIC UNDERGROUND STORM DRAIN PIPE
- PROPOSED PRIVATE UNDERGROUND STORM DRAIN PIPE
- EXISTING PERIMETER WALL
- PROPOSED PERIMETER WALL
- EXISTING CONTOURS
- PROPOSED LANDSCAPE
- L=605' FLOW LENGTH
- POINT OF CONCENTRATION
- PROPOSED SURFACE FLOW DIRECTION
- PROPOSED PIPE FLOW DIRECTION
- EXISTING SURFACE FLOW DIRECTION
- EXISTING PIPE FLOW DIRECTION
- (1a) SUBAREA CONCENTRATION POINT

GRAPHIC SCALE 1"= 30'
0 30 60 90 120

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Drawing Title: *Figure 3*
VTTM 082797
DEVELOPED CONDITION HYDROLOGY MAP

Work Order: 19023
Date: 9/04/2019
Scale: 1"= 30'
Designed: JT
Drawn: JT
Checked: AB
Sheet 1 of 1 Sheets

Prepared for:
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25152 SPRINGFIELD CT, STE 180
VALENCIA, CA 91355
(661) 219-6843

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Last Opened: Sep 04, 2019 - 5:22pm by Jose

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April 10, 2019 RMA Project Number 19G-0075 -0

KB Home
25152 Springfield Ct., Suite 180
Valencia, CA 91355

Attention: Mr. David Lelie

Subject: Geotechnical Investigation
Orchard and Cypress
3700-3630 Cypress Ave
El Monte, CA

Dear Mr. Lelie:

In accordance with your request, a geotechnical investigation has been completed for the proposed development at the above referenced property. The results of the investigation are presented in the accompanying report, which includes a description of site conditions, results of our field exploration and testing, laboratory testing, conclusions, and recommendations. This report has been prepared for specific application to this project, in accordance with generally accepted geotechnical engineering practice.

We appreciate this opportunity to be of service to you. If you have any questions regarding this report, please do not hesitate to contact us at your convenience.

Respectfully submitted,

RMA GeoScience



Haiyan Liu, PE
Project Engineer
C81463



Martha P. Sgriccia
Project Geologist
CEG 2494

Distribution: (1) Addressee

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GEOTECHNICAL INVESTIGATION
ORCHARD AND CYPRESS
3700-3630 CYPRESS AVE
EL MONTE, CALIFORNIA

For

KB Home
25152 Springfield Ct., Suite 180
Valencia, CA 91355

April 10, 2019

Project No. 19G-0075-0

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FIGURES

Figure 1	Site Vicinity Map
Figure 2	Regional Geology Map
Figure 3	Boring Location Map

APPENDICES

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1.00 INTRODUCTION

1.01 Purpose

The purpose of the investigation was to summarize geotechnical and geologic conditions at the site and to assess their potential impact on the proposed development.

1.02 Scope of the Investigation

The general scope of this geotechnical investigation included the following:

- Review of published and unpublished geologic, seismic, groundwater, and geotechnical literature
- Examination of aerial photographs and topographic maps
- Review of State of California Alquist-Priolo Earthquake Fault Zone and Seismic Hazard maps
- Contacting of Underground Service Alert (USA) to locate onsite utility lines
- Logging, sampling, and backfilling of three (3) hollow stem auger boring (8 inches diameter) to maximum depths of 50 feet
- Laboratory testing of representative soil samples
- Geotechnical evaluation of the compiled data
- provide a preliminary or narrow range estimate of the expected infiltration rate
- Preparation of this report presenting our findings, conclusions, and recommendations

Our scope of work did not include a preliminary site assessment for the potential of hazardous materials onsite.

1.03 Site Location and Description

The KB Home site is located at Cypress Avenue, in El Monte, California within a residential and commercial area. The 5 acre plus property includes Assessor Parcel Numbers 8568-026-002, 8568-026-034, 8568-026-035 and 8568-026-053. The site is bounded on the north and east by residential housing, on the south by Iris Lane and on the west by Cypress Avenue (Site Vicinity Map, Figure 1). The site is essentially level and sits at street grade. Structures on the site consist of six multi-unit, commercial buildings that are currently occupied by various businesses. Paved parking areas surround much of the buildings. There are utility poles in the paved areas between the buildings and is presumed to be the easements as shown in the Title Report provided for our review.

The site coordinates are 34.0742 North and -118.0294 West. .

1.04 Site History

Based on review of aerial photographs and other information readily available online the site appears to have been a mix of vacant land and commercial structures from as far back as 1927 up until the mid 1960s when

the first of the six existing commercial buildings is visible at the central portion of the site. The site appears in its current configuration in photographs from the early 1970s.

1.05 Planned Development

Based on the exhibit provided by Forma Engineering Inc., the planned improvements include 22 condominium buildings totaling 110 units with associated driveways and parking and common areas. A stormwater infiltration system is planned for the southeast end of the site.

1.06 Investigation Methods

Our investigation consisted of office research, field exploration, laboratory testing, review and analysis of the compiled data, and preparation of this report. It has been performed in a manner consistent with generally accepted engineering and geologic principles and practices, and has incorporated applicable requirements of California Buildings Code. Definitions of technical terms and symbols used in this report include those of the ASTM International, the California Building Code, and commonly used geologic nomenclature.

Technical supporting data are presented in the attached appendices. Appendix A presents a description of the methods and equipment used in performing the field exploration and logs of our subsurface exploration. Appendix B presents a description of our laboratory testing and the test results. General Earthwork and Grading Specifications are presented in Appendix C. Appendix D presents our engineering analysis. References are presented in Appendix E.

2.00 FINDINGS

2.01 Geologic Setting

The site lies at the southeastern end of the San Gabriel Valley the southern boundary of which is marked by the Puente and Montebello Hills. The valley is an east-west trending structural basin that has accumulated a thick sequence of Holocene- to Pleistocene-age alluvial sediments. The site is situated on a broad alluvial fan emanating from the San Gabriel Mountains to the north. The fan in the area of the site has been dissected by the ancestral San Gabriel Wash to the east and the Rio Hondo Wash at the west.

The earth materials that underlie the site consist of interbedded silt, clay and sand and gravel. Asphalt paving covers most of the site. A full description of the earth materials encountered within each borehole is included on the boring logs, Appendix A.

2.02 Earth Materials

<u>Asphalt and Base</u>

Asphalt and base conditions varied widely across all three borings. Asphalt paving of up to 5.5 inches thick overlying up to 6 inches thick base where encountered. In boring two, two generations of asphalt were

discovered.

Artificial Fill (af)

Artificial fill is at a maximum of 3 feet thick as observed in the boring excavations and is composed of medium brown silty clay to clayey silt with fine sand in a slightly moist to moist, low to medium stiff condition.

Alluvium Deposits (Q_{al})

Quaternary aged alluvial deposits are underlying artificial fill material. This unit consists of yellow-brown to grey, greenish brown, interbedded silty sand, sand, and clayey sand. The sand was micaceous and ranged from course to fine. The sandy units were in a medium dense to dense condition. The soils were slightly moist with moist to wet conditions occurring in the sand layers at the contact with the finer grained materials.. Layers of course to fine gravels were encountered below 25 feet.

2.03 Expansive Soils

Based on our preliminary observations and laboratory data, the soils at shallow depths are expected to have an expansion index in the low range. Additional expansion index and plasticity index testing will be required at the completion of rough grading to verify the properties of the near surface soils.

2.04 Surface and Groundwater Conditions

Groundwater was not encountered in the boring excavated to a maximum depth of 50 feet. Surface water on the site is limited to precipitation falling directly around the buildings on the site. Depth to groundwater in monitoring wells located approximately 0.24 miles to the southeast of the site as measured in 2003 ranged from 88.9 to 91 feet. There was no surface water encountered at the time of our investigation. Depth to historic high groundwater is approximately 10 feet below existing grade according to the Seismic Hazard Zone Report for the El Monte Quadrangle (CDMG, 1998).

2.05 Faults

The proposed site is not located within an Alquist-Priolo Earthquake Fault Zone, and there are no known active faults on or immediately adjacent to the property. However, there are faults in close enough proximity to the site to cause moderate to intense ground shaking during the lifetime of the proposed development. Additionally, the site has experienced earthquake-induced ground shaking in the past and can be expected to experience further shaking in the future. The closest zoned fault is the East Montebello fault zone, located approximately 3.75 miles to the southwest of the subject site.

2.06 Landslides

According to the California Geological Survey Seismic Hazard Zones Map of the El Monte Quadrangle (2017) the site does not lie in a landslide hazard zone. Since the site is relatively flat earthquake-induced landsliding does not appear to be a hazard to proposed development.

2.07 Liquefaction

According to the State of California Seismic Hazard Zones Map of the El Monte Quadrangle, the site lies within a "Zone of Required Investigation for Liquefaction". Therefore, a liquefaction screening evaluation has been performed in accordance with California Geological Survey Special Publication SP-117A (2008), "Guidelines for Evaluating and Mitigating Seismic Hazards in California". The findings of our liquefaction screening evaluation are presented in section 3.04 of this report.

2.08 Historic Seismicity

The region of the subject site has experienced shaking from several earthquakes recorded back to 1812. The nearest large historic earthquake is the Raymond fault that occurred in 1855, the epicenter of which is 4.4 miles northwest from the site. Historic earthquakes with magnitudes of greater than or equal to 6.0 and have been epicentered within approximately 50 miles of the site, are summarized in the table below.

Large Historic Earthquakes

Event	LAT. NORTH	LONG. WEST	DATE	Quake Mag.	APPROX. DISTANCE mi
Raymond	34.100	118.100	7/11/1855	6.3	4.40
	34.3	117.6	07/30/1894	6	29.0
Wrightwood	34.3	117.65	12/08/1812	7	29.8
Northridge	34.2130	118.5370	01/17/1994	6.7	30.6
	34.0	117.5	12/16/1858	7	30.7
	34.4110	118.4010	02/09/1971	6.4	31.5
Long Beach	33.6170	117.967	3/11/1933	6.3	31.8
	34.3	117.50	07/22/1899	6.50	34.0
	34.3	118.6	04/04/1893	6	36.2
	33.7	117.4	05/15/1910	6	44.3
	34.0	117.25	07/23/1923	6.25	44.9
	33.9	117.2	12/19/1880	6	48.9

3.00 CONCLUSIONS AND RECOMMENDATIONS

3.01 General Conclusion

Based on the data collected thus far the project appears feasible from a geotechnical standpoint. Our preliminary recommendations provided below are based on the data collected thus far and our understanding of the project and our general experience in engineering geology and geotechnical engineering.

3.02 Seismic Design Parameters

Seismic design parameters have been developed in accordance with the 2016 California Building Code (CBC)

using the online the online ATC Calculator (2010 ASCE 7-10 Standard) and a site location based on latitude and longitude. The calculator generates probabilistic and deterministic maximum considered earthquake spectral parameters represented by a 5-percent damped acceleration response spectrum having a 2-percent probability of exceedance in 50 years. The deterministic response accelerations are calculated as 150 percent of the largest median 5-percent damped spectral response acceleration computed on active faults within a region, where the deterministic values govern. The calculator does not, however, produce separate probabilistic and deterministic results. The parameters generated for the subject site are presented in the following table:

2016 California Building Code (CBC) Seismic Parameters

Parameter	Value
Site Location	Latitude = 34.0742 degrees Longitude = -118.0294 degrees
Site Class	Site Class = D
Mapped Spectral Accelerations (Site Class B)	S_s (0.2- second period) = 2.375 S_1 (1-second period) = 0.824g
Site Coefficients (Site Class D)	F_a = 1.0 F_v = 1.5
Maximum Considered Earthquake Spectral Accelerations (Site Class D)	S_{MS} (0.2- second period) = 2.375g S_{M1} (1-second period) = 1.236g
Design Earthquake Spectral Accelerations (Site Class D)	S_{DS} (0.2- second period) = 1.583g S_{D1} (1-second period) = 0.824g

For Risk Categories II, the Seismic Design Category is E (CBC Table 1604.5 and Section 1613.3.5). Consequently, as required for Seismic Design Categories C through F by CBC Section 1803.5.11, the following geologic and seismic hazards have been evaluated: slope instability, liquefaction, total and differential settlement and surface displacement due to faulting or seismically induced flooding have been evaluated. Applicable portions of CBC Section 1803.5.12 have been included in evaluation of the above listed geologic and seismic hazards.

Peak earthquake ground acceleration adjusted for site class effects (PGAM) has been determine in accordance with ASCE 7-10 Section 11.8.3 as follows: $PGA_M = F_{PGA} \times PGA = 1.000 \times 0.855g = 0.855g$.

3.03 Liquefaction and Secondary Earthquake Hazards

Potential secondary seismic hazards that can affect land development projects include liquefaction, tsunamis, seiches, seismically induced settlement, seismically induced flooding and seismically induced landsliding.

Liquefaction

Liquefaction hazard potential for the site is discussed in Section 2.07 and Section 3.04 of this report.

Tsunamis and Seiches

Tsunamis are sea waves that are generated in response to large-magnitude earthquakes. When these waves reach shorelines, they sometimes produce coastal flooding. Seiches are the oscillation of large bodies of standing water, such as lakes, that can occur in response to ground shaking. Tsunamis and seiches do not pose hazards due to the inland location of the site and lack of nearby bodies of standing water.

Seismically Induced Settlement

Seismically induced settlement occurs most frequently in areas underlain by loose, granular sediments. Damage as a result of seismically induced settlement is most dramatic when differential settlement occurs in areas with large variations in the thickness of underlying sediments. Settlement caused by ground shaking is often non-uniformly distributed, which can result in differential settlement.

A seismic settlement analysis was performed using LiquefyPro Version 5 (2015 Edition) for this project. A summary of the input data and the results of the seismic settlement analysis are provided in Appendix D.

Seismically Induced Flooding

According to Federal Emergency Management Agency (Flood Insurance Rate Map #06037C1675F, Effective date 9/26/2008), the site is located in an area of Flood Zone X, which is an area where the likelihood of flood hazards is considered minimal. In addition there are no water reservoirs in the vicinity of the site. Based on the aforementioned the potential for seismic induced flooding is unlikely.

Seismically Induced Landsliding

According to the California Geological Survey Seismic Hazard Zones Map of the El Monte Quadrangle (2017) the site does not lie in a landslide hazard zone. Since the site is relatively flat earthquake-induced landsliding does not appear to be a hazard to proposed development.

3.04 Liquefaction Screening Evaluation Results

Liquefaction describes a phenomenon where cyclic stresses, which are produced by earthquake-induced ground motions, create excess pore pressures in cohesionless soils. As a result, the soils may acquire a high degree of mobility, which can lead to lateral spreading, consolidation and settlement of loose sediments, ground oscillation, flow failure, loss of bearing strength, ground fissuring, sand boils, and other damaging deformations. This phenomenon occurs only below the water table, but after liquefaction has developed, it can propagate upward into overlying, non-saturated soil as excess pore water escapes. Descriptions of each of the phenomena associated with liquefaction are described below:

Research has shown that saturated, loose sands with a silt content less than about 25 percent are most susceptible to liquefaction, whereas other soil types are generally considered to have a low susceptibility. According to the California Geological Survey (CGS) Special Publication SP-117A (2008), "Guidelines for Evaluating and Mitigating Seismic Hazards in California," any materials with a PI > 12 and moisture content < 85%

of the liquid limit were considered not subject to liquefaction. Liquefaction susceptibility is related to numerous factors, and the following conditions must exist for liquefaction to occur:

- Sediments must be relatively young in age and must not have developed large amounts of cementation
- Sediments must consist mainly of cohesionless sands and silts
- The sediment must not have a high relative density
- Free groundwater must exist in the sediment; and
- The site must be exposed to seismic events of a magnitude large enough to induce straining of soil particles

Static groundwater was not encountered in either borings drilled to a maximum depth of 50 feet. However, according to the California Division of Mines and Geology Seismic Hazard Zone Report for the El Monte Quadrangle (CDMG, 1998), the historical high groundwater table is approximately 10 feet below grade. Therefore, RMA GeoScience considered the potential for groundwater to be at this depth below existing grade in the liquefaction screening evaluation.

For the PGA corresponding to two-thirds of the PGA_M and predominant earthquake magnitude corresponding to a 10% probability of exceedance in 50 years, potential seismic-induced settlements were determined when the safety factor was less than 1.1. Calculations of liquefaction potential, presented in Appendix D, indicate that there are discrete layers of sandy alluvial soils that will be susceptible to liquefaction during a design-level earthquake. Specifically, based on the Borings B-1 and B-2, these layers are present between depths of about 11 and 50 feet below the existing ground surface. The seismic settlement from Boring B-1 and B-2 are 0.53 inches and 1.02 inches, respectively.

3.05 Total and Differential Settlement

The above seismically induced settlements should be combined with the anticipated total static settlement in order to obtain an estimate of the amount of differential settlement that may affect the site. The maximum total static settlement is not expected to exceed ½ inch under the recommended bearing pressure.

We assume the seismic differential settlement is half of the total seismic settlement and static differential settlement is half of the total static settlement. Thus, total settlement (static and seismic) is expected to be approximately 1½ inches with differential settlement (static and seismic) of ¾ inches in a 40 feet span.

3.06 Removals and Overexcavation

Upon demolition and removal of all existing site improvements, all vegetation, organic rich soil (soils containing more that 2 percent organics by weight), trash and debris should be cleared from the grading area and removed from the site. After the removal of deleterious materials, stripping of organic-rich soils, and removal of tree roots, the following removals and over-excavation must be done within the area of the limits of grading:

- All artificial fill soil should be removed within the limits of grading. The fill soil may be used for engineered fill provided it is free of trash and organic material. Within the building areas, removals are recommended to a minimum of five feet below existing grade or three feet below the bottom of planned footings, whichever is greater.

- Within the area of planned streets and all other areas where grading is planned, all artificial fill must be completely removed and the subgrade must be over-excavated at least 12 inches below the stripped surface or the finished subgrade surface, whichever is lower.

Following the over-excavation indicated above, a designated representative for the Project Geotechnical Engineer must review the exposed ground surface and determine if any additional over-excavation is required. The over-excavated ground surface in all areas determined to be satisfactory for the support of fills must be scarified to a minimum depth of 6 inches. Scarification should continue until the soils are broken down and free from lumps or clods and until the scarified zone is uniform. The moisture content of the scarified zone shall be adjusted to within 2% of the optimum moisture content. The scarified zone must then be uniformly compacted to at least 90% relative compaction

The above recommendations are based on the assumption that soils encountered during field exploration are representative of soils throughout the site. However, there can be unforeseen and unanticipated variations in soils between points of subsurface exploration. Hence, overexcavation depths must be verified, and adjusted if necessary, at the time of grading.

3.07 General Earthwork and Grading

All grading should be performed in accordance with the General Earthwork and Grading Specifications outlined in Appendix C, unless specifically revised or amended below. Recommendations contained in Appendix C are general specifications for typical grading projects and may not be entirely applicable to this project.

It is also recommended that all earthwork and grading be performed in accordance with the requirements of the lead agency.

3.08 Earthwork Shrinkage and Subsidence

The site is not located within a zone of land subsidence according to the United States Geological Survey California Water Science Center website. It is our opinion that the potential for land subsidence due to over pumping of groundwater or oil extraction is low.

Shrinkage is the decrease in volume of soil upon removal and recompaction expressed as a percentage of the original in-place volume. Subsidence occurs as natural ground is densified to receive fill. These factors account for changes in earth volumes that will occur during grading. Our estimates are as follows:

- Shrinkage factor = 5% to 15% for soil removed and replaced as compacted fill.
- Subsidence factor = 0.1 foot.

The degree to which fill soils are compacted and variations in the in-situ density of existing soils will influence earth volume changes. Consequently, some adjustments in grades near the completion of grading could be required to balance the earthwork.

3.09 Foundation

Isolated spread footings and/or continuous wall footings are recommended to support the proposed structures. If the recommendations in the section on grading are followed and footings are established in compacted fill materials, footings may be designed using the following allowable soil bearing values:

- Continuous Footings:

  For one- and two-stories residential structures, footings having a minimum width of 15 inches and a minimum depth of 18 inches below the lowest adjacent grade have allowable bearing capacity of 2,000 pounds per square foot (psf). This value may be increased by 10% for each additional foot of width and/or depth to a maximum value of 3,000 psf. For three-story residential structures, footings should have a minimum width of 18 inches and a minimum depth of 24 inches below the lowest adjacent grade.

- Isolated Spread Footings:

  Footings having a minimum width of 24 inches and a minimum depth of 18 inches below the lowest adjacent grade have allowable bearing capacity of 2,000 psf. This value may be increased by 10% for each additional foot of width or depth to a maximum value of 3,000 psf.

- Retaining Wall Footings:

  Footings for retaining walls should be founded a minimum depth of 12 inches and have a minimum width of 12 inches. Footings may be designed using the allowable bearing capacity and lateral resistance values recommended for building footings. However, when calculating passive resistance, the upper 6 inches of the footings should be ignored in areas where the footings will not be covered with concrete flatwork. Reinforcement should be provided for structural considerations as determined by the design engineer.

The above bearing capacities represent an allowable net increase in soil pressure over existing soil pressure and may be increased by one-third for short-term wind or seismic loads.

Soils at the site have a low expansion potential. In view of the seismic setting, a nominal reinforcement consisting of at least one #4 bar placed within 3 inches of the top of footings and another placed within 3 inches of the bottom of footings is recommended. Reinforcement of wide footings should be determined by the structural engineer who may also require heavier reinforcement.

Due to the preliminary nature of the expansion tests performed for this study, we recommend additional testing be performed near the completion of rough grading to verify the test results and recommended foundation design criteria.

3.10 Slab-On-Grade

Concrete floor slabs on grade with a minimum thickness of 4 inches are recommended for slabs on grade for the proposed structures for normal floor loading conditions. However, if heavy concentrated or moving loads are anticipated, slabs should be designed using a modulus of subgrade reaction (k) of 120 psi/in when soils are prepared in conformance with the grading recommendations contained within the report. Reinforcement of

slabs on grading is not required to mitigate the expansive soils. Reinforcement may be specified by the structural engineer.

Concrete floor slabs on grade should be divided into squares or rectangles using weakened plane joints (contraction joints), each with maximum dimensions not exceeding 15 feet. Contraction joints should be made in accordance with American Concrete Institute (ACI) guidelines. If weakened plane joints are not used, then the slabs shall be reinforced with 6x6-10/10 welded wire fabric placed at mid-height of the slab.

Special care should be taken on floors slabs to be covered with thin-set tile or other inflexible coverings. These areas may be reinforced with 6x6-10/10 welded wire fabric placed at mid-height of the slab, to mitigate drying shrinkage cracks. Alternatively, inflexible flooring may be installed with unbonded fabric or liners to prevent reflection of slab cracks through the flooring.

A moisture vapor retarder/barrier is recommended beneath all slabs-on-grade that will be covered by moisture-sensitive flooring materials such as vinyl, linoleum, wood, carpet, rubber, rubber-backed carpet, tile, impermeable floor coatings, adhesives, or where moisture-sensitive equipment, products, or environments will exist. We recommend that design and construction of the vapor retarder or barrier conform to Section 1805 of the 2016 California Building Code (CBC) and pertinent sections of American Concrete Institute (ACI) guidance documents 302.1R-04, 302.2R-06 and 360R-10.

The moisture vapor retarder/barrier should consist of a minimum 10 mils thick polyethylene with a maximum perm rating of 0.3 in accordance with ASTM E 1745. Seams in the moisture vapor retarder/barrier should be overlapped no less than 6 inches or in accordance with the manufacturer's recommendations. Joints and penetrations should be sealed with the manufacturer's recommended adhesives, pressure-sensitive tape, or both. The contractor must avoid damaging or puncturing the vapor retarder/barrier and repair any punctures with additional polyethylene properly lapped and sealed.

ACI guidelines allow for the placement of moisture vapor retarder/barriers either directly beneath floor slabs or below an intermediate granular soil layer.

Placing the moisture retarder/barrier directly beneath the floor slab will provide improved curing of the slab bottom and will eliminate potential problems caused by water being trapped in a granular fill layer. Concrete slabs poured directly on a vapor retarder/barrier can experience shrinkage cracking and curling due to differential rates of curing through the thickness of the slab. Therefore, for concrete placed directly on the vapor retarded, we recommend a maximum water cement ratio of 0.45 and the use of water-reducing admixtures to increase workability and decrease bleeding.

If granular soil is placed over the vapor retarder/barrier, we recommend that the layer be at least 2 inches thick in accordance with traditional practice in southern California. Granular fill should consist of clean fine graded materials with 10 to 30% passing the No. 100 sieve and free from clay or silt. The granular layer should be uniformly compacted and trimmed to provide the full design thickness of the proposed slab. The granular fill layer should not be left exposed to rain or other sources of water such as wet-grinding, power washing, pipe leaks or other processes, and should be dry at the time of concrete placement. Granular fill layers that become saturated should be removed and replaced prior to concrete placement.

An additional layer of sand may be placed beneath the vapor retarder/barrier at the developer's discretion to minimize the potential of the retarder/barrier being punctured by underlying soils.

3.11 Miscellaneous Concrete Flatwork

Miscellaneous concrete flatwork and walkways may be designed with a minimum thickness of 4 inches. Large slabs should be reinforced with a minimum of 6x6-10/10 welded wire mesh placed at mid-height in the slab. Control joints should be constructed to create squares or rectangles with a maximum spacing of 15 feet.

Walkways may be constructed without reinforcement. Walkways should be separated from foundations with a thick expansion joint filler. Control joints should be constructed into non-reinforced walkways at a maximum of 5 feet spacing.

The subgrade soils beneath all miscellaneous concrete flatwork should be compacted to a minimum of 95 percent relative compaction for a minimum depth of 12 inches. The geotechnical engineer should monitor the compaction of the subgrade soils and perform testing to verify that proper compaction has been obtained.

3.12 Preliminary Infiltration Rate

One boring, boring B-3 was excavated in the area of the proposed infiltration systems at the south end of the site. The boring was excavated to a maximum depth of 15 feet below existing grade. The earth materials encountered in the borings were logged and classified by our Geologist using the field identification procedure of the Unified Soils Classification System (ASTM D2488). Based on data obtained both in the field and in the laboratory a preliminary infiltration rate of 0.8 inches/hour is estimated.

3.13 Footing Excavation and Slab Preparation

All footing excavations should be observed by the geotechnical consultant to verify that they have been excavated into competent soils. The foundation excavations should be observed prior to the placement of forms, reinforcement steel, or concrete. These excavations should be evenly trimmed and level. Prior to concrete placement, any loose or soft soils should be removed. Excavated soils should not be placed on slab or footing areas unless properly compacted.

Prior to the placement of the moisture barrier and sand, the subgrade soils underlying the slab should be observed by the geotechnical consultant to verify that all under-slab utility trenches have been properly backfilled and compacted, that no loose or soft soils are present, and that the slab subgrade has been properly compacted to a minimum of 95 percent relative compaction within the upper 12 inches.

Footings may experience and overall loss in bearing capacity or an increased potential to settle where located in close proximity to existing or future utility trenches. Furthermore, stresses imposed by the footings on the utility lines may cause cracking, collapse and/or a loss of serviceability. To reduce this risk, footings should extend below a 1:1 plane projected upward from the closest bottom of the trench.

Subgrade soils beneath slabs on grade and walkways moist prior to the placement of concrete. The geotechnical consultant should verify that the appropriate moisture content has been achieved a maximum of 24 hours prior to the placement of concrete or moisture barriers.

An additional layer of sand may be placed beneath the vapor retarder/barrier at the developer's discretion to minimize the potential of the retarder/barrier being punctured by underlying soils.

3.11 Miscellaneous Concrete Flatwork

Miscellaneous concrete flatwork and walkways may be designed with a minimum thickness of 4 inches. Large slabs should be reinforced with a minimum of 6x6-10/10 welded wire mesh placed at mid-height in the slab. Control joints should be constructed to create squares or rectangles with a maximum spacing of 15 feet.

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3.12 Preliminary Infiltration Rate

One boring, boring B-3 was excavated in the area of the proposed infiltration systems at the south end of the site. The boring was excavated to a maximum depth of 15 feet below existing grade. The earth materials encountered in the borings were logged and classified by our Geologist using the field identification procedure of the Unified Soils Classification System (ASTM D2488). Based on data obtained both in the field and in the laboratory a preliminary infiltration rate of 2.0 inches/hour is estimated.

3.13 Footing Excavation and Slab Preparation

All footing excavations should be observed by the geotechnical consultant to verify that they have been excavated into competent soils. The foundation excavations should be observed prior to the placement of forms, reinforcement steel, or concrete. These excavations should be evenly trimmed and level. Prior to concrete placement, any loose or soft soils should be removed. Excavated soils should not be placed on slab or footing areas unless properly compacted.

Prior to the placement of the moisture barrier and sand, the subgrade soils underlying the slab should be observed by the geotechnical consultant to verify that all under-slab utility trenches have been properly backfilled and compacted, that no loose or soft soils are present, and that the slab subgrade has been properly compacted to a minimum of 95 percent relative compaction within the upper 12 inches.

Footings may experience and overall loss in bearing capacity or an increased potential to settle where located in close proximity to existing or future utility trenches. Furthermore, stresses imposed by the footings on the utility lines may cause cracking, collapse and/or a loss of serviceability. To reduce this risk, footings should extend below a 1:1 plane projected upward from the closest bottom of the trench.

Subgrade soils beneath slabs on grade and walkways moist prior to the placement of concrete. The geotechnical consultant should verify that the appropriate moisture content has been achieved a maximum of 24 hours prior to the placement of concrete or moisture barriers.

3.15 Cement Type and Corrosion Potential

A soluble sulfate test performed on a shallow sample of soil indicates that concrete at the subject site will have a negligible exposure to water-soluble sulfate in the soil. Our recommendations for concrete exposed to sulfate-containing soils are presented in the following table.

Recommendations for Concrete exposed to Sulfate-containing Soils

Sulfate Exposure	Water Soluble Sulfate (SO_4) in Soil (% by Weight)	Sulfate (SO_4) in Water (ppm)	Cement Type (ASTM C150)	Maximum Water-Cement Ratio (by Weight)	Minimum Compressive Strength (psi)
Negligible	0.00 - 0.10	0-150	--	--	2,500
Moderate	0.10 - 0.20	150-1,500	II	0.50	4,000
Severe	0.20 - 2.00	1,500-10,000	V	0.45	4,500
Very Severe	Over 2.00	Over 10,000	V plus pozzolan or slag	0.45	4,500

Use of alternate combinations of cementitious materials may be permitted if the combinations meet design recommendations contained in American Concrete Institute guideline ACI 318-11.

The soils were also tested for soil reactivity (pH) and electrical resistivity (ohm-cm). The test results indicate that the on-site soils have a soil reactivity of 9.5 and an electrical resistivity of 7,881 ohm-cm. A neutral or non-corrosive soil has a reactivity value ranging from 5.5 to 8.4. Generally, soils that could be considered moderately corrosive to ferrous metals have resistivity values of about 3,000 ohm-cm to 10,000 ohm-cm. Soils with resistivity values less than 3,000 ohm-cm can be considered corrosive and soils with resistivity values less than 1,000 ohm-cm can be considered extremely corrosive.

Based on our analysis, underlying onsite soils are corrosive to ferrous metals. Protection of buried pipes utilizing coatings on all underground pipes; clean backfills and a cathodic protection system can be effective in controlling corrosion. A qualified corrosion engineer may be consulted to further assess the corrosive properties of the soil.

3.16 Utility Trench Backfill

The onsite fill soils will not be suitable for use as pipe bedding for buried utilities. All pipes should be bedded in a sand, gravel or crushed aggregate imported material complying with the requirements of the Standard Specifications for Public Works Construction (Greenbook) Section 306-1.2.1. Crushed rock products that do not contain appreciable fines should not be utilized as pipe bedding and/or backfill. Bedding materials should be densified to at least 90% relative compaction (ASTM D1557). The geotechnical consultant should review and approve of proposed bedding materials prior to use.

The on-site soils are expected to be suitable as trench backfill provided they are screened of organic matter, boulders and cobbles over 6 inches in diameter. Trench backfill should be densified to at least 90% relative

compaction (ASTM D1557). On-site granular soils with a sand equivalent value of 15 or greater may be water densified initially per Greenbook Specifications. Supplemental mechanical compaction methods will be required to attain the required 90% relative compaction.

All utility trench backfill within street right of way, utility easements, under or adjacent to sidewalks, driveways, or building pads should be observed and tested by the geotechnical consultant to verify proper compaction. Trenches excavated adjacent to foundations should not extend within the footing influence zone defined as the area within a line projected at a 1:1 drawn from the bottom edge of the footing. Trenches crossing perpendicular to foundations should be excavated and backfilled prior to the construction of the foundations. The excavations should be backfilled in the presence of the geotechnical engineer and tested to verify adequate compaction beneath the proposed footing.

Cal/OSHA construction safety orders should be observed during all underground work.

3.17 Temporary Excavations

Based on the recommended removal depths as described in Section 3.08, temporary excavations within the limits of grading are expected to be 5 feet. Excavations may be cut vertically to a maximum height of 5 feet. Cuts above 5 feet may be laid back at a gradient of 1:1.

3.18 Drainage

Surface drainage should be directed away from the proposed structures into suitable drainage devices. Neither excess irrigation nor rainwater should be allowed to collect or pond against building foundations or within low-lying or level areas of the lot. Surface waters should be diverted away from the tops of slopes and prevented from draining over the top of slopes and down the slope face.

3.19 Plan Review

Once formal plans are prepared for the subject property, this office should review the plans from a geotechnical viewpoint, comment on changes from the plan used during preparation of this report and revise the recommendations of this report where necessary.

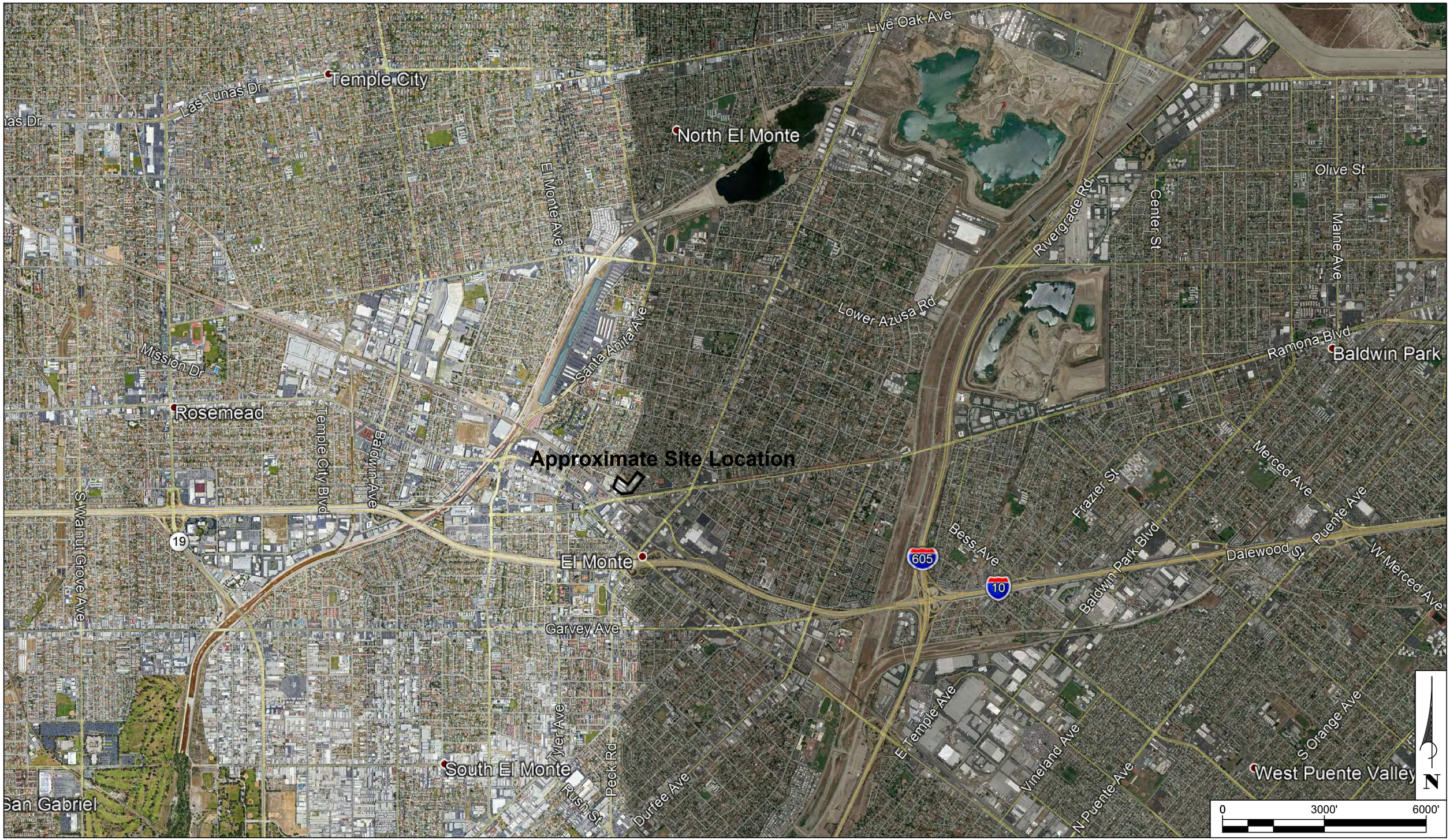
4.00 CLOSURE

This investigation was completed in accordance with generally accepted industry practice to provide recommendations for developing the property from a geotechnical perspective. Information presented in this report is based on research, field investigation, laboratory testing, and engineer judgment obtained from similar projects completed on nearby properties. This assessment is not, and should not be construed as, a warranty or guarantee concerning the geotechnical conditions which may affect the future development of the property. All discovered information has been disclosed and a good faith effort has been made to consult pertinent sources.

This study and report have been prepared on behalf and for the exclusive use of KB Home, and solely for use as a preliminary evaluation of the subject site. This report and its findings shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party in whole or in part, without prior written consent of RMA Geoscience, Inc. and KB Home. However, RMA Geoscience, Inc. acknowledges and agrees that the report may be conveyed to the design professionals for consideration in developing the property.

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FIGURES



Source: Google Earth Images

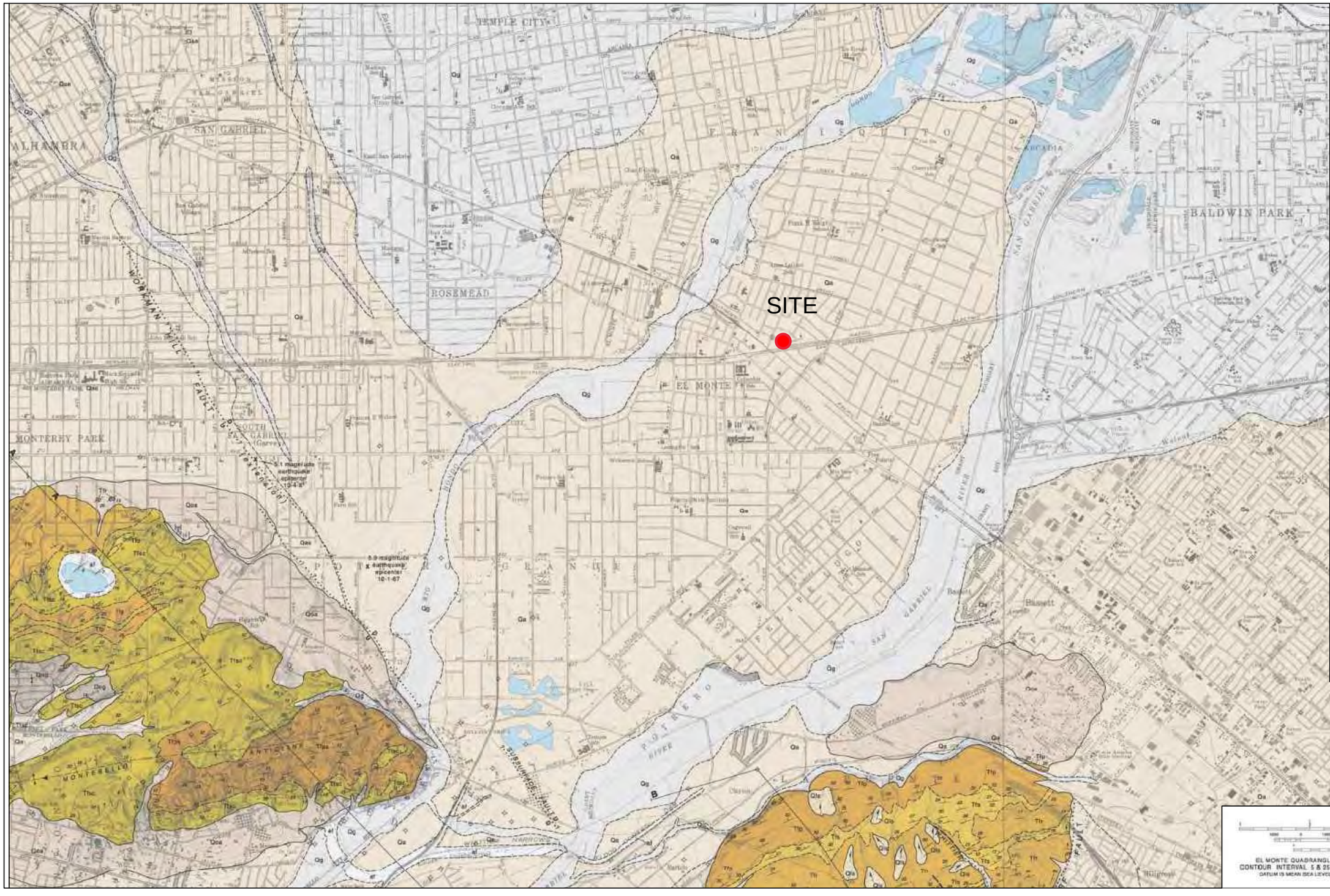
Site Vicinity Map

El Monte, CA

Figure 1

RMA Job No:	19G-0075
Report Date:	4/2018
Prepared By:	MRM

RMA GeoScience



EL MONTE AND BALDWIN PARK MAP (DF

LEGEND

SURFICIAL SEDIMENTS
Undissected alluvial deposits

af Artificial fill, and cut and fill areas.
Qg Gravel and sand of major streams, and alluvial fan debitus from San Gabriel Mountains, grades southward into alluvium (**Qa**) as sizes of clastic decrease.
Qa Alluvial gravel, sand and silt of valleys and floodplains.

LANDSLIDE DEBRIS

Qls Landslide debris

OLDER DISSECTED SURFICIAL SEDIMENTS

Qof Alluvial fan sediments derived from San Gabriel Mountains
Qae Slightly dissected and locally dissected alluvial gravel and sand at base of hill areas; shown as **Qa** on adjacent Los Angeles (Dibblee, 1989) and on Mt. Wilson/Azusa (Dibblee, 1989) quadrangles
Qoa Uplifted remnants of alluvial sand and gravel, north of hill areas
Qog Uplifted remnants of alluvial gravel, south of Montebello Hills

UNCONFORMITY

FERNANDO FORMATION
(Of Dalrymple and Woodford, 1969; Yerkes, 1972); Marine to nonmarine clastic sediments, weakly indurated; early Pliocene to Pleistocene (?) age

Tfnc Nonmarine sandstone and conglomerate: light gray to tan, massive, bedded, conglomerate composed of pebbles and cobbles of mostly granitic debris in friable sandstone matrix, probably nonmarine; may be in part marine, late (?) Pliocene to Pleistocene age; unit is lithologically similar to Saugus Formation of Ventura basin
Ttps "Pico" silty sandstone facies, at southwest end of Montebello Hills, composed of light gray, very fine-grained silty sandstone to siltstone, vaguely bedded, contains gray lenticular calcareous concretions and fossil shell fragments; deposited in shallow regressive sea
Ttp "Pico" claystone: gray micaceous silty claystone or siltstone, with spheroidal fracture; vaguely bedded, includes some silty sandstone; deposited in moderately deep sea; late (?) Pliocene age, probably equivalent to upper member of Fernando Fm. (of Yerkes, 1965 et al., in Puente Hills)
Tfs Sandstone facies of Fernando Formation: light to medium gray, weathered brown, fine to medium-grained, micaceous, bedded, locally pebbly; deposited in moderately deep sea
Tfr "Repetto" claystone member, lithologically similar to **Ttp**, early Pliocene age (Repettian Stage), probably equivalent to lower member of Fernando Fm. (of Yerkes et al., 1965, in Puente Hills)

SYCAMORE CANYON FORMATION
Named by Dalrymple and Woodford, 1969, as uppermost member of Puente Fm., as so mapped by Durham and Yerkes, 1965, and Yerkes, 1972, in Puente Hills; equivalent to "Sespe Shale" in Los Angeles quadrangle (Dibblee, 1989), and to Sespe Fm. in Ventura basin).
Marine clastic sediments: moderately bituminous; late Miocene age

Tsc Grey silty clay shale: micaceous, vaguely bedded to locally thin bedded, nodular, in places includes thin layers of fine-grained sandstone
Tscs Clay shale, light gray; vaguely bedded to locally thin bedded, includes thin layers of fine grained sandstone
Tscg Conglomerate and sandstone gray to rusty brown conglomerate; crudely bedding, composed of cobbles and pebbles of mostly light-colored granitic rocks and others of gray quartz diorite, gneiss, a few of andesitic porphyry and quartzite, in arkosic sandstone matrix; sandstone rusty brown, laminate, coarse to fine-grained; arkosic

MONTEREY FORMATION
(Major part of Puente Fm. of Olmsted, 1966; Yerkes, 1972; Durham and Yerkes, 1965)
Marine biogenic and clastic sediments; moderately lithified; middle Miocene age; Mohnian Stage

Tmy Yorba Shale Member: interlayered thin-bedded gray shaly siltstone, fine-grained sandstone and white weathering semi-siliceous to siliceous shale; includes some thin, hard beds of yellowish-gray to gray dolomite; late Mohnian Stage (Yerkes, 1972)
Tmcg Conglomerate facies of cobbles & pebbles of plutonic rocks in sandstone matrix lenses in unit **Tms**, deposited as submarine debris
Tms Soquel Sandstone Member: mostly sandstone, light gray, weathering to tan, medium to locally coarse-grained, locally partially braided channel, with minor shale; in eastern exposures in San Jose Hills includes silty shale similar to that of unit **Tmy**
Tmlv La Vida Shale Member: thinly bedded shale similar to that of unit **Tmy**, but containing somewhat more semi-siliceous shale; exposed only in San Jose Hills, base not exposed

GEOLOGIC MAP OF THE
EL MONTE & BALDWIN PARK QUADRANGLES
LOS ANGELES COUNTY, CALIFORNIA

BY THOMAS W. DIBBLEE, JR., 1999
EDITED BY HELMUT F. EHRENSPECK, 1999
EDITED BY JOHN A. MINCH, 2009

Dibblee Geology Center Map #DF-69. First Printing, 1999. Second Printing, 2009
PUBLISHED BY AND AVAILABLE FROM THE
SANTA BARBARA MUSEUM OF NATURAL HISTORY
2559 PUESTA DEL SOL ROAD, SANTA BARBARA, CA 93105
HTTP://WWW.SBNATURE.ORG/

TED L. BEAR HONORARY MAP

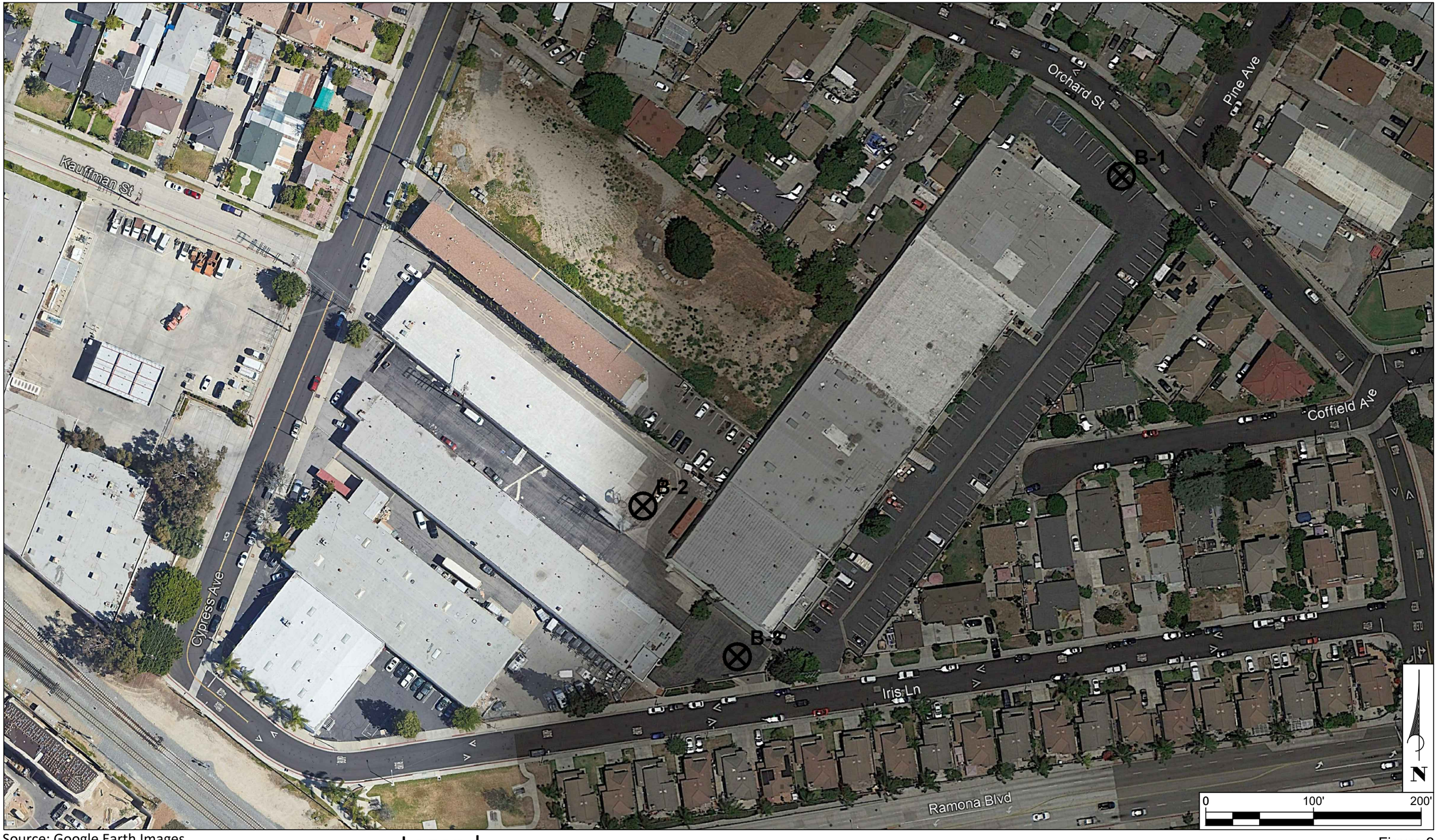
Figure 2

Regional Geology Map

El Monte, CA

Source: Geology Map of theEL Monte and Baldwin Park Quadrangle, Thomas W. Dibblee, Jr. 1999, Dibblee Geology Center Map #DF-69:, 1:24000

RMA Job No:	19G-0075
Report Date:	4/2018
Prepared By:	MRM



Source: Google Earth Images

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Legend

B-2 Approximate Boring Location

Boring Location Map

Cypress Ave and Orchard Street
El Monte, CA

Figure 3

RMA Job No:	19G-0075
Report Date:	4/2019
Prepared By:	MRM

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APPENDIX A

FIELD INVESTIGATION

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APPENDIX A

FIELD INVESTIGATION

A-1.00 FIELD EXPLORATION

A-1.01 Number of Borings

Our subsurface investigation consisted of three (3) hollow stem boring auger to depths of up to 50 feet.

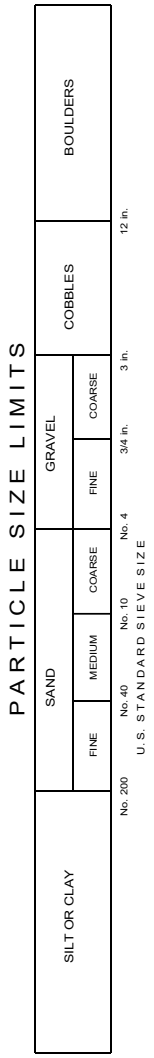
A-1.02 Location of Boring

A Boring Location Map showing the approximate locations of the borings is presented as Figure 3.

A-1.03 Boring Logging

Logs of the boring were prepared by one of our staff and are attached in this appendix. The logs contain factual information and interpretation of subsurface conditions between samples. The strata indicated on these logs represent the approximate boundary between earth units and the transition may be gradual. The logs show subsurface conditions at the dates and locations indicated, and may not be representative of subsurface conditions at other locations and times.

Identification of the soils encountered during the subsurface exploration was made using the field identification procedure of the Unified Soils Classification System (ASTM D2488). A legend indicating the symbols and definitions used in this classification system and a legend defining the terms used in describing the relative compaction, consistency or firmness of the soil are attached in this appendix. Bag samples of the major earth units were obtained for laboratory inspection and testing.



MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size.	CLEAN GRAVELS (Little or no fines)	GW	Well graded gravel, gravel-sand mixtures. little or no fines.
			GP	Poorly graded gravel or gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amt. of fines)	GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size)	CLEAN SANDS (Little or no fines)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)		ML	Inorganic silts and very fine sands, rock flour silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid limit GREATER than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

UNIFIED SOIL CLASSIFICATION SYSTEM

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I. SOIL STRENGTH/DENSITY

BASED ON STANDARD PENETRATION TESTS

Compactness of sand		Consistency of clay	
Penetration Resistance N (blows/Ft)	Compactness	Penetration Resistance N (blows/ft)	Consistency
0-4	Very Loose	<2	Very Soft
4-10	Loose	2-4	Soft
10-30	Medium Dense	4-8	Medium Stiff
30-50	Dense	8-15	Stiff
>50	Very Dense	15-30	Very Stiff
		>30	Hard

N = Number of blows of 140 lb. weight falling 30 in. to drive 2-in OD sampler 1 ft.

BASED ON RELATIVE COMPACTION

Compactness of sand		Consistency of clay	
% Compaction	Compactness	% Compaction	Consistency
<75	Loose	<80	Soft
75-83	Medium Dense	80-85	Medium Stiff
83-90	Dense	85-90	Stiff
>90	Very Dense	>90	Very Stiff

II. SOIL MOISTURE

Moisture of sands		Moisture of clays	
% Moisture	Description	% Moisture	Description
<5%	Dry	<12%	Dry
5-12%	Moist	12-20%	Moist
>12%	Very Moist	>20%	Very Moist, wet

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BORING NUMBER 1

Client: KB Home

Project Name: Copperleaf

Project Number 19G-0075-0

Project Location: Cypress Ave. & Orchard St., El Monte

Date Started: 3/13/2019 Completed: 3/13/2019

Boring Diameter: 8" Elevation: 292 ft

Excavation Metho Hollow Stem Drilling

Ground Water Levels: Not Encountered

Drilling Contractor Choice Drilling

Notes: Driller: Louie/ 140 lbs Auto Hammer with 30" Drop

Logged By: MRM Checked By: HHL

Lat,Long: (34.075003°, -118.027743°)

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	Wet Density (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
0										Surface: 5.5" of Asphalt, No Base **0-3' (Artificial Fill - af):**			
		1-1-2								Medium Brown , Silty fine SAND, asphalt in the tip of the sampler, slightly moist,	63		SM
										3-50' (Quaternary Alluvium - Qal):			
5		5-7-11								Medium Brown , Clayey SILT with fine Sand, moist, micaceous, loose			
		3-4-6								Yellow Brown, medium SAND with Silt, moist, slightly micaceous, Some medium gravels at 8'	8.1		SP-SM
10		7-15-20		32	88.9	117.4				Yellow brown, medium Sand, Silty fine SAND, medium course, micaceous, red water staining, indications of water levels present			
		3-5-7								Medium yellow brown, medium Silty SAND, slightly moist, micaceous, loose	36		SM
15		7-15-20		11	104	115.2				Medium yellow brown, medium Silty SAND,, slightly moist, micaceous, loose, roots			
		2-3-4								Medium yellow brown, medium Silty SAND,, slightly moist, micaceous, loose, rootlets	27		SM
20		9-15-17		4	100.6	104.7				Medium yellow brown medium Silty SAND, slightly moist, micaceous, loose, rootlets			
		9-13-15								Medium yellow brown medium SAND, slightly moist, micaceous, loose, rootlets	6.6		SP-SM
25		15-40-50 for 4		1.9	116	118.2				Whitish yellow medium course GRAVEL with course Sand, Cobbles up to an inch in diameter, slightly moist			
		12-27-25								Medium yellow brown medium SAND, slightly moist, micaceous, loose, rootlets	4.6		SP-SM
30		30-41-44		3.1	121	124.8				Medium yellow brown, medium course SAND with fine Gravels, slightly moist, micaceous, loose, Cobbles under 1" in diameter	4.5		SP-SM
		20-23-26								Medium yellow brown, medium course SAND with fine Gravels, slightly moist, micaceous, loose,			

Material Description

Thin Wall Tube | 2.5" Ring Sample | Bulk Sample | Standard Split Spoon Sample | Static Water Table

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BORING NUMBER 1

Client: KB Home
Project Name: Copperleaf
Project Number 19G-0075-0
Project Location: Cypress Ave. & Orchard St., El Monte
Date Started: 3/13/2019 Completed: 3/13/2019
Boring Diameter: 8" Elevation: 292 ft
Excavation Metho Hollow Stem Drilling
Ground Water Levels: Not Encountered
Drilling Contractor Choice Drilling
Notes: Driller: Louie/ 140 lbs Auto Hammer with 30" Drop
Logged By MRM Checked By: HHL
(34.075003°, -118.027743°)

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	Wet Density (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
35	☒	23-50 for 6"		2.7	106	109				Light yellow brown medium to course SAND with fine Sand and course to medium Gravels, slightly moist, loose			
		23-19-27								Medium yellow brown fine Silty SAND, slightly moist, broken cobble stuck in the tip of sampler	7.3		SP-SM
40	☒	39-50 for 3"		4	104	109				Medium yellow brown fine Silty SAND, slightly moist, broken cobble stuck in the tip of sampler			
		26-28-20								Lense of moist course Gravels at 42.5 that fines with depth to Medium yellow brown Silty SAND, slightly moist	7		SP-SM
45	☒	15-15-38		8.3	119	129	21	21	0	Grey greenish brown Silty SAND, highly micaceous, moist to wet, thinly deposited mica in faux bedding	17		SM
		16-27-29								Dark brown to Medium Yellow Brown SAND, slightly moist, water likely being help above layer of clayey material at 45'	7.3		SP-SM
50	☒	27-31-50 for 5'		25	106	133				Grey greenish brown Clayey SILT with Sand, highly micaceous, moist to wet, thinly deposited mica in faux bedding, red iron staining presumably from historic water levels			ML
55													
60													
65													

Material Description

Thin Wall Tube ☒ 2.5" Ring Sample ☒ Bulk Sample ☐ Standard Split Spoon Sample ▽ Static Water Table

Total Depth: 50'
Slurry Backfill, Cuttings placed in drums
Groundwater: None encountered

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BORING NUMBER 2

Client: KB Home

Project Name: Copperleaf

Project Number: 19G-0075-0

Project Location: Cypress Ave. & Orchard St., El Monte

Date Started: 3/13/2019 Completed: 3/13/2019

Boring Diameter: 8" Elevation: 291 ft

Excavation Method: Hollow Stem Drilling

Ground Water Levels: Not Encountered

Drilling Contractor: Choice Drilling

Notes: Driller: Louie/ 140 lbs Auto Hammer with 30" Drop

Logged By: MRM Checked By: HHL

Lat, Long: (34.074189°, -118.029123°)

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	Wet Density (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
0										Surface: 2.5 " of Asphalt overlying 6" of Base with 3" of asphalt underlying			
										0-3' (Artificial Fill - af):			
		1-2-2		18.1	102.9	121.5				Medium green brown Sandy SILT with trace Clay, mica flecks, moist, dense	73		SM
										3-50' (Quaternary Alluvium - Qal):			
5		4-6-8								Dark green brown Sandy SILT (higher silt content than 2.5'), mica flecks, slightly moist, dense			ML
		3-3-3		10						White yellow brown fine Sandy SILT, micaceous, slightly moist	54		ML
10		7-10-11		15	97.4	112				Green grey fine SAND with Silt, red iron staining, micaceous, slightly moist			
		3-4-4					28	28	0	Green grey fine SAND with Silt, red iron staining, micaceous, slightly moist			SM
15		9-11-21		16	110.9	128.8				Green grey fine SAND with Silt to fine Sandy SILT, red iron staining, micaceous, slightly moist (increased moisture)			SM
		2-3-5		23						White yellow brown clean SAND lense (width approx. 12" of sample) then sample returns to green grey fine SAND with Silt to fine Sandy SILT, red iron staining, micaceous, slightly moist			SM
20		9-12-13		28	96.1	123				Green grey fine SAND with Silt, red iron staining, micaceous, slightly moist			
		9-11-12		3.5						Grey medium Course SAND lense for 2" at the top of the sample then grades into a yellow white finer SAND, loose, minimum fines			SP-SM
25		9-20-31		5.3	88.4	93.1				Grey medium to fine SAND with fines, wet			
		3-4-5					31	31	0	Green grey Silty SAND (width approx. 12") that return to grey medium to fine SAND with fines, moist	48		SM
30		50 for 1"								No sample recovery, rock fragment stuck in tip of sampler			
		50 for 5"								No sample recovery			

Material Description

Thin Wall Tube | 2.5" Ring Sample | Bulk Sample | Standard Split Spoon Sample | Static Water Table

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BORING NUMBER 2

Client: KB Home

Project Name: Copperleaf

Project Number: 19G-0075-0

Project Location: Cypress Ave. & Orchard St., El Monte

Date Started: 3/13/2019 Completed: 3/13/2019

Boring Diameter: 8" Elevation: 291 ft

Excavation Method: Hollow Stem Drilling

Ground Water Levels: Not Encountered

Drilling Contractor: Choice Drilling

Notes: Driller: Louie/ 140 lbs Auto Hammer with 30" Drop

Logged By: MRM Checked By: HHL

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	Wet Density (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
35	☒	29-47-4"		2.8	14.8	125				Yellow brownish white course, medium and fine SAND with course gravel and cobbles up to 2" in diameter, slightly moist, dense			
		10-16-19								Tan yellow white course to medium SAND with lenses of fine Sand, slightly moist	5.8		SP-SM
40	☒	30-50 for 6"		4.4	101	105				Whitish brown fine SAND with Silt, some mica, slightly moist			SP-SM
		13-18-21								Whitish brown fine SAND with Silt, some mica, slightly moist			
45	☒	7-50 for 6"		6.7	104	111				Whitish brown fine SAND with increased Silt and course gravels, some mica, slightly moist			SP-SM
		19-21-27								Whitish brown fine SAND with increased Silt, some mica, slightly moist	5.7		SP-SM
50	☒	39-50 for 5"		2.9	110	113				Whitish brown fine SAND with increased Silt, some mica, slightly moist			SM
55													
60													
65													

Thin Wall Tube ☒ 2.5" Ring Sample ☒ Bulk Sample ◫ Standard Split Spoon Sample ▽ Static Water Table

Total Depth: 50'

Slurry Backfill, Cuttings placed in drums

Groundwater: None encountered

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BORING NUMBER 3

Page 1 of 1

Client: KB Home

Project Name: Copperleaf

Project Number 19G-0075-0

Project Location: Cypress Ave. & Orchard St., El Monte

Date Started: 3/13/2019 Completed: 3/13/2019

Boring Diameter: 8" Elevation: 290 ft

Excavation Metho Hollow Stem Drilling

Ground Water Levels: Not Encountered

Drilling Contractor: Choice Drilling

Notes: Driller: Louie/ 140 lbs Auto Hammer with 30" Drop

Logged By: MRM Checked By: HHL

Lat,Long: (34.073805°,-118.028887°)

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	Wet Density (pcf)	Liquid Limit	Plastic Limit	Plasticity Index	Material Description	<#200	D_{50}	USCS Classification
0										Surface: 1"of Asphalt, 2" of Base **0-3' (Artificial Fill - af):**			
5										**3-50' (Quaternary Alluvium - Qal):**			
10	☒	4-6-7								Dark green brown Sandy SILT with trace clay, micaceous, wet, dense			SM
	☒	7-9-17	▨	18	87.9	104				Dark green brown fine SAND with trace clay, micaceous, dense, slightly moist	52		SM
15	☒	9-11-20								Dark green brown fine SAND with less Silt and some minor clay, micaceous, dense, slightly moist			SM
20													
25													
30													

Material Description: ■ Thin Wall Tube; ☒ 2.5" Ring Sample; ▨ Bulk Sample; ◫ Standard Split Spoon Sample; ▽ Static Water Table

Total Depth: 15'

Slurry Backfill, Cuttings placed in drums

Groundwater: None encountered

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APPENDIX B

LABORATORY TESTS

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APPENDIX B

B-1.00 LABORATORY TESTS

B-1.01 Maximum Density

Maximum density - optimum moisture relationships for the major soil types encountered during the field exploration were performed in the laboratory using the standard procedures of ASTM D1557.

B-1.02 Particle Size Analysis

Particle size analysis was performed on a representative sample of the on-site soils in accordance with the standard test methods of the ASTM D422. The test results are included in this Appendix B.

B-1.03 Materials Finer than #200

Particle size analysis was performed on representative samples of the on-site soils in accordance with the standard test methods of the ASTM D1140. The test results are presented on the boring logs in Appendix A.

B-1.04 Expansion Tests

Expansion index tests were performed on representative samples of the major soil types encountered by the test methods outlined in ASTM D4829.

B-1.05 Soluble Sulfates

A test was performed on representative sample encountered during the investigation using the California Test Method 417.

B-1.06 Soil Reactivity (pH) and Minimum Resistivity

A near-surface soil samples were tested for soil reactivity (pH) and minimum electrical resistivity using California Test Method 643. The pH measurement determines the degree of acidity or alkalinity in the soils. The minimum resistivity is used as an indicator of how corrosive the soil is relative to buried metallic items.

B-1.07 Moisture Determination

Moisture content of the soil samples was performed in accordance to standard method for determination of water content of soil by drying oven, ASTM D2216. The mass of material remaining after oven drying is used as the mass of the solid particles.

B-1.08 Density of Split-Barrel Samples

The density of ring and tube samples, which were obtained using a split-barrel sampler, were determined in accordance with ASTM D2937. The results of these tests are provided on the boring logs in Appendix A.

B-1.09 Atterberg Limits

The liquid limit, plastic limit, and the plasticity index of the major soil types encountered in the test holes were determined using the standard test methods of ASTM D4318.

B-1.10 Direct Shear

Direct shear test was performed on a representative sample of the major soil types encountered in the test holes using the standard test method of ASTM D3080 (consolidated and drained). Test was performed on remolded samples. Remolded samples were tested at 90 percent relative compaction. The test results are included in this Appendix B.

Shear tests were performed on a direct shear machine of the strain-controlled type. To simulate possible adverse field conditions, the samples were saturated prior to shearing. Several samples were sheared at varying normal loads and the results plotted to establish the angle of the internal friction and cohesion of the tested samples.

B-1.11 Consolidation (One-Dimensional)

One-dimensional consolidation tests were performed on a two ring sample using the standard test method of ASTM D2435. The rate of consolidation of the tested samples was not determined and the applied loading increments are indicated on the summary of the test results. The test results are included in this Appendix B.

B-1.12 Test Results

Test results for all laboratory tests performed on the subject project are presented in this appendix. For a sample-by-sample description, see the logs presented in Appendix A.

MAXIMUM DENSITY - OPTIMUM MOISTURE

(Test Method: ASTM D1557)

Sample Number	Optimum Moisture (Percent)	Maximum Density (lbs/ft^3)
B2 @ 0-5 ft	15.4	112.9

EXPANSION INDEX

(Test Method: ASTM D4829)

Sample Number	Expansion Index	Classification
B-1 @ 0-5 ft	22	Low
B-2 @ 0-5 ft	4	Very Low

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SOLUBLE SULFATES

(California Test Methods: 417 & 422)

Sample Number	Soluble Sulfate (ppm)	Chloride Content (ppm)
B-1 @ 0-5 ft	41	38

SOIL REACTIVITY (pH) AND MINIMUM RESISTIVITY

(California Test Method: 643)

Sample Number	pH	Minimum Resistivity (Ohm-cm)
B-1 @ 0-5 ft	9.5	7,881

ATTERBERG LIMITS

(Test Method: ASTM D4318)

Sample Number	Liquid Limit (Percent)	Plastic Limit (Percent)	Plasticity Index (Percent)	Water Content (Percent)
B-1 @ 45 ft	21	21	0	21.6
B-2 @ 12.5 ft	28	28	0	28.8
B-2 @ 27.5 ft	31	31	0	30.3

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APPENDIX C

GENERAL EARTHWORK
AND
GRADING SPECIFICATIONS

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GENERAL EARTHWORK AND GRADING SPECIFICATIONS

C-1.00 GENERAL DESCRIPTION

C-1.01 Introduction

These specifications present our general recommendations for earthwork and grading as shown on the approved grading plans for the subject project. These specifications shall cover all clearing and grubbing, removal of existing structures, preparation of land to be filled, filling of the land, spreading, compaction and control of the fill, and all subsidiary work necessary to complete the grading of the filled areas to conform with the lines, grades and slopes as shown on the approved plans.

The recommendations contained in the geotechnical report of which these general specifications are a part of shall supersede the provisions contained hereinafter in case of conflict.

C-1.02 Laboratory Standard and Field Test Methods

The laboratory standard used to establish the maximum density and optimum moisture shall be ASTM D1557.

The insitu density of earth materials (field compaction tests) shall be determined by the sand cone method (ASTM D1556), direct transmission nuclear method (ASTM D2922) or other test methods as considered appropriate by the geotechnical consultant.

Relative compaction is defined, for purposes of these specifications, as the ratio of the in-place density to the maximum density as determined in the previously mentioned laboratory standard.

C-2.00 Clearing

C-2.01 Surface Clearing

All structures marked for removal, timber, logs, trees, brush and other rubbish shall be removed and disposed of off the site. Any trees to be removed shall be pulled in such a manner so as to remove as much of the root system as possible.

C-2.02 Subsurface Removals

A thorough search should be made for possible underground storage tanks and/or septic tanks and cesspools. If found, tanks should be removed and cesspools pumped dry.

Any concrete irrigation lines shall be crushed in place and all metal underground lines shall be removed from the site.

C-2.03 Backfill of Cavities

All cavities created or exposed during clearing and grubbing operations or by previous use of the site shall be cleared of deleterious material and backfilled with native soils or other materials approved by the soil engineer. Said backfill shall be compacted to a minimum of 90% relative compaction.

C-3.00 ORIGINAL GROUND PREPARATION

C-3.01 Stripping of Vegetation

After the site has been properly cleared, all vegetation and topsoil containing the root systems of former vegetation shall be stripped from areas to be graded. Materials removed in this stripping process may be used as fill in areas designated by the soil engineer, provided the vegetation is mixed with a sufficient amount of soil to assure that no appreciable settlement or other detriment will occur due to decaying of the organic matter. Soil materials containing more than 3% organics shall not be used as structural fill.

C-3.02 Removals of Non-Engineered Fills

Any non-engineered fills encountered during grading shall be completely removed and the underlying ground shall be prepared in accordance to the recommendations for original ground preparation contained in this section. After cleansing of any organic matter the fill material may be used for engineered fill.

C-3.03 Overexcavation of Fill Areas

The existing ground in all areas determined to be satisfactory for the support of fills shall be scarified to a minimum depth of 6 inches. Scarification shall continue until the soils are broken down and free from lumps or clods and until the scarified zone is uniform. The moisture content of the scarified zone shall be adjusted to within 2% of optimum moisture. The scarified zone shall then be uniformly compacted to 90% relative compaction.

Where fill material is to be placed on ground with slopes steeper than 5:1 (H:V) the sloping ground shall be benched. The lowermost bench shall be a minimum of 15 feet wide, shall be a minimum of 2 feet deep, and shall expose firm material as determined by the geotechnical consultant. Other benches shall be excavated to firm material as determined by the geotechnical consultant and shall have a minimum width of 4 feet.

Existing ground that is determined to be unsatisfactory for the support of fills shall be overexcavated in accordance to the recommendations contained in the geotechnical report of which these general specifications are a part.

C-4.00 FILL MATERIALS

C-4.01 General

Materials for the fill shall be free from vegetable matter and other deleterious substances, shall not contain rocks or lumps of a greater dimension than is recommended by the geotechnical consultant, and shall be approved by the geotechnical consultant. Soils of poor gradation, expansion, or strength properties shall be placed in areas designated by the geotechnical consultant or shall be mixed with other soils providing satisfactory fill material.

C-4.02 Oversize Material

Oversize material, rock, or other irreducible material with a maximum dimension greater than 12 inches shall not be placed in fills, unless the location, materials, and disposal methods are specifically approved by the geotechnical consultant. Oversize material shall be placed in such a manner that nesting of oversize material does not occur and in such a manner that the oversize material is completely surrounded by fill material compacted to a minimum of

90% relative compaction. Oversize material shall not be placed within 10 feet of finished grade without the approval of the geotechnical consultant.

C-4.03 Import

Material imported to the site shall conform to the requirements of Section 4.01 of these specifications. Potential import material shall be approved by the geotechnical consultant prior to importation to the subject site.

C-5.00 PLACING AND SPREADING OF FILL

C-5.01 Fill Lifts

The selected fill material shall be placed in nearly horizontal layers which when compacted will not exceed approximately 6 inches in thickness. Thicker lifts may be placed if testing indicates the compaction procedures are such that the required compaction is being achieved and the geotechnical consultant approves their use.
Each layer shall be spread evenly and shall be thoroughly blade mixed during the spreading to insure uniformity of material in each layer.

C-5.02 Fill Moisture

When the moisture content of the fill material is below that recommended by the soils engineer, water shall then be added until he moisture content is as specified to assure thorough bonding during the compacting process.

When the moisture content of the fill material is above that recommended by the soils engineer, the fill material shall be aerated by blading or other satisfactory methods until the moisture content is as specified.

C-5.03 Fill Compaction

After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted to not less than 90% relative compaction. Compaction shall be by sheepsfoot rollers, multiple-wheel pneumatic tired rollers, or other types approved by the soil engineer.

Rolling shall be accomplished while the fill material is at the specified moisture content. Rolling of each layer shall be continuous over its entire area and the roller shall make sufficient trips to insure that the desired density has been obtained.

C-5.04 Fill Slopes

Fill slopes shall be compacted by means of sheepsfoot rollers or other suitable equipment. Compacting of the slopes may be done progressively in increments of 3 to 4 feet in fill height. At the completion of grading, the slope face shall be compacted to a minimum of 90% relative compaction. This may require track rolling or rolling with a grid roller attached to a tractor mounted side-boom.

Slopes may be over filled and cut back in such a manner that the exposed slope faces are compacted to a minimum of 90% relative compaction.

The fill operation shall be continued in six inch (6") compacted layers, or as specified above, until the fill has been brought to the finished slopes and grades as shown on the accepted plans.

C-5.05 Compaction Testing

Field density tests shall be made by the geotechnical consultant of the compaction of each layer of fill. Density tests shall be made at locations selected by the geotechnical consultant.

Frequency of field density tests shall be not less than one test for each 2.0 feet of fill height and at least every one thousand cubic yards of fill. Where fill slopes exceed four feet in height their finished faces shall be tested at a frequency of one test for each 1000 square feet of slope face.

Where sheepsfoot rollers are used, the soil may be disturbed to a depth of several inches. Density reading shall be taken in the compacted material below the disturbed surface. When these readings indicate that the density of any layer of fill or portion thereof is below the required density, the particular layer or portion shall be reworked until the required density has been obtained.

C-6.00 SUBDRAINS

C-6.01 Subdrain Material

Subdrains shall be constructed of a minimum 4-inch diameter pipe encased in a suitable filter material. The subdrain pipe shall be Schedule 40 Acrylonitrile Butadiene Styrene (ABS) or Schedule 40 Polyvinyl Chloride Plastic (PVC) pipe or approved equivalent. Subdrain pipe shall be installed with perforations down. Filter material shall consist of 3/4" to 1 1/2" clean gravel wrapped in an envelope of filter fabric consisting of Mirafi 140N or approved equivalent.

C-6.02 Subdrain Installation

Subdrain systems, if required, shall be installed in approved ground to conform the approximate alignment and details shown on the plans or herein. The subdrain locations shall not be changed or modified without the approval of the geotechnical consultant. The geotechnical consultant may recommend and direct changes in the subdrain line, grade or material upon approval by the design civil engineer and the appropriate governmental agencies.

C-7.00 EXCAVATIONS

C-7.01 General

Excavations and cut slopes shall be examined by the geotechnical consultant. If determined necessary by the geotechnical consultant, further excavation or overexcavation and refilling of overexcavated areas shall be performed, and/or remedial grading of cut slopes shall be performed.

C-7.02 Fill-Over-Cut Slopes

Where fill-over-cut slopes are to be graded the cut portion of the slope shall be made and approved by the geotechnical consultant prior to placement of materials for construction of the fill portion of the slope.

C-8.00 TRENCH BACKFILL

C-8.01 General

Trench backfill within street right of ways shall be compacted to 90% relative compaction as determined by the ASTM D1557 test method. Backfill may be jetted as a means of initial compaction; however, mechanical compaction will be required to obtain the required percentage of relative compaction. If trenches are jetted, there must be a suitable delay for drainage of excess water before mechanical compaction is applied.

C-9.00 SEASONAL LIMITS

C-9.01 General

No fill material shall be placed, spread or rolled while it is frozen or thawing or during unfavorable weather conditions. When the work is interrupted by heavy rain, fill operations shall not be resumed until field tests by the soils engineer indicate that the moisture content and density of the fill are as previously specified.

C-10.00 SUPERVISION

C-10.01 Prior to Grading

The site shall be observed by the geotechnical consultant upon completion of clearing and grubbing, prior to the preparation of any original ground for preparation of fill.

The supervisor of the grading contractor and the field representative of the geotechnical consultant shall have a meeting and discuss the geotechnical aspects of the earthwork prior to commencement of grading.

C-10.02 During Grading

Site preparation of all areas to receive fill shall be tested and approved by the geotechnical consultant prior to the placement of any fill.

The geotechnical consultant or his representative shall observe the fill and compaction operations so that he can provide an opinion regarding the conformance of the work to the recommendations

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APPENDIX D

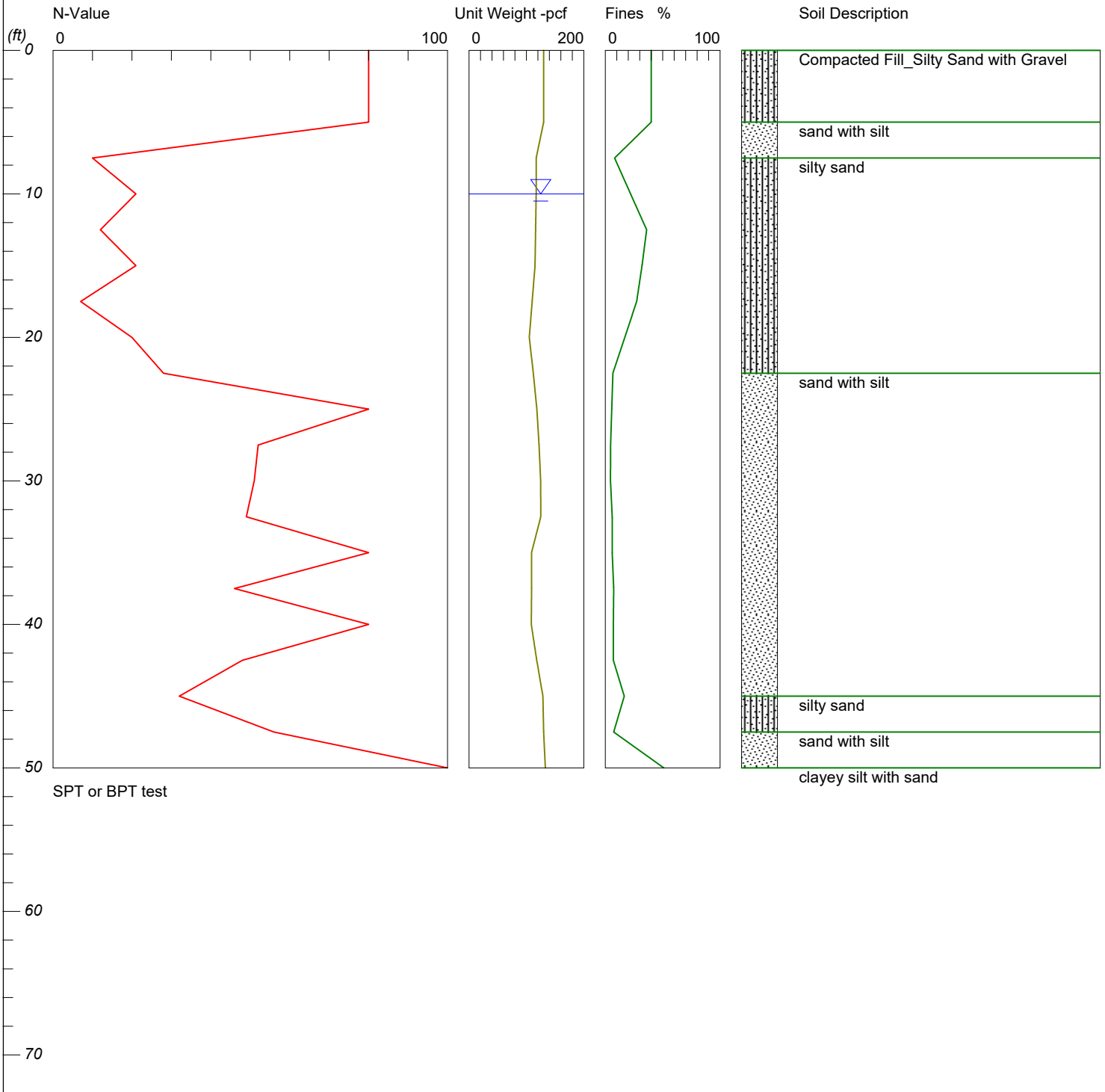
LIQUIFACTION AND SEISMIC SETTLEMENT ANALYSIS
(Figures and Analysis Summary)

LIQUEFACTION ANALYSIS

Copperleah El Monte

Hole No.=B-1 Water Depth=10 ft Surface Elev.=277

Magnitude=6.66
Acceleration=0.57g



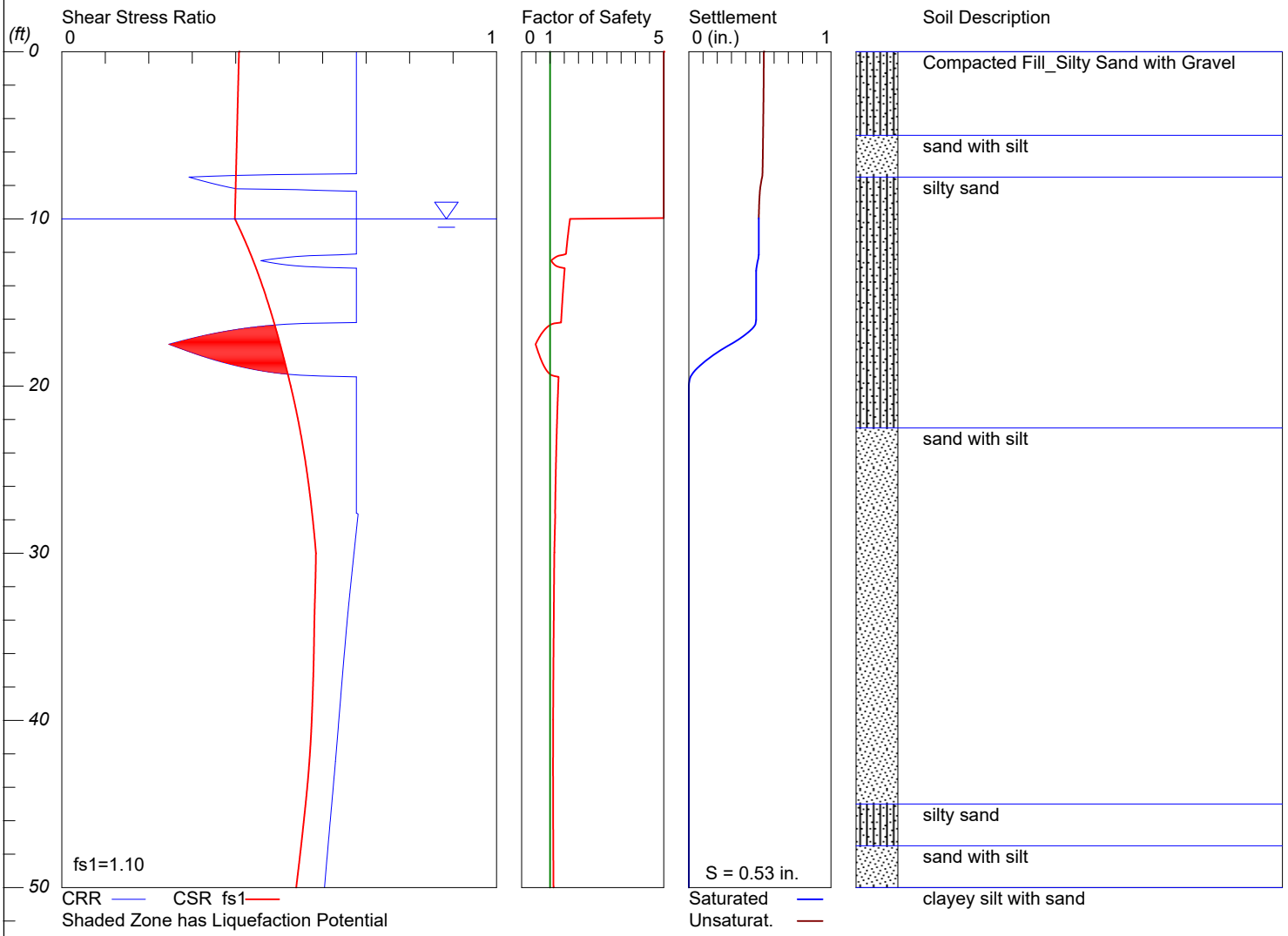
LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

Copperleah El Monte

Hole No.=B-1 Water Depth=10 ft Surface Elev.=277

Magnitude=6.66
Acceleration=0.57g



LiquefyPro CivilTech Software USA www.civiltech.com

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LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: G:_Projects\2019\19G-0075\Liquifaction Analysis\19G-0075-0_B1.liq
Title: Copperleah El Monte
Subtitle: 19G-0075-0

Surface Elev.=277
Hole No.=B-1
Depth of Hole= 50.00 ft
Water Table during Earthquake= 10.00 ft
Water Table during In-Situ Testing= 60.00 ft
Max. Acceleration= 0.57 g
Earthquake Magnitude= 6.66

Input Data:
Surface Elev.=277
Hole No.=B-1
Depth of Hole=50.00 ft
Water Table during Earthquake= 10.00 ft
Water Table during In-Situ Testing= 60.00 ft
Max. Acceleration=0.57 g
Earthquake Magnitude=6.66
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Stark/Olson et al.*
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1.15
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR) , User= 1.1
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	80.00	130.00	40.00
2.50	80.00	130.00	40.00
5.00	80.00	130.00	40.00
7.50	10.00	117.00	8.10
10.00	21.00	117.00	22.00
12.50	12.00	116.00	36.00
15.00	21.00	115.00	32.00
17.50	7.00	110.00	27.30
20.00	20.00	105.00	17.00
22.50	28.00	112.00	6.60

25.00	80.00	118.20	5.60
27.50	52.00	122.00	4.60
30.00	51.00	124.80	4.50
32.50	49.00	125.00	6.00
35.00	80.00	108.90	6.00
37.50	46.00	109.00	7.30
40.00	80.00	108.50	7.00
42.50	48.00	118.00	7.00
45.00	32.00	128.70	16.50
47.50	56.00	130.00	7.30
50.00	100.00	133.00	51.00

Output Results:

Settlement of Saturated Sands=0.49 in.
Settlement of Unsaturated Sands=0.04 in.
Total Settlement of Saturated and Unsaturated Sands=0.53 in.
Differential Settlement=0.264 to 0.348 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	0.68	0.41	5.00	0.49	0.04	0.53
0.05	0.68	0.41	5.00	0.49	0.04	0.53
0.10	0.68	0.41	5.00	0.49	0.04	0.53
0.15	0.68	0.41	5.00	0.49	0.04	0.53
0.20	0.68	0.41	5.00	0.49	0.04	0.53
0.25	0.68	0.41	5.00	0.49	0.04	0.53
0.30	0.68	0.41	5.00	0.49	0.04	0.53
0.35	0.68	0.41	5.00	0.49	0.04	0.53
0.40	0.68	0.41	5.00	0.49	0.04	0.53
0.45	0.68	0.41	5.00	0.49	0.04	0.53
0.50	0.68	0.41	5.00	0.49	0.04	0.53
0.55	0.68	0.41	5.00	0.49	0.04	0.53
0.60	0.68	0.41	5.00	0.49	0.04	0.53
0.65	0.68	0.41	5.00	0.49	0.04	0.53
0.70	0.68	0.41	5.00	0.49	0.04	0.53
0.75	0.68	0.41	5.00	0.49	0.04	0.53
0.80	0.68	0.41	5.00	0.49	0.04	0.53
0.85	0.68	0.41	5.00	0.49	0.04	0.53
0.90	0.68	0.41	5.00	0.49	0.04	0.53
0.95	0.68	0.41	5.00	0.49	0.04	0.53
1.00	0.68	0.41	5.00	0.49	0.04	0.53
1.05	0.68	0.41	5.00	0.49	0.04	0.53
1.10	0.68	0.41	5.00	0.49	0.04	0.53
1.15	0.68	0.41	5.00	0.49	0.03	0.53
1.20	0.68	0.41	5.00	0.49	0.03	0.53
1.25	0.68	0.41	5.00	0.49	0.03	0.53
1.30	0.68	0.41	5.00	0.49	0.03	0.53
1.35	0.68	0.41	5.00	0.49	0.03	0.53
1.40	0.68	0.41	5.00	0.49	0.03	0.53
1.45	0.68	0.41	5.00	0.49	0.03	0.53
1.50	0.68	0.41	5.00	0.49	0.03	0.53
1.55	0.68	0.41	5.00	0.49	0.03	0.53
1.60	0.68	0.41	5.00	0.49	0.03	0.53
1.65	0.68	0.41	5.00	0.49	0.03	0.53
1.70	0.68	0.41	5.00	0.49	0.03	0.53
1.75	0.68	0.41	5.00	0.49	0.03	0.53
1.80	0.68	0.41	5.00	0.49	0.03	0.53
1.85	0.68	0.41	5.00	0.49	0.03	0.53
1.90	0.68	0.41	5.00	0.49	0.03	0.53
1.95	0.68	0.41	5.00	0.49	0.03	0.53
2.00	0.68	0.41	5.00	0.49	0.03	0.53

2.05	0.68	0.41	5.00	0.49	0.03	0.53
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2.70	0.68	0.40	5.00	0.49	0.03	0.53
2.75	0.68	0.40	5.00	0.49	0.03	0.53
2.80	0.68	0.40	5.00	0.49	0.03	0.53
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2.90	0.68	0.40	5.00	0.49	0.03	0.53
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3.85	0.68	0.40	5.00	0.49	0.03	0.52
3.90	0.68	0.40	5.00	0.49	0.03	0.52
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4.70	0.68	0.40	5.00	0.49	0.03	0.52
4.75	0.68	0.40	5.00	0.49	0.03	0.52
4.80	0.68	0.40	5.00	0.49	0.03	0.52
4.85	0.68	0.40	5.00	0.49	0.03	0.52
4.90	0.68	0.40	5.00	0.49	0.03	0.52
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5.75	0.68	0.40	5.00	0.49	0.03	0.52
5.80	0.68	0.40	5.00	0.49	0.03	0.52
5.85	0.68	0.40	5.00	0.49	0.03	0.52
5.90	0.68	0.40	5.00	0.49	0.03	0.52
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6.00	0.68	0.40	5.00	0.49	0.03	0.52
6.05	0.68	0.40	5.00	0.49	0.03	0.52
6.10	0.68	0.40	5.00	0.49	0.03	0.52
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6.70	0.68	0.40	5.00	0.49	0.03	0.52
6.75	0.68	0.40	5.00	0.49	0.03	0.52
6.80	0.68	0.40	5.00	0.49	0.03	0.52
6.85	0.68	0.40	5.00	0.49	0.03	0.52
6.90	0.68	0.40	5.00	0.49	0.03	0.52
6.95	0.68	0.40	5.00	0.49	0.03	0.52
7.00	0.68	0.40	5.00	0.49	0.03	0.52
7.05	0.68	0.40	5.00	0.49	0.03	0.52
7.10	0.68	0.40	5.00	0.49	0.03	0.52
7.15	0.68	0.40	5.00	0.49	0.03	0.52
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7.25	0.68	0.40	5.00	0.49	0.03	0.52
7.30	0.68	0.40	5.00	0.49	0.03	0.52
7.35	0.50	0.40	5.00	0.49	0.03	0.52
7.40	0.40	0.40	5.00	0.49	0.03	0.52
7.45	0.34	0.40	5.00	0.49	0.02	0.52
7.50	0.29	0.40	5.00	0.49	0.02	0.52
7.55	0.30	0.40	5.00	0.49	0.02	0.51
7.60	0.31	0.40	5.00	0.49	0.02	0.51
7.65	0.31	0.40	5.00	0.49	0.02	0.51
7.70	0.32	0.40	5.00	0.49	0.02	0.51
7.75	0.33	0.40	5.00	0.49	0.02	0.51
7.80	0.33	0.40	5.00	0.49	0.02	0.51
7.85	0.34	0.40	5.00	0.49	0.02	0.51
7.90	0.35	0.40	5.00	0.49	0.01	0.51
7.95	0.36	0.40	5.00	0.49	0.01	0.51
8.00	0.37	0.40	5.00	0.49	0.01	0.50
8.05	0.37	0.40	5.00	0.49	0.01	0.50
8.10	0.38	0.40	5.00	0.49	0.01	0.50
8.15	0.39	0.40	5.00	0.49	0.01	0.50
8.20	0.40	0.40	5.00	0.49	0.01	0.50
8.25	0.54	0.40	5.00	0.49	0.01	0.50
8.30	0.60	0.40	5.00	0.49	0.01	0.50

8.35	0.68	0.40	5.00	0.49	0.01	0.50
8.40	0.68	0.40	5.00	0.49	0.01	0.50
8.45	0.68	0.40	5.00	0.49	0.01	0.50
8.50	0.68	0.40	5.00	0.49	0.01	0.50
8.55	0.68	0.40	5.00	0.49	0.01	0.50
8.60	0.68	0.40	5.00	0.49	0.01	0.50
8.65	0.68	0.40	5.00	0.49	0.01	0.50
8.70	0.68	0.40	5.00	0.49	0.01	0.50
8.75	0.68	0.40	5.00	0.49	0.00	0.50
8.80	0.68	0.40	5.00	0.49	0.00	0.50
8.85	0.68	0.40	5.00	0.49	0.00	0.50
8.90	0.68	0.40	5.00	0.49	0.00	0.50
8.95	0.68	0.40	5.00	0.49	0.00	0.50
9.00	0.68	0.40	5.00	0.49	0.00	0.50
9.05	0.68	0.40	5.00	0.49	0.00	0.49
9.10	0.68	0.40	5.00	0.49	0.00	0.49
9.15	0.68	0.40	5.00	0.49	0.00	0.49
9.20	0.68	0.40	5.00	0.49	0.00	0.49
9.25	0.68	0.40	5.00	0.49	0.00	0.49
9.30	0.68	0.40	5.00	0.49	0.00	0.49
9.35	0.68	0.40	5.00	0.49	0.00	0.49
9.40	0.68	0.40	5.00	0.49	0.00	0.49
9.45	0.68	0.40	5.00	0.49	0.00	0.49
9.50	0.68	0.40	5.00	0.49	0.00	0.49
9.55	0.68	0.40	5.00	0.49	0.00	0.49
9.60	0.68	0.40	5.00	0.49	0.00	0.49
9.65	0.68	0.40	5.00	0.49	0.00	0.49
9.70	0.68	0.40	5.00	0.49	0.00	0.49
9.75	0.68	0.40	5.00	0.49	0.00	0.49
9.80	0.68	0.40	5.00	0.49	0.00	0.49
9.85	0.68	0.40	5.00	0.49	0.00	0.49
9.90	0.68	0.40	5.00	0.49	0.00	0.49
9.95	0.68	0.40	5.00	0.49	0.00	0.49
10.00	0.68	0.40	1.70	0.49	0.00	0.49
10.05	0.68	0.40	1.70	0.49	0.00	0.49
10.10	0.68	0.40	1.69	0.49	0.00	0.49
10.15	0.68	0.40	1.69	0.49	0.00	0.49
10.20	0.68	0.40	1.69	0.49	0.00	0.49
10.25	0.68	0.40	1.68	0.49	0.00	0.49
10.30	0.68	0.40	1.68	0.49	0.00	0.49
10.35	0.68	0.40	1.67	0.49	0.00	0.49
10.40	0.68	0.41	1.67	0.49	0.00	0.49
10.45	0.68	0.41	1.67	0.49	0.00	0.49
10.50	0.68	0.41	1.66	0.49	0.00	0.49
10.55	0.68	0.41	1.66	0.49	0.00	0.49
10.60	0.68	0.41	1.66	0.49	0.00	0.49
10.65	0.68	0.41	1.65	0.49	0.00	0.49
10.70	0.68	0.41	1.65	0.49	0.00	0.49
10.75	0.68	0.41	1.65	0.49	0.00	0.49
10.80	0.68	0.41	1.64	0.49	0.00	0.49
10.85	0.68	0.41	1.64	0.49	0.00	0.49
10.90	0.68	0.41	1.63	0.49	0.00	0.49
10.95	0.68	0.42	1.63	0.49	0.00	0.49
11.00	0.68	0.42	1.63	0.49	0.00	0.49
11.05	0.68	0.42	1.62	0.49	0.00	0.49
11.10	0.68	0.42	1.62	0.49	0.00	0.49
11.15	0.68	0.42	1.62	0.49	0.00	0.49
11.20	0.68	0.42	1.61	0.49	0.00	0.49
11.25	0.68	0.42	1.61	0.49	0.00	0.49
11.30	0.68	0.42	1.61	0.49	0.00	0.49
11.35	0.68	0.42	1.61	0.49	0.00	0.49
11.40	0.68	0.42	1.60	0.49	0.00	0.49
11.45	0.68	0.42	1.60	0.49	0.00	0.49

11.50	0.68	0.42	1.60	0.49	0.00	0.49
11.55	0.68	0.43	1.59	0.49	0.00	0.49
11.60	0.68	0.43	1.59	0.49	0.00	0.49
11.65	0.68	0.43	1.59	0.49	0.00	0.49
11.70	0.68	0.43	1.58	0.49	0.00	0.49
11.75	0.68	0.43	1.58	0.49	0.00	0.49
11.80	0.68	0.43	1.58	0.49	0.00	0.49
11.85	0.68	0.43	1.57	0.49	0.00	0.49
11.90	0.68	0.43	1.57	0.49	0.00	0.49
11.95	0.68	0.43	1.57	0.49	0.00	0.49
12.00	0.68	0.43	1.57	0.49	0.00	0.49
12.05	0.68	0.43	1.56	0.49	0.00	0.49
12.10	0.68	0.43	1.56	0.49	0.00	0.49
12.15	0.64	0.43	1.47	0.49	0.00	0.49
12.20	0.57	0.44	1.31	0.49	0.00	0.49
12.25	0.54	0.44	1.24	0.49	0.00	0.49
12.30	0.52	0.44	1.19	0.49	0.00	0.49
12.35	0.50	0.44	1.14	0.49	0.00	0.49
12.40	0.48	0.44	1.10	0.49	0.00	0.49
12.45	0.47	0.44	1.07	0.49	0.00	0.49
12.50	0.46	0.44	1.04	0.49	0.00	0.49
12.55	0.47	0.44	1.06	0.48	0.00	0.48
12.60	0.48	0.44	1.08	0.48	0.00	0.48
12.65	0.49	0.44	1.11	0.48	0.00	0.48
12.70	0.50	0.44	1.13	0.48	0.00	0.48
12.75	0.52	0.44	1.16	0.48	0.00	0.48
12.80	0.53	0.44	1.20	0.48	0.00	0.48
12.85	0.56	0.45	1.26	0.48	0.00	0.48
12.90	0.61	0.45	1.36	0.48	0.00	0.48
12.95	0.68	0.45	1.52	0.48	0.00	0.48
13.00	0.68	0.45	1.51	0.47	0.00	0.47
13.05	0.68	0.45	1.51	0.47	0.00	0.47
13.10	0.68	0.45	1.51	0.47	0.00	0.47
13.15	0.68	0.45	1.51	0.47	0.00	0.47
13.20	0.68	0.45	1.50	0.47	0.00	0.47
13.25	0.68	0.45	1.50	0.47	0.00	0.47
13.30	0.68	0.45	1.50	0.47	0.00	0.47
13.35	0.68	0.45	1.50	0.47	0.00	0.47
13.40	0.68	0.45	1.49	0.47	0.00	0.47
13.45	0.68	0.45	1.49	0.47	0.00	0.47
13.50	0.68	0.45	1.49	0.47	0.00	0.47
13.55	0.68	0.46	1.49	0.47	0.00	0.47
13.60	0.68	0.46	1.49	0.47	0.00	0.47
13.65	0.68	0.46	1.48	0.47	0.00	0.47
13.70	0.68	0.46	1.48	0.47	0.00	0.47
13.75	0.68	0.46	1.48	0.47	0.00	0.47
13.80	0.68	0.46	1.48	0.47	0.00	0.47
13.85	0.68	0.46	1.47	0.47	0.00	0.47
13.90	0.68	0.46	1.47	0.47	0.00	0.47
13.95	0.68	0.46	1.47	0.47	0.00	0.47
14.00	0.68	0.46	1.47	0.47	0.00	0.47
14.05	0.68	0.46	1.47	0.47	0.00	0.47
14.10	0.68	0.46	1.46	0.47	0.00	0.47
14.15	0.68	0.46	1.46	0.47	0.00	0.47
14.20	0.68	0.46	1.46	0.47	0.00	0.47
14.25	0.68	0.46	1.46	0.47	0.00	0.47
14.30	0.68	0.47	1.46	0.47	0.00	0.47
14.35	0.68	0.47	1.45	0.47	0.00	0.47
14.40	0.68	0.47	1.45	0.47	0.00	0.47
14.45	0.68	0.47	1.45	0.47	0.00	0.47
14.50	0.68	0.47	1.45	0.47	0.00	0.47
14.55	0.68	0.47	1.45	0.47	0.00	0.47
14.60	0.68	0.47	1.44	0.47	0.00	0.47

14.65	0.68	0.47	1.44	0.47	0.00	0.47
14.70	0.68	0.47	1.44	0.47	0.00	0.47
14.75	0.68	0.47	1.44	0.47	0.00	0.47
14.80	0.68	0.47	1.44	0.47	0.00	0.47
14.85	0.68	0.47	1.43	0.47	0.00	0.47
14.90	0.68	0.47	1.43	0.47	0.00	0.47
14.95	0.68	0.47	1.43	0.47	0.00	0.47
15.00	0.68	0.47	1.43	0.47	0.00	0.47
15.05	0.68	0.47	1.43	0.47	0.00	0.47
15.10	0.68	0.48	1.43	0.47	0.00	0.47
15.15	0.68	0.48	1.42	0.47	0.00	0.47
15.20	0.68	0.48	1.42	0.47	0.00	0.47
15.25	0.68	0.48	1.42	0.47	0.00	0.47
15.30	0.68	0.48	1.42	0.47	0.00	0.47
15.35	0.68	0.48	1.42	0.47	0.00	0.47
15.40	0.68	0.48	1.41	0.47	0.00	0.47
15.45	0.68	0.48	1.41	0.47	0.00	0.47
15.50	0.68	0.48	1.41	0.47	0.00	0.47
15.55	0.68	0.48	1.41	0.47	0.00	0.47
15.60	0.68	0.48	1.41	0.47	0.00	0.47
15.65	0.68	0.48	1.41	0.47	0.00	0.47
15.70	0.68	0.48	1.40	0.47	0.00	0.47
15.75	0.68	0.48	1.40	0.47	0.00	0.47
15.80	0.68	0.48	1.40	0.47	0.00	0.47
15.85	0.68	0.48	1.40	0.47	0.00	0.47
15.90	0.68	0.48	1.40	0.47	0.00	0.47
15.95	0.68	0.49	1.40	0.47	0.00	0.47
16.00	0.68	0.49	1.39	0.47	0.00	0.47
16.05	0.68	0.49	1.39	0.47	0.00	0.47
16.10	0.68	0.49	1.39	0.47	0.00	0.47
16.15	0.68	0.49	1.39	0.47	0.00	0.47
16.20	0.68	0.49	1.39	0.47	0.00	0.47
16.25	0.56	0.49	1.15	0.47	0.00	0.47
16.30	0.52	0.49	1.05	0.47	0.00	0.47
16.35	0.49	0.49	1.00*	0.47	0.00	0.47
16.40	0.47	0.49	0.95*	0.46	0.00	0.46
16.45	0.45	0.49	0.92*	0.46	0.00	0.46
16.50	0.43	0.49	0.88*	0.45	0.00	0.45
16.55	0.42	0.49	0.85*	0.45	0.00	0.45
16.60	0.41	0.49	0.82*	0.44	0.00	0.44
16.65	0.39	0.49	0.80*	0.44	0.00	0.44
16.70	0.38	0.49	0.77*	0.43	0.00	0.43
16.75	0.37	0.49	0.75*	0.42	0.00	0.42
16.80	0.36	0.49	0.73*	0.42	0.00	0.42
16.85	0.35	0.50	0.71*	0.41	0.00	0.41
16.90	0.34	0.50	0.69*	0.40	0.00	0.40
16.95	0.33	0.50	0.67*	0.39	0.00	0.39
17.00	0.32	0.50	0.65*	0.39	0.00	0.39
17.05	0.31	0.50	0.63*	0.38	0.00	0.38
17.10	0.31	0.50	0.62*	0.37	0.00	0.37
17.15	0.30	0.50	0.60*	0.36	0.00	0.36
17.20	0.29	0.50	0.58*	0.35	0.00	0.35
17.25	0.28	0.50	0.57*	0.34	0.00	0.34
17.30	0.28	0.50	0.55*	0.33	0.00	0.33
17.35	0.27	0.50	0.54*	0.32	0.00	0.32
17.40	0.26	0.50	0.52*	0.31	0.00	0.31
17.45	0.25	0.50	0.51*	0.30	0.00	0.30
17.50	0.25	0.50	0.49*	0.29	0.00	0.29
17.55	0.25	0.50	0.50*	0.28	0.00	0.28
17.60	0.26	0.50	0.51*	0.27	0.00	0.27
17.65	0.26	0.50	0.52*	0.26	0.00	0.26
17.70	0.27	0.50	0.53*	0.25	0.00	0.25
17.75	0.27	0.50	0.54*	0.24	0.00	0.24

17.80	0.28	0.51	0.55*	0.23	0.00	0.23
17.85	0.28	0.51	0.56*	0.22	0.00	0.22
17.90	0.29	0.51	0.57*	0.22	0.00	0.22
17.95	0.29	0.51	0.58*	0.21	0.00	0.21
18.00	0.30	0.51	0.59*	0.20	0.00	0.20
18.05	0.30	0.51	0.60*	0.19	0.00	0.19
18.10	0.31	0.51	0.61*	0.18	0.00	0.18
18.15	0.32	0.51	0.62*	0.17	0.00	0.17
18.20	0.32	0.51	0.63*	0.16	0.00	0.16
18.25	0.33	0.51	0.64*	0.16	0.00	0.16
18.30	0.33	0.51	0.65*	0.15	0.00	0.15
18.35	0.34	0.51	0.67*	0.14	0.00	0.14
18.40	0.35	0.51	0.68*	0.13	0.00	0.13
18.45	0.35	0.51	0.69*	0.12	0.00	0.12
18.50	0.36	0.51	0.70*	0.12	0.00	0.12
18.55	0.37	0.51	0.71*	0.11	0.00	0.11
18.60	0.37	0.51	0.73*	0.10	0.00	0.10
18.65	0.38	0.51	0.74*	0.10	0.00	0.10
18.70	0.39	0.51	0.76*	0.09	0.00	0.09
18.75	0.40	0.51	0.77*	0.08	0.00	0.08
18.80	0.40	0.52	0.78*	0.08	0.00	0.08
18.85	0.41	0.52	0.80*	0.07	0.00	0.07
18.90	0.42	0.52	0.82*	0.06	0.00	0.06
18.95	0.43	0.52	0.83*	0.06	0.00	0.06
19.00	0.44	0.52	0.85*	0.05	0.00	0.05
19.05	0.45	0.52	0.87*	0.05	0.00	0.05
19.10	0.46	0.52	0.89*	0.04	0.00	0.04
19.15	0.47	0.52	0.91*	0.04	0.00	0.04
19.20	0.49	0.52	0.94*	0.03	0.00	0.03
19.25	0.50	0.52	0.97*	0.03	0.00	0.03
19.30	0.52	0.52	1.01	0.02	0.00	0.02
19.35	0.55	0.52	1.06	0.02	0.00	0.02
19.40	0.60	0.52	1.14	0.02	0.00	0.02
19.45	0.68	0.52	1.30	0.01	0.00	0.01
19.50	0.68	0.52	1.30	0.01	0.00	0.01
19.55	0.68	0.52	1.30	0.01	0.00	0.01
19.60	0.68	0.52	1.30	0.01	0.00	0.01
19.65	0.68	0.52	1.29	0.01	0.00	0.01
19.70	0.68	0.52	1.29	0.00	0.00	0.00
19.75	0.68	0.52	1.29	0.00	0.00	0.00
19.80	0.68	0.52	1.29	0.00	0.00	0.00
19.85	0.68	0.53	1.29	0.00	0.00	0.00
19.90	0.68	0.53	1.29	0.00	0.00	0.00
19.95	0.68	0.53	1.29	0.00	0.00	0.00
20.00	0.68	0.53	1.29	0.00	0.00	0.00
20.05	0.68	0.53	1.29	0.00	0.00	0.00
20.10	0.68	0.53	1.28	0.00	0.00	0.00
20.15	0.68	0.53	1.28	0.00	0.00	0.00
20.20	0.68	0.53	1.28	0.00	0.00	0.00
20.25	0.68	0.53	1.28	0.00	0.00	0.00
20.30	0.68	0.53	1.28	0.00	0.00	0.00
20.35	0.68	0.53	1.28	0.00	0.00	0.00
20.40	0.68	0.53	1.28	0.00	0.00	0.00
20.45	0.68	0.53	1.28	0.00	0.00	0.00
20.50	0.68	0.53	1.28	0.00	0.00	0.00
20.55	0.68	0.53	1.27	0.00	0.00	0.00
20.60	0.68	0.53	1.27	0.00	0.00	0.00
20.65	0.68	0.53	1.27	0.00	0.00	0.00
20.70	0.68	0.53	1.27	0.00	0.00	0.00
20.75	0.68	0.53	1.27	0.00	0.00	0.00
20.80	0.68	0.53	1.27	0.00	0.00	0.00
20.85	0.68	0.53	1.27	0.00	0.00	0.00
20.90	0.68	0.53	1.27	0.00	0.00	0.00

20.95	0.68	0.53	1.27	0.00	0.00	0.00
21.00	0.68	0.54	1.27	0.00	0.00	0.00
21.05	0.68	0.54	1.26	0.00	0.00	0.00
21.10	0.68	0.54	1.26	0.00	0.00	0.00
21.15	0.68	0.54	1.26	0.00	0.00	0.00
21.20	0.68	0.54	1.26	0.00	0.00	0.00
21.25	0.68	0.54	1.26	0.00	0.00	0.00
21.30	0.68	0.54	1.26	0.00	0.00	0.00
21.35	0.68	0.54	1.26	0.00	0.00	0.00
21.40	0.68	0.54	1.26	0.00	0.00	0.00
21.45	0.68	0.54	1.26	0.00	0.00	0.00
21.50	0.68	0.54	1.26	0.00	0.00	0.00
21.55	0.68	0.54	1.26	0.00	0.00	0.00
21.60	0.68	0.54	1.25	0.00	0.00	0.00
21.65	0.68	0.54	1.25	0.00	0.00	0.00
21.70	0.68	0.54	1.25	0.00	0.00	0.00
21.75	0.68	0.54	1.25	0.00	0.00	0.00
21.80	0.68	0.54	1.25	0.00	0.00	0.00
21.85	0.68	0.54	1.25	0.00	0.00	0.00
21.90	0.68	0.54	1.25	0.00	0.00	0.00
21.95	0.68	0.54	1.25	0.00	0.00	0.00
22.00	0.68	0.54	1.25	0.00	0.00	0.00
22.05	0.68	0.54	1.25	0.00	0.00	0.00
22.10	0.68	0.54	1.25	0.00	0.00	0.00
22.15	0.68	0.54	1.24	0.00	0.00	0.00
22.20	0.68	0.54	1.24	0.00	0.00	0.00
22.25	0.68	0.55	1.24	0.00	0.00	0.00
22.30	0.68	0.55	1.24	0.00	0.00	0.00
22.35	0.68	0.55	1.24	0.00	0.00	0.00
22.40	0.68	0.55	1.24	0.00	0.00	0.00
22.45	0.68	0.55	1.24	0.00	0.00	0.00
22.50	0.68	0.55	1.24	0.00	0.00	0.00
22.55	0.68	0.55	1.24	0.00	0.00	0.00
22.60	0.68	0.55	1.24	0.00	0.00	0.00
22.65	0.68	0.55	1.24	0.00	0.00	0.00
22.70	0.68	0.55	1.24	0.00	0.00	0.00
22.75	0.68	0.55	1.23	0.00	0.00	0.00
22.80	0.68	0.55	1.23	0.00	0.00	0.00
22.85	0.68	0.55	1.23	0.00	0.00	0.00
22.90	0.68	0.55	1.23	0.00	0.00	0.00
22.95	0.68	0.55	1.23	0.00	0.00	0.00
23.00	0.68	0.55	1.23	0.00	0.00	0.00
23.05	0.68	0.55	1.23	0.00	0.00	0.00
23.10	0.68	0.55	1.23	0.00	0.00	0.00
23.15	0.68	0.55	1.23	0.00	0.00	0.00
23.20	0.68	0.55	1.23	0.00	0.00	0.00
23.25	0.68	0.55	1.23	0.00	0.00	0.00
23.30	0.68	0.55	1.23	0.00	0.00	0.00
23.35	0.68	0.55	1.23	0.00	0.00	0.00
23.40	0.68	0.55	1.22	0.00	0.00	0.00
23.45	0.68	0.55	1.22	0.00	0.00	0.00
23.50	0.68	0.55	1.22	0.00	0.00	0.00
23.55	0.68	0.55	1.22	0.00	0.00	0.00
23.60	0.68	0.55	1.22	0.00	0.00	0.00
23.65	0.68	0.55	1.22	0.00	0.00	0.00
23.70	0.68	0.56	1.22	0.00	0.00	0.00
23.75	0.68	0.56	1.22	0.00	0.00	0.00
23.80	0.68	0.56	1.22	0.00	0.00	0.00
23.85	0.68	0.56	1.22	0.00	0.00	0.00
23.90	0.68	0.56	1.22	0.00	0.00	0.00
23.95	0.68	0.56	1.22	0.00	0.00	0.00
24.00	0.68	0.56	1.22	0.00	0.00	0.00
24.05	0.68	0.56	1.22	0.00	0.00	0.00

24.10	0.68	0.56	1.21	0.00	0.00	0.00
24.15	0.68	0.56	1.21	0.00	0.00	0.00
24.20	0.68	0.56	1.21	0.00	0.00	0.00
24.25	0.68	0.56	1.21	0.00	0.00	0.00
24.30	0.68	0.56	1.21	0.00	0.00	0.00
24.35	0.68	0.56	1.21	0.00	0.00	0.00
24.40	0.68	0.56	1.21	0.00	0.00	0.00
24.45	0.68	0.56	1.21	0.00	0.00	0.00
24.50	0.68	0.56	1.21	0.00	0.00	0.00
24.55	0.68	0.56	1.21	0.00	0.00	0.00
24.60	0.68	0.56	1.21	0.00	0.00	0.00
24.65	0.68	0.56	1.21	0.00	0.00	0.00
24.70	0.68	0.56	1.21	0.00	0.00	0.00
24.75	0.68	0.56	1.21	0.00	0.00	0.00
24.80	0.68	0.56	1.21	0.00	0.00	0.00
24.85	0.68	0.56	1.21	0.00	0.00	0.00
24.90	0.68	0.56	1.20	0.00	0.00	0.00
24.95	0.68	0.56	1.20	0.00	0.00	0.00
25.00	0.68	0.56	1.20	0.00	0.00	0.00
25.05	0.68	0.56	1.20	0.00	0.00	0.00
25.10	0.68	0.56	1.20	0.00	0.00	0.00
25.15	0.68	0.56	1.20	0.00	0.00	0.00
25.20	0.68	0.56	1.20	0.00	0.00	0.00
25.25	0.68	0.56	1.20	0.00	0.00	0.00
25.30	0.68	0.56	1.20	0.00	0.00	0.00
25.35	0.68	0.56	1.20	0.00	0.00	0.00
25.40	0.68	0.57	1.20	0.00	0.00	0.00
25.45	0.68	0.57	1.20	0.00	0.00	0.00
25.50	0.68	0.57	1.20	0.00	0.00	0.00
25.55	0.68	0.57	1.20	0.00	0.00	0.00
25.60	0.68	0.57	1.20	0.00	0.00	0.00
25.65	0.68	0.57	1.20	0.00	0.00	0.00
25.70	0.68	0.57	1.20	0.00	0.00	0.00
25.75	0.68	0.57	1.19	0.00	0.00	0.00
25.80	0.68	0.57	1.19	0.00	0.00	0.00
25.85	0.68	0.57	1.19	0.00	0.00	0.00
25.90	0.68	0.57	1.19	0.00	0.00	0.00
25.95	0.68	0.57	1.19	0.00	0.00	0.00
26.00	0.68	0.57	1.19	0.00	0.00	0.00
26.05	0.68	0.57	1.19	0.00	0.00	0.00
26.10	0.68	0.57	1.19	0.00	0.00	0.00
26.15	0.68	0.57	1.19	0.00	0.00	0.00
26.20	0.68	0.57	1.19	0.00	0.00	0.00
26.25	0.68	0.57	1.19	0.00	0.00	0.00
26.30	0.68	0.57	1.19	0.00	0.00	0.00
26.35	0.68	0.57	1.19	0.00	0.00	0.00
26.40	0.68	0.57	1.19	0.00	0.00	0.00
26.45	0.68	0.57	1.19	0.00	0.00	0.00
26.50	0.68	0.57	1.19	0.00	0.00	0.00
26.55	0.68	0.57	1.19	0.00	0.00	0.00
26.60	0.68	0.57	1.19	0.00	0.00	0.00
26.65	0.68	0.57	1.19	0.00	0.00	0.00
26.70	0.68	0.57	1.19	0.00	0.00	0.00
26.75	0.68	0.57	1.18	0.00	0.00	0.00
26.80	0.68	0.57	1.18	0.00	0.00	0.00
26.85	0.68	0.57	1.18	0.00	0.00	0.00
26.90	0.68	0.57	1.18	0.00	0.00	0.00
26.95	0.68	0.57	1.18	0.00	0.00	0.00
27.00	0.68	0.57	1.18	0.00	0.00	0.00
27.05	0.68	0.57	1.18	0.00	0.00	0.00
27.10	0.68	0.57	1.18	0.00	0.00	0.00
27.15	0.68	0.57	1.18	0.00	0.00	0.00
27.20	0.68	0.57	1.18	0.00	0.00	0.00

27.25	0.68	0.57	1.18	0.00	0.00	0.00
27.30	0.68	0.57	1.18	0.00	0.00	0.00
27.35	0.68	0.57	1.18	0.00	0.00	0.00
27.40	0.68	0.57	1.18	0.00	0.00	0.00
27.45	0.68	0.58	1.18	0.00	0.00	0.00
27.50	0.68	0.58	1.18	0.00	0.00	0.00
27.55	0.68	0.58	1.18	0.00	0.00	0.00
27.60	0.68	0.58	1.18	0.00	0.00	0.00
27.65	0.68	0.58	1.18	0.00	0.00	0.00
27.70	0.68	0.58	1.18	0.00	0.00	0.00
27.75	0.68	0.58	1.18	0.00	0.00	0.00
27.80	0.68	0.58	1.18	0.00	0.00	0.00
27.85	0.68	0.58	1.18	0.00	0.00	0.00
27.90	0.68	0.58	1.18	0.00	0.00	0.00
27.95	0.68	0.58	1.18	0.00	0.00	0.00
28.00	0.68	0.58	1.18	0.00	0.00	0.00
28.05	0.68	0.58	1.18	0.00	0.00	0.00
28.10	0.68	0.58	1.18	0.00	0.00	0.00
28.15	0.68	0.58	1.18	0.00	0.00	0.00
28.20	0.68	0.58	1.18	0.00	0.00	0.00
28.25	0.68	0.58	1.17	0.00	0.00	0.00
28.30	0.68	0.58	1.17	0.00	0.00	0.00
28.35	0.68	0.58	1.17	0.00	0.00	0.00
28.40	0.68	0.58	1.17	0.00	0.00	0.00
28.45	0.68	0.58	1.17	0.00	0.00	0.00
28.50	0.68	0.58	1.17	0.00	0.00	0.00
28.55	0.68	0.58	1.17	0.00	0.00	0.00
28.60	0.68	0.58	1.17	0.00	0.00	0.00
28.65	0.68	0.58	1.17	0.00	0.00	0.00
28.70	0.68	0.58	1.17	0.00	0.00	0.00
28.75	0.68	0.58	1.17	0.00	0.00	0.00
28.80	0.68	0.58	1.17	0.00	0.00	0.00
28.85	0.68	0.58	1.17	0.00	0.00	0.00
28.90	0.68	0.58	1.16	0.00	0.00	0.00
28.95	0.68	0.58	1.16	0.00	0.00	0.00
29.00	0.68	0.58	1.16	0.00	0.00	0.00
29.05	0.68	0.58	1.16	0.00	0.00	0.00
29.10	0.68	0.58	1.16	0.00	0.00	0.00
29.15	0.68	0.58	1.16	0.00	0.00	0.00
29.20	0.68	0.58	1.16	0.00	0.00	0.00
29.25	0.68	0.58	1.16	0.00	0.00	0.00
29.30	0.67	0.58	1.16	0.00	0.00	0.00
29.35	0.67	0.58	1.16	0.00	0.00	0.00
29.40	0.67	0.58	1.16	0.00	0.00	0.00
29.45	0.67	0.58	1.16	0.00	0.00	0.00
29.50	0.67	0.58	1.16	0.00	0.00	0.00
29.55	0.67	0.58	1.16	0.00	0.00	0.00
29.60	0.67	0.58	1.15	0.00	0.00	0.00
29.65	0.67	0.58	1.15	0.00	0.00	0.00
29.70	0.67	0.58	1.15	0.00	0.00	0.00
29.75	0.67	0.58	1.15	0.00	0.00	0.00
29.80	0.67	0.58	1.15	0.00	0.00	0.00
29.85	0.67	0.58	1.15	0.00	0.00	0.00
29.90	0.67	0.58	1.15	0.00	0.00	0.00
29.95	0.67	0.58	1.15	0.00	0.00	0.00
30.00	0.67	0.58	1.15	0.00	0.00	0.00
30.05	0.67	0.58	1.15	0.00	0.00	0.00
30.10	0.67	0.58	1.15	0.00	0.00	0.00
30.15	0.67	0.58	1.15	0.00	0.00	0.00
30.20	0.67	0.58	1.15	0.00	0.00	0.00
30.25	0.67	0.58	1.15	0.00	0.00	0.00
30.30	0.67	0.58	1.15	0.00	0.00	0.00
30.35	0.67	0.58	1.15	0.00	0.00	0.00

30.40	0.67	0.58	1.15	0.00	0.00	0.00
30.45	0.67	0.58	1.15	0.00	0.00	0.00
30.50	0.67	0.58	1.15	0.00	0.00	0.00
30.55	0.67	0.58	1.15	0.00	0.00	0.00
30.60	0.67	0.58	1.15	0.00	0.00	0.00
30.65	0.67	0.58	1.15	0.00	0.00	0.00
30.70	0.67	0.58	1.15	0.00	0.00	0.00
30.75	0.67	0.58	1.15	0.00	0.00	0.00
30.80	0.67	0.58	1.15	0.00	0.00	0.00
30.85	0.67	0.58	1.14	0.00	0.00	0.00
30.90	0.67	0.58	1.14	0.00	0.00	0.00
30.95	0.67	0.58	1.14	0.00	0.00	0.00
31.00	0.67	0.58	1.14	0.00	0.00	0.00
31.05	0.67	0.58	1.14	0.00	0.00	0.00
31.10	0.67	0.58	1.14	0.00	0.00	0.00
31.15	0.67	0.58	1.14	0.00	0.00	0.00
31.20	0.67	0.58	1.14	0.00	0.00	0.00
31.25	0.67	0.58	1.14	0.00	0.00	0.00
31.30	0.67	0.58	1.14	0.00	0.00	0.00
31.35	0.67	0.58	1.14	0.00	0.00	0.00
31.40	0.67	0.58	1.14	0.00	0.00	0.00
31.45	0.67	0.58	1.14	0.00	0.00	0.00
31.50	0.67	0.58	1.14	0.00	0.00	0.00
31.55	0.67	0.58	1.14	0.00	0.00	0.00
31.60	0.67	0.58	1.14	0.00	0.00	0.00
31.65	0.67	0.58	1.14	0.00	0.00	0.00
31.70	0.67	0.58	1.14	0.00	0.00	0.00
31.75	0.67	0.58	1.14	0.00	0.00	0.00
31.80	0.66	0.58	1.14	0.00	0.00	0.00
31.85	0.66	0.58	1.14	0.00	0.00	0.00
31.90	0.66	0.58	1.14	0.00	0.00	0.00
31.95	0.66	0.58	1.14	0.00	0.00	0.00
32.00	0.66	0.58	1.14	0.00	0.00	0.00
32.05	0.66	0.58	1.14	0.00	0.00	0.00
32.10	0.66	0.58	1.14	0.00	0.00	0.00
32.15	0.66	0.58	1.14	0.00	0.00	0.00
32.20	0.66	0.58	1.14	0.00	0.00	0.00
32.25	0.66	0.58	1.14	0.00	0.00	0.00
32.30	0.66	0.58	1.14	0.00	0.00	0.00
32.35	0.66	0.58	1.14	0.00	0.00	0.00
32.40	0.66	0.58	1.14	0.00	0.00	0.00
32.45	0.66	0.58	1.14	0.00	0.00	0.00
32.50	0.66	0.58	1.14	0.00	0.00	0.00
32.55	0.66	0.58	1.14	0.00	0.00	0.00
32.60	0.66	0.58	1.14	0.00	0.00	0.00
32.65	0.66	0.58	1.14	0.00	0.00	0.00
32.70	0.66	0.58	1.14	0.00	0.00	0.00
32.75	0.66	0.58	1.14	0.00	0.00	0.00
32.80	0.66	0.58	1.14	0.00	0.00	0.00
32.85	0.66	0.58	1.14	0.00	0.00	0.00
32.90	0.66	0.58	1.13	0.00	0.00	0.00
32.95	0.66	0.58	1.13	0.00	0.00	0.00
33.00	0.66	0.58	1.13	0.00	0.00	0.00
33.05	0.66	0.58	1.13	0.00	0.00	0.00
33.10	0.66	0.58	1.13	0.00	0.00	0.00
33.15	0.66	0.58	1.13	0.00	0.00	0.00
33.20	0.66	0.58	1.13	0.00	0.00	0.00
33.25	0.66	0.58	1.13	0.00	0.00	0.00
33.30	0.66	0.58	1.13	0.00	0.00	0.00
33.35	0.66	0.58	1.13	0.00	0.00	0.00
33.40	0.66	0.58	1.13	0.00	0.00	0.00
33.45	0.66	0.58	1.13	0.00	0.00	0.00
33.50	0.66	0.58	1.13	0.00	0.00	0.00

33.55	0.66	0.58	1.13	0.00	0.00	0.00
33.60	0.66	0.58	1.13	0.00	0.00	0.00
33.65	0.66	0.58	1.13	0.00	0.00	0.00
33.70	0.66	0.58	1.13	0.00	0.00	0.00
33.75	0.66	0.58	1.13	0.00	0.00	0.00
33.80	0.66	0.58	1.13	0.00	0.00	0.00
33.85	0.66	0.58	1.13	0.00	0.00	0.00
33.90	0.66	0.58	1.13	0.00	0.00	0.00
33.95	0.66	0.58	1.13	0.00	0.00	0.00
34.00	0.66	0.58	1.13	0.00	0.00	0.00
34.05	0.66	0.58	1.13	0.00	0.00	0.00
34.10	0.66	0.58	1.13	0.00	0.00	0.00
34.15	0.66	0.58	1.13	0.00	0.00	0.00
34.20	0.66	0.58	1.13	0.00	0.00	0.00
34.25	0.66	0.58	1.13	0.00	0.00	0.00
34.30	0.66	0.58	1.13	0.00	0.00	0.00
34.35	0.66	0.58	1.13	0.00	0.00	0.00
34.40	0.66	0.58	1.13	0.00	0.00	0.00
34.45	0.65	0.58	1.13	0.00	0.00	0.00
34.50	0.65	0.58	1.13	0.00	0.00	0.00
34.55	0.65	0.58	1.13	0.00	0.00	0.00
34.60	0.65	0.58	1.13	0.00	0.00	0.00
34.65	0.65	0.58	1.13	0.00	0.00	0.00
34.70	0.65	0.58	1.13	0.00	0.00	0.00
34.75	0.65	0.58	1.13	0.00	0.00	0.00
34.80	0.65	0.58	1.13	0.00	0.00	0.00
34.85	0.65	0.58	1.13	0.00	0.00	0.00
34.90	0.65	0.58	1.13	0.00	0.00	0.00
34.95	0.65	0.58	1.13	0.00	0.00	0.00
35.00	0.65	0.58	1.13	0.00	0.00	0.00
35.05	0.65	0.58	1.13	0.00	0.00	0.00
35.10	0.65	0.58	1.12	0.00	0.00	0.00
35.15	0.65	0.58	1.12	0.00	0.00	0.00
35.20	0.65	0.58	1.12	0.00	0.00	0.00
35.25	0.65	0.58	1.12	0.00	0.00	0.00
35.30	0.65	0.58	1.12	0.00	0.00	0.00
35.35	0.65	0.58	1.12	0.00	0.00	0.00
35.40	0.65	0.58	1.12	0.00	0.00	0.00
35.45	0.65	0.58	1.12	0.00	0.00	0.00
35.50	0.65	0.58	1.12	0.00	0.00	0.00
35.55	0.65	0.58	1.12	0.00	0.00	0.00
35.60	0.65	0.58	1.12	0.00	0.00	0.00
35.65	0.65	0.58	1.12	0.00	0.00	0.00
35.70	0.65	0.58	1.12	0.00	0.00	0.00
35.75	0.65	0.58	1.12	0.00	0.00	0.00
35.80	0.65	0.58	1.12	0.00	0.00	0.00
35.85	0.65	0.58	1.12	0.00	0.00	0.00
35.90	0.65	0.58	1.12	0.00	0.00	0.00
35.95	0.65	0.58	1.12	0.00	0.00	0.00
36.00	0.65	0.58	1.12	0.00	0.00	0.00
36.05	0.65	0.58	1.12	0.00	0.00	0.00
36.10	0.65	0.58	1.12	0.00	0.00	0.00
36.15	0.65	0.58	1.12	0.00	0.00	0.00
36.20	0.65	0.58	1.12	0.00	0.00	0.00
36.25	0.65	0.58	1.12	0.00	0.00	0.00
36.30	0.65	0.58	1.12	0.00	0.00	0.00
36.35	0.65	0.58	1.12	0.00	0.00	0.00
36.40	0.65	0.58	1.12	0.00	0.00	0.00
36.45	0.65	0.58	1.12	0.00	0.00	0.00
36.50	0.65	0.58	1.12	0.00	0.00	0.00
36.55	0.65	0.58	1.12	0.00	0.00	0.00
36.60	0.65	0.58	1.12	0.00	0.00	0.00
36.65	0.65	0.58	1.12	0.00	0.00	0.00

36.70	0.65	0.58	1.12	0.00	0.00	0.00
36.75	0.65	0.58	1.12	0.00	0.00	0.00
36.80	0.65	0.58	1.12	0.00	0.00	0.00
36.85	0.65	0.58	1.12	0.00	0.00	0.00
36.90	0.65	0.58	1.12	0.00	0.00	0.00
36.95	0.65	0.58	1.12	0.00	0.00	0.00
37.00	0.65	0.58	1.12	0.00	0.00	0.00
37.05	0.65	0.58	1.12	0.00	0.00	0.00
37.10	0.65	0.58	1.12	0.00	0.00	0.00
37.15	0.65	0.58	1.12	0.00	0.00	0.00
37.20	0.65	0.58	1.12	0.00	0.00	0.00
37.25	0.65	0.58	1.12	0.00	0.00	0.00
37.30	0.65	0.58	1.12	0.00	0.00	0.00
37.35	0.65	0.58	1.12	0.00	0.00	0.00
37.40	0.65	0.58	1.12	0.00	0.00	0.00
37.45	0.65	0.58	1.12	0.00	0.00	0.00
37.50	0.64	0.58	1.12	0.00	0.00	0.00
37.55	0.64	0.58	1.12	0.00	0.00	0.00
37.60	0.64	0.58	1.12	0.00	0.00	0.00
37.65	0.64	0.58	1.11	0.00	0.00	0.00
37.70	0.64	0.58	1.11	0.00	0.00	0.00
37.75	0.64	0.58	1.11	0.00	0.00	0.00
37.80	0.64	0.58	1.11	0.00	0.00	0.00
37.85	0.64	0.58	1.11	0.00	0.00	0.00
37.90	0.64	0.58	1.11	0.00	0.00	0.00
37.95	0.64	0.58	1.11	0.00	0.00	0.00
38.00	0.64	0.58	1.11	0.00	0.00	0.00
38.05	0.64	0.58	1.11	0.00	0.00	0.00
38.10	0.64	0.58	1.11	0.00	0.00	0.00
38.15	0.64	0.58	1.11	0.00	0.00	0.00
38.20	0.64	0.58	1.11	0.00	0.00	0.00
38.25	0.64	0.58	1.11	0.00	0.00	0.00
38.30	0.64	0.58	1.11	0.00	0.00	0.00
38.35	0.64	0.58	1.11	0.00	0.00	0.00
38.40	0.64	0.58	1.11	0.00	0.00	0.00
38.45	0.64	0.58	1.11	0.00	0.00	0.00
38.50	0.64	0.58	1.11	0.00	0.00	0.00
38.55	0.64	0.58	1.11	0.00	0.00	0.00
38.60	0.64	0.58	1.11	0.00	0.00	0.00
38.65	0.64	0.58	1.11	0.00	0.00	0.00
38.70	0.64	0.58	1.11	0.00	0.00	0.00
38.75	0.64	0.58	1.11	0.00	0.00	0.00
38.80	0.64	0.58	1.11	0.00	0.00	0.00
38.85	0.64	0.58	1.11	0.00	0.00	0.00
38.90	0.64	0.58	1.11	0.00	0.00	0.00
38.95	0.64	0.58	1.11	0.00	0.00	0.00
39.00	0.64	0.58	1.11	0.00	0.00	0.00
39.05	0.64	0.58	1.11	0.00	0.00	0.00
39.10	0.64	0.58	1.11	0.00	0.00	0.00
39.15	0.64	0.58	1.11	0.00	0.00	0.00
39.20	0.64	0.58	1.11	0.00	0.00	0.00
39.25	0.64	0.58	1.11	0.00	0.00	0.00
39.30	0.64	0.58	1.11	0.00	0.00	0.00
39.35	0.64	0.58	1.11	0.00	0.00	0.00
39.40	0.64	0.58	1.11	0.00	0.00	0.00
39.45	0.64	0.58	1.11	0.00	0.00	0.00
39.50	0.64	0.58	1.11	0.00	0.00	0.00
39.55	0.64	0.58	1.11	0.00	0.00	0.00
39.60	0.64	0.58	1.11	0.00	0.00	0.00
39.65	0.64	0.58	1.11	0.00	0.00	0.00
39.70	0.64	0.58	1.11	0.00	0.00	0.00
39.75	0.64	0.58	1.11	0.00	0.00	0.00
39.80	0.64	0.58	1.11	0.00	0.00	0.00

39.85	0.64	0.58	1.11	0.00	0.00	0.00
39.90	0.64	0.57	1.11	0.00	0.00	0.00
39.95	0.64	0.57	1.11	0.00	0.00	0.00
40.00	0.64	0.57	1.11	0.00	0.00	0.00
40.05	0.64	0.57	1.11	0.00	0.00	0.00
40.10	0.64	0.57	1.11	0.00	0.00	0.00
40.15	0.64	0.57	1.11	0.00	0.00	0.00
40.20	0.64	0.57	1.11	0.00	0.00	0.00
40.25	0.64	0.57	1.11	0.00	0.00	0.00
40.30	0.64	0.57	1.11	0.00	0.00	0.00
40.35	0.64	0.57	1.11	0.00	0.00	0.00
40.40	0.64	0.57	1.11	0.00	0.00	0.00
40.45	0.64	0.57	1.11	0.00	0.00	0.00
40.50	0.64	0.57	1.11	0.00	0.00	0.00
40.55	0.64	0.57	1.11	0.00	0.00	0.00
40.60	0.64	0.57	1.11	0.00	0.00	0.00
40.65	0.64	0.57	1.11	0.00	0.00	0.00
40.70	0.63	0.57	1.11	0.00	0.00	0.00
40.75	0.63	0.57	1.11	0.00	0.00	0.00
40.80	0.63	0.57	1.11	0.00	0.00	0.00
40.85	0.63	0.57	1.11	0.00	0.00	0.00
40.90	0.63	0.57	1.11	0.00	0.00	0.00
40.95	0.63	0.57	1.11	0.00	0.00	0.00
41.00	0.63	0.57	1.11	0.00	0.00	0.00
41.05	0.63	0.57	1.11	0.00	0.00	0.00
41.10	0.63	0.57	1.11	0.00	0.00	0.00
41.15	0.63	0.57	1.11	0.00	0.00	0.00
41.20	0.63	0.57	1.11	0.00	0.00	0.00
41.25	0.63	0.57	1.11	0.00	0.00	0.00
41.30	0.63	0.57	1.11	0.00	0.00	0.00
41.35	0.63	0.57	1.11	0.00	0.00	0.00
41.40	0.63	0.57	1.11	0.00	0.00	0.00
41.45	0.63	0.57	1.11	0.00	0.00	0.00
41.50	0.63	0.57	1.11	0.00	0.00	0.00
41.55	0.63	0.57	1.11	0.00	0.00	0.00
41.60	0.63	0.57	1.11	0.00	0.00	0.00
41.65	0.63	0.57	1.11	0.00	0.00	0.00
41.70	0.63	0.57	1.11	0.00	0.00	0.00
41.75	0.63	0.57	1.11	0.00	0.00	0.00
41.80	0.63	0.57	1.11	0.00	0.00	0.00
41.85	0.63	0.57	1.11	0.00	0.00	0.00
41.90	0.63	0.57	1.11	0.00	0.00	0.00
41.95	0.63	0.57	1.11	0.00	0.00	0.00
42.00	0.63	0.57	1.11	0.00	0.00	0.00
42.05	0.63	0.57	1.11	0.00	0.00	0.00
42.10	0.63	0.57	1.11	0.00	0.00	0.00
42.15	0.63	0.57	1.11	0.00	0.00	0.00
42.20	0.63	0.57	1.11	0.00	0.00	0.00
42.25	0.63	0.57	1.11	0.00	0.00	0.00
42.30	0.63	0.57	1.11	0.00	0.00	0.00
42.35	0.63	0.57	1.11	0.00	0.00	0.00
42.40	0.63	0.57	1.11	0.00	0.00	0.00
42.45	0.63	0.57	1.11	0.00	0.00	0.00
42.50	0.63	0.57	1.11	0.00	0.00	0.00
42.55	0.63	0.57	1.11	0.00	0.00	0.00
42.60	0.63	0.57	1.11	0.00	0.00	0.00
42.65	0.63	0.57	1.11	0.00	0.00	0.00
42.70	0.63	0.57	1.11	0.00	0.00	0.00
42.75	0.63	0.57	1.11	0.00	0.00	0.00
42.80	0.63	0.57	1.11	0.00	0.00	0.00
42.85	0.63	0.57	1.11	0.00	0.00	0.00
42.90	0.63	0.57	1.11	0.00	0.00	0.00
42.95	0.63	0.57	1.11	0.00	0.00	0.00

43.00	0.63	0.57	1.11	0.00	0.00	0.00
43.05	0.63	0.57	1.11	0.00	0.00	0.00
43.10	0.63	0.57	1.11	0.00	0.00	0.00
43.15	0.63	0.57	1.11	0.00	0.00	0.00
43.20	0.63	0.57	1.11	0.00	0.00	0.00
43.25	0.63	0.57	1.11	0.00	0.00	0.00
43.30	0.63	0.57	1.11	0.00	0.00	0.00
43.35	0.63	0.57	1.11	0.00	0.00	0.00
43.40	0.63	0.57	1.11	0.00	0.00	0.00
43.45	0.63	0.57	1.11	0.00	0.00	0.00
43.50	0.63	0.57	1.11	0.00	0.00	0.00
43.55	0.63	0.57	1.11	0.00	0.00	0.00
43.60	0.63	0.57	1.11	0.00	0.00	0.00
43.65	0.63	0.57	1.11	0.00	0.00	0.00
43.70	0.63	0.57	1.11	0.00	0.00	0.00
43.75	0.63	0.57	1.11	0.00	0.00	0.00
43.80	0.62	0.57	1.11	0.00	0.00	0.00
43.85	0.62	0.57	1.11	0.00	0.00	0.00
43.90	0.62	0.56	1.11	0.00	0.00	0.00
43.95	0.62	0.56	1.11	0.00	0.00	0.00
44.00	0.62	0.56	1.11	0.00	0.00	0.00
44.05	0.62	0.56	1.11	0.00	0.00	0.00
44.10	0.62	0.56	1.11	0.00	0.00	0.00
44.15	0.62	0.56	1.11	0.00	0.00	0.00
44.20	0.62	0.56	1.11	0.00	0.00	0.00
44.25	0.62	0.56	1.11	0.00	0.00	0.00
44.30	0.62	0.56	1.11	0.00	0.00	0.00
44.35	0.62	0.56	1.11	0.00	0.00	0.00
44.40	0.62	0.56	1.11	0.00	0.00	0.00
44.45	0.62	0.56	1.11	0.00	0.00	0.00
44.50	0.62	0.56	1.11	0.00	0.00	0.00
44.55	0.62	0.56	1.11	0.00	0.00	0.00
44.60	0.62	0.56	1.11	0.00	0.00	0.00
44.65	0.62	0.56	1.11	0.00	0.00	0.00
44.70	0.62	0.56	1.11	0.00	0.00	0.00
44.75	0.62	0.56	1.11	0.00	0.00	0.00
44.80	0.62	0.56	1.11	0.00	0.00	0.00
44.85	0.62	0.56	1.11	0.00	0.00	0.00
44.90	0.62	0.56	1.11	0.00	0.00	0.00
44.95	0.62	0.56	1.11	0.00	0.00	0.00
45.00	0.62	0.56	1.11	0.00	0.00	0.00
45.05	0.62	0.56	1.11	0.00	0.00	0.00
45.10	0.62	0.56	1.11	0.00	0.00	0.00
45.15	0.62	0.56	1.11	0.00	0.00	0.00
45.20	0.62	0.56	1.11	0.00	0.00	0.00
45.25	0.62	0.56	1.11	0.00	0.00	0.00
45.30	0.62	0.56	1.11	0.00	0.00	0.00
45.35	0.62	0.56	1.11	0.00	0.00	0.00
45.40	0.62	0.56	1.11	0.00	0.00	0.00
45.45	0.62	0.56	1.11	0.00	0.00	0.00
45.50	0.62	0.56	1.11	0.00	0.00	0.00
45.55	0.62	0.56	1.11	0.00	0.00	0.00
45.60	0.62	0.56	1.11	0.00	0.00	0.00
45.65	0.62	0.56	1.11	0.00	0.00	0.00
45.70	0.62	0.56	1.11	0.00	0.00	0.00
45.75	0.62	0.56	1.11	0.00	0.00	0.00
45.80	0.62	0.56	1.11	0.00	0.00	0.00
45.85	0.62	0.56	1.11	0.00	0.00	0.00
45.90	0.62	0.56	1.11	0.00	0.00	0.00
45.95	0.62	0.56	1.11	0.00	0.00	0.00
46.00	0.62	0.56	1.11	0.00	0.00	0.00
46.05	0.62	0.56	1.11	0.00	0.00	0.00
46.10	0.62	0.56	1.11	0.00	0.00	0.00

46.15	0.62	0.56	1.11	0.00	0.00	0.00
46.20	0.62	0.56	1.11	0.00	0.00	0.00
46.25	0.62	0.56	1.11	0.00	0.00	0.00
46.30	0.62	0.56	1.11	0.00	0.00	0.00
46.35	0.62	0.56	1.11	0.00	0.00	0.00
46.40	0.62	0.56	1.11	0.00	0.00	0.00
46.45	0.62	0.55	1.11	0.00	0.00	0.00
46.50	0.62	0.55	1.11	0.00	0.00	0.00
46.55	0.62	0.55	1.11	0.00	0.00	0.00
46.60	0.62	0.55	1.11	0.00	0.00	0.00
46.65	0.62	0.55	1.11	0.00	0.00	0.00
46.70	0.62	0.55	1.11	0.00	0.00	0.00
46.75	0.61	0.55	1.11	0.00	0.00	0.00
46.80	0.61	0.55	1.11	0.00	0.00	0.00
46.85	0.61	0.55	1.11	0.00	0.00	0.00
46.90	0.61	0.55	1.11	0.00	0.00	0.00
46.95	0.61	0.55	1.11	0.00	0.00	0.00
47.00	0.61	0.55	1.11	0.00	0.00	0.00
47.05	0.61	0.55	1.11	0.00	0.00	0.00
47.10	0.61	0.55	1.11	0.00	0.00	0.00
47.15	0.61	0.55	1.11	0.00	0.00	0.00
47.20	0.61	0.55	1.11	0.00	0.00	0.00
47.25	0.61	0.55	1.11	0.00	0.00	0.00
47.30	0.61	0.55	1.11	0.00	0.00	0.00
47.35	0.61	0.55	1.11	0.00	0.00	0.00
47.40	0.61	0.55	1.11	0.00	0.00	0.00
47.45	0.61	0.55	1.11	0.00	0.00	0.00
47.50	0.61	0.55	1.11	0.00	0.00	0.00
47.55	0.61	0.55	1.11	0.00	0.00	0.00
47.60	0.61	0.55	1.11	0.00	0.00	0.00
47.65	0.61	0.55	1.11	0.00	0.00	0.00
47.70	0.61	0.55	1.11	0.00	0.00	0.00
47.75	0.61	0.55	1.11	0.00	0.00	0.00
47.80	0.61	0.55	1.11	0.00	0.00	0.00
47.85	0.61	0.55	1.11	0.00	0.00	0.00
47.90	0.61	0.55	1.11	0.00	0.00	0.00
47.95	0.61	0.55	1.11	0.00	0.00	0.00
48.00	0.61	0.55	1.11	0.00	0.00	0.00
48.05	0.61	0.55	1.11	0.00	0.00	0.00
48.10	0.61	0.55	1.11	0.00	0.00	0.00
48.15	0.61	0.55	1.11	0.00	0.00	0.00
48.20	0.61	0.55	1.11	0.00	0.00	0.00
48.25	0.61	0.55	1.11	0.00	0.00	0.00
48.30	0.61	0.55	1.11	0.00	0.00	0.00
48.35	0.61	0.55	1.12	0.00	0.00	0.00
48.40	0.61	0.55	1.12	0.00	0.00	0.00
48.45	0.61	0.55	1.12	0.00	0.00	0.00
48.50	0.61	0.55	1.12	0.00	0.00	0.00
48.55	0.61	0.55	1.12	0.00	0.00	0.00
48.60	0.61	0.55	1.12	0.00	0.00	0.00
48.65	0.61	0.55	1.12	0.00	0.00	0.00
48.70	0.61	0.55	1.12	0.00	0.00	0.00
48.75	0.61	0.54	1.12	0.00	0.00	0.00
48.80	0.61	0.54	1.12	0.00	0.00	0.00
48.85	0.61	0.54	1.12	0.00	0.00	0.00
48.90	0.61	0.54	1.12	0.00	0.00	0.00
48.95	0.61	0.54	1.12	0.00	0.00	0.00
49.00	0.61	0.54	1.12	0.00	0.00	0.00
49.05	0.61	0.54	1.12	0.00	0.00	0.00
49.10	0.61	0.54	1.12	0.00	0.00	0.00
49.15	0.61	0.54	1.12	0.00	0.00	0.00
49.20	0.61	0.54	1.12	0.00	0.00	0.00
49.25	0.61	0.54	1.12	0.00	0.00	0.00

49.30	0.61	0.54	1.12	0.00	0.00	0.00
49.35	0.61	0.54	1.12	0.00	0.00	0.00
49.40	0.61	0.54	1.12	0.00	0.00	0.00
49.45	0.61	0.54	1.12	0.00	0.00	0.00
49.50	0.61	0.54	1.12	0.00	0.00	0.00
49.55	0.61	0.54	1.12	0.00	0.00	0.00
49.60	0.61	0.54	1.12	0.00	0.00	0.00
49.65	0.61	0.54	1.12	0.00	0.00	0.00
49.70	0.61	0.54	1.12	0.00	0.00	0.00
49.75	0.60	0.54	1.12	0.00	0.00	0.00
49.80	0.60	0.54	1.12	0.00	0.00	0.00
49.85	0.60	0.54	1.12	0.00	0.00	0.00
49.90	0.60	0.54	1.12	0.00	0.00	0.00
49.95	0.60	0.54	1.12	0.00	0.00	0.00
50.00	0.60	0.54	1.12	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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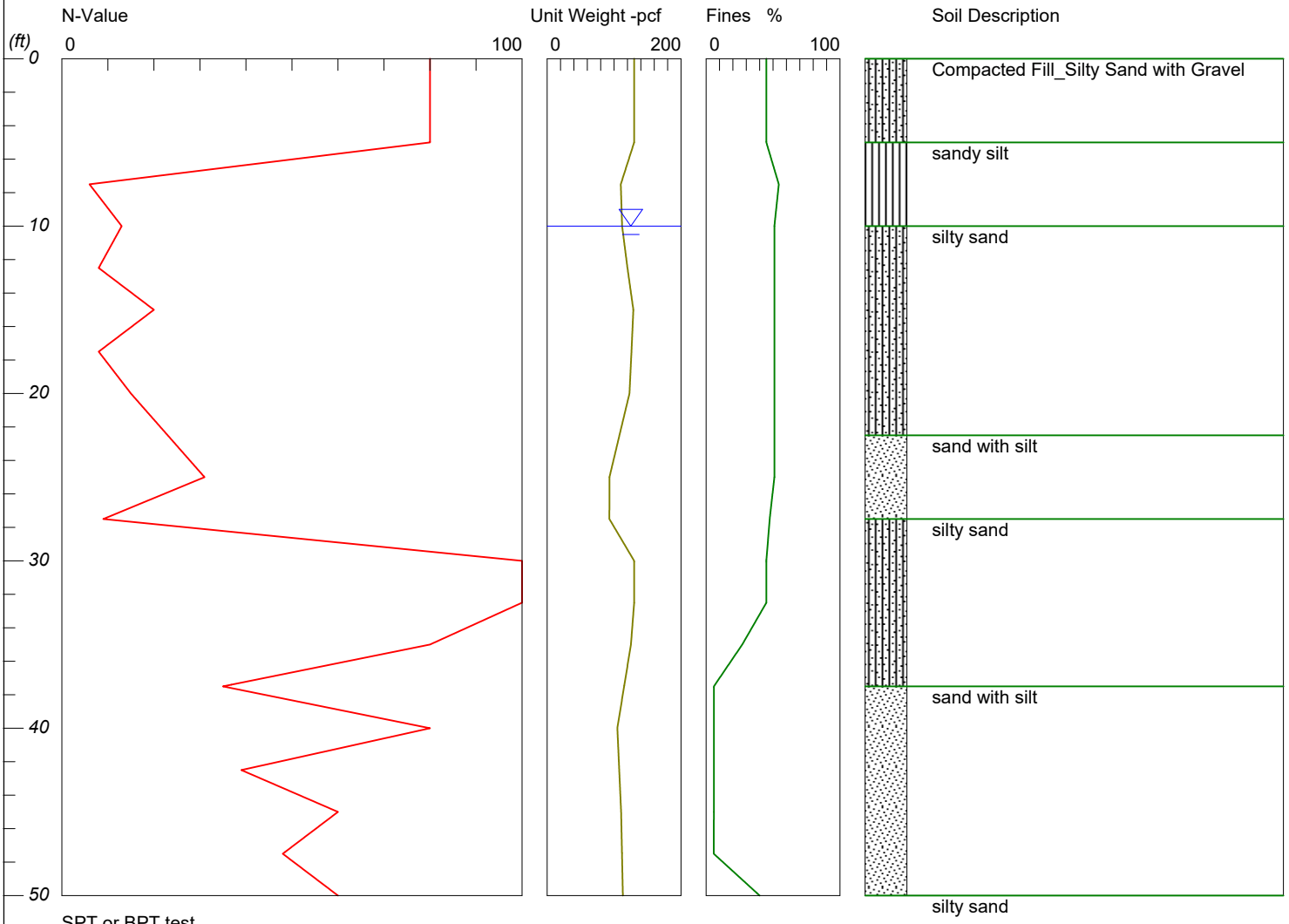
1 atm (atmosphere) = 1 tsf (ton/ft2)
CRRm Cyclic resistance ratio from soils
CSRsf Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat Settlement from saturated sands
S_dry Settlement from Unsaturated Sands
S_all Total Settlement from Saturated and Unsaturated Sands
NoLiq No-Liquefy Soils

LIQUEFACTION ANALYSIS

Copperleah El Monte

Hole No.=B-2 Water Depth=10 ft Surface Elev.=277

Magnitude=6.66
Acceleration=0.57g



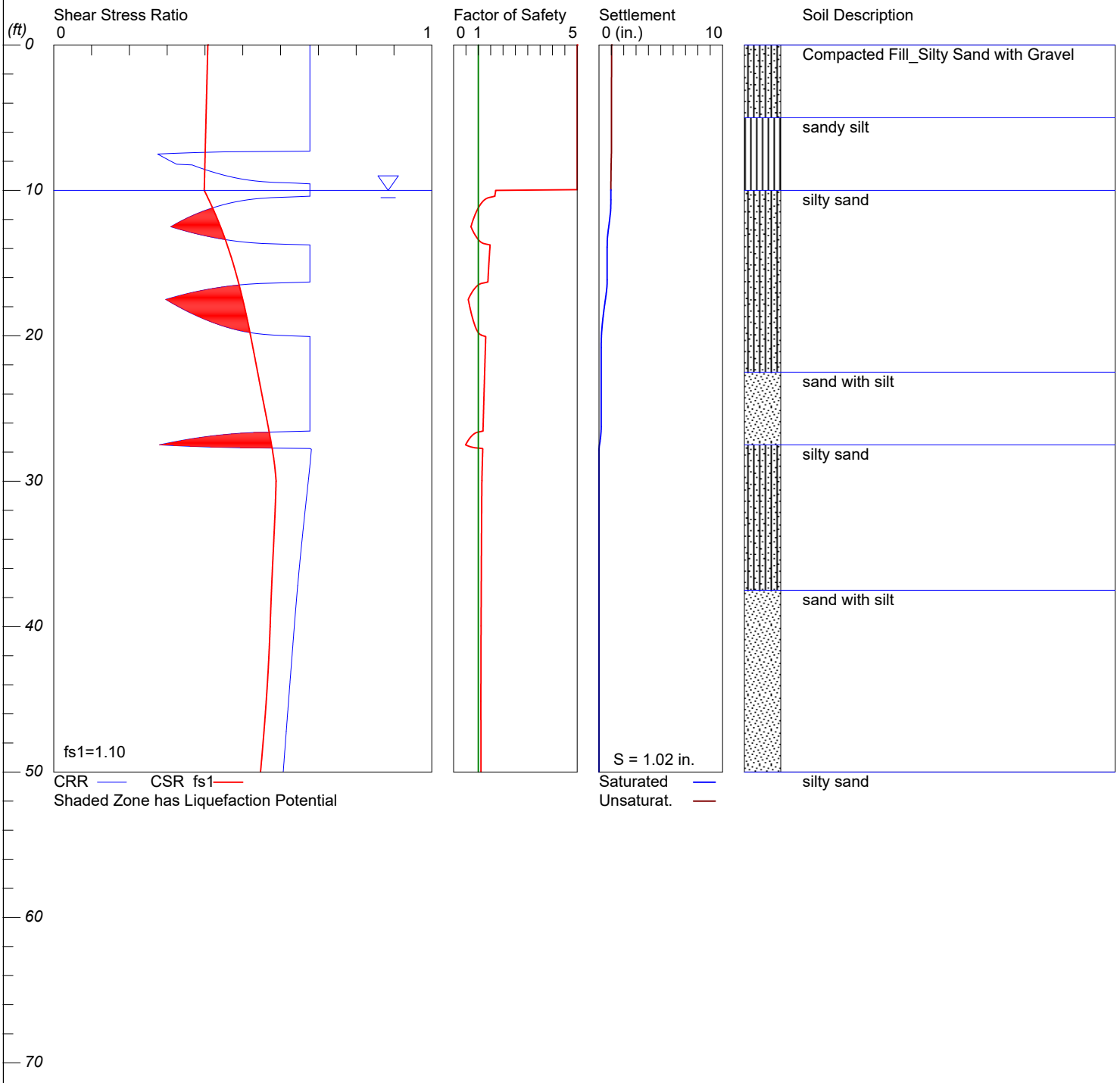
LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

Copperleah El Monte

Hole No.=B-2 Water Depth=10 ft Surface Elev.=277

Magnitude=6.66
Acceleration=0.57g



LiquefyPro CivilTech Software USA www.civiltech.com

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LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: G:_Projects\2019\19G-0075\Liquifaction Analysis\19G-0075-0_B2.liq
Title: Copperleah El Monte
Subtitle: 19G-0075-0

Surface Elev.=277
Hole No.=B-2
Depth of Hole= 50.00 ft
Water Table during Earthquake= 10.00 ft
Water Table during In-Situ Testing= 60.00 ft
Max. Acceleration= 0.57 g
Earthquake Magnitude= 6.66

Input Data:
Surface Elev.=277
Hole No.=B-2
Depth of Hole=50.00 ft
Water Table during Earthquake= 10.00 ft
Water Table during In-Situ Testing= 60.00 ft
Max. Acceleration=0.57 g
Earthquake Magnitude=6.66
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Stark/Olson et al.*
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1.15
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR) , User= 1.1
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	80.00	130.00	45.00
2.50	80.00	130.00	45.00
5.00	80.00	130.00	45.00
7.50	6.00	110.00	54.30
10.00	13.00	112.00	51.00
12.50	8.00	120.00	51.00
15.00	20.00	128.80	51.00
17.50	8.00	126.00	51.00
20.00	15.00	123.00	51.00
22.50	23.00	108.00	51.00

25.00	31.00	93.10	51.00
27.50	9.00	93.00	47.50
30.00	100.00	130.00	45.00
32.50	100.00	130.00	45.00
35.00	80.00	125.20	27.00
37.50	35.00	115.00	5.80
40.00	80.00	104.90	5.80
42.50	39.00	107.70	5.80
45.00	60.00	110.50	5.80
47.50	48.00	111.80	5.70
50.00	60.00	113.10	40.00

Output Results:

Settlement of Saturated Sands=0.96 in.
Settlement of Unsaturated Sands=0.05 in.
Total Settlement of Saturated and Unsaturated Sands=1.02 in.
Differential Settlement=0.508 to 0.671 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	0.68	0.41	5.00	0.96	0.05	1.02
0.05	0.68	0.41	5.00	0.96	0.05	1.02
0.10	0.68	0.41	5.00	0.96	0.05	1.02
0.15	0.68	0.41	5.00	0.96	0.05	1.02
0.20	0.68	0.41	5.00	0.96	0.05	1.02
0.25	0.68	0.41	5.00	0.96	0.05	1.02
0.30	0.68	0.41	5.00	0.96	0.05	1.02
0.35	0.68	0.41	5.00	0.96	0.05	1.02
0.40	0.68	0.41	5.00	0.96	0.05	1.02
0.45	0.68	0.41	5.00	0.96	0.05	1.02
0.50	0.68	0.41	5.00	0.96	0.05	1.02
0.55	0.68	0.41	5.00	0.96	0.05	1.02
0.60	0.68	0.41	5.00	0.96	0.05	1.02
0.65	0.68	0.41	5.00	0.96	0.05	1.02
0.70	0.68	0.41	5.00	0.96	0.05	1.02
0.75	0.68	0.41	5.00	0.96	0.05	1.02
0.80	0.68	0.41	5.00	0.96	0.05	1.02
0.85	0.68	0.41	5.00	0.96	0.05	1.02
0.90	0.68	0.41	5.00	0.96	0.05	1.02
0.95	0.68	0.41	5.00	0.96	0.05	1.02
1.00	0.68	0.41	5.00	0.96	0.05	1.02
1.05	0.68	0.41	5.00	0.96	0.05	1.02
1.10	0.68	0.41	5.00	0.96	0.05	1.02
1.15	0.68	0.41	5.00	0.96	0.05	1.02
1.20	0.68	0.41	5.00	0.96	0.05	1.02
1.25	0.68	0.41	5.00	0.96	0.05	1.02
1.30	0.68	0.41	5.00	0.96	0.05	1.02
1.35	0.68	0.41	5.00	0.96	0.05	1.02
1.40	0.68	0.41	5.00	0.96	0.05	1.02
1.45	0.68	0.41	5.00	0.96	0.05	1.02
1.50	0.68	0.41	5.00	0.96	0.05	1.02
1.55	0.68	0.41	5.00	0.96	0.05	1.02
1.60	0.68	0.41	5.00	0.96	0.05	1.02
1.65	0.68	0.41	5.00	0.96	0.05	1.02
1.70	0.68	0.41	5.00	0.96	0.05	1.02
1.75	0.68	0.41	5.00	0.96	0.05	1.02
1.80	0.68	0.41	5.00	0.96	0.05	1.02
1.85	0.68	0.41	5.00	0.96	0.05	1.02
1.90	0.68	0.41	5.00	0.96	0.05	1.02
1.95	0.68	0.41	5.00	0.96	0.05	1.01
2.00	0.68	0.41	5.00	0.96	0.05	1.01

2.05	0.68	0.41	5.00	0.96	0.05	1.01
2.10	0.68	0.41	5.00	0.96	0.05	1.01
2.15	0.68	0.41	5.00	0.96	0.05	1.01
2.20	0.68	0.41	5.00	0.96	0.05	1.01
2.25	0.68	0.41	5.00	0.96	0.05	1.01
2.30	0.68	0.41	5.00	0.96	0.05	1.01
2.35	0.68	0.41	5.00	0.96	0.05	1.01
2.40	0.68	0.41	5.00	0.96	0.05	1.01
2.45	0.68	0.41	5.00	0.96	0.05	1.01
2.50	0.68	0.41	5.00	0.96	0.05	1.01
2.55	0.68	0.41	5.00	0.96	0.05	1.01
2.60	0.68	0.41	5.00	0.96	0.05	1.01
2.65	0.68	0.41	5.00	0.96	0.05	1.01
2.70	0.68	0.40	5.00	0.96	0.05	1.01
2.75	0.68	0.40	5.00	0.96	0.05	1.01
2.80	0.68	0.40	5.00	0.96	0.05	1.01
2.85	0.68	0.40	5.00	0.96	0.05	1.01
2.90	0.68	0.40	5.00	0.96	0.05	1.01
2.95	0.68	0.40	5.00	0.96	0.05	1.01
3.00	0.68	0.40	5.00	0.96	0.05	1.01
3.05	0.68	0.40	5.00	0.96	0.05	1.01
3.10	0.68	0.40	5.00	0.96	0.05	1.01
3.15	0.68	0.40	5.00	0.96	0.05	1.01
3.20	0.68	0.40	5.00	0.96	0.05	1.01
3.25	0.68	0.40	5.00	0.96	0.05	1.01
3.30	0.68	0.40	5.00	0.96	0.05	1.01
3.35	0.68	0.40	5.00	0.96	0.05	1.01
3.40	0.68	0.40	5.00	0.96	0.05	1.01
3.45	0.68	0.40	5.00	0.96	0.05	1.01
3.50	0.68	0.40	5.00	0.96	0.05	1.01
3.55	0.68	0.40	5.00	0.96	0.05	1.01
3.60	0.68	0.40	5.00	0.96	0.05	1.01
3.65	0.68	0.40	5.00	0.96	0.05	1.01
3.70	0.68	0.40	5.00	0.96	0.05	1.01
3.75	0.68	0.40	5.00	0.96	0.05	1.01
3.80	0.68	0.40	5.00	0.96	0.05	1.01
3.85	0.68	0.40	5.00	0.96	0.05	1.01
3.90	0.68	0.40	5.00	0.96	0.05	1.01
3.95	0.68	0.40	5.00	0.96	0.05	1.01
4.00	0.68	0.40	5.00	0.96	0.05	1.01
4.05	0.68	0.40	5.00	0.96	0.05	1.01
4.10	0.68	0.40	5.00	0.96	0.05	1.01
4.15	0.68	0.40	5.00	0.96	0.05	1.01
4.20	0.68	0.40	5.00	0.96	0.05	1.01
4.25	0.68	0.40	5.00	0.96	0.05	1.01
4.30	0.68	0.40	5.00	0.96	0.05	1.01
4.35	0.68	0.40	5.00	0.96	0.05	1.01
4.40	0.68	0.40	5.00	0.96	0.05	1.01
4.45	0.68	0.40	5.00	0.96	0.05	1.01
4.50	0.68	0.40	5.00	0.96	0.05	1.01
4.55	0.68	0.40	5.00	0.96	0.05	1.01
4.60	0.68	0.40	5.00	0.96	0.05	1.01
4.65	0.68	0.40	5.00	0.96	0.05	1.01
4.70	0.68	0.40	5.00	0.96	0.05	1.01
4.75	0.68	0.40	5.00	0.96	0.05	1.01
4.80	0.68	0.40	5.00	0.96	0.05	1.01
4.85	0.68	0.40	5.00	0.96	0.05	1.01
4.90	0.68	0.40	5.00	0.96	0.05	1.01
4.95	0.68	0.40	5.00	0.96	0.05	1.01
5.00	0.68	0.40	5.00	0.96	0.05	1.01
5.05	0.68	0.40	5.00	0.96	0.05	1.01
5.10	0.68	0.40	5.00	0.96	0.05	1.01
5.15	0.68	0.40	5.00	0.96	0.05	1.01

5.20	0.68	0.40	5.00	0.96	0.05	1.01
5.25	0.68	0.40	5.00	0.96	0.05	1.01
5.30	0.68	0.40	5.00	0.96	0.05	1.01
5.35	0.68	0.40	5.00	0.96	0.05	1.01
5.40	0.68	0.40	5.00	0.96	0.05	1.01
5.45	0.68	0.40	5.00	0.96	0.05	1.01
5.50	0.68	0.40	5.00	0.96	0.05	1.01
5.55	0.68	0.40	5.00	0.96	0.05	1.01
5.60	0.68	0.40	5.00	0.96	0.05	1.01
5.65	0.68	0.40	5.00	0.96	0.05	1.01
5.70	0.68	0.40	5.00	0.96	0.05	1.01
5.75	0.68	0.40	5.00	0.96	0.05	1.01
5.80	0.68	0.40	5.00	0.96	0.05	1.01
5.85	0.68	0.40	5.00	0.96	0.05	1.01
5.90	0.68	0.40	5.00	0.96	0.05	1.01
5.95	0.68	0.40	5.00	0.96	0.05	1.01
6.00	0.68	0.40	5.00	0.96	0.05	1.01
6.05	0.68	0.40	5.00	0.96	0.05	1.01
6.10	0.68	0.40	5.00	0.96	0.05	1.01
6.15	0.68	0.40	5.00	0.96	0.05	1.01
6.20	0.68	0.40	5.00	0.96	0.05	1.01
6.25	0.68	0.40	5.00	0.96	0.05	1.01
6.30	0.68	0.40	5.00	0.96	0.05	1.01
6.35	0.68	0.40	5.00	0.96	0.05	1.01
6.40	0.68	0.40	5.00	0.96	0.05	1.01
6.45	0.68	0.40	5.00	0.96	0.05	1.01
6.50	0.68	0.40	5.00	0.96	0.05	1.01
6.55	0.68	0.40	5.00	0.96	0.05	1.01
6.60	0.68	0.40	5.00	0.96	0.05	1.01
6.65	0.68	0.40	5.00	0.96	0.05	1.01
6.70	0.68	0.40	5.00	0.96	0.05	1.01
6.75	0.68	0.40	5.00	0.96	0.05	1.01
6.80	0.68	0.40	5.00	0.96	0.05	1.01
6.85	0.68	0.40	5.00	0.96	0.05	1.01
6.90	0.68	0.40	5.00	0.96	0.05	1.01
6.95	0.68	0.40	5.00	0.96	0.05	1.01
7.00	0.68	0.40	5.00	0.96	0.05	1.01
7.05	0.68	0.40	5.00	0.96	0.05	1.01
7.10	0.68	0.40	5.00	0.96	0.05	1.01
7.15	0.68	0.40	5.00	0.96	0.05	1.01
7.20	0.68	0.40	5.00	0.96	0.05	1.01
7.25	0.68	0.40	5.00	0.96	0.05	1.01
7.30	0.68	0.40	5.00	0.96	0.05	1.01
7.35	0.45	0.40	5.00	0.96	0.04	1.01
7.40	0.37	0.40	5.00	0.96	0.04	1.01
7.45	0.32	0.40	5.00	0.96	0.04	1.01
7.50	0.27	0.40	5.00	0.96	0.04	1.00
7.55	0.28	0.40	5.00	0.96	0.04	1.00
7.60	0.28	0.40	5.00	0.96	0.04	1.00
7.65	0.29	0.40	5.00	0.96	0.04	1.00
7.70	0.29	0.40	5.00	0.96	0.04	1.00
7.75	0.29	0.40	5.00	0.96	0.03	1.00
7.80	0.30	0.40	5.00	0.96	0.03	0.99
7.85	0.30	0.40	5.00	0.96	0.03	0.99
7.90	0.30	0.40	5.00	0.96	0.03	0.99
7.95	0.31	0.40	5.00	0.96	0.03	0.99
8.00	0.31	0.40	5.00	0.96	0.03	0.99
8.05	0.31	0.40	5.00	0.96	0.03	0.99
8.10	0.32	0.40	5.00	0.96	0.02	0.99
8.15	0.32	0.40	5.00	0.96	0.02	0.98
8.20	0.32	0.40	5.00	0.96	0.02	0.98
8.25	0.37	0.40	5.00	0.96	0.02	0.98
8.30	0.37	0.40	5.00	0.96	0.02	0.98

8.35	0.38	0.40	5.00	0.96	0.02	0.98
8.40	0.38	0.40	5.00	0.96	0.02	0.98
8.45	0.39	0.40	5.00	0.96	0.02	0.98
8.50	0.39	0.40	5.00	0.96	0.02	0.98
8.55	0.40	0.40	5.00	0.96	0.02	0.98
8.60	0.40	0.40	5.00	0.96	0.01	0.98
8.65	0.41	0.40	5.00	0.96	0.01	0.98
8.70	0.42	0.40	5.00	0.96	0.01	0.97
8.75	0.42	0.40	5.00	0.96	0.01	0.97
8.80	0.43	0.40	5.00	0.96	0.01	0.97
8.85	0.44	0.40	5.00	0.96	0.01	0.97
8.90	0.44	0.40	5.00	0.96	0.01	0.97
8.95	0.45	0.40	5.00	0.96	0.01	0.97
9.00	0.46	0.40	5.00	0.96	0.01	0.97
9.05	0.47	0.40	5.00	0.96	0.01	0.97
9.10	0.47	0.40	5.00	0.96	0.01	0.97
9.15	0.48	0.40	5.00	0.96	0.01	0.97
9.20	0.49	0.40	5.00	0.96	0.01	0.97
9.25	0.50	0.40	5.00	0.96	0.01	0.97
9.30	0.52	0.40	5.00	0.96	0.00	0.97
9.35	0.53	0.40	5.00	0.96	0.00	0.97
9.40	0.55	0.40	5.00	0.96	0.00	0.97
9.45	0.58	0.40	5.00	0.96	0.00	0.97
9.50	0.64	0.40	5.00	0.96	0.00	0.96
9.55	0.68	0.40	5.00	0.96	0.00	0.96
9.60	0.68	0.40	5.00	0.96	0.00	0.96
9.65	0.68	0.40	5.00	0.96	0.00	0.96
9.70	0.68	0.40	5.00	0.96	0.00	0.96
9.75	0.68	0.40	5.00	0.96	0.00	0.96
9.80	0.68	0.40	5.00	0.96	0.00	0.96
9.85	0.68	0.40	5.00	0.96	0.00	0.96
9.90	0.68	0.40	5.00	0.96	0.00	0.96
9.95	0.68	0.40	5.00	0.96	0.00	0.96
10.00	0.68	0.40	1.70	0.96	0.00	0.96
10.05	0.68	0.40	1.70	0.96	0.00	0.96
10.10	0.68	0.40	1.69	0.96	0.00	0.96
10.15	0.68	0.40	1.69	0.96	0.00	0.96
10.20	0.68	0.40	1.69	0.96	0.00	0.96
10.25	0.68	0.40	1.68	0.96	0.00	0.96
10.30	0.68	0.40	1.68	0.96	0.00	0.96
10.35	0.68	0.40	1.67	0.96	0.00	0.96
10.40	0.68	0.41	1.67	0.96	0.00	0.96
10.45	0.63	0.41	1.55	0.96	0.00	0.96
10.50	0.58	0.41	1.41	0.96	0.00	0.96
10.55	0.55	0.41	1.34	0.96	0.00	0.96
10.60	0.53	0.41	1.29	0.96	0.00	0.96
10.65	0.51	0.41	1.25	0.96	0.00	0.96
10.70	0.50	0.41	1.22	0.96	0.00	0.96
10.75	0.49	0.41	1.19	0.96	0.00	0.96
10.80	0.48	0.41	1.16	0.96	0.00	0.96
10.85	0.47	0.41	1.14	0.96	0.00	0.96
10.90	0.46	0.41	1.11	0.96	0.00	0.96
10.95	0.45	0.42	1.09	0.96	0.00	0.96
11.00	0.45	0.42	1.07	0.96	0.00	0.96
11.05	0.44	0.42	1.05	0.95	0.00	0.95
11.10	0.43	0.42	1.04	0.95	0.00	0.95
11.15	0.43	0.42	1.02	0.95	0.00	0.95
11.20	0.42	0.42	1.00	0.95	0.00	0.95
11.25	0.41	0.42	0.99*	0.95	0.00	0.95
11.30	0.41	0.42	0.97*	0.94	0.00	0.94
11.35	0.40	0.42	0.95*	0.94	0.00	0.94
11.40	0.40	0.42	0.94*	0.94	0.00	0.94
11.45	0.39	0.42	0.93*	0.93	0.00	0.93

11.50	0.39	0.43	0.91*	0.93	0.00	0.93
11.55	0.38	0.43	0.90*	0.92	0.00	0.92
11.60	0.38	0.43	0.89*	0.92	0.00	0.92
11.65	0.37	0.43	0.87*	0.91	0.00	0.91
11.70	0.37	0.43	0.86*	0.90	0.00	0.90
11.75	0.37	0.43	0.85*	0.90	0.00	0.90
11.80	0.36	0.43	0.84*	0.89	0.00	0.89
11.85	0.36	0.43	0.83*	0.88	0.00	0.88
11.90	0.35	0.43	0.82*	0.88	0.00	0.88
11.95	0.35	0.43	0.81*	0.87	0.00	0.87
12.00	0.34	0.43	0.80*	0.86	0.00	0.86
12.05	0.34	0.43	0.79*	0.86	0.00	0.86
12.10	0.34	0.43	0.78*	0.85	0.00	0.85
12.15	0.33	0.44	0.77*	0.84	0.00	0.84
12.20	0.33	0.44	0.76*	0.83	0.00	0.83
12.25	0.33	0.44	0.75*	0.83	0.00	0.83
12.30	0.32	0.44	0.74*	0.82	0.00	0.82
12.35	0.32	0.44	0.73*	0.81	0.00	0.81
12.40	0.32	0.44	0.72*	0.80	0.00	0.80
12.45	0.31	0.44	0.71*	0.80	0.00	0.80
12.50	0.31	0.44	0.70*	0.79	0.00	0.79
12.55	0.32	0.44	0.72*	0.78	0.00	0.78
12.60	0.32	0.44	0.73*	0.77	0.00	0.77
12.65	0.33	0.44	0.74*	0.76	0.00	0.76
12.70	0.34	0.44	0.76*	0.76	0.00	0.76
12.75	0.34	0.44	0.77*	0.75	0.00	0.75
12.80	0.35	0.45	0.78*	0.74	0.00	0.74
12.85	0.36	0.45	0.80*	0.73	0.00	0.73
12.90	0.36	0.45	0.81*	0.73	0.00	0.73
12.95	0.37	0.45	0.83*	0.72	0.00	0.72
13.00	0.38	0.45	0.85*	0.71	0.00	0.71
13.05	0.39	0.45	0.86*	0.71	0.00	0.71
13.10	0.40	0.45	0.88*	0.70	0.00	0.70
13.15	0.41	0.45	0.90*	0.70	0.00	0.70
13.20	0.41	0.45	0.92*	0.69	0.00	0.69
13.25	0.42	0.45	0.94*	0.69	0.00	0.69
13.30	0.43	0.45	0.96*	0.68	0.00	0.68
13.35	0.45	0.45	0.98*	0.68	0.00	0.68
13.40	0.46	0.45	1.01	0.67	0.00	0.67
13.45	0.47	0.45	1.04	0.67	0.00	0.67
13.50	0.49	0.46	1.07	0.67	0.00	0.67
13.55	0.50	0.46	1.10	0.67	0.00	0.67
13.60	0.52	0.46	1.14	0.67	0.00	0.67
13.65	0.55	0.46	1.21	0.66	0.00	0.66
13.70	0.61	0.46	1.33	0.66	0.00	0.66
13.75	0.68	0.46	1.48	0.66	0.00	0.66
13.80	0.68	0.46	1.47	0.66	0.00	0.66
13.85	0.68	0.46	1.47	0.66	0.00	0.66
13.90	0.68	0.46	1.47	0.66	0.00	0.66
13.95	0.68	0.46	1.47	0.66	0.00	0.66
14.00	0.68	0.46	1.47	0.66	0.00	0.66
14.05	0.68	0.46	1.46	0.66	0.00	0.66
14.10	0.68	0.46	1.46	0.66	0.00	0.66
14.15	0.68	0.46	1.46	0.66	0.00	0.66
14.20	0.68	0.46	1.46	0.66	0.00	0.66
14.25	0.68	0.47	1.46	0.66	0.00	0.66
14.30	0.68	0.47	1.45	0.66	0.00	0.66
14.35	0.68	0.47	1.45	0.66	0.00	0.66
14.40	0.68	0.47	1.45	0.66	0.00	0.66
14.45	0.68	0.47	1.45	0.66	0.00	0.66
14.50	0.68	0.47	1.45	0.66	0.00	0.66
14.55	0.68	0.47	1.44	0.66	0.00	0.66
14.60	0.68	0.47	1.44	0.66	0.00	0.66

14.65	0.68	0.47	1.44	0.66	0.00	0.66
14.70	0.68	0.47	1.44	0.66	0.00	0.66
14.75	0.68	0.47	1.44	0.66	0.00	0.66
14.80	0.68	0.47	1.44	0.66	0.00	0.66
14.85	0.68	0.47	1.43	0.66	0.00	0.66
14.90	0.68	0.47	1.43	0.66	0.00	0.66
14.95	0.68	0.47	1.43	0.66	0.00	0.66
15.00	0.68	0.47	1.43	0.66	0.00	0.66
15.05	0.68	0.47	1.43	0.66	0.00	0.66
15.10	0.68	0.48	1.43	0.66	0.00	0.66
15.15	0.68	0.48	1.42	0.66	0.00	0.66
15.20	0.68	0.48	1.42	0.66	0.00	0.66
15.25	0.68	0.48	1.42	0.66	0.00	0.66
15.30	0.68	0.48	1.42	0.66	0.00	0.66
15.35	0.68	0.48	1.42	0.66	0.00	0.66
15.40	0.68	0.48	1.42	0.66	0.00	0.66
15.45	0.68	0.48	1.41	0.66	0.00	0.66
15.50	0.68	0.48	1.41	0.66	0.00	0.66
15.55	0.68	0.48	1.41	0.66	0.00	0.66
15.60	0.68	0.48	1.41	0.66	0.00	0.66
15.65	0.68	0.48	1.41	0.66	0.00	0.66
15.70	0.68	0.48	1.41	0.66	0.00	0.66
15.75	0.68	0.48	1.40	0.66	0.00	0.66
15.80	0.68	0.48	1.40	0.66	0.00	0.66
15.85	0.68	0.48	1.40	0.66	0.00	0.66
15.90	0.68	0.48	1.40	0.66	0.00	0.66
15.95	0.68	0.48	1.40	0.66	0.00	0.66
16.00	0.68	0.49	1.40	0.66	0.00	0.66
16.05	0.68	0.49	1.39	0.66	0.00	0.66
16.10	0.68	0.49	1.39	0.66	0.00	0.66
16.15	0.68	0.49	1.39	0.66	0.00	0.66
16.20	0.68	0.49	1.39	0.66	0.00	0.66
16.25	0.68	0.49	1.39	0.66	0.00	0.66
16.30	0.68	0.49	1.39	0.66	0.00	0.66
16.35	0.62	0.49	1.26	0.66	0.00	0.66
16.40	0.55	0.49	1.12	0.66	0.00	0.66
16.45	0.51	0.49	1.05	0.65	0.00	0.65
16.50	0.49	0.49	1.00	0.65	0.00	0.65
16.55	0.47	0.49	0.96*	0.65	0.00	0.65
16.60	0.46	0.49	0.93*	0.64	0.00	0.64
16.65	0.44	0.49	0.90*	0.64	0.00	0.64
16.70	0.43	0.49	0.88*	0.63	0.00	0.63
16.75	0.42	0.49	0.85*	0.63	0.00	0.63
16.80	0.41	0.49	0.83*	0.62	0.00	0.62
16.85	0.40	0.49	0.81*	0.62	0.00	0.62
16.90	0.39	0.49	0.78*	0.61	0.00	0.61
16.95	0.38	0.49	0.77*	0.60	0.00	0.60
17.00	0.37	0.50	0.75*	0.60	0.00	0.60
17.05	0.36	0.50	0.73*	0.59	0.00	0.59
17.10	0.35	0.50	0.71*	0.58	0.00	0.58
17.15	0.35	0.50	0.69*	0.58	0.00	0.58
17.20	0.34	0.50	0.68*	0.57	0.00	0.57
17.25	0.33	0.50	0.66*	0.56	0.00	0.56
17.30	0.32	0.50	0.65*	0.55	0.00	0.55
17.35	0.32	0.50	0.63*	0.54	0.00	0.54
17.40	0.31	0.50	0.62*	0.54	0.00	0.54
17.45	0.30	0.50	0.61*	0.53	0.00	0.53
17.50	0.30	0.50	0.59*	0.52	0.00	0.52
17.55	0.30	0.50	0.60*	0.51	0.00	0.51
17.60	0.30	0.50	0.60*	0.50	0.00	0.50
17.65	0.31	0.50	0.61*	0.49	0.00	0.49
17.70	0.31	0.50	0.62*	0.48	0.00	0.48
17.75	0.31	0.50	0.62*	0.48	0.00	0.48

17.80	0.32	0.50	0.63*	0.47	0.00	0.47
17.85	0.32	0.50	0.64*	0.46	0.00	0.46
17.90	0.32	0.50	0.64*	0.45	0.00	0.45
17.95	0.33	0.50	0.65*	0.44	0.00	0.44
18.00	0.33	0.50	0.65*	0.43	0.00	0.43
18.05	0.33	0.50	0.66*	0.43	0.00	0.43
18.10	0.34	0.51	0.67*	0.42	0.00	0.42
18.15	0.34	0.51	0.67*	0.41	0.00	0.41
18.20	0.34	0.51	0.68*	0.40	0.00	0.40
18.25	0.35	0.51	0.69*	0.40	0.00	0.40
18.30	0.35	0.51	0.69*	0.39	0.00	0.39
18.35	0.36	0.51	0.70*	0.38	0.00	0.38
18.40	0.36	0.51	0.71*	0.37	0.00	0.37
18.45	0.36	0.51	0.72*	0.37	0.00	0.37
18.50	0.37	0.51	0.72*	0.36	0.00	0.36
18.55	0.37	0.51	0.73*	0.35	0.00	0.35
18.60	0.38	0.51	0.74*	0.35	0.00	0.35
18.65	0.38	0.51	0.75*	0.34	0.00	0.34
18.70	0.38	0.51	0.75*	0.33	0.00	0.33
18.75	0.39	0.51	0.76*	0.33	0.00	0.33
18.80	0.39	0.51	0.77*	0.32	0.00	0.32
18.85	0.40	0.51	0.78*	0.31	0.00	0.31
18.90	0.40	0.51	0.79*	0.31	0.00	0.31
18.95	0.41	0.51	0.79*	0.30	0.00	0.30
19.00	0.41	0.51	0.80*	0.29	0.00	0.29
19.05	0.42	0.51	0.81*	0.29	0.00	0.29
19.10	0.42	0.51	0.82*	0.28	0.00	0.28
19.15	0.43	0.51	0.83*	0.27	0.00	0.27
19.20	0.43	0.51	0.84*	0.27	0.00	0.27
19.25	0.44	0.51	0.85*	0.26	0.00	0.26
19.30	0.44	0.52	0.86*	0.26	0.00	0.26
19.35	0.45	0.52	0.87*	0.25	0.00	0.25
19.40	0.46	0.52	0.88*	0.25	0.00	0.25
19.45	0.46	0.52	0.90*	0.24	0.00	0.24
19.50	0.47	0.52	0.91*	0.24	0.00	0.24
19.55	0.48	0.52	0.92*	0.23	0.00	0.23
19.60	0.48	0.52	0.94*	0.23	0.00	0.23
19.65	0.49	0.52	0.95*	0.22	0.00	0.22
19.70	0.50	0.52	0.97*	0.22	0.00	0.22
19.75	0.51	0.52	0.99*	0.21	0.00	0.21
19.80	0.52	0.52	1.01	0.21	0.00	0.21
19.85	0.54	0.52	1.04	0.21	0.00	0.21
19.90	0.56	0.52	1.07	0.20	0.00	0.20
19.95	0.58	0.52	1.12	0.20	0.00	0.20
20.00	0.62	0.52	1.20	0.20	0.00	0.20
20.05	0.68	0.52	1.30	0.19	0.00	0.19
20.10	0.68	0.52	1.30	0.19	0.00	0.19
20.15	0.68	0.52	1.30	0.19	0.00	0.19
20.20	0.68	0.52	1.30	0.19	0.00	0.19
20.25	0.68	0.52	1.30	0.19	0.00	0.19
20.30	0.68	0.52	1.30	0.18	0.00	0.18
20.35	0.68	0.52	1.29	0.18	0.00	0.18
20.40	0.68	0.52	1.29	0.18	0.00	0.18
20.45	0.68	0.52	1.29	0.18	0.00	0.18
20.50	0.68	0.52	1.29	0.18	0.00	0.18
20.55	0.68	0.52	1.29	0.18	0.00	0.18
20.60	0.68	0.53	1.29	0.18	0.00	0.18
20.65	0.68	0.53	1.29	0.18	0.00	0.18
20.70	0.68	0.53	1.29	0.18	0.00	0.18
20.75	0.68	0.53	1.29	0.18	0.00	0.18
20.80	0.68	0.53	1.29	0.18	0.00	0.18
20.85	0.68	0.53	1.29	0.18	0.00	0.18
20.90	0.68	0.53	1.28	0.18	0.00	0.18

20.95	0.68	0.53	1.28	0.18	0.00	0.18
21.00	0.68	0.53	1.28	0.18	0.00	0.18
21.05	0.68	0.53	1.28	0.18	0.00	0.18
21.10	0.68	0.53	1.28	0.18	0.00	0.18
21.15	0.68	0.53	1.28	0.18	0.00	0.18
21.20	0.68	0.53	1.28	0.18	0.00	0.18
21.25	0.68	0.53	1.28	0.18	0.00	0.18
21.30	0.68	0.53	1.28	0.18	0.00	0.18
21.35	0.68	0.53	1.28	0.18	0.00	0.18
21.40	0.68	0.53	1.28	0.18	0.00	0.18
21.45	0.68	0.53	1.27	0.18	0.00	0.18
21.50	0.68	0.53	1.27	0.18	0.00	0.18
21.55	0.68	0.53	1.27	0.18	0.00	0.18
21.60	0.68	0.53	1.27	0.18	0.00	0.18
21.65	0.68	0.53	1.27	0.18	0.00	0.18
21.70	0.68	0.53	1.27	0.18	0.00	0.18
21.75	0.68	0.53	1.27	0.18	0.00	0.18
21.80	0.68	0.53	1.27	0.18	0.00	0.18
21.85	0.68	0.53	1.27	0.18	0.00	0.18
21.90	0.68	0.53	1.27	0.18	0.00	0.18
21.95	0.68	0.54	1.27	0.18	0.00	0.18
22.00	0.68	0.54	1.26	0.18	0.00	0.18
22.05	0.68	0.54	1.26	0.18	0.00	0.18
22.10	0.68	0.54	1.26	0.18	0.00	0.18
22.15	0.68	0.54	1.26	0.18	0.00	0.18
22.20	0.68	0.54	1.26	0.18	0.00	0.18
22.25	0.68	0.54	1.26	0.18	0.00	0.18
22.30	0.68	0.54	1.26	0.18	0.00	0.18
22.35	0.68	0.54	1.26	0.18	0.00	0.18
22.40	0.68	0.54	1.26	0.18	0.00	0.18
22.45	0.68	0.54	1.26	0.18	0.00	0.18
22.50	0.68	0.54	1.26	0.18	0.00	0.18
22.55	0.68	0.54	1.26	0.18	0.00	0.18
22.60	0.68	0.54	1.25	0.18	0.00	0.18
22.65	0.68	0.54	1.25	0.18	0.00	0.18
22.70	0.68	0.54	1.25	0.18	0.00	0.18
22.75	0.68	0.54	1.25	0.18	0.00	0.18
22.80	0.68	0.54	1.25	0.18	0.00	0.18
22.85	0.68	0.54	1.25	0.18	0.00	0.18
22.90	0.68	0.54	1.25	0.18	0.00	0.18
22.95	0.68	0.54	1.25	0.18	0.00	0.18
23.00	0.68	0.54	1.25	0.18	0.00	0.18
23.05	0.68	0.54	1.25	0.18	0.00	0.18
23.10	0.68	0.54	1.25	0.18	0.00	0.18
23.15	0.68	0.54	1.25	0.18	0.00	0.18
23.20	0.68	0.54	1.24	0.18	0.00	0.18
23.25	0.68	0.54	1.24	0.18	0.00	0.18
23.30	0.68	0.55	1.24	0.18	0.00	0.18
23.35	0.68	0.55	1.24	0.18	0.00	0.18
23.40	0.68	0.55	1.24	0.18	0.00	0.18
23.45	0.68	0.55	1.24	0.18	0.00	0.18
23.50	0.68	0.55	1.24	0.18	0.00	0.18
23.55	0.68	0.55	1.24	0.18	0.00	0.18
23.60	0.68	0.55	1.24	0.18	0.00	0.18
23.65	0.68	0.55	1.24	0.18	0.00	0.18
23.70	0.68	0.55	1.24	0.18	0.00	0.18
23.75	0.68	0.55	1.24	0.18	0.00	0.18
23.80	0.68	0.55	1.23	0.18	0.00	0.18
23.85	0.68	0.55	1.23	0.18	0.00	0.18
23.90	0.68	0.55	1.23	0.18	0.00	0.18
23.95	0.68	0.55	1.23	0.18	0.00	0.18
24.00	0.68	0.55	1.23	0.18	0.00	0.18
24.05	0.68	0.55	1.23	0.18	0.00	0.18

24.10	0.68	0.55	1.23	0.18	0.00	0.18
24.15	0.68	0.55	1.23	0.18	0.00	0.18
24.20	0.68	0.55	1.23	0.18	0.00	0.18
24.25	0.68	0.55	1.23	0.18	0.00	0.18
24.30	0.68	0.55	1.23	0.18	0.00	0.18
24.35	0.68	0.55	1.23	0.18	0.00	0.18
24.40	0.68	0.55	1.22	0.18	0.00	0.18
24.45	0.68	0.55	1.22	0.18	0.00	0.18
24.50	0.68	0.55	1.22	0.18	0.00	0.18
24.55	0.68	0.55	1.22	0.18	0.00	0.18
24.60	0.68	0.55	1.22	0.18	0.00	0.18
24.65	0.68	0.56	1.22	0.18	0.00	0.18
24.70	0.68	0.56	1.22	0.18	0.00	0.18
24.75	0.68	0.56	1.22	0.18	0.00	0.18
24.80	0.68	0.56	1.22	0.18	0.00	0.18
24.85	0.68	0.56	1.22	0.18	0.00	0.18
24.90	0.68	0.56	1.22	0.18	0.00	0.18
24.95	0.68	0.56	1.22	0.18	0.00	0.18
25.00	0.68	0.56	1.21	0.18	0.00	0.18
25.05	0.68	0.56	1.21	0.18	0.00	0.18
25.10	0.68	0.56	1.21	0.18	0.00	0.18
25.15	0.68	0.56	1.21	0.18	0.00	0.18
25.20	0.68	0.56	1.21	0.18	0.00	0.18
25.25	0.68	0.56	1.21	0.18	0.00	0.18
25.30	0.68	0.56	1.21	0.18	0.00	0.18
25.35	0.68	0.56	1.21	0.18	0.00	0.18
25.40	0.68	0.56	1.21	0.18	0.00	0.18
25.45	0.68	0.56	1.21	0.18	0.00	0.18
25.50	0.68	0.56	1.21	0.18	0.00	0.18
25.55	0.68	0.56	1.21	0.18	0.00	0.18
25.60	0.68	0.56	1.20	0.18	0.00	0.18
25.65	0.68	0.56	1.20	0.18	0.00	0.18
25.70	0.68	0.56	1.20	0.18	0.00	0.18
25.75	0.68	0.56	1.20	0.18	0.00	0.18
25.80	0.68	0.56	1.20	0.18	0.00	0.18
25.85	0.68	0.56	1.20	0.18	0.00	0.18
25.90	0.68	0.56	1.20	0.18	0.00	0.18
25.95	0.68	0.57	1.20	0.18	0.00	0.18
26.00	0.68	0.57	1.20	0.18	0.00	0.18
26.05	0.68	0.57	1.20	0.18	0.00	0.18
26.10	0.68	0.57	1.20	0.18	0.00	0.18
26.15	0.68	0.57	1.20	0.18	0.00	0.18
26.20	0.68	0.57	1.20	0.18	0.00	0.18
26.25	0.68	0.57	1.19	0.18	0.00	0.18
26.30	0.68	0.57	1.19	0.18	0.00	0.18
26.35	0.68	0.57	1.19	0.17	0.00	0.17
26.40	0.68	0.57	1.19	0.17	0.00	0.17
26.45	0.68	0.57	1.19	0.17	0.00	0.17
26.50	0.68	0.57	1.19	0.17	0.00	0.17
26.55	0.68	0.57	1.19	0.17	0.00	0.17
26.60	0.60	0.57	1.06	0.16	0.00	0.16
26.65	0.53	0.57	0.93*	0.16	0.00	0.16
26.70	0.49	0.57	0.87*	0.16	0.00	0.16
26.75	0.47	0.57	0.82*	0.15	0.00	0.15
26.80	0.45	0.57	0.78*	0.15	0.00	0.15
26.85	0.43	0.57	0.75*	0.14	0.00	0.14
26.90	0.41	0.57	0.72*	0.13	0.00	0.13
26.95	0.40	0.57	0.70*	0.13	0.00	0.13
27.00	0.39	0.57	0.67*	0.12	0.00	0.12
27.05	0.37	0.57	0.65*	0.11	0.00	0.11
27.10	0.36	0.57	0.63*	0.11	0.00	0.11
27.15	0.35	0.57	0.61*	0.10	0.00	0.10
27.20	0.34	0.57	0.59*	0.09	0.00	0.09

27.25	0.33	0.57	0.57*	0.08	0.00	0.08
27.30	0.32	0.57	0.55*	0.08	0.00	0.08
27.35	0.31	0.58	0.53*	0.07	0.00	0.07
27.40	0.30	0.58	0.52*	0.06	0.00	0.06
27.45	0.29	0.58	0.50*	0.05	0.00	0.05
27.50	0.28	0.58	0.49*	0.04	0.00	0.04
27.55	0.32	0.58	0.55*	0.03	0.00	0.03
27.60	0.36	0.58	0.63*	0.02	0.00	0.02
27.65	0.41	0.58	0.72*	0.02	0.00	0.02
27.70	0.49	0.58	0.86*	0.01	0.00	0.01
27.75	0.68	0.58	1.17	0.00	0.00	0.00
27.80	0.68	0.58	1.18	0.00	0.00	0.00
27.85	0.68	0.58	1.18	0.00	0.00	0.00
27.90	0.68	0.58	1.18	0.00	0.00	0.00
27.95	0.68	0.58	1.18	0.00	0.00	0.00
28.00	0.68	0.58	1.18	0.00	0.00	0.00
28.05	0.68	0.58	1.17	0.00	0.00	0.00
28.10	0.68	0.58	1.17	0.00	0.00	0.00
28.15	0.68	0.58	1.17	0.00	0.00	0.00
28.20	0.68	0.58	1.17	0.00	0.00	0.00
28.25	0.68	0.58	1.17	0.00	0.00	0.00
28.30	0.68	0.58	1.17	0.00	0.00	0.00
28.35	0.68	0.58	1.17	0.00	0.00	0.00
28.40	0.68	0.58	1.17	0.00	0.00	0.00
28.45	0.68	0.58	1.17	0.00	0.00	0.00
28.50	0.68	0.58	1.17	0.00	0.00	0.00
28.55	0.68	0.58	1.17	0.00	0.00	0.00
28.60	0.68	0.58	1.16	0.00	0.00	0.00
28.65	0.68	0.58	1.16	0.00	0.00	0.00
28.70	0.68	0.58	1.16	0.00	0.00	0.00
28.75	0.68	0.58	1.16	0.00	0.00	0.00
28.80	0.68	0.58	1.16	0.00	0.00	0.00
28.85	0.68	0.58	1.16	0.00	0.00	0.00
28.90	0.68	0.58	1.16	0.00	0.00	0.00
28.95	0.68	0.58	1.16	0.00	0.00	0.00
29.00	0.68	0.58	1.16	0.00	0.00	0.00
29.05	0.68	0.58	1.16	0.00	0.00	0.00
29.10	0.68	0.59	1.16	0.00	0.00	0.00
29.15	0.68	0.59	1.16	0.00	0.00	0.00
29.20	0.68	0.59	1.16	0.00	0.00	0.00
29.25	0.68	0.59	1.15	0.00	0.00	0.00
29.30	0.68	0.59	1.15	0.00	0.00	0.00
29.35	0.68	0.59	1.15	0.00	0.00	0.00
29.40	0.68	0.59	1.15	0.00	0.00	0.00
29.45	0.68	0.59	1.15	0.00	0.00	0.00
29.50	0.68	0.59	1.15	0.00	0.00	0.00
29.55	0.68	0.59	1.15	0.00	0.00	0.00
29.60	0.67	0.59	1.15	0.00	0.00	0.00
29.65	0.67	0.59	1.15	0.00	0.00	0.00
29.70	0.67	0.59	1.15	0.00	0.00	0.00
29.75	0.67	0.59	1.15	0.00	0.00	0.00
29.80	0.67	0.59	1.15	0.00	0.00	0.00
29.85	0.67	0.59	1.15	0.00	0.00	0.00
29.90	0.67	0.59	1.15	0.00	0.00	0.00
29.95	0.67	0.59	1.15	0.00	0.00	0.00
30.00	0.67	0.59	1.14	0.00	0.00	0.00
30.05	0.67	0.59	1.14	0.00	0.00	0.00
30.10	0.67	0.59	1.14	0.00	0.00	0.00
30.15	0.67	0.59	1.14	0.00	0.00	0.00
30.20	0.67	0.59	1.14	0.00	0.00	0.00
30.25	0.67	0.59	1.14	0.00	0.00	0.00
30.30	0.67	0.59	1.14	0.00	0.00	0.00
30.35	0.67	0.59	1.14	0.00	0.00	0.00

30.40	0.67	0.59	1.14	0.00	0.00	0.00
30.45	0.67	0.59	1.14	0.00	0.00	0.00
30.50	0.67	0.59	1.14	0.00	0.00	0.00
30.55	0.67	0.59	1.14	0.00	0.00	0.00
30.60	0.67	0.59	1.14	0.00	0.00	0.00
30.65	0.67	0.59	1.14	0.00	0.00	0.00
30.70	0.67	0.59	1.14	0.00	0.00	0.00
30.75	0.67	0.59	1.14	0.00	0.00	0.00
30.80	0.67	0.59	1.14	0.00	0.00	0.00
30.85	0.67	0.59	1.14	0.00	0.00	0.00
30.90	0.67	0.59	1.14	0.00	0.00	0.00
30.95	0.67	0.59	1.14	0.00	0.00	0.00
31.00	0.67	0.59	1.14	0.00	0.00	0.00
31.05	0.67	0.59	1.14	0.00	0.00	0.00
31.10	0.67	0.59	1.14	0.00	0.00	0.00
31.15	0.67	0.59	1.14	0.00	0.00	0.00
31.20	0.67	0.59	1.14	0.00	0.00	0.00
31.25	0.67	0.59	1.14	0.00	0.00	0.00
31.30	0.67	0.59	1.14	0.00	0.00	0.00
31.35	0.67	0.59	1.14	0.00	0.00	0.00
31.40	0.67	0.59	1.14	0.00	0.00	0.00
31.45	0.67	0.59	1.14	0.00	0.00	0.00
31.50	0.67	0.59	1.14	0.00	0.00	0.00
31.55	0.67	0.59	1.14	0.00	0.00	0.00
31.60	0.67	0.59	1.14	0.00	0.00	0.00
31.65	0.67	0.59	1.14	0.00	0.00	0.00
31.70	0.67	0.59	1.14	0.00	0.00	0.00
31.75	0.67	0.59	1.14	0.00	0.00	0.00
31.80	0.67	0.59	1.14	0.00	0.00	0.00
31.85	0.67	0.59	1.14	0.00	0.00	0.00
31.90	0.67	0.59	1.14	0.00	0.00	0.00
31.95	0.67	0.59	1.14	0.00	0.00	0.00
32.00	0.66	0.59	1.14	0.00	0.00	0.00
32.05	0.66	0.59	1.14	0.00	0.00	0.00
32.10	0.66	0.59	1.14	0.00	0.00	0.00
32.15	0.66	0.59	1.14	0.00	0.00	0.00
32.20	0.66	0.59	1.13	0.00	0.00	0.00
32.25	0.66	0.59	1.13	0.00	0.00	0.00
32.30	0.66	0.59	1.13	0.00	0.00	0.00
32.35	0.66	0.59	1.13	0.00	0.00	0.00
32.40	0.66	0.58	1.13	0.00	0.00	0.00
32.45	0.66	0.58	1.13	0.00	0.00	0.00
32.50	0.66	0.58	1.13	0.00	0.00	0.00
32.55	0.66	0.58	1.13	0.00	0.00	0.00
32.60	0.66	0.58	1.13	0.00	0.00	0.00
32.65	0.66	0.58	1.13	0.00	0.00	0.00
32.70	0.66	0.58	1.13	0.00	0.00	0.00
32.75	0.66	0.58	1.13	0.00	0.00	0.00
32.80	0.66	0.58	1.13	0.00	0.00	0.00
32.85	0.66	0.58	1.13	0.00	0.00	0.00
32.90	0.66	0.58	1.13	0.00	0.00	0.00
32.95	0.66	0.58	1.13	0.00	0.00	0.00
33.00	0.66	0.58	1.13	0.00	0.00	0.00
33.05	0.66	0.58	1.13	0.00	0.00	0.00
33.10	0.66	0.58	1.13	0.00	0.00	0.00
33.15	0.66	0.58	1.13	0.00	0.00	0.00
33.20	0.66	0.58	1.13	0.00	0.00	0.00
33.25	0.66	0.58	1.13	0.00	0.00	0.00
33.30	0.66	0.58	1.13	0.00	0.00	0.00
33.35	0.66	0.58	1.13	0.00	0.00	0.00
33.40	0.66	0.58	1.13	0.00	0.00	0.00
33.45	0.66	0.58	1.13	0.00	0.00	0.00
33.50	0.66	0.58	1.13	0.00	0.00	0.00

33.55	0.66	0.58	1.13	0.00	0.00	0.00
33.60	0.66	0.58	1.13	0.00	0.00	0.00
33.65	0.66	0.58	1.13	0.00	0.00	0.00
33.70	0.66	0.58	1.13	0.00	0.00	0.00
33.75	0.66	0.58	1.13	0.00	0.00	0.00
33.80	0.66	0.58	1.13	0.00	0.00	0.00
33.85	0.66	0.58	1.13	0.00	0.00	0.00
33.90	0.66	0.58	1.13	0.00	0.00	0.00
33.95	0.66	0.58	1.13	0.00	0.00	0.00
34.00	0.66	0.58	1.13	0.00	0.00	0.00
34.05	0.66	0.58	1.13	0.00	0.00	0.00
34.10	0.66	0.58	1.13	0.00	0.00	0.00
34.15	0.66	0.58	1.13	0.00	0.00	0.00
34.20	0.66	0.58	1.13	0.00	0.00	0.00
34.25	0.66	0.58	1.13	0.00	0.00	0.00
34.30	0.66	0.58	1.13	0.00	0.00	0.00
34.35	0.66	0.58	1.13	0.00	0.00	0.00
34.40	0.66	0.58	1.13	0.00	0.00	0.00
34.45	0.66	0.58	1.13	0.00	0.00	0.00
34.50	0.66	0.58	1.13	0.00	0.00	0.00
34.55	0.65	0.58	1.13	0.00	0.00	0.00
34.60	0.65	0.58	1.13	0.00	0.00	0.00
34.65	0.65	0.58	1.13	0.00	0.00	0.00
34.70	0.65	0.58	1.13	0.00	0.00	0.00
34.75	0.65	0.58	1.13	0.00	0.00	0.00
34.80	0.65	0.58	1.13	0.00	0.00	0.00
34.85	0.65	0.58	1.13	0.00	0.00	0.00
34.90	0.65	0.58	1.13	0.00	0.00	0.00
34.95	0.65	0.58	1.13	0.00	0.00	0.00
35.00	0.65	0.58	1.13	0.00	0.00	0.00
35.05	0.65	0.58	1.13	0.00	0.00	0.00
35.10	0.65	0.58	1.13	0.00	0.00	0.00
35.15	0.65	0.58	1.12	0.00	0.00	0.00
35.20	0.65	0.58	1.12	0.00	0.00	0.00
35.25	0.65	0.58	1.12	0.00	0.00	0.00
35.30	0.65	0.58	1.12	0.00	0.00	0.00
35.35	0.65	0.58	1.12	0.00	0.00	0.00
35.40	0.65	0.58	1.12	0.00	0.00	0.00
35.45	0.65	0.58	1.12	0.00	0.00	0.00
35.50	0.65	0.58	1.12	0.00	0.00	0.00
35.55	0.65	0.58	1.12	0.00	0.00	0.00
35.60	0.65	0.58	1.12	0.00	0.00	0.00
35.65	0.65	0.58	1.12	0.00	0.00	0.00
35.70	0.65	0.58	1.12	0.00	0.00	0.00
35.75	0.65	0.58	1.12	0.00	0.00	0.00
35.80	0.65	0.58	1.12	0.00	0.00	0.00
35.85	0.65	0.58	1.12	0.00	0.00	0.00
35.90	0.65	0.58	1.12	0.00	0.00	0.00
35.95	0.65	0.58	1.12	0.00	0.00	0.00
36.00	0.65	0.58	1.12	0.00	0.00	0.00
36.05	0.65	0.58	1.12	0.00	0.00	0.00
36.10	0.65	0.58	1.12	0.00	0.00	0.00
36.15	0.65	0.58	1.12	0.00	0.00	0.00
36.20	0.65	0.58	1.12	0.00	0.00	0.00
36.25	0.65	0.58	1.12	0.00	0.00	0.00
36.30	0.65	0.58	1.12	0.00	0.00	0.00
36.35	0.65	0.58	1.12	0.00	0.00	0.00
36.40	0.65	0.58	1.12	0.00	0.00	0.00
36.45	0.65	0.58	1.12	0.00	0.00	0.00
36.50	0.65	0.58	1.12	0.00	0.00	0.00
36.55	0.65	0.58	1.12	0.00	0.00	0.00
36.60	0.65	0.58	1.12	0.00	0.00	0.00
36.65	0.65	0.58	1.12	0.00	0.00	0.00

36.70	0.65	0.58	1.12	0.00	0.00	0.00
36.75	0.65	0.58	1.12	0.00	0.00	0.00
36.80	0.65	0.58	1.12	0.00	0.00	0.00
36.85	0.65	0.58	1.12	0.00	0.00	0.00
36.90	0.65	0.58	1.12	0.00	0.00	0.00
36.95	0.65	0.58	1.12	0.00	0.00	0.00
37.00	0.65	0.58	1.12	0.00	0.00	0.00
37.05	0.65	0.58	1.12	0.00	0.00	0.00
37.10	0.65	0.58	1.12	0.00	0.00	0.00
37.15	0.65	0.58	1.12	0.00	0.00	0.00
37.20	0.65	0.58	1.12	0.00	0.00	0.00
37.25	0.65	0.58	1.12	0.00	0.00	0.00
37.30	0.64	0.58	1.12	0.00	0.00	0.00
37.35	0.64	0.58	1.12	0.00	0.00	0.00
37.40	0.64	0.58	1.12	0.00	0.00	0.00
37.45	0.64	0.58	1.12	0.00	0.00	0.00
37.50	0.64	0.58	1.12	0.00	0.00	0.00
37.55	0.64	0.58	1.12	0.00	0.00	0.00
37.60	0.64	0.58	1.12	0.00	0.00	0.00
37.65	0.64	0.58	1.12	0.00	0.00	0.00
37.70	0.64	0.58	1.12	0.00	0.00	0.00
37.75	0.64	0.58	1.12	0.00	0.00	0.00
37.80	0.64	0.58	1.12	0.00	0.00	0.00
37.85	0.64	0.58	1.12	0.00	0.00	0.00
37.90	0.64	0.58	1.12	0.00	0.00	0.00
37.95	0.64	0.58	1.12	0.00	0.00	0.00
38.00	0.64	0.58	1.12	0.00	0.00	0.00
38.05	0.64	0.58	1.12	0.00	0.00	0.00
38.10	0.64	0.58	1.12	0.00	0.00	0.00
38.15	0.64	0.57	1.12	0.00	0.00	0.00
38.20	0.64	0.57	1.12	0.00	0.00	0.00
38.25	0.64	0.57	1.12	0.00	0.00	0.00
38.30	0.64	0.57	1.12	0.00	0.00	0.00
38.35	0.64	0.57	1.12	0.00	0.00	0.00
38.40	0.64	0.57	1.12	0.00	0.00	0.00
38.45	0.64	0.57	1.12	0.00	0.00	0.00
38.50	0.64	0.57	1.12	0.00	0.00	0.00
38.55	0.64	0.57	1.12	0.00	0.00	0.00
38.60	0.64	0.57	1.12	0.00	0.00	0.00
38.65	0.64	0.57	1.12	0.00	0.00	0.00
38.70	0.64	0.57	1.12	0.00	0.00	0.00
38.75	0.64	0.57	1.12	0.00	0.00	0.00
38.80	0.64	0.57	1.11	0.00	0.00	0.00
38.85	0.64	0.57	1.11	0.00	0.00	0.00
38.90	0.64	0.57	1.11	0.00	0.00	0.00
38.95	0.64	0.57	1.11	0.00	0.00	0.00
39.00	0.64	0.57	1.11	0.00	0.00	0.00
39.05	0.64	0.57	1.11	0.00	0.00	0.00
39.10	0.64	0.57	1.11	0.00	0.00	0.00
39.15	0.64	0.57	1.11	0.00	0.00	0.00
39.20	0.64	0.57	1.11	0.00	0.00	0.00
39.25	0.64	0.57	1.11	0.00	0.00	0.00
39.30	0.64	0.57	1.11	0.00	0.00	0.00
39.35	0.64	0.57	1.11	0.00	0.00	0.00
39.40	0.64	0.57	1.11	0.00	0.00	0.00
39.45	0.64	0.57	1.11	0.00	0.00	0.00
39.50	0.64	0.57	1.11	0.00	0.00	0.00
39.55	0.64	0.57	1.11	0.00	0.00	0.00
39.60	0.64	0.57	1.11	0.00	0.00	0.00
39.65	0.64	0.57	1.11	0.00	0.00	0.00
39.70	0.64	0.57	1.11	0.00	0.00	0.00
39.75	0.64	0.57	1.11	0.00	0.00	0.00
39.80	0.64	0.57	1.11	0.00	0.00	0.00

39.85	0.64	0.57	1.11	0.00	0.00	0.00
39.90	0.64	0.57	1.11	0.00	0.00	0.00
39.95	0.64	0.57	1.11	0.00	0.00	0.00
40.00	0.64	0.57	1.11	0.00	0.00	0.00
40.05	0.64	0.57	1.11	0.00	0.00	0.00
40.10	0.64	0.57	1.11	0.00	0.00	0.00
40.15	0.64	0.57	1.11	0.00	0.00	0.00
40.20	0.64	0.57	1.11	0.00	0.00	0.00
40.25	0.64	0.57	1.11	0.00	0.00	0.00
40.30	0.64	0.57	1.11	0.00	0.00	0.00
40.35	0.64	0.57	1.11	0.00	0.00	0.00
40.40	0.64	0.57	1.11	0.00	0.00	0.00
40.45	0.63	0.57	1.11	0.00	0.00	0.00
40.50	0.63	0.57	1.11	0.00	0.00	0.00
40.55	0.63	0.57	1.11	0.00	0.00	0.00
40.60	0.63	0.57	1.11	0.00	0.00	0.00
40.65	0.63	0.57	1.11	0.00	0.00	0.00
40.70	0.63	0.57	1.11	0.00	0.00	0.00
40.75	0.63	0.57	1.11	0.00	0.00	0.00
40.80	0.63	0.57	1.11	0.00	0.00	0.00
40.85	0.63	0.57	1.11	0.00	0.00	0.00
40.90	0.63	0.57	1.11	0.00	0.00	0.00
40.95	0.63	0.57	1.11	0.00	0.00	0.00
41.00	0.63	0.57	1.11	0.00	0.00	0.00
41.05	0.63	0.57	1.11	0.00	0.00	0.00
41.10	0.63	0.57	1.11	0.00	0.00	0.00
41.15	0.63	0.57	1.11	0.00	0.00	0.00
41.20	0.63	0.57	1.11	0.00	0.00	0.00
41.25	0.63	0.57	1.11	0.00	0.00	0.00
41.30	0.63	0.57	1.11	0.00	0.00	0.00
41.35	0.63	0.57	1.11	0.00	0.00	0.00
41.40	0.63	0.57	1.11	0.00	0.00	0.00
41.45	0.63	0.57	1.11	0.00	0.00	0.00
41.50	0.63	0.57	1.11	0.00	0.00	0.00
41.55	0.63	0.57	1.11	0.00	0.00	0.00
41.60	0.63	0.57	1.11	0.00	0.00	0.00
41.65	0.63	0.57	1.11	0.00	0.00	0.00
41.70	0.63	0.57	1.11	0.00	0.00	0.00
41.75	0.63	0.57	1.11	0.00	0.00	0.00
41.80	0.63	0.57	1.11	0.00	0.00	0.00
41.85	0.63	0.57	1.11	0.00	0.00	0.00
41.90	0.63	0.57	1.11	0.00	0.00	0.00
41.95	0.63	0.57	1.11	0.00	0.00	0.00
42.00	0.63	0.57	1.11	0.00	0.00	0.00
42.05	0.63	0.57	1.11	0.00	0.00	0.00
42.10	0.63	0.57	1.11	0.00	0.00	0.00
42.15	0.63	0.57	1.11	0.00	0.00	0.00
42.20	0.63	0.57	1.11	0.00	0.00	0.00
42.25	0.63	0.57	1.11	0.00	0.00	0.00
42.30	0.63	0.57	1.11	0.00	0.00	0.00
42.35	0.63	0.57	1.11	0.00	0.00	0.00
42.40	0.63	0.57	1.11	0.00	0.00	0.00
42.45	0.63	0.57	1.11	0.00	0.00	0.00
42.50	0.63	0.57	1.11	0.00	0.00	0.00
42.55	0.63	0.57	1.11	0.00	0.00	0.00
42.60	0.63	0.57	1.11	0.00	0.00	0.00
42.65	0.63	0.57	1.11	0.00	0.00	0.00
42.70	0.63	0.57	1.11	0.00	0.00	0.00
42.75	0.63	0.57	1.11	0.00	0.00	0.00
42.80	0.63	0.57	1.11	0.00	0.00	0.00
42.85	0.63	0.57	1.11	0.00	0.00	0.00
42.90	0.63	0.57	1.11	0.00	0.00	0.00
42.95	0.63	0.57	1.11	0.00	0.00	0.00

43.00	0.63	0.57	1.11	0.00	0.00	0.00
43.05	0.63	0.57	1.11	0.00	0.00	0.00
43.10	0.63	0.57	1.11	0.00	0.00	0.00
43.15	0.63	0.57	1.11	0.00	0.00	0.00
43.20	0.63	0.57	1.11	0.00	0.00	0.00
43.25	0.63	0.57	1.11	0.00	0.00	0.00
43.30	0.63	0.57	1.11	0.00	0.00	0.00
43.35	0.63	0.57	1.11	0.00	0.00	0.00
43.40	0.63	0.57	1.11	0.00	0.00	0.00
43.45	0.63	0.57	1.11	0.00	0.00	0.00
43.50	0.63	0.57	1.11	0.00	0.00	0.00
43.55	0.63	0.57	1.11	0.00	0.00	0.00
43.60	0.63	0.57	1.11	0.00	0.00	0.00
43.65	0.63	0.57	1.11	0.00	0.00	0.00
43.70	0.63	0.57	1.11	0.00	0.00	0.00
43.75	0.63	0.57	1.11	0.00	0.00	0.00
43.80	0.62	0.57	1.11	0.00	0.00	0.00
43.85	0.62	0.57	1.11	0.00	0.00	0.00
43.90	0.62	0.57	1.11	0.00	0.00	0.00
43.95	0.62	0.57	1.11	0.00	0.00	0.00
44.00	0.62	0.56	1.11	0.00	0.00	0.00
44.05	0.62	0.56	1.11	0.00	0.00	0.00
44.10	0.62	0.56	1.11	0.00	0.00	0.00
44.15	0.62	0.56	1.11	0.00	0.00	0.00
44.20	0.62	0.56	1.11	0.00	0.00	0.00
44.25	0.62	0.56	1.11	0.00	0.00	0.00
44.30	0.62	0.56	1.11	0.00	0.00	0.00
44.35	0.62	0.56	1.11	0.00	0.00	0.00
44.40	0.62	0.56	1.11	0.00	0.00	0.00
44.45	0.62	0.56	1.11	0.00	0.00	0.00
44.50	0.62	0.56	1.11	0.00	0.00	0.00
44.55	0.62	0.56	1.11	0.00	0.00	0.00
44.60	0.62	0.56	1.11	0.00	0.00	0.00
44.65	0.62	0.56	1.11	0.00	0.00	0.00
44.70	0.62	0.56	1.11	0.00	0.00	0.00
44.75	0.62	0.56	1.11	0.00	0.00	0.00
44.80	0.62	0.56	1.11	0.00	0.00	0.00
44.85	0.62	0.56	1.11	0.00	0.00	0.00
44.90	0.62	0.56	1.11	0.00	0.00	0.00
44.95	0.62	0.56	1.11	0.00	0.00	0.00
45.00	0.62	0.56	1.11	0.00	0.00	0.00
45.05	0.62	0.56	1.11	0.00	0.00	0.00
45.10	0.62	0.56	1.11	0.00	0.00	0.00
45.15	0.62	0.56	1.11	0.00	0.00	0.00
45.20	0.62	0.56	1.11	0.00	0.00	0.00
45.25	0.62	0.56	1.11	0.00	0.00	0.00
45.30	0.62	0.56	1.11	0.00	0.00	0.00
45.35	0.62	0.56	1.11	0.00	0.00	0.00
45.40	0.62	0.56	1.11	0.00	0.00	0.00
45.45	0.62	0.56	1.11	0.00	0.00	0.00
45.50	0.62	0.56	1.11	0.00	0.00	0.00
45.55	0.62	0.56	1.11	0.00	0.00	0.00
45.60	0.62	0.56	1.11	0.00	0.00	0.00
45.65	0.62	0.56	1.11	0.00	0.00	0.00
45.70	0.62	0.56	1.11	0.00	0.00	0.00
45.75	0.62	0.56	1.11	0.00	0.00	0.00
45.80	0.62	0.56	1.11	0.00	0.00	0.00
45.85	0.62	0.56	1.11	0.00	0.00	0.00
45.90	0.62	0.56	1.11	0.00	0.00	0.00
45.95	0.62	0.56	1.11	0.00	0.00	0.00
46.00	0.62	0.56	1.11	0.00	0.00	0.00
46.05	0.62	0.56	1.11	0.00	0.00	0.00
46.10	0.62	0.56	1.11	0.00	0.00	0.00

46.15	0.62	0.56	1.11	0.00	0.00	0.00
46.20	0.62	0.56	1.11	0.00	0.00	0.00
46.25	0.62	0.56	1.11	0.00	0.00	0.00
46.30	0.62	0.56	1.11	0.00	0.00	0.00
46.35	0.62	0.56	1.11	0.00	0.00	0.00
46.40	0.62	0.56	1.11	0.00	0.00	0.00
46.45	0.62	0.56	1.11	0.00	0.00	0.00
46.50	0.62	0.56	1.11	0.00	0.00	0.00
46.55	0.62	0.56	1.11	0.00	0.00	0.00
46.60	0.62	0.56	1.11	0.00	0.00	0.00
46.65	0.62	0.56	1.11	0.00	0.00	0.00
46.70	0.62	0.56	1.11	0.00	0.00	0.00
46.75	0.62	0.56	1.11	0.00	0.00	0.00
46.80	0.62	0.56	1.11	0.00	0.00	0.00
46.85	0.62	0.56	1.11	0.00	0.00	0.00
46.90	0.62	0.56	1.11	0.00	0.00	0.00
46.95	0.62	0.56	1.11	0.00	0.00	0.00
47.00	0.62	0.56	1.11	0.00	0.00	0.00
47.05	0.62	0.56	1.11	0.00	0.00	0.00
47.10	0.62	0.56	1.11	0.00	0.00	0.00
47.15	0.62	0.56	1.11	0.00	0.00	0.00
47.20	0.62	0.56	1.11	0.00	0.00	0.00
47.25	0.61	0.56	1.11	0.00	0.00	0.00
47.30	0.61	0.56	1.11	0.00	0.00	0.00
47.35	0.61	0.56	1.11	0.00	0.00	0.00
47.40	0.61	0.56	1.11	0.00	0.00	0.00
47.45	0.61	0.56	1.11	0.00	0.00	0.00
47.50	0.61	0.56	1.11	0.00	0.00	0.00
47.55	0.61	0.56	1.11	0.00	0.00	0.00
47.60	0.61	0.55	1.11	0.00	0.00	0.00
47.65	0.61	0.55	1.11	0.00	0.00	0.00
47.70	0.61	0.55	1.11	0.00	0.00	0.00
47.75	0.61	0.55	1.11	0.00	0.00	0.00
47.80	0.61	0.55	1.11	0.00	0.00	0.00
47.85	0.61	0.55	1.11	0.00	0.00	0.00
47.90	0.61	0.55	1.11	0.00	0.00	0.00
47.95	0.61	0.55	1.11	0.00	0.00	0.00
48.00	0.61	0.55	1.11	0.00	0.00	0.00
48.05	0.61	0.55	1.11	0.00	0.00	0.00
48.10	0.61	0.55	1.11	0.00	0.00	0.00
48.15	0.61	0.55	1.11	0.00	0.00	0.00
48.20	0.61	0.55	1.11	0.00	0.00	0.00
48.25	0.61	0.55	1.11	0.00	0.00	0.00
48.30	0.61	0.55	1.11	0.00	0.00	0.00
48.35	0.61	0.55	1.11	0.00	0.00	0.00
48.40	0.61	0.55	1.11	0.00	0.00	0.00
48.45	0.61	0.55	1.11	0.00	0.00	0.00
48.50	0.61	0.55	1.11	0.00	0.00	0.00
48.55	0.61	0.55	1.11	0.00	0.00	0.00
48.60	0.61	0.55	1.11	0.00	0.00	0.00
48.65	0.61	0.55	1.11	0.00	0.00	0.00
48.70	0.61	0.55	1.11	0.00	0.00	0.00
48.75	0.61	0.55	1.11	0.00	0.00	0.00
48.80	0.61	0.55	1.11	0.00	0.00	0.00
48.85	0.61	0.55	1.11	0.00	0.00	0.00
48.90	0.61	0.55	1.11	0.00	0.00	0.00
48.95	0.61	0.55	1.11	0.00	0.00	0.00
49.00	0.61	0.55	1.11	0.00	0.00	0.00
49.05	0.61	0.55	1.11	0.00	0.00	0.00
49.10	0.61	0.55	1.11	0.00	0.00	0.00
49.15	0.61	0.55	1.11	0.00	0.00	0.00
49.20	0.61	0.55	1.11	0.00	0.00	0.00
49.25	0.61	0.55	1.11	0.00	0.00	0.00

49.30	0.61	0.55	1.11	0.00	0.00	0.00
49.35	0.61	0.55	1.11	0.00	0.00	0.00
49.40	0.61	0.55	1.11	0.00	0.00	0.00
49.45	0.61	0.55	1.11	0.00	0.00	0.00
49.50	0.61	0.55	1.11	0.00	0.00	0.00
49.55	0.61	0.55	1.11	0.00	0.00	0.00
49.60	0.61	0.55	1.11	0.00	0.00	0.00
49.65	0.61	0.55	1.11	0.00	0.00	0.00
49.70	0.61	0.55	1.11	0.00	0.00	0.00
49.75	0.61	0.55	1.11	0.00	0.00	0.00
49.80	0.61	0.55	1.11	0.00	0.00	0.00
49.85	0.61	0.55	1.11	0.00	0.00	0.00
49.90	0.61	0.55	1.11	0.00	0.00	0.00
49.95	0.61	0.55	1.11	0.00	0.00	0.00
50.00	0.61	0.55	1.11	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)
CRRm Cyclic resistance ratio from soils
CSRsf Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat Settlement from saturated sands
S_dry Settlement from Unsaturated Sands
S_all Total Settlement from Saturated and Unsaturated Sands
NoLiq No-Liquefy Soils

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APPENDIX E

REFERENCES

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REFERENCES

1. California Building Standards Commission, 2016 California Building Code.

2. California Division of Mines and Geology (CDMG), Earthquake Zones of Required investigation El Monte Quadrangle, Earthquake Fault Zones Revised Official Map Released June 15, 2017, Seismic Hazard Zones Official Map Released March 25, 1999, Scale 1:24,000.

3. CDMG, Seismic Hazard Zone Report for the El Monte 7.5-Minute Quadrangle, Los Angeles County, California, 1998, Seismic Hazard Zone Report 024.

4. Google Earth (2018), Aerial Photographs, 1994-2018.

5. Kramer, S.L., "Geotechnical Earthquake Engineering," Prentice Hall, 1996.

6. NETR Online Historic Aerials and Topographic Maps, www.historicaerials.com, Aerial Photographs 1952-2014, Topographic Maps 1896-2012.

7. State of California, Department of Conservation, http://www.conservation.ca.gov/cgs/Pages/Index.aspx

8. UCSB Library's digital Aerial Photography Collections, Photo C-5364, Frame 28, Scale 1:9,000, September 11, 1938. C-300, Frame K 394, Scale 1:18,000, December 31, 1927.

9. Applied Technology Council (ATC) Hazards by Location https://hazards.atcouncil.org

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INFILTRATION TEST RESULTS

Project ID:	19G-0075-0	Project Location:	El Monte, CA
Test Location:	PTB-2	Boring Diameter (in):	8.0
Tested By:	MM	Pipe Diameter (in)	4.0
Date:	8/19/19	Top of Test (ft)	10.0
Measurement:	Piezometer	Bottom of Test (ft)	14.5
Presoak Time:	1:00 Hour		

Reading No.	Start & End Time	Interval Time (min)	Start & End Water Level (in)	Water Drop During Time Interval (in)	Volume of Water Discharged, (in^3)	Surface Area of Test Section (in^2)	Raw Percolation Rate (in/hr)
1	1:55	10	0.0	120.0	1507.2	1356.5	6.7
	2:05		120.0				
2	2:13	10	0.0	120.0	1507.2	1356.5	6.7
	2:23		120.0				
3	2:25	10	0.0	108.0	1356.5	1356.5	6.0
	2:35		108.0				
4	2:41	10	0.0	109.2	1371.6	1356.5	6.1
	2:51		109.2				
5	2:56	10	0.0	101.0	1268.6	1356.5	5.6
	3:06		101.0				
6	3:11	10	0.0	108.0	1356.5	1356.5	6.0
	3:21		108.0				
7	3:25	10	0.0	85.0	1067.6	1356.5	4.7
	3:35		85.0				
8	3:40	10	0.0	83.0	1042.5	1356.5	4.6
	3:50		83.0				
9	3:55	10	0.0	82.0	1029.9	1356.5	4.6
	4:05		82.0				

Average of Last Three, in/hr	RF	Design Perc Rate, in/hr	ft/day
4.6	4.0	1.2	2.3

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INFILTRATION TEST RESULTS

Project ID:	19G-0075-0	Project Location:	El Monte, CA
Test Location:	PTB-1	Boring Diameter (in):	8.0
Tested By:	MM	Pipe Diameter (in)	4.0
Date:	8/19/19	Top of Test (ft)	10.0
Measurement:	Piezometer	Bottom of Test (ft)	14.5
Presoak Time:	1:00 Hour		

Reading No.	Start & End Time	Interval Time (min)	Start & End Water Level (in)	Water Drop During Time Interval (in)	Volume of Water Discharged, (in^3)	Surface Area of Test Section (in^2)	Raw Percolation Rate (in/hr)
1	11:48	10	0.0	120.0	1507.2	1356.5	6.7
	11:58		120.0				
2	12:05	10	0.0	115.0	1444.4	1356.5	6.4
	12:15		115.0				
3	12:21	10	0.0	118.0	1482.1	1356.5	6.6
	12:31		118.0				
4	12:33	10	0.0	109.2	1371.6	1356.5	6.1
	12:43		109.2				
5	12:46	10	0.0	101.0	1268.6	1356.5	5.6
	12:56		101.0				
6	1:02	10	0.0	70.0	879.2	1356.5	3.9
	1:12		70.0				
7	1:16	10	0.0	68.0	854.1	1356.5	3.8
	1:26		68.0				
8	1:30	10	0.0	68.0	854.1	1356.5	3.8
	1:40		68.0				

Average of Last Three, in/hr	RF	Design Perc Rate, in/hr	ft/day
3.8	4.0	1.0	1.9

Appendix H2

Fire Flow Analysis



PSOMAS

TECHNICAL MEMORANDUM

To: Alan Palermo

From: Mike Swan

Date: May 28, 2019

Subject: 11312 Orchard Project Fire Flow Analysis



The hydraulic model for the City of El Monte Water Department's water supply and distribution system was utilized to analyze water service pressure and fire flow to the proposed residential project located at 11312 Orchard Street (Project). The Project site covers 5.5 acres and would involve the demolition of industrial buildings and development of 110 condominium units per the site plan prepared by Forma Engineering. The approximate boundary of the Project is shown on Figure 1 and is located between Orchard Street to the north, Cypress Avenue to the west, and Iris Lane to the south/east.

City of El Monte staff provided flow test data for a hydrant on Cypress Avenue near the intersection of Kauffman Street along with information on which City wells were operating during the test. This data was used to verify the calibration of the model in the vicinity of the Project. The City's water service requirements for new developments are a minimum of 40 psi pressure delivered during peak hour demand and a minimum of 20 psi for fire flow during maximum day demand (MDD). The required fire flow for the site of 1,650 gpm at 20 psi residual pressure for 2 hours as provided by Los Angeles County Fire Department. This requirement is for both public and on-site fire hydrants and assumes approved automatic fire sprinkler systems are installed for the proposed buildings within this development.

Project pipelines were added to the hydraulic model which consist of 8-inch pipelines in internal Project streets and approximately 140 feet of 8-inch pipeline along Cypress Avenue south from Kaufman Street to the project entrance. Existing pipelines in the vicinity of the Project and proposed Project pipelines are illustrated on Figure 1. As shown on Figure 1, a proposed 8-inch pipeline is proposed to replace the existing 6-inch City pipeline in Cypress Avenue from Kaufman Street southerly to the project entrance on Cypress Avenue where it would connect to the internal Project pipelines. The Project pipelines will connect to existing City pipelines at two other locations; to the 8-inch pipeline along Iris Lane and the 6-inch pipeline along Orchard Street.

The existing model was run using the maximum day demand scenario which utilizes the existing water distribution facilities with maximum day demand that was updated based on recent production data. This scenario is an extended period simulation (EPS) over a 24-hour period. Project water demand was added to the model based on the proposed land use data. An average day demand for the project is estimated based on data from the City's 2010 Water Master Plan Update which estimates a per capita use for multi-family resesidentil land use equal to 81 gpd with 4.24 people per household. This equates to an average use of 343 gallons per day per dwelling unit (gpd/du). For the 110 Project units the estimated average demand is equal 26.2

gallons per minute (gpm). The existing use for the site was included in the model as commercial use equal to approximately 7.5 gpm (based on acreage) for a net demand increase of approximaly 18.8 gpm (26.2 – 7.5). The MDD is estimated using the master plan peaking factor of 1.55 times the average day demand. An additional net MDD of 29 gpm (18.8 x 1.55) was added to the model for the Proposed Project.

Project Average Day Demand

Land Use	Units		Factor		Demand	
					gpd	gpm
Existing Commercial	5.5	acres	1,952	gpd/ac	10,736	7.5
Residential Project	110.0	dus	343	gpd/du	37,778	26.2
Average Day Demand Increase					**27,042**	**18.8**

The modeled peak hour pressure for the Project is equal to 48 psi based on the maximum day demand EPS simulation which models the peak hour using a factor of 1.7. The peak hour pressure requirement is met with the normal well controls set by the City based on water levels in the City's elevated tank.

In modeling fire pressure for the Project area, it was assumed that new Project pipelines and on-site hydrants will be included as part of the public water system and no friction losses were taken to account for backflow devices, which would be required for a private system. Model results indicate sufficient fire pressure at the required flow rate of 1,650 gpm. The maximum day plus fire flow simulation assumed the City's control points that trigger wells to turn on and off at specified water levels in the elevated tank. Typical maximum day operation will include the three EMOU wells operating continually and at least one additional well operating for most of the day. With no additional pipeline improvements beyond those shown in red on Figure 1, the modeled minimum fire pressure at the Project site is 28 psi. This pressure is simulated with the EMOU wells plus one additional well operating. To be conservative, the entire fire flow was put at one node as indicated on Figure 1 but in actuality the 1,650 gpm would likely be drawn from two adjacent hydrants providing slightly better pressure than the 28 psi modeled.

During maximum day demand conditions, the three EMOU wells operating alone are not sufficient to provide the required fire pressure. However, during maximum day demands, at least one additional well would always be operating in any case. During average day demand conditions, the EMOU wells alone can provided sufficient fire pressure of 33 psi. Model output for the proposed new Project pipelines is attached. Results are included for peak hour and maximum day plus fire flow simulations. For the maximum day plus fire flow simulation, Well 2A is operating along with the EMOU wells. Similar results are seen when Well 2A is replaced with another well. All City design critera are met for the proposed system as well as the remainder of the distribution system under these scenarios.

Based on model results, there are no required pipeline improvements within the City system beyond the proposed 8-inch Project pipelines consisting of on-site pipelines and the 140-feet of pipeline along Cypress Avenue, replacing the existing 6-inch. Where the Project pipelines are connecting to existing pipelines, regardless of whether they are 8-inch or 6-inch, 8-inch tees should be installed on these existing lines with 8-inch valve clusters and then reducers to the 6-inch lines to be approved by the City. This will allow the City to replace the 6-inch lines with 8-inch lines in the future without any valve or fitting constrictions.

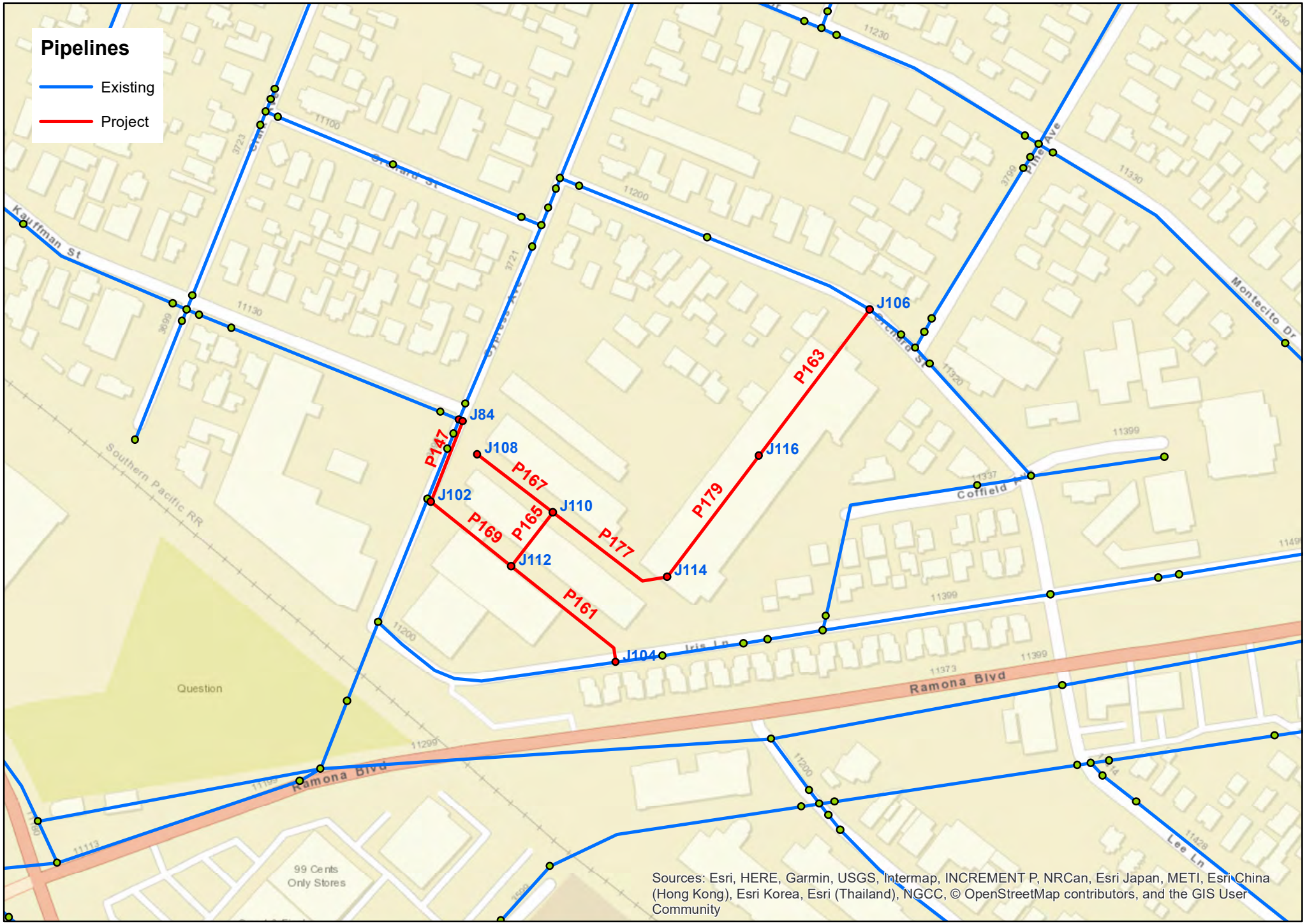
Attachments: Figure 1 - Project Location and Pipelines, Model Output with Junction Map, Project Site Map, Hydrant Flow Test results

cc: Ed Diggs, City of El Monte



PSOMAS

Figure 1
Project Location and Pipelines



PSOMAS

MODEL JUNCTION MAP

PEAK HOUR DEMAND SIMULATION

Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J106	0	274.13	397.1	53.3
J116	9.89	285	397.1	48.6
J114	9.89	285	397.2	48.6
J110	9.89	285	397.2	48.6
J108	9.89	285	397.2	48.6
J112	9.89	285	397.2	48.6
J104	0	285	397.3	48.7
J102	0	286.88	397.2	47.8
J84	0	281.87	397.2	50.0
414	11.36	281.87	397.2	50.0

Pipe Report

ID	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	HL/1000 (ft/k-ft)
P163	J106	J116	312.1	8	130	-58.3	0.37	0.03	0.09
P179	J116	J114	258.7	8	130	-68.2	0.44	0.03	0.13
P177	J114	J110	235.0	8	130	-78.1	0.50	0.04	0.16
P165	J110	J112	115.9	8	130	-97.9	0.62	0.03	0.25
P167	J110	J108	161.9	8	130	9.9	0.06	0.00	0.00
P161	J104	J112	247.1	8	130	96.3	0.61	0.06	0.24
P169	J112	J102	175.9	8	130	-11.5	0.07	0.00	0.00
P147	J84	J102	147.6	8	130	11.5	0.07	0.00	0.00
P137	414	J84	28.0	8	130	11.5	0.07	0.00	0.00

MAXIMUM DAY PLUS FIRE FLOW DEMAND - EPS HOUR 1

Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J106	0	274.13	354.6	34.9
J116	2.74	285	352.8	29.4
J114	1,652.74	285	351.3	28.7
J110	2.74	285	356.5	31.0
J108	2.74	285	356.5	31.0
J112	2.74	285	359.1	32.1
J104	0	285	360.2	32.6
J102	0	286.88	360.5	31.9
J84	0	281.87	361.7	34.6
414	3.14	281.87	361.9	34.7

Pipe Report

ID	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	HL/1000 (ft/k-ft)
P163	J106	J116	312.1	8	130	543.3	3.47	1.84	5.90
P179	J116	J114	258.7	8	130	540.6	3.45	1.51	5.85
P177	J114	J110	235.0	8	130	-1112.2	7.10	5.23	22.24
P165	J110	J112	115.9	8	130	-1117.6	7.13	2.60	22.44
P167	J110	J108	161.9	8	130	2.7	0.02	0.00	0.00
P161	J104	J112	247.1	8	130	480.3	3.07	1.16	4.70
P169	J112	J102	175.9	8	130	-640.1	4.09	1.41	7.99
P147	J84	J102	147.6	8	130	640.1	4.09	1.18	7.99
P137	414	J84	28.0	8	130	640.1	4.09	0.22	7.99

MAXIMUM DAY PLUS FIRE FLOW DEMAND - EPS HOUR 20

Junction Report

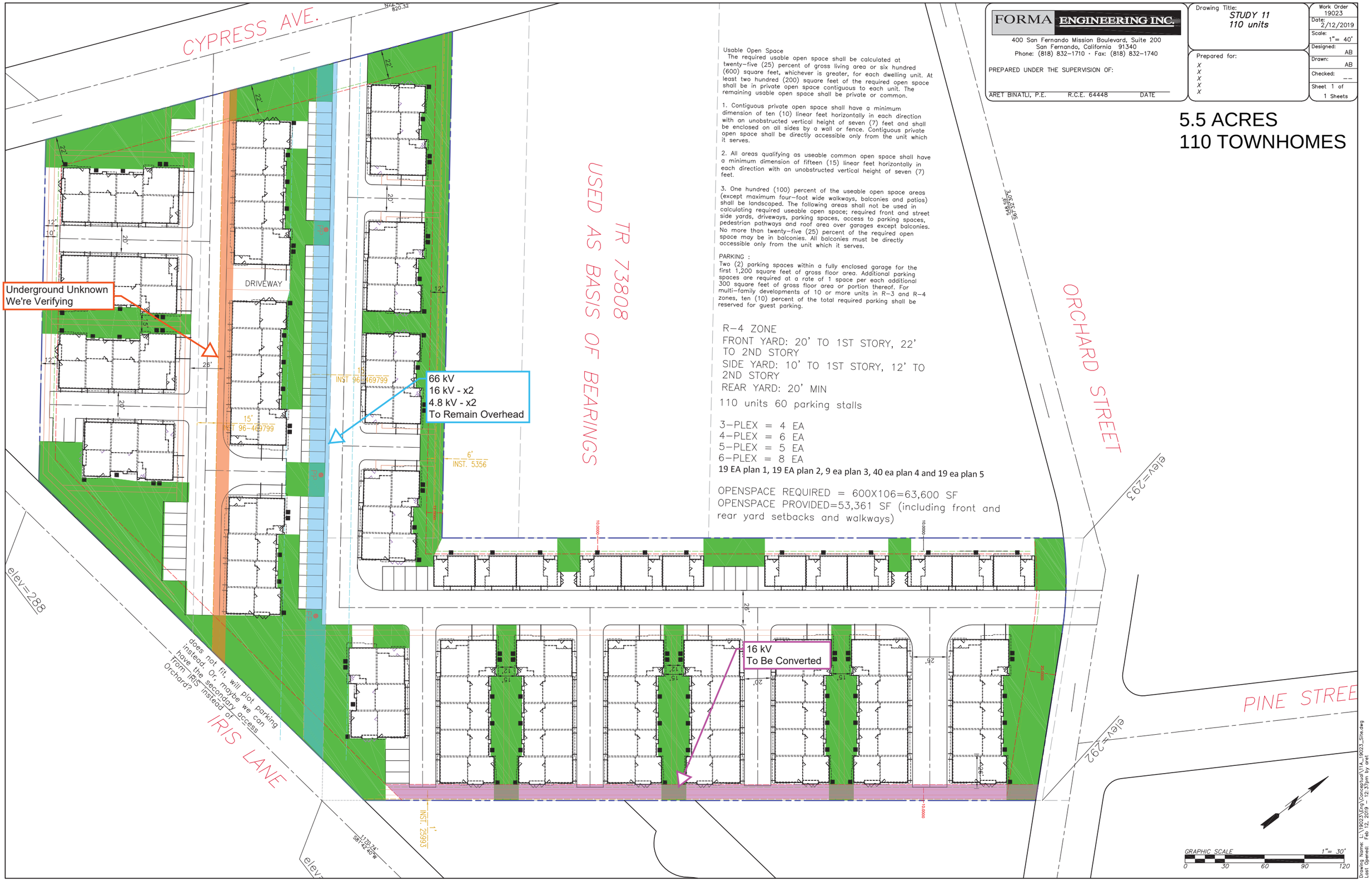
ID	Demand	Elevation	Head (ft)	Pressure
J106	0	274.13	353.2	34.3
J116	6.34	285	351.4	28.8
J114	1,656.34	285	349.9	28.1
J110	6.34	285	355.3	30.5
J108	6.34	285	355.3	30.5
J112	6.34	285	358.0	31.6
J104	0	285	359.3	32.2
J102	0	286.88	359.4	31.4
J84	0	281.87	360.6	34.1
414	7.28	281.87	360.8	34.2

Pipe Report

ID	From	To Node	Length	Diameter	Roughnes	Flow	Velocity	Headloss	HL/1000
P163	J106	J116	312.1	8	130	535.8	3.42	1.79	5.75
P179	J116	J114	258.7	8	130	529.4	3.38	1.46	5.63
P177	J114	J110	235.0	8	130	-1126.9	7.19	5.35	22.79
P165	J110	J112	115.9	8	130	-1139.6	7.27	2.70	23.27
P167	J110	J108	161.9	8	130	6.3	0.04	0.00	0.00
P161	J104	J112	247.1	8	130	508.0	3.24	1.29	5.21
P169	J112	J102	175.9	8	130	-637.9	4.07	1.40	7.94
P147	J84	J102	147.6	8	130	637.9	4.07	1.17	7.94
P137	414	J84	28.0	8	130	637.9	4.07	0.22	7.94

EPS FIRE FLOW JUNCTION J114

Time	Demand (gpm)	Head (ft)	Pressure (psi)
00:00 hrs	2.74	410.44	54.35
00:30 hrs	827.74	379.43	40.92
01:00 hrs	1,652.74	351.25	28.71
01:30 hrs	1,652.88	366.14	35.16
02:00 hrs	1,653.03	365.12	34.72
02:30 hrs	828.03	394.05	47.25
03:00 hrs	3.03	416.01	56.77
03:30 hrs	3.87	407.31	53.00
04:00 hrs	4.71	405.75	52.32
04:30 hrs	4.71	404.59	51.82
05:00 hrs	4.71	403.35	51.28
05:30 hrs	5.15	400.89	50.22
06:00 hrs	5.59	405.62	52.26
06:30 hrs	5.59	406.86	52.80
07:00 hrs	5.59	408.04	53.31
07:30 hrs	6.11	408.23	53.40
08:00 hrs	6.63	408.31	53.43
08:30 hrs	6.63	396.31	48.23
09:00 hrs	6.63	404.12	51.62
09:30 hrs	6.02	406.28	52.55
10:00 hrs	5.41	409.06	53.75
10:30 hrs	5.41	402.85	51.06
11:00 hrs	5.41	400.96	50.24
11:30 hrs	6.52	395.00	47.66
12:00 hrs	7.62	402.67	50.98
12:30 hrs	7.62	402.34	50.84
13:00 hrs	7.62	402.04	50.71
13:30 hrs	8.76	399.50	49.62
14:00 hrs	9.89	395.58	47.91
14:30 hrs	9.89	411.54	54.83
15:00 hrs	9.89	397.21	48.62
15:30 hrs	8.12	398.91	49.36
16:00 hrs	6.34	428.16	62.03
16:30 hrs	6.34	407.00	52.86
17:00 hrs	6.34	408.04	53.31
17:30 hrs	6.69	397.65	48.81
18:00 hrs	7.04	392.46	46.56
18:30 hrs	7.04	403.15	51.19
19:00 hrs	7.04	403.53	51.36
19:30 hrs	831.69	385.92	43.73
20:00 hrs	1,656.34	349.93	28.14
20:30 hrs	1,656.34	366.02	35.10
21:00 hrs	1,656.34	351.74	28.92
21:30 hrs	830.38	403.63	51.40
22:00 hrs	4.42	411.72	54.91
22:30 hrs	4.42	405.81	52.35
23:00 hrs	4.42	405.09	52.04
23:30 hrs	3.58	405.97	52.41
24:00 hrs	2.74	407.52	53.09



Usable Open Space
The required usable open space shall be calculated at twenty-five (25) percent of gross living area or six hundred (600) square feet, whichever is greater, for each dwelling unit. At least two hundred (200) square feet of the required open space shall be in private open space contiguous to each unit. The remaining usable open space shall be private or common.

1. Contiguous private open space shall have a minimum dimension of ten (10) linear feet horizontally in each direction with an unobstructed vertical height of seven (7) feet and shall be enclosed on all sides by a wall or fence. Contiguous private open space shall be directly accessible only from the unit which it serves.

2. All areas qualifying as useable common open space shall have a minimum dimension of fifteen (15) linear feet horizontally in each direction with an unobstructed vertical height of seven (7) feet.

3. One hundred (100) percent of the useable open space areas (except maximum four-foot wide walkways, balconies and patios) shall be landscaped. The following areas shall not be used in calculating required useable open space; required front and street side yards, driveways, parking spaces, access to parking spaces, pedestrian pathways and roof area over garages except balconies. No more than twenty-five (25) percent of the required open space may be in balconies. All balconies must be directly accessible only from the unit which it serves.

PARKING :
Two (2) parking spaces within a fully enclosed garage for the first 1,200 square feet of gross floor area. Additional parking spaces are required at a rate of 1 space per each additional 300 square feet of gross floor area or portion thereof. For multi-family developments of 10 or more units in R-3 and R-4 zones, ten (10) percent of the total required parking shall be reserved for guest parking.

R-4 ZONE
FRONT YARD: 20' TO 1ST STORY, 22' TO 2ND STORY
SIDE YARD: 10' TO 1ST STORY, 12' TO 2ND STORY
REAR YARD: 20' MIN

110 units 60 parking stalls

3-PLEX = 4 EA
4-PLEX = 6 EA
5-PLEX = 5 EA
6-PLEX = 8 EA
19 EA plan 1, 19 EA plan 2, 9 ea plan 3, 40 ea plan 4 and 19 ea plan 5

OPENSPACE REQUIRED = 600X106=63,600 SF
OPENSPACE PROVIDED=53,361 SF (including front and rear yard setbacks and walkways)

FORMA ENGINEERING INC.
400 San Fernando Mission Boulevard, Suite 200
San Fernando, California 91340
Phone: (818) 832-1710 · Fax: (818) 832-1740

PREPARED UNDER THE SUPERVISION OF:

ARET BINATLI, P.E. R.C.E. 64448 DATE

Drawing Title:
STUDY 11
110 units

Prepared for:
X
X
X
X
X

Work Order 19023
Date: 2/12/2019
Scale: 1"= 40'
Designed: AB
Drawn: AB
Checked: --
Sheet 1 of 1 Sheets

5.5 ACRES
110 TOWNHOMES

Drawing Name: L:\19023\Eng\Conceptual\11A_19023_Site.dwg
Last Opened: Feb 12, 2019 - 12:37pm by aret

FORM 196
Rev. 04/03

COUNTY OF LOS ANGELES FIRE DEPARTMENT
FIRE PREVENTION DIVISION

Fire Prevention Engineering
5823 Rickenbacker Road
Commerce, CA 90040
Telephone (323) 890-4125 Fax (323) 890-4129

Information on Fire Flow Availability for Building Permit

For All Buildings Other Than Single Family Dwellings (R-3)

INSTRUCTIONS:

Complete parts I, II (A) when:
Verifying fire flow, fire hydrant location and fire hydrant size.

Complete parts I, II (A), & II (B) when:
For buildings equipped with fire sprinkler systems, and/or private on-site fire hydrants.

PROJECT INFORMATION
(To Be Completed By Applicant)

PART I

Building Address: 3630 Cypress Ave.

City or Area: El Monte

Nearest Cross Street: Cypress & Kauffman → see attach photo of fire hyd. location.

Distance of Nearest Cross Street: 100'

Applicant: KB Home Greater Los Angeles Inc. Telephone: (805) 306-3651

Address: 25152 Springfield Ct., Suite 180

City: Santa Clarita

Occupancy (Use of Building): Residential Sprinklered: Yes ☑ No ☐

Type of Construction: Type V

Square Footage: 2,000 SF Number of Stories: 3

Present Zoning: Commercial

Applicant's Signature

3/14/19
Date

CITY OF EL MONTE
UTILITIES DIVISION - WATER DEPARTMENT
FIRE FLOW ANALYSIS

CLAFD Form 196 Information:

Building Address: 3630 Cypress ave.
El Monte Ca. 91731

Date Received: 3/18/2019
Work Order No: 9909

Applicant: KB Home Greater Los Angeles Inc.
25152 Springfield Ct. Suite 180
Santa Clarita, Ca.

FIRE HYDRANT FLOW TESTING RESULTS:

Flow Test Date: 3/20/2019
Address: 3630 Cypress ave.
El Monte Ca. 91731

Test By: Crew
Flow Test Time: 1:20pm
Req'd Fire Flow: Not noted

	Guaging Hydrant 1 (Read)	Flow Hydrant 2 (Flow)	Flow Hydrant 3 (Flow)
Hydrant Number	264	265	
Water Main Size, in	6.0	6.0	
Hydrant Size, in	6.0	6.0	
Orifice Diameter, in	2.5	4.0	

Guaging Hydrant	Location
1	Approximateley 616' North of Address
2	Approximateley 200' North of Address
3	

Reading	Time	Pressure Hydrant #1	Pitot for Hydrant #2	Pitot for Hydrant #3
Initial Static, psi	1:20	56		
Residual, psi	1:22	38	12	
Final Static, psi	1:25	56		

PRESSURE CALCULATIONS:

PRESSURE DROP AT DESIRED RESIDUAL

Static Pressure	56	psi
Desired Pressue 20 psi	20	psi
Pressure Drop =	36	psi
Factor: h value to the 0.54 power =	6.925	$h_r^{0.54}$

PRESSURE DROP AT ACTUAL RESIDUAL

Static Pressure	56	psi
Residual Pressure	38	psi
Pressure Drop =	18	psi
Factor: h value to the 0.54 power =	4.763	$h_f^{0.54}$

DETERMINATION OF DISCHARGE:

			NFPA 291 REF:
Hydrant Coeff of Disch, c:	0.90		*Figure 4.7.1*
Outlet Diameter, d:	4.0	inches	*Flow Hydrant*
Pitot Pressure, p:	12	psi	*measured*
Q, Pitot Discharge:	1489	gpm	*Equation 4.7.3*
h value Flow Ratio Factor:	1.454		*Ratio h_r / h_f*
Q_R, Predicted Flow:	**2164**	**gpm**	*Equation 4.10.1.2*

SUMMARY OF FLOW TEST RESULTS:		
3630 Cypress ave.		
Read Hydrant	**264**	
Flow Hydrant	**265**	
Static Pressure:	**56**	**psi**
Residual Pressure:	**38**	**psi**
Pitot Reading:	**12**	
Pitot Discharge:	**1489**	**gpm**
Q_R, Predicted Flow @ 20 psi =	**2164**	**gpm**

Signature

3/26/19
Date

Supervisor

PART II-A **INFORMATION ON FIRE FLOW AVAILABILITY**
(To be completed by Water Purveyor)

Location 3630 Cypress Ave.

Hydrant Number 265

Distance from Nearest Property Line 200' North Size of Hydrant 6" Size of Water main 6"

Static PSI _____ Residual PSI _____ Orifice size 4" Pitot 12

Fire Flow at 20 PSI 2,164gpm Duration 2 hrs. Flow Test Date / Time 3/20/19 1:20pm

---

Location Corner of Orchard/Cypress

NO FLOW HYDRANT-READ ONLY Hydrant Number 264

Distance from Nearest Property Line 616' North Size of Hydrant 6" Size of Water main 6"

Static PSI 56 Residual PSI 38 Orifice size 2.5" Pitot N/A

Fire Flow at 20 PSI N/A Duration N/A Flow Test Date / Time 3/20/19 1:20pm

---

Location _____

Hydrant Number _____

Distance from Nearest Property Line _____ Size of Hydrant _____ Size of Water main _____

Static PSI _____ Residual PSI _____ Orifice size _____ Pitot _____

Fire Flow at 20 PSI _____ Duration _____ Flow Test Date / Time _____

PART II-B **SPRINKLERED BUILDINGS/PRIVATE FIRE HYDRANTS ONLY**

Detector Location (check one) ☐ Above Grade ☐ Below Grade ☐ Either

Backflow Protection Required (Fire Sprinklers/Private Hydrant) (check one) ☐ Yes ☐ No

Minimum Type of Protection Required (check one) ☐ Single Check Detector Assembly

☐ Double Check Detector Assembly ☐ Reduced Pressure Principle Detector Assembly

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CITY OF EL MONTE
Water Purveyor

Signature

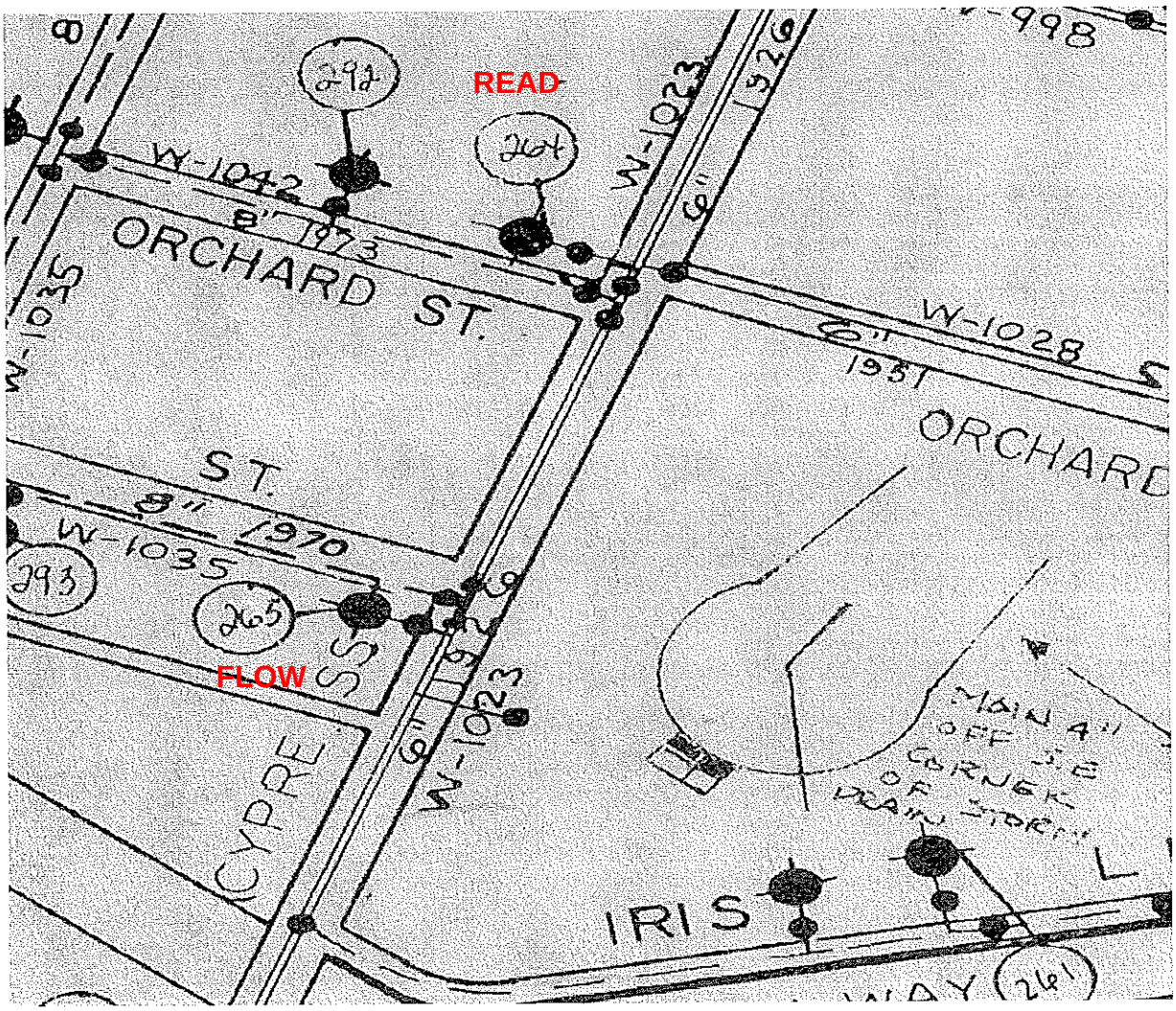
3/26/19
Date

INTERIM UTILITIES MANAGER
Title

This Information is Considered Valid for Twelve Months

Fire Department approval of building plans shall be required prior to the issuance of a Building Permit by the jurisdictional Building Department. Any deficiencies in water systems will need to be resolved by the Fire Prevention Division only prior to this department's approval of building plans.

3630 Cypress




Kauffman St & Cypress Ave - Go
https://www.google.com/maps/place/Kauffman+St+%26+Cypress+Ave,+El+Monte,+CA+91731/@34.0754757,-118.0298424,107a,35y,199.29h,45.01t/data=!3m1!1e3!4m5!3m4!1s0x80c2d0af54c...
kauffman and cypress el monte
Sign in
Ir Wheels
Iglesia Bautista
Monte Hermon
Cypress Ave
City Of El Monte
Kauffman St
Kauffman St
Kauffman St
2D
Map
Google
Imagery ©2019 Google, Map data ©2019 Google
United States
Terms
Send feedback
20 ft

Appendix I

Noise Memorandum



Rincon Consultants, Inc.

250 East 1st Street, Suite 301
Los Angeles, California 90012

213 788 4842
FAX 908 2200

info@rinconconsultants.com
www.rinconconsultants.com

March 15, 2019

Rincon Project No. 19-07222

David Lelie
Forward Planner
KB Home Southern California
25152 Springfield Court, Suite 180
Valencia, Ca. 91355

Via E-mail: dlelie@kbhome.com

Subject: **Noise Memorandum for Orchard and Cypress, a Residential Development in El Monte, California**

Dear Mr. Lelie:

Rincon Consultants, Inc. (Rincon) is pleased to provide this noise and railroad vibration memorandum for the Orchard and Cypress Project (project) located at 3700, 3640, 3630 Cypress Avenue and 11312 Orchard Street, City of El Monte, Los Angeles County, California. The 5.2-acre project site is being evaluated by KB Home for future development for 39 to 40 duplex-residential dwelling units. The project site is currently developed with commercial and industrial land uses. Fundamentals of Sound and Vibration

Sound

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (Caltrans 2013a).

The unit of measurement used to describe a noise level is the decibel (dB). However, the human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, a method called "A-weighting" is used to filter noise frequencies that are not audible to the human ear. A-weighting approximates the frequency response of the average young ear when listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the "A-weighted" levels of those sounds. Therefore, the A-weighted noise scale is used for measurements and standards involving the human perception of noise. In this analysis, all noise levels are A-weighted and "dB(A)" is understood to identify the A-weighted decibel.

Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. A 10 dB increase represents a 10-fold increase in sound intensity, a 20 dB change is a 100-fold difference, 30 dB is a 1,000-fold increase, etc. Thus, a doubling of

the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease.

Human perception of noise has no simple correlation with acoustical energy. The perception of noise is not linear in terms of dB(A) or in terms of acoustical energy. Two equivalent noise sources do not sound twice as loud as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dB(A), increase or decrease; that a change of 5 dB(A) is readily perceptible; and that an increase or decrease of 10 dB(A) sounds twice or half as loud, respectively (California Department of Transportation [Caltrans] 2013a).

Descriptors

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this analysis are the one-hour equivalent noise level (Leq) and the community noise equivalent level (CNEL).

- The Leq is the level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound. For example, Leq(1h) is the equivalent noise level over a 1-hour period and Leq(8h) is the equivalent noise level over a 8-hour period. Leq(1h) is a common metric for limiting nuisance noise whereas Leq(8h) is a common metric for evaluating construction noise.
- The CNEL is a 24-hour equivalent sound level. The CNEL calculation applies an additional 5 dB(A) penalty to noise occurring during evening hours, between 7:00 p.m. and 10:00 p.m., and an additional 10 dB(A) penalty is added to noise occurring during the night, between 10:00 p.m. and 7:00 a.m. These increases for certain times are intended to account for the added sensitivity of humans to noise during the evening and night.

Propagation

Sound from a small, localized source (approximating a “point” source) radiates uniformly outward as it travels away from the source in a spherical pattern, known as geometric spreading. The sound level decreases or drops off at a rate of 6 dB(A) for each doubling of the distance.

Traffic noise is not a single, stationary point source of sound. Over some time interval, the movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point. The drop-off rate for a line source is 3 dB(A) for each doubling of distance (Caltrans 2013a).

Vibration

Vibration levels are usually expressed as single-number measure of vibration magnitude, in terms of velocity or acceleration, which describes the severity of the vibration without the frequency variable. The peak particle velocity (ppv) is defined as the maximum instantaneous positive or negative peak of the vibration signal, usually measured in inches per second (in/sec) (Caltrans 2013b). Since it is related to the stresses that are experienced by buildings, ppv is often used in monitoring of blasting vibration. Although ppv is appropriate for evaluating the potential of building damage, it is not suitable for evaluating human response. It takes some time for the human body to respond to vibrations. In a

sense, the human body responds to average vibration amplitude (FTA 2018). Because vibration waves are oscillatory, the net average of a vibration signal is zero. Thus, the root mean square (rms) amplitude is used to describe the "smoothed" vibration amplitude (FTA 2018). The rms of a signal is the square root of the average of the squared amplitude of the signal, usually measured in in/sec. The average is typically calculated over a 1-second period. The rms amplitude is always less than the ppv and is always positive. Decibel notation is used to compress the range of numbers required to describe vibration. The abbreviation VdB is used in this report for vibration decibels to reduce the potential for confusion with sound decibels.

Threshold for damage to structures ranges from 2 to 6 in/sec ppv. One half this minimum threshold, or 1 in/sec ppv, is considered a safe criterion that would protect against architectural or structural damage. Caltrans uses a vibration criterion of 0.2 in/sec ppv in the vertical direction for its construction projects, except for pile driving and blasting. This Caltrans criterion addresses the potential for human annoyance, as well as structural damage (Caltrans 2013b).

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources inside buildings such as the operation of mechanical equipment, movement of people, or the slamming of doors. Typical depicts the boundaries of the project site and Figure 2 depicts the site plan.

Project Understanding and Background

The project site is bound by Iris Lane to the south, Cypress Avenue to the west, and Orchard Street to the north and east. It currently consists of commercial development. Land uses surrounding the project site include dense residential and commercial development, and further out Interstate 10 and Interstate 605 occur to the south and east, respectively.

The project site is located approximately 200 feet northeast of a Metrolink Railroad Line, the San Bernardino Line. The railroad line currently runs Metrolink commuter trains and Union Pacific Railroad freight trains through El Monte.

KB Home due diligence policy requires the assessment of noise and vibration when building near rail lines (*Policy Regarding Noise and Vibration Studies When Building Near a Rail Line* [KB Home Policy]). The KB Home Policy requires a vibration study if rail lines are within 400 feet of a proposed development site and a Noise Study if a proposed site is within 1,000 feet of a rail line. Noise levels must comply with local standards. It also requires a current Noise Study (no more than 3 years old) be presented for each potential residential project. Consequently, and in accordance with KB Home Policy, this noise study memorandum evaluates potential impacts of the existing environment on the proposed project by 1) characterizing the land use compatibility of the proposed project by comparing the average existing noise levels (including train noise) on the project site to City of El Monte (City) noise and land use

Figure 1 Orchard and Cypress Project Site



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Fig 2 Project Location

Figure 2 Site Plan



compatibility standards, and 2) estimating the vibration and noise levels at the project site from surrounding roadways and the railroad approximately 200 feet southeast of the site.

Fundamentals of Sound and Vibration

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The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources inside buildings such as the operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads (FTA 2018).

Continued vibration of building components can also take the form of an audible low-frequency rumbling noise, which is referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hertz), or when foundations or utilities, such as sewer and water pipes, connect the structure and the vibration source.

Sensitive Receivers

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Noise sensitive uses as typically include residences, hospitals, schools, childcare facilities, and places of assembly (Caltrans 2013a). Vibration sensitive receivers are generally similar to noise sensitive receivers but may also include businesses, such as research facilities and laboratories that use vibration-sensitive equipment (FTA 2018).

Regulatory Setting

Federal Transit Administration

According to the Federal Transit Administration's (FTA's) *Transit Noise and Vibration Impact Assessment,* the background vibration velocity level in residential areas is usually around 50 VdB (FTA 2006). The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. The key range of vibration is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. The general human response to different levels of groundborne vibration velocity levels is described in Table 1.

Table 1 Human Response to Different Levels of Ground-borne Vibration

Vibration Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception for many people.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Source: FTA 2006, Table 7-1

Title 24, California Code of Regulations

Interior noise levels for habitable rooms are regulated by Title 24 of the California Code of Regulations (CCR), California Noise Insulation Standards. Title 24, Chapter 12, Section 1207.4, of the California Building Code requires that interior noise levels attributable to exterior sources not exceed 45 CNEL in any habitable room within a residential structure. A habitable room is a room used for living, sleeping, eating, or cooking. Bathrooms, closets, hallways, utility spaces, and similar areas are not considered habitable rooms for this regulation (24 CCR 1207 2016).

City of El Monte General Plan

The El Monte General Plan Noise Element (2011) addresses noise sources in the City and contains policies to incorporate noise considerations into land use planning decisions. As shown in Exhibit PHS-1, *Noise/Land Use Compatibility Standards*, of the Noise Element, a normally acceptable exterior noise exposure for single-family residences and townhomes would be less than 60 dBA CNEL while a conditionally acceptable exterior noise exposure would be between 60 and 70 dBA CNEL. A conditionally acceptable noise environment would require implementation of noise insulation features in the project design to reduce noise levels to normally acceptable conditions.

Existing Project Area Noise Levels

The most common source of noise in the vicinity of the project site is vehicular traffic on local roadways and train operations on the Metrolink-San Bernardino Railroad Line. Motor vehicle noise is of concern because it is characterized by a high number of individual events, which often create sustained noise levels. Ambient noise levels would be expected to be highest during the daytime and rush hour unless congestion slows speeds substantially. In addition, the Metrolink-San Bernardino Railroad generates intermittent noise at the project site due to occasional passing passenger and freight trains.

To determine the average ambient noise levels in the project site vicinity, two long-term (24-hour) noise level measurements and two short-term (15-minute) sound measurements using an ANSI Type II integrating sound level meter, were collected. These measurements were taken on February 19-20, 2019 (see Attachment A for sound measurement data). The long-term measurement captured noise from passing trains that run along the Metrolink-San Bernardino Railroad Line southwest of the project site. Specific noise levels associated with passing trains are discussed under Impact Analysis. Table 2 lists the noise levels measured at each location. The short-term ambient sound levels in the project vicinity (NM 1 through NM 2) range from 56 dBA Leq to 63 dBA L_{eq}, and the long-term ambient CNEL was 72 CNEL (NM 3). However, the long-term measurement was located approximately 50 feet from the railway and 150 feet from the project site, which once corrected for distance would result in an ambient noise level of approximately 63 CNEL. Error! Not a valid bookmark self-reference. shows the noise measurement locations.

Table 2 Sound Level Measurement Results

Number	Location	Sample Date/Time	dBA L_{eq} [1]	dBA L_{max} [2]	CNEL [3]
15-Minute Sound Level Measurements					
NM 1	Parking lot north of project site	February 19 5:32 – 5:47 PM	63.3	75.9	-
NM 2	Along Orchard St north of project site	February 19 5:08 – 5:23 PM	56.4	85.4	-
Long-term Sound Level Measurements					
NM 3	Southwest of the project site boundary	February 19 – 20 6:07 PM – 6:07 PM	64.9	106.0	72.1

See Attachment A for sound monitoring data.

Figure 3 Sound Level Measurement Locations in Project Area



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Methodology

Future noise levels affecting the compatibility of the project site were estimated using the Federal Highway Administration's (FHWA's) Traffic Noise Model (TNM) traffic noise reference levels and algorithms and the Federal Transit Authority (FTA) and Federal Rail Authority (FRA) train noise reference levels and algorithms (FHWA 2004; FTA 2018). SoundPLAN was then used to develop noise levels contours. SoundPLAN is a three-dimensional noise model. Traffic and train noise model inputs to SoundPLAN include the three- dimensional coordinates of the roadways, railways, noise receivers, and topographic features or planned barriers that would affect noise propagation; vehicle volumes and speeds, by type of vehicle; and absorption factors.

Vibration levels are calculated based on the FTA's *Transit Noise and Vibration Impact Assessment Manual*, Section 6, Vibration Impact Analysis. According to the FTA *Transit Noise and Vibration Impact Assessment*, the generalized ground surface vibration equations for locomotive powered passenger or freight curve is:

$$L_V = 92.28 + 14.81\ LOG(D) - 14.17\ LOG(D)^2 + 1.65\ LOG(D)^3$$

This initial vibration calculation is further refined by considering the speed of the trains and the type of structure. Other consideration may be taken if the information on the project site is available. These include intervening ground type, type of tracks, type of transit structure, as well as wheel condition of the trains. For this analysis the only factors considered are the train type, distance from nearest train to future land uses, speed of the trains, and type of structure.

Train Operations

Based on Metrolink schedules and the City's General Plan Noise Element, the rail line southwest of the project site is the Metrolink-San Bernardino Railroad Line and Metrolink commuter trains and Union Pacific Railroad freight trains operate along this railroad. Per Southern California Regional Rail Authority (SCRRA) Fact Sheet for the 2018-2019 year, Metrolink operated 38 passenger trains on weekdays and 34 passenger trains operate on Saturdays and Sundays. All trains operate at an average speed of 35 miles per hour (mph) (SCRRA 2018). Based on operational information from Metrolink, in addition to Metrolink trains, it estimated that 10 freight trains operated daily in 2018. According to data documented by the Union Pacific Railroad (UPRR) Weekly Performance Report, the average speed of freight trains between June 2017 and June 2018 was 25 mph (UPRR 2018).

No maintenance railyards are located within a one-mile radius of the project site and there are no train crossings near the project site. Therefore, the proposed project would not be exposed to noise or vibration from platform announcements, blowing whistles, staging, combining or releasing of train cars, hitching activities, and general noise associated with train stops and maintenance railyards. Since the proposed project would not alter existing operations of commuter and freight trains that run along the Metrolink-San Bernardino Railroad Line and there are no train stops near the project site, proposed residences would only be exposed to noise generated from passing trains.

Traffic Operations

Cypress Avenue, Orchard Street, and Iris Lane are two-lane roadways as they pass the project site with posted speed limits of 25 miles per hour (mph). Ramona Boulevard is a 4 lane major arterial as it passes through the project area with a posted speed limit of 35 mph.

The vehicle classification mix for the roadways was taken from the Goodman Logistics Center Environmental Impact Report (EIR) (El Monte 2018). Based on this data, the current traffic vehicle classification mix is 96.24 percent automobiles, 2.71 percent medium trucks, and 1.05 percent heavy trucks (Urban Crossroads 2017). The City does not have traffic data for Cypress Avenue, Orchard Street, and Iris Lane as these are low volume residential collector streets. Typically, these streets carry a maximum average daily traffic (ADT) of 5,000. According to the El Monte General Plan, the future ADT on Ramona Boulevard will be 22,700 in 2035. The 2035 ADT is used to provide maximum anticipated traffic noise levels experience on the project site. Table 3 summarizes the traffic parameters used in this analysis. Based on the same EIR, approximately 76 percent of the total traffic occurs during the daytime, while 12 percent occurs during the evening hours, and 12 percent occurs during the nighttime.

Table 3 Roadway Traffic Parameters

		Traffic Mix			
Roadway	ADT	Automobiles	Medium Trucks	Heavy Trucks	Speed (mph)
Orchard Street	5,000	3,817	602	585	25
Cypress Avenue	5,000	3,817	602	585	25
Iris Lane	5,000	3,817	602	585	25
Ramona Boulevard	23,200	17,705	2,792	2,707	35

Impact Analysis

Project Site Compatibility

According to the City's General Plan Noise Element (2011), a normally acceptable exterior noise exposure for single-family residences and townhomes would be less than 60 dBA CNEL while a conditionally acceptable exterior noise exposure would be between 60 and 70 dBA CNEL. Based on both 24-hour sound measurements shown in Table 2, and the noise modeling shown in Table 4 and Figure 4, the project site is exposed to a CNEL of up 63 dBA; therefore, proposed on-site noise-sensitive residences would be exposed to a conditionally acceptable exterior noise level, which according to the City General Plan noise compatibility guidelines, requires incorporation of noise insulation features into project design. However, the manner in which buildings under modern building codes are constructed typically provides a reduction of exterior-to-interior noise levels of up to 25 dBA with windows in a closed position (FTA 2006). Therefore, based on a maximum exterior noise level of approximately 63 CNEL, interior noise at would be approximately 37 CNEL and compliant with the Title 24 interior noise standard of 45 CNEL. As such, interior noise for the proposed project would comply with applicable standards. The *Recommendations and Conclusions* section below includes a project recommendation to reduce exterior noise for proposed residences.

Table 4 Future On-Site Noise Levels

Receiver	1st Floor	2nd Floor	3rd Floor
1	61	62	63
2	63	64	64
3	58	59	60
4	56	58	59
5	61	62	63
6	60	61	61
7	58	59	60
8	57	58	59

Maximum Railroad Noise

While both 24-hour measurements determined that the project site is in a conditionally acceptable noise environment, the 24-hour measurements also captured individual noise from passing trains that run along the Metrolink-San Bernardino Railroad Line southwest of the project site. According to the Metrolink schedule, a total of two commuter trains pass the project site between 4:00 p.m. and 7:00 a.m. (Metrolink 2018). Freight trains predominately operate outside the timeframe of passenger trains. Thus, freight trains are anticipated to occur between 10:00 p.m. and 6:00 a.m.

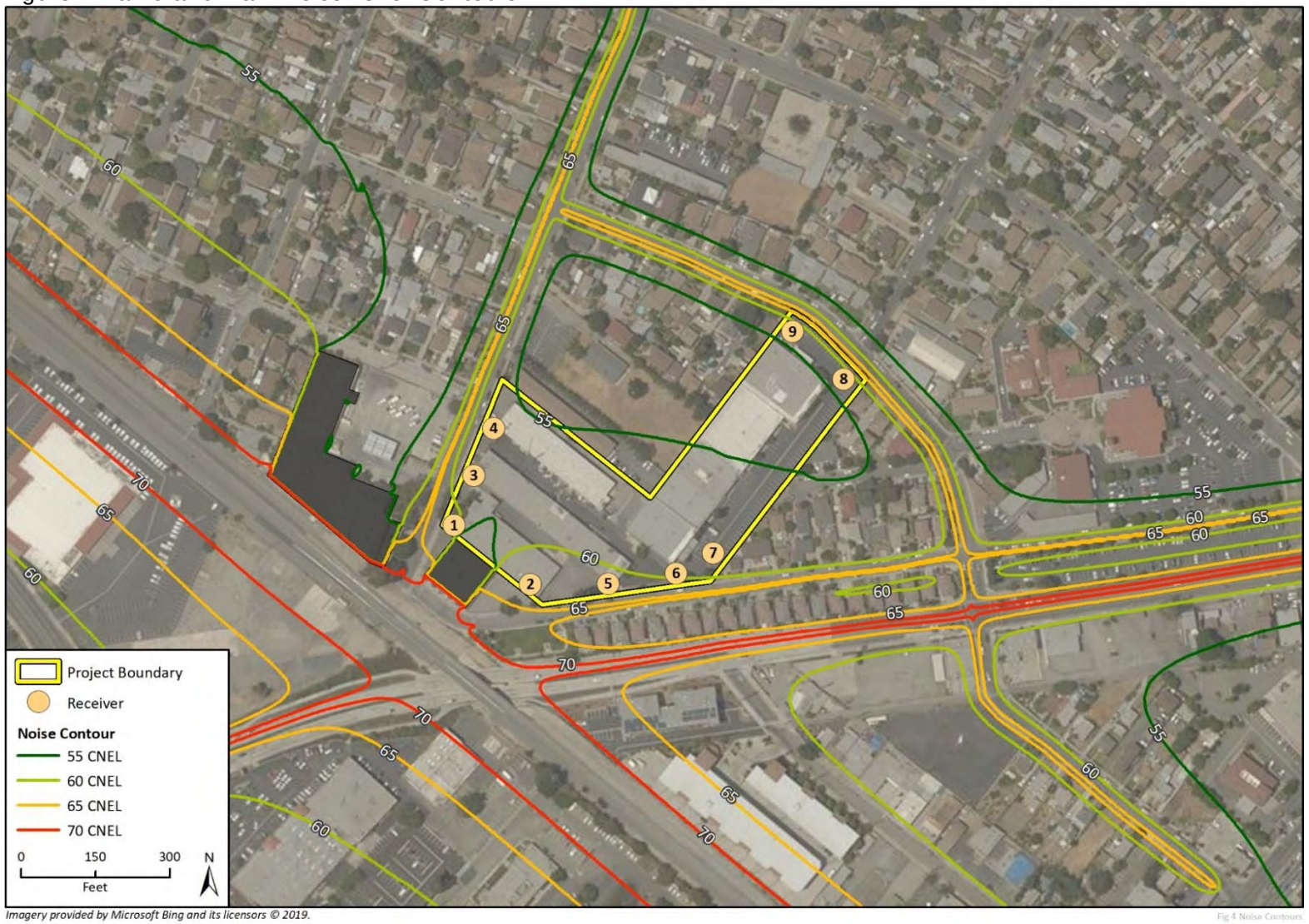
This timeframe was determined to be indicative of the maximum noise levels that the project site would be exposed to since ambient noise is lower during the nighttime hours and since people normally sleep during these hours. Therefore, train noise levels can be more disturbing at night. Based on the 24-hour noise level measurement data for NM 3, the peak noise level at the project site reached up to 94 dBA L_{max} at 2:45 a.m. This maximum noise level occurrence between 10:00 p.m. and 6:00 a.m. does not correlate with a known scheduled Metrolink train and is thus assumed to be a freight train. Passing trains would be intermittent and temporary when compared to the daily CNEL on the project site. Therefore, while an individual occurrence of a passing train would generate noise levels up to 94 dBA L_{max} at the project site, the proposed residences would be exposed to an acceptable noise environment with implementation of noise insulation features at project buildout.

Railroad Vibration

The project site boundary would be approximately 200 feet northeast of the centerline of the Metrolink-San Bernardino Railroad Line, while the nearest proposed dwelling units would be slightly further than 200 feet northeast of the railroad centerline.

Based on average speeds of 35 mph for commuter trains and 26 mph for freight trains, estimated vibration levels at the project site boundary (200 feet from the nearest railroad) would be approximately 68 VdB (0.010 in/sec ppv) from commuter trains and 63 VdB (0.005 in/sec ppv) for freight trains. Estimated vibration levels within proposed residences at the same distance (200 feet) would be approximately 63 VdB (0.006 in/sec ppv) for commuter trains and 58 VdB (0.003 in/sec ppv) for freight trains. See Attachment B for vibration calculations. Although vibration levels would exceed the FTA perceptibility threshold of 65 VdB, they would not exceed 75 VdB, which is the dividing line between barely perceptible and distinctly perceptible vibration for many people.

Figure 4 Traffic and Train Noise Level Contours



In addition, vibration levels would not exceed 100 VdB, which is the general threshold where minor damage can occur in fragile buildings (FTA 2018). As such, the KB Home property and proposed dwelling units would not be exposed to substantial levels of vibration from passing trains along the Metrolink-San Bernardino Railroad Line.

Recommendations and Conclusions

Regarding potential noise impacts, the southern and southeastern facades of the proposed dwelling units may be located in a conditionally acceptable noise environment (between 55 and 70 CNEL) as defined by the City's General Plan Noise Element. Therefore, the following noise-reducing feature is recommended to provide consistency with the City's land use compatibility standards.

Outdoor Living Space Noise Attenuation

The project should be designed to shield exterior use areas from direct exposure to noise sources. This can be done by locating exterior spaces, such as yards and patios, away from noise sources. Many site planning techniques can be employed to shield exterior use areas associated with residential development from noise. These can include:

- increasing the distance between the noise source and the receiver;
- placing nonresidential land uses such as parking lots, maintenance facilities, and utility areas between the source and the receiver;
- locating barrier-type buildings parallel to the noise source or the highway; and/or
- orienting the residences away from the noise.

Sincerely,

Rincon Consultants, Inc.

William A. Maddux
Senior Environmental Scientist

Joe Power, AICP CEP
Principal

Attachments: References, Sound Level Measurement Data, Vibration Calculations

References

California Department of Transportation (Caltrans). *Technical Noise Supplement to the Traffic Noise Analysis Protocol.* November. 2013a. Available at: http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf

____ *Transportation and Construction Vibration Guidance Manual*. Division of Environmental Analysis, Environmental Engineering, Hazardous Waste, Air, Noise, Paleontology Office. September 2013b. Available at: http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf

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Federal Transit Administration (FTA). *Transit Noise and Vibration Impact Assessment Manual*. John A. Volpe National Transportation Systems Center. FTA Report No. 0123. September 2018. Available at: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

Attachment A

Noise Level Measurement Data

	Data Logger					
	3					
Weighting	A					
Response	FAST					
Range	40-100					
L05	66.7					
L10	65.8					
L50	62					
L90	55.5					
L95	54.4					
Lmax	75.9					
Time	2/19/2019 17:21					
SEL	92.7					
Leq	63.2					
	No.s	Date Time	Duration	dB		
	1	2/19/2019 17:08	3	60.5	3.37E+06	
	2	2/19/2019 17:08	3	56.8	1.44E+06	
	3	2/19/2019 17:08	3	55.7	1.11E+06	
	4	2/19/2019 17:08	3	58.9	2.33E+06	
	5	2/19/2019 17:08	3	59.9	2.93E+06	
	6	2/19/2019 17:08	3	60.4	3.29E+06	
	7	2/19/2019 17:08	3	63.8	7.20E+06	
	8	2/19/2019 17:08	3	65	9.49E+06	
	9	2/19/2019 17:08	3	59.9	2.93E+06	
	10	2/19/2019 17:08	3	63.9	7.36E+06	
	11	2/19/2019 17:08	3	65.8	1.14E+07	
	12	2/19/2019 17:08	3	64.7	8.85E+06	
	13	2/19/2019 17:08	3	62.5	5.33E+06	
	14	2/19/2019 17:08	3	60.9	3.69E+06	
	15	2/19/2019 17:08	3	61.2	3.95E+06	
	16	2/19/2019 17:08	3	62.2	4.98E+06	
	17	2/19/2019 17:08	3	64	7.54E+06	
	18	2/19/2019 17:08	3	64	7.54E+06	
	19	2/19/2019 17:08	3	63.6	6.87E+06	
	20	2/19/2019 17:09	3	63.7	7.03E+06	
	21	2/19/2019 17:09	3	65.8	1.14E+07	
	22	2/19/2019 17:09	3	64.4	8.26E+06	
	23	2/19/2019 17:09	3	67.5	1.69E+07	
	24	2/19/2019 17:09	3	63.2	6.27E+06	
	25	2/19/2019 17:09	3	57.4	1.65E+06	
	26	2/19/2019 17:09	3	55.5	1.06E+06	
	27	2/19/2019 17:09	3	57.2	1.57E+06	
	28	2/19/2019 17:09	3	60.1	3.07E+06	
	29	2/19/2019 17:09	3	58.3	2.03E+06	
	30	2/19/2019 17:09	3	59.6	2.74E+06	
	31	2/19/2019 17:09	3	57.1	1.54E+06	
	32	2/19/2019 17:09	3	59.1	2.44E+06	

33	2/19/2019 17:09	3	69.3	2.55E+07
34	2/19/2019 17:09	3	65.3	1.02E+07
35	2/19/2019 17:09	3	57.2	1.57E+06
36	2/19/2019 17:09	3	55.7	1.11E+06
37	2/19/2019 17:09	3	56.2	1.25E+06
38	2/19/2019 17:09	3	62.3	5.09E+06
39	2/19/2019 17:09	3	60.8	3.61E+06
40	2/19/2019 17:10	3	61.9	4.65E+06
41	2/19/2019 17:10	3	61.4	4.14E+06
42	2/19/2019 17:10	3	63.6	6.87E+06
43	2/19/2019 17:10	3	64.5	8.46E+06
44	2/19/2019 17:10	3	65.6	1.09E+07
45	2/19/2019 17:10	3	60.8	3.61E+06
46	2/19/2019 17:10	3	65	9.49E+06
47	2/19/2019 17:10	3	64.7	8.85E+06
48	2/19/2019 17:10	3	60	3.00E+06
49	2/19/2019 17:10	3	64.5	8.46E+06
50	2/19/2019 17:10	3	62.9	5.85E+06
51	2/19/2019 17:10	3	61.8	4.54E+06
52	2/19/2019 17:10	3	62.3	5.09E+06
53	2/19/2019 17:10	3	64.8	9.06E+06
54	2/19/2019 17:10	3	62.6	5.46E+06
55	2/19/2019 17:10	3	64.3	8.07E+06
56	2/19/2019 17:10	3	63.2	6.27E+06
57	2/19/2019 17:10	3	60	3.00E+06
58	2/19/2019 17:10	3	61.5	4.24E+06
59	2/19/2019 17:10	3	64	7.54E+06
60	2/19/2019 17:11	3	63.1	6.13E+06
61	2/19/2019 17:11	3	60.9	3.69E+06
62	2/19/2019 17:11	3	60.9	3.69E+06
63	2/19/2019 17:11	3	57.9	1.85E+06
64	2/19/2019 17:11	3	58.1	1.94E+06
65	2/19/2019 17:11	3	61.5	4.24E+06
66	2/19/2019 17:11	3	63.3	6.41E+06
67	2/19/2019 17:11	3	63.1	6.13E+06
68	2/19/2019 17:11	3	64	7.54E+06
69	2/19/2019 17:11	3	64.2	7.89E+06
70	2/19/2019 17:11	3	61.8	4.54E+06
71	2/19/2019 17:11	3	56.3	1.28E+06
72	2/19/2019 17:11	3	60.5	3.37E+06
73	2/19/2019 17:11	3	61.6	4.34E+06
74	2/19/2019 17:11	3	62.1	4.87E+06
75	2/19/2019 17:11	3	60.2	3.14E+06
76	2/19/2019 17:11	3	59.5	2.67E+06
77	2/19/2019 17:11	3	60.5	3.37E+06
78	2/19/2019 17:11	3	57.4	1.65E+06
79	2/19/2019 17:11	3	57.1	1.54E+06

80	2/19/2019 17:12	3	55.7	1.11E+06
81	2/19/2019 17:12	3	56.9	1.47E+06
82	2/19/2019 17:12	3	55.8	1.14E+06
83	2/19/2019 17:12	3	55.9	1.17E+06
84	2/19/2019 17:12	3	62.5	5.33E+06
85	2/19/2019 17:12	3	62	4.75E+06
86	2/19/2019 17:12	3	62.4	5.21E+06
87	2/19/2019 17:12	3	65.1	9.71E+06
88	2/19/2019 17:12	3	65.6	1.09E+07
89	2/19/2019 17:12	3	64.6	8.65E+06
90	2/19/2019 17:12	3	62.1	4.87E+06
91	2/19/2019 17:12	3	61.9	4.65E+06
92	2/19/2019 17:12	3	63.3	6.41E+06
93	2/19/2019 17:12	3	62.7	5.59E+06
94	2/19/2019 17:12	3	56	1.19E+06
95	2/19/2019 17:12	3	55.4	1.04E+06
96	2/19/2019 17:12	3	60.2	3.14E+06
97	2/19/2019 17:12	3	67.8	1.81E+07
98	2/19/2019 17:12	3	65.4	1.04E+07
99	2/19/2019 17:12	3	60.2	3.14E+06
100	2/19/2019 17:13	3	64.7	8.85E+06
101	2/19/2019 17:13	3	65.9	1.17E+07
102	2/19/2019 17:13	3	64.5	8.46E+06
103	2/19/2019 17:13	3	63.6	6.87E+06
104	2/19/2019 17:13	3	66.5	1.34E+07
105	2/19/2019 17:13	3	64.7	8.85E+06
106	2/19/2019 17:13	3	63.6	6.87E+06
107	2/19/2019 17:13	3	59.5	2.67E+06
108	2/19/2019 17:13	3	59.5	2.67E+06
109	2/19/2019 17:13	3	62.9	5.85E+06
110	2/19/2019 17:13	3	62	4.75E+06
111	2/19/2019 17:13	3	57.9	1.85E+06
112	2/19/2019 17:13	3	53.5	6.72E+05
113	2/19/2019 17:13	3	58	1.89E+06
114	2/19/2019 17:13	3	63.7	7.03E+06
115	2/19/2019 17:13	3	55.4	1.04E+06
116	2/19/2019 17:13	3	61.7	4.44E+06
117	2/19/2019 17:13	3	62.6	5.46E+06
118	2/19/2019 17:13	3	57.7	1.77E+06
119	2/19/2019 17:13	3	63.1	6.13E+06
120	2/19/2019 17:14	3	57.5	1.69E+06
121	2/19/2019 17:14	3	63.4	6.56E+06
122	2/19/2019 17:14	3	60	3.00E+06
123	2/19/2019 17:14	3	62.6	5.46E+06
124	2/19/2019 17:14	3	63.5	6.72E+06
125	2/19/2019 17:14	3	58.9	2.33E+06
126	2/19/2019 17:14	3	61.1	3.86E+06

127	2/19/2019 17:14	3	62.1	4.87E+06
128	2/19/2019 17:14	3	58.9	2.33E+06
129	2/19/2019 17:14	3	63.4	6.56E+06
130	2/19/2019 17:14	3	64.9	9.27E+06
131	2/19/2019 17:14	3	64.9	9.27E+06
132	2/19/2019 17:14	3	63.9	7.36E+06
133	2/19/2019 17:14	3	64.8	9.06E+06
134	2/19/2019 17:14	3	63.2	6.27E+06
135	2/19/2019 17:14	3	61.7	4.44E+06
136	2/19/2019 17:14	3	67.4	1.65E+07
137	2/19/2019 17:14	3	65.8	1.14E+07
138	2/19/2019 17:14	3	65.3	1.02E+07
139	2/19/2019 17:14	3	64.8	9.06E+06
140	2/19/2019 17:15	3	61.4	4.14E+06
141	2/19/2019 17:15	3	61.5	4.24E+06
142	2/19/2019 17:15	3	61.4	4.14E+06
143	2/19/2019 17:15	3	62.4	5.21E+06
144	2/19/2019 17:15	3	60.4	3.29E+06
145	2/19/2019 17:15	3	54.6	8.65E+05
146	2/19/2019 17:15	3	53.8	7.20E+05
147	2/19/2019 17:15	3	53.8	7.20E+05
148	2/19/2019 17:15	3	55.1	9.71E+05
149	2/19/2019 17:15	3	55.4	1.04E+06
150	2/19/2019 17:15	3	54.5	8.46E+05
151	2/19/2019 17:15	3	55.5	1.06E+06
152	2/19/2019 17:15	3	57.3	1.61E+06
153	2/19/2019 17:15	3	62.3	5.09E+06
154	2/19/2019 17:15	3	54.9	9.27E+05
155	2/19/2019 17:15	3	54.2	7.89E+05
156	2/19/2019 17:15	3	53.3	6.41E+05
157	2/19/2019 17:15	3	53.5	6.72E+05
158	2/19/2019 17:15	3	53.8	7.20E+05
159	2/19/2019 17:15	3	59.3	2.55E+06
160	2/19/2019 17:16	3	57.4	1.65E+06
161	2/19/2019 17:16	3	55.4	1.04E+06
162	2/19/2019 17:16	3	62.7	5.59E+06
163	2/19/2019 17:16	3	61.3	4.05E+06
164	2/19/2019 17:16	3	65.2	9.93E+06
165	2/19/2019 17:16	3	67.6	1.73E+07
166	2/19/2019 17:16	3	65.7	1.11E+07
167	2/19/2019 17:16	3	69.3	2.55E+07
168	2/19/2019 17:16	3	63.3	6.41E+06
169	2/19/2019 17:16	3	67.5	1.69E+07
170	2/19/2019 17:16	3	62.6	5.46E+06
171	2/19/2019 17:16	3	59.4	2.61E+06
172	2/19/2019 17:16	3	58.4	2.08E+06
173	2/19/2019 17:16	3	62.1	4.87E+06

174	2/19/2019 17:16	3	66.7	1.40E+07
175	2/19/2019 17:16	3	62.1	4.87E+06
176	2/19/2019 17:16	3	55.5	1.06E+06
177	2/19/2019 17:16	3	57	1.50E+06
178	2/19/2019 17:16	3	62.4	5.21E+06
179	2/19/2019 17:16	3	63.3	6.41E+06
180	2/19/2019 17:17	3	66.4	1.31E+07
181	2/19/2019 17:17	3	64.2	7.89E+06
182	2/19/2019 17:17	3	68.8	2.28E+07
183	2/19/2019 17:17	3	63.7	7.03E+06
184	2/19/2019 17:17	3	58.4	2.08E+06
185	2/19/2019 17:17	3	57.5	1.69E+06
186	2/19/2019 17:17	3	63.4	6.56E+06
187	2/19/2019 17:17	3	62.3	5.09E+06
188	2/19/2019 17:17	3	57.2	1.57E+06
189	2/19/2019 17:17	3	57.2	1.57E+06
190	2/19/2019 17:17	3	54.2	7.89E+05
191	2/19/2019 17:17	3	54.4	8.26E+05
192	2/19/2019 17:17	3	56.6	1.37E+06
193	2/19/2019 17:17	3	60.5	3.37E+06
194	2/19/2019 17:17	3	56.8	1.44E+06
195	2/19/2019 17:17	3	55.1	9.71E+05
196	2/19/2019 17:17	3	58	1.89E+06
197	2/19/2019 17:17	3	65.8	1.14E+07
198	2/19/2019 17:17	3	62.5	5.33E+06
199	2/19/2019 17:17	3	62.5	5.33E+06
200	2/19/2019 17:18	3	61.9	4.65E+06
201	2/19/2019 17:18	3	61.8	4.54E+06
202	2/19/2019 17:18	3	66.5	1.34E+07
203	2/19/2019 17:18	3	65	9.49E+06
204	2/19/2019 17:18	3	66.2	1.25E+07
205	2/19/2019 17:18	3	66.4	1.31E+07
206	2/19/2019 17:18	3	62.9	5.85E+06
207	2/19/2019 17:18	3	61.8	4.54E+06
208	2/19/2019 17:18	3	62.7	5.59E+06
209	2/19/2019 17:18	3	63.7	7.03E+06
210	2/19/2019 17:18	3	66.3	1.28E+07
211	2/19/2019 17:18	3	63.1	6.13E+06
212	2/19/2019 17:18	3	59	2.38E+06
213	2/19/2019 17:18	3	53.7	7.03E+05
214	2/19/2019 17:18	3	52.7	5.59E+05
215	2/19/2019 17:18	3	52.5	5.33E+05
216	2/19/2019 17:18	3	54.9	9.27E+05
217	2/19/2019 17:18	3	55.5	1.06E+06
218	2/19/2019 17:18	3	54.1	7.71E+05
219	2/19/2019 17:18	3	55.9	1.17E+06
220	2/19/2019 17:19	3	55.3	1.02E+06

221	2/19/2019 17:19	3	57	1.50E+06
222	2/19/2019 17:19	3	59.7	2.80E+06
223	2/19/2019 17:19	3	62.2	4.98E+06
224	2/19/2019 17:19	3	57.7	1.77E+06
225	2/19/2019 17:19	3	65.2	9.93E+06
226	2/19/2019 17:19	3	61.5	4.24E+06
227	2/19/2019 17:19	3	55.9	1.17E+06
228	2/19/2019 17:19	3	54.7	8.85E+05
229	2/19/2019 17:19	3	58.3	2.03E+06
230	2/19/2019 17:19	3	56.1	1.22E+06
231	2/19/2019 17:19	3	57.3	1.61E+06
232	2/19/2019 17:19	3	57.5	1.69E+06
233	2/19/2019 17:19	3	57.5	1.69E+06
234	2/19/2019 17:19	3	62.9	5.85E+06
235	2/19/2019 17:19	3	65.4	1.04E+07
236	2/19/2019 17:19	3	65.3	1.02E+07
237	2/19/2019 17:19	3	65	9.49E+06
238	2/19/2019 17:19	3	62.5	5.33E+06
239	2/19/2019 17:19	3	65.4	1.04E+07
240	2/19/2019 17:20	3	62.9	5.85E+06
241	2/19/2019 17:20	3	65.5	1.06E+07
242	2/19/2019 17:20	3	65.7	1.11E+07
243	2/19/2019 17:20	3	59.5	2.67E+06
244	2/19/2019 17:20	3	60.8	3.61E+06
245	2/19/2019 17:20	3	62.5	5.33E+06
246	2/19/2019 17:20	3	59	2.38E+06
247	2/19/2019 17:20	3	62.9	5.85E+06
248	2/19/2019 17:20	3	64	7.54E+06
249	2/19/2019 17:20	3	63.9	7.36E+06
250	2/19/2019 17:20	3	63.3	6.41E+06
251	2/19/2019 17:20	3	64.6	8.65E+06
252	2/19/2019 17:20	3	62.4	5.21E+06
253	2/19/2019 17:20	3	65.8	1.14E+07
254	2/19/2019 17:20	3	65.4	1.04E+07
255	2/19/2019 17:20	3	66.3	1.28E+07
256	2/19/2019 17:20	3	65.5	1.06E+07
257	2/19/2019 17:20	3	67.1	1.54E+07
258	2/19/2019 17:20	3	67.3	1.61E+07
259	2/19/2019 17:20	3	69.4	2.61E+07
260	2/19/2019 17:21	3	71.6	4.34E+07
261	2/19/2019 17:21	3	74.3	8.07E+07
262	2/19/2019 17:21	3	72.8	5.72E+07
263	2/19/2019 17:21	3	72.9	5.85E+07
264	2/19/2019 17:21	3	69.2	2.50E+07
265	2/19/2019 17:21	3	67.2	1.57E+07
266	2/19/2019 17:21	3	65.2	9.93E+06
267	2/19/2019 17:21	3	66.1	1.22E+07

268	2/19/2019 17:21	3	65.6	1.09E+07
269	2/19/2019 17:21	3	66.2	1.25E+07
270	2/19/2019 17:21	3	64.4	8.26E+06
271	2/19/2019 17:21	3	58.9	2.33E+06
272	2/19/2019 17:21	3	56	1.19E+06
273	2/19/2019 17:21	3	56.6	1.37E+06
274	2/19/2019 17:21	3	63.1	6.13E+06
275	2/19/2019 17:21	3	65.1	9.71E+06
276	2/19/2019 17:21	3	65.5	1.06E+07
277	2/19/2019 17:21	3	65.9	1.17E+07
278	2/19/2019 17:21	3	65	9.49E+06
279	2/19/2019 17:21	3	67.2	1.57E+07
280	2/19/2019 17:22	3	63.6	6.87E+06
281	2/19/2019 17:22	3	63.8	7.20E+06
282	2/19/2019 17:22	3	59.2	2.50E+06
283	2/19/2019 17:22	3	61.3	4.05E+06
284	2/19/2019 17:22	3	60.4	3.29E+06
285	2/19/2019 17:22	3	57.6	1.73E+06
286	2/19/2019 17:22	3	60.5	3.37E+06
287	2/19/2019 17:22	3	64.1	7.71E+06
288	2/19/2019 17:22	3	57.4	1.65E+06
289	2/19/2019 17:22	3	59.7	2.80E+06
290	2/19/2019 17:22	3	63.8	7.20E+06
291	2/19/2019 17:22	3	63.9	7.36E+06
292	2/19/2019 17:22	3	65	9.49E+06
293	2/19/2019 17:22	3	62.8	5.72E+06
294	2/19/2019 17:22	3	58.1	1.94E+06
295	2/19/2019 17:22	3	59.5	2.67E+06
296	2/19/2019 17:22	3	61.6	4.34E+06
297	2/19/2019 17:22	3	59.2	2.50E+06
298	2/19/2019 17:22	3	58.9	2.33E+06
299	2/19/2019 17:22	3	58.4	2.08E+06
300	2/19/2019 17:23	3	63.3	6.41E+06
		900		1.95E+09
			63.3	

	Data Logger					
	3					
Weighting	A					
Response	FAST					
Range	40-100					
L05	58.2					
L10	55.5					
L50	48.5					
L90	43.7					
L95	43					
Lmax	85.4					
Time	2/19/2019 17:32					
SEL	85.6					
Leq	56.1					
	No.s		Date Time	Duration	dB	
		1	2/19/2019 17:32	3	55	9.49E+05
		2	2/19/2019 17:32	3	50.3	3.21E+05
		3	2/19/2019 17:32	3	53.1	6.13E+05
		4	2/19/2019 17:32	3	53.1	6.13E+05
		5	2/19/2019 17:32	3	49	2.38E+05
		6	2/19/2019 17:32	3	73.2	6.27E+07
		7	2/19/2019 17:32	3	53.2	6.27E+05
		8	2/19/2019 17:32	3	50.8	3.61E+05
		9	2/19/2019 17:32	3	47.9	1.85E+05
		10	2/19/2019 17:32	3	47.1	1.54E+05
		11	2/19/2019 17:32	3	61.9	4.65E+06
		12	2/19/2019 17:32	3	53.5	6.72E+05
		13	2/19/2019 17:32	3	50.2	3.14E+05
		14	2/19/2019 17:32	3	54.8	9.06E+05
		15	2/19/2019 17:32	3	53.5	6.72E+05
		16	2/19/2019 17:32	3	57.1	1.54E+06
		17	2/19/2019 17:32	3	52.2	4.98E+05
		18	2/19/2019 17:32	3	48.2	1.98E+05
		19	2/19/2019 17:32	3	59.5	2.67E+06
		20	2/19/2019 17:33	3	59.6	2.74E+06
		21	2/19/2019 17:33	3	46.9	1.47E+05
		22	2/19/2019 17:33	3	45.8	1.14E+05
		23	2/19/2019 17:33	3	45.7	1.11E+05
		24	2/19/2019 17:33	3	44	7.54E+04
		25	2/19/2019 17:33	3	43.9	7.36E+04
		26	2/19/2019 17:33	3	44.8	9.06E+04
		27	2/19/2019 17:33	3	44.4	8.26E+04
		28	2/19/2019 17:33	3	44.7	8.85E+04
		29	2/19/2019 17:33	3	44.8	9.06E+04
		30	2/19/2019 17:33	3	43.4	6.56E+04
		31	2/19/2019 17:33	3	48.5	2.12E+05
		32	2/19/2019 17:33	3	43	5.99E+04

33	2/19/2019 17:33	3	42.3	5.09E+04
34	2/19/2019 17:33	3	44.2	7.89E+04
35	2/19/2019 17:33	3	42.3	5.09E+04
36	2/19/2019 17:33	3	45	9.49E+04
37	2/19/2019 17:33	3	46.2	1.25E+05
38	2/19/2019 17:33	3	50.8	3.61E+05
39	2/19/2019 17:33	3	49.3	2.55E+05
40	2/19/2019 17:34	3	50.6	3.44E+05
41	2/19/2019 17:34	3	50.4	3.29E+05
42	2/19/2019 17:34	3	52.9	5.85E+05
43	2/19/2019 17:34	3	51.6	4.34E+05
44	2/19/2019 17:34	3	47.1	1.54E+05
45	2/19/2019 17:34	3	44.8	9.06E+04
46	2/19/2019 17:34	3	44.5	8.46E+04
47	2/19/2019 17:34	3	45.5	1.06E+05
48	2/19/2019 17:34	3	46.1	1.22E+05
49	2/19/2019 17:34	3	46.1	1.22E+05
50	2/19/2019 17:34	3	47.4	1.65E+05
51	2/19/2019 17:34	3	51.4	4.14E+05
52	2/19/2019 17:34	3	49.4	2.61E+05
53	2/19/2019 17:34	3	48.5	2.12E+05
54	2/19/2019 17:34	3	49.1	2.44E+05
55	2/19/2019 17:34	3	52.9	5.85E+05
56	2/19/2019 17:34	3	53.6	6.87E+05
57	2/19/2019 17:34	3	48.6	2.17E+05
58	2/19/2019 17:34	3	55.1	9.71E+05
59	2/19/2019 17:34	3	54.5	8.46E+05
60	2/19/2019 17:35	3	50.4	3.29E+05
61	2/19/2019 17:35	3	53.5	6.72E+05
62	2/19/2019 17:35	3	54.8	9.06E+05
63	2/19/2019 17:35	3	49.1	2.44E+05
64	2/19/2019 17:35	3	48.7	2.22E+05
65	2/19/2019 17:35	3	49.2	2.50E+05
66	2/19/2019 17:35	3	45.2	9.93E+04
67	2/19/2019 17:35	3	44.8	9.06E+04
68	2/19/2019 17:35	3	46.4	1.31E+05
69	2/19/2019 17:35	3	48.5	2.12E+05
70	2/19/2019 17:35	3	45.5	1.06E+05
71	2/19/2019 17:35	3	52.5	5.33E+05
72	2/19/2019 17:35	3	45.6	1.09E+05
73	2/19/2019 17:35	3	44.4	8.26E+04
74	2/19/2019 17:35	3	49.6	2.74E+05
75	2/19/2019 17:35	3	43.8	7.20E+04
76	2/19/2019 17:35	3	44	7.54E+04
77	2/19/2019 17:35	3	44.3	8.07E+04
78	2/19/2019 17:35	3	45.3	1.02E+05
79	2/19/2019 17:35	3	44.9	9.27E+04

80	2/19/2019 17:36	3	45.3	1.02E+05
81	2/19/2019 17:36	3	46.4	1.31E+05
82	2/19/2019 17:36	3	47.7	1.77E+05
83	2/19/2019 17:36	3	54	7.54E+05
84	2/19/2019 17:36	3	46	1.19E+05
85	2/19/2019 17:36	3	47.9	1.85E+05
86	2/19/2019 17:36	3	65.1	9.71E+06
87	2/19/2019 17:36	3	48.1	1.94E+05
88	2/19/2019 17:36	3	66.8	1.44E+07
89	2/19/2019 17:36	3	51.9	4.65E+05
90	2/19/2019 17:36	3	50.7	3.52E+05
91	2/19/2019 17:36	3	51.6	4.34E+05
92	2/19/2019 17:36	3	51.5	4.24E+05
93	2/19/2019 17:36	3	50.8	3.61E+05
94	2/19/2019 17:36	3	53.2	6.27E+05
95	2/19/2019 17:36	3	52.4	5.21E+05
96	2/19/2019 17:36	3	52.2	4.98E+05
97	2/19/2019 17:36	3	52.4	5.21E+05
98	2/19/2019 17:36	3	50.6	3.44E+05
99	2/19/2019 17:36	3	50.3	3.21E+05
100	2/19/2019 17:37	3	51.1	3.86E+05
101	2/19/2019 17:37	3	51.8	4.54E+05
102	2/19/2019 17:37	3	50.9	3.69E+05
103	2/19/2019 17:37	3	51	3.78E+05
104	2/19/2019 17:37	3	51.9	4.65E+05
105	2/19/2019 17:37	3	50.5	3.37E+05
106	2/19/2019 17:37	3	50.8	3.61E+05
107	2/19/2019 17:37	3	51.2	3.95E+05
108	2/19/2019 17:37	3	55	9.49E+05
109	2/19/2019 17:37	3	55.6	1.09E+06
110	2/19/2019 17:37	3	51.7	4.44E+05
111	2/19/2019 17:37	3	52.4	5.21E+05
112	2/19/2019 17:37	3	51.3	4.05E+05
113	2/19/2019 17:37	3	52.5	5.33E+05
114	2/19/2019 17:37	3	52.1	4.87E+05
115	2/19/2019 17:37	3	52.6	5.46E+05
116	2/19/2019 17:37	3	54.1	7.71E+05
117	2/19/2019 17:37	3	57.1	1.54E+06
118	2/19/2019 17:37	3	56.2	1.25E+06
119	2/19/2019 17:37	3	58.4	2.08E+06
120	2/19/2019 17:38	3	55	9.49E+05
121	2/19/2019 17:38	3	54.1	7.71E+05
122	2/19/2019 17:38	3	51.9	4.65E+05
123	2/19/2019 17:38	3	51.3	4.05E+05
124	2/19/2019 17:38	3	50.8	3.61E+05
125	2/19/2019 17:38	3	48.6	2.17E+05
126	2/19/2019 17:38	3	49.2	2.50E+05

127	2/19/2019 17:38	3	48.5	2.12E+05
128	2/19/2019 17:38	3	49.5	2.67E+05
129	2/19/2019 17:38	3	48.8	2.28E+05
130	2/19/2019 17:38	3	48.3	2.03E+05
131	2/19/2019 17:38	3	48.2	1.98E+05
132	2/19/2019 17:38	3	47.2	1.57E+05
133	2/19/2019 17:38	3	48.4	2.08E+05
134	2/19/2019 17:38	3	45.8	1.14E+05
135	2/19/2019 17:38	3	45.2	9.93E+04
136	2/19/2019 17:38	3	46.8	1.44E+05
137	2/19/2019 17:38	3	46.5	1.34E+05
138	2/19/2019 17:38	3	51.2	3.95E+05
139	2/19/2019 17:38	3	54.2	7.89E+05
140	2/19/2019 17:39	3	48	1.89E+05
141	2/19/2019 17:39	3	53.3	6.41E+05
142	2/19/2019 17:39	3	53.5	6.72E+05
143	2/19/2019 17:39	3	46	1.19E+05
144	2/19/2019 17:39	3	46.2	1.25E+05
145	2/19/2019 17:39	3	46.8	1.44E+05
146	2/19/2019 17:39	3	43.5	6.72E+04
147	2/19/2019 17:39	3	44.9	9.27E+04
148	2/19/2019 17:39	3	44.8	9.06E+04
149	2/19/2019 17:39	3	47.5	1.69E+05
150	2/19/2019 17:39	3	44.4	8.26E+04
151	2/19/2019 17:39	3	44.2	7.89E+04
152	2/19/2019 17:39	3	44.8	9.06E+04
153	2/19/2019 17:39	3	43	5.99E+04
154	2/19/2019 17:39	3	45.8	1.14E+05
155	2/19/2019 17:39	3	43	5.99E+04
156	2/19/2019 17:39	3	43.8	7.20E+04
157	2/19/2019 17:39	3	46.3	1.28E+05
158	2/19/2019 17:39	3	48.9	2.33E+05
159	2/19/2019 17:39	3	47.4	1.65E+05
160	2/19/2019 17:40	3	52	4.75E+05
161	2/19/2019 17:40	3	56	1.19E+06
162	2/19/2019 17:40	3	47.4	1.65E+05
163	2/19/2019 17:40	3	46.2	1.25E+05
164	2/19/2019 17:40	3	44.5	8.46E+04
165	2/19/2019 17:40	3	43.4	6.56E+04
166	2/19/2019 17:40	3	45.6	1.09E+05
167	2/19/2019 17:40	3	47.6	1.73E+05
168	2/19/2019 17:40	3	45.3	1.02E+05
169	2/19/2019 17:40	3	47.5	1.69E+05
170	2/19/2019 17:40	3	50.1	3.07E+05
171	2/19/2019 17:40	3	49.6	2.74E+05
172	2/19/2019 17:40	3	50	3.00E+05
173	2/19/2019 17:40	3	45.6	1.09E+05

174	2/19/2019 17:40	3	51	3.78E+05
175	2/19/2019 17:40	3	52.2	4.98E+05
176	2/19/2019 17:40	3	45.9	1.17E+05
177	2/19/2019 17:40	3	48.9	2.33E+05
178	2/19/2019 17:40	3	56.8	1.44E+06
179	2/19/2019 17:40	3	55	9.49E+05
180	2/19/2019 17:41	3	47.4	1.65E+05
181	2/19/2019 17:41	3	47.1	1.54E+05
182	2/19/2019 17:41	3	47.5	1.69E+05
183	2/19/2019 17:41	3	49.4	2.61E+05
184	2/19/2019 17:41	3	53.2	6.27E+05
185	2/19/2019 17:41	3	59.7	2.80E+06
186	2/19/2019 17:41	3	50.8	3.61E+05
187	2/19/2019 17:41	3	48.8	2.28E+05
188	2/19/2019 17:41	3	45.2	9.93E+04
189	2/19/2019 17:41	3	45.9	1.17E+05
190	2/19/2019 17:41	3	46.3	1.28E+05
191	2/19/2019 17:41	3	44.9	9.27E+04
192	2/19/2019 17:41	3	45.6	1.09E+05
193	2/19/2019 17:41	3	44.4	8.26E+04
194	2/19/2019 17:41	3	46.6	1.37E+05
195	2/19/2019 17:41	3	49.8	2.86E+05
196	2/19/2019 17:41	3	48.3	2.03E+05
197	2/19/2019 17:41	3	47.6	1.73E+05
198	2/19/2019 17:41	3	50	3.00E+05
199	2/19/2019 17:41	3	48.5	2.12E+05
200	2/19/2019 17:42	3	45.6	1.09E+05
201	2/19/2019 17:42	3	51.1	3.86E+05
202	2/19/2019 17:42	3	58.6	2.17E+06
203	2/19/2019 17:42	3	55.5	1.06E+06
204	2/19/2019 17:42	3	51.6	4.34E+05
205	2/19/2019 17:42	3	46.7	1.40E+05
206	2/19/2019 17:42	3	43.1	6.13E+04
207	2/19/2019 17:42	3	42.6	5.46E+04
208	2/19/2019 17:42	3	43.7	7.03E+04
209	2/19/2019 17:42	3	43.1	6.13E+04
210	2/19/2019 17:42	3	43.2	6.27E+04
211	2/19/2019 17:42	3	42.7	5.59E+04
212	2/19/2019 17:42	3	44.8	9.06E+04
213	2/19/2019 17:42	3	43.9	7.36E+04
214	2/19/2019 17:42	3	42.9	5.85E+04
215	2/19/2019 17:42	3	42.8	5.72E+04
216	2/19/2019 17:42	3	43.2	6.27E+04
217	2/19/2019 17:42	3	44.9	9.27E+04
218	2/19/2019 17:42	3	47.8	1.81E+05
219	2/19/2019 17:42	3	46.3	1.28E+05
220	2/19/2019 17:43	3	49.4	2.61E+05

221	2/19/2019 17:43	3	52.4	5.21E+05
222	2/19/2019 17:43	3	49.1	2.44E+05
223	2/19/2019 17:43	3	52.3	5.09E+05
224	2/19/2019 17:43	3	48.6	2.17E+05
225	2/19/2019 17:43	3	53.7	7.03E+05
226	2/19/2019 17:43	3	58.6	2.17E+06
227	2/19/2019 17:43	3	49.5	2.67E+05
228	2/19/2019 17:43	3	48.3	2.03E+05
229	2/19/2019 17:43	3	46.3	1.28E+05
230	2/19/2019 17:43	3	47.3	1.61E+05
231	2/19/2019 17:43	3	43.6	6.87E+04
232	2/19/2019 17:43	3	48.5	2.12E+05
233	2/19/2019 17:43	3	51.3	4.05E+05
234	2/19/2019 17:43	3	48.2	1.98E+05
235	2/19/2019 17:43	3	62	4.75E+06
236	2/19/2019 17:43	3	73.9	7.36E+07
237	2/19/2019 17:43	3	53	5.99E+05
238	2/19/2019 17:43	3	67.1	1.54E+07
239	2/19/2019 17:43	3	52.1	4.87E+05
240	2/19/2019 17:44	3	46.1	1.22E+05
241	2/19/2019 17:44	3	55.3	1.02E+06
242	2/19/2019 17:44	3	70.5	3.37E+07
243	2/19/2019 17:44	3	42.6	5.46E+04
244	2/19/2019 17:44	3	71.9	4.65E+07
245	2/19/2019 17:44	3	67.2	1.57E+07
246	2/19/2019 17:44	3	46.9	1.47E+05
247	2/19/2019 17:44	3	57	1.50E+06
248	2/19/2019 17:44	3	55.1	9.71E+05
249	2/19/2019 17:44	3	51	3.78E+05
250	2/19/2019 17:44	3	47	1.50E+05
251	2/19/2019 17:44	3	44.8	9.06E+04
252	2/19/2019 17:44	3	46.2	1.25E+05
253	2/19/2019 17:44	3	49	2.38E+05
254	2/19/2019 17:44	3	51	3.78E+05
255	2/19/2019 17:44	3	48.9	2.33E+05
256	2/19/2019 17:44	3	57.8	1.81E+06
257	2/19/2019 17:44	3	54.2	7.89E+05
258	2/19/2019 17:44	3	51.5	4.24E+05
259	2/19/2019 17:44	3	47.6	1.73E+05
260	2/19/2019 17:45	3	45.5	1.06E+05
261	2/19/2019 17:45	3	45.7	1.11E+05
262	2/19/2019 17:45	3	44.8	9.06E+04
263	2/19/2019 17:45	3	44	7.54E+04
264	2/19/2019 17:45	3	43.6	6.87E+04
265	2/19/2019 17:45	3	44.3	8.07E+04
266	2/19/2019 17:45	3	43.4	6.56E+04
267	2/19/2019 17:45	3	43.9	7.36E+04

268	2/19/2019 17:45	3	43.5	6.72E+04
269	2/19/2019 17:45	3	43.2	6.27E+04
270	2/19/2019 17:45	3	43.4	6.56E+04
271	2/19/2019 17:45	3	42.9	5.85E+04
272	2/19/2019 17:45	3	43.6	6.87E+04
273	2/19/2019 17:45	3	44	7.54E+04
274	2/19/2019 17:45	3	44	7.54E+04
275	2/19/2019 17:45	3	44.1	7.71E+04
276	2/19/2019 17:45	3	44.7	8.85E+04
277	2/19/2019 17:45	3	46.4	1.31E+05
278	2/19/2019 17:45	3	44.1	7.71E+04
279	2/19/2019 17:45	3	44.5	8.46E+04
280	2/19/2019 17:46	3	45.7	1.11E+05
281	2/19/2019 17:46	3	46.3	1.28E+05
282	2/19/2019 17:46	3	47	1.50E+05
283	2/19/2019 17:46	3	46.1	1.22E+05
284	2/19/2019 17:46	3	47.6	1.73E+05
285	2/19/2019 17:46	3	53.6	6.87E+05
286	2/19/2019 17:46	3	55.6	1.09E+06
287	2/19/2019 17:46	3	56	1.19E+06
288	2/19/2019 17:46	3	57.1	1.54E+06
289	2/19/2019 17:46	3	60.5	3.37E+06
290	2/19/2019 17:46	3	58	1.89E+06
291	2/19/2019 17:46	3	57.8	1.81E+06
292	2/19/2019 17:46	3	55.3	1.02E+06
293	2/19/2019 17:46	3	56.3	1.28E+06
294	2/19/2019 17:46	3	51.5	4.24E+05
295	2/19/2019 17:46	3	50	3.00E+05
296	2/19/2019 17:46	3	45	9.49E+04
297	2/19/2019 17:46	3	47.3	1.61E+05
298	2/19/2019 17:46	3	48.4	2.08E+05
299	2/19/2019 17:46	3	45.2	9.93E+04
300	2/19/2019 17:47	3	44.7	8.85E+04
		900		3.92E+08
			56.4	

	Data Logger	
	240	
Weighting	A	
Response	FAST	
Range	40-100	
L05	60.8	
L10	59.1	
L50	55.2	
L90	49.3	
L95	48.2	
Lmax	106.0	
Time	3/20/2007 2:45	
	119.3	
Leq	64.9	

	Date	Time	Leq
	19-Mar-19	18:00	62
	19-Mar-19	19:00	72
	19-Mar-19	20:00	56
	19-Mar-19	21:00	56
	19-Mar-19	22:00	55
	19-Mar-19	23:00	52
	20-Mar-19	0:00	53
	20-Mar-19	1:00	49
	20-Mar-19	2:00	50
	20-Mar-19	3:00	51
	20-Mar-19	4:00	68
	20-Mar-19	5:00	74
	20-Mar-19	6:00	55
	20-Mar-19	7:00	67
	20-Mar-19	8:00	56
	20-Mar-19	9:00	58
	20-Mar-19	10:00	69
	20-Mar-19	11:00	57
	20-Mar-19	12:00	68
	20-Mar-19	13:00	59
	20-Mar-19	14:00	61
	20-Mar-19	15:00	59
	20-Mar-19	16:00	57
	20-Mar-19	17:00	59
	24-Hr Leq	64.9	
	CNEL	**72.1**	

Attachment B

Vibration Calculations

Project Site Distance to Rail Road	200	Feet

Type of Development	
Wood-Frame Houses	-5
1-2 Story Masonry	-7
3-4 Story Masonry	-10
Large Masonry on Piles	-10
Large Masonry on Spread-footings	-13
Foundations on Rock	0

Wood-Frame Houses	-5

Speed Correction		
PT Speed	35	MPH
FT Speed	26	MPH
PT Speed Correction	-3.1	VdB
FT Speed Correction	-5.7	VdB

Locomotive Powered Passenger or Freight Curve	**VdB**	**RMS**	**PPV**
Initial Vibration at Distance	71	0.004	0.015
Speed Reducitons	***VdB***	***RMS***	***PPV***
Passenger Adjusted VdB	68	0.003	0.010
Freight Adjusted VdB	63	0.001	0.005
Strucutre Reductions	***VdB***	***RMS***	***PPV***
Passenger Adjusted VdB	63	0.001	0.006
Freight Adjusted VdB	58	0.001	0.003

Rapid Transit or Light Rail Vehicles Curve	**VdB**	**RMS**	**PPV**
Initial Vibration at Distance	61	0.001	0.004
Speed Reducitons	***VdB***	***RMS***	***PPV***
Passenger Adjusted VdB	57	0.001	0.003
Freight Adjusted VdB	55	0.001	0.002
Strucutre Reductions	***VdB***	***RMS***	***PPV***
Passenger Adjusted VdB	52	0.000	0.002
Freight Adjusted VdB	50	0.000	0.001

Rubber-Tired Vehicles Curve	**VdB**	**RMS**	**PPV**
Initial Vibration at Distance	51	0.000	0.001
Speed Reducitons	***VdB***	***RMS***	***PPV***
Passenger Adjusted VdB	47	0.000	0.001
Freight Adjusted VdB	45	0.000	0.001
Strucutre Reductions	***VdB***	***RMS***	***PPV***
Passenger Adjusted VdB	42	0.000	0.001
Freight Adjusted VdB	40	0.000	0.000

Appendix J1

Trip Generation Comparison Analysis



MEMORANDUM

TO: Rita Garcia, Project Manager | KIMLEY-HORN

FROM: GANDDINI GROUP, INC.
Bryan Crawford, Senior Transportation Analyst
Giancarlo Ganddini, TE/PTP, Principal Traffic Engineer

DATE: July 19, 2019

SUBJECT: Orchard and Cypress Residential Project Trip Generation Comparison Analysis
19-0057

DRAFT

Ganddini Group, Inc. is pleased to provide this trip generation comparison analysis for the proposed Orchard and Cypress Residential Project in the City of El Monte. The purpose of this trip generation comparison analysis is to evaluate the forecast trip generation for the proposed development compared to the existing trip generation for the project site. We trust the findings of this analysis will aid the City of El Monte in assessing transportation impacts associated with development of the proposed project.

PROJECT DESCRIPTION

Figure 1 illustrates the project location map. The project site is located at 3700, 3640, 3630 Cypress Avenue and 11312 Orchard Street in the City of El Monte. The project site is currently developed with 156,096 square feet of various industrial land uses that are proposed to be displaced by the proposed project. The existing uses are fully occupied, except for four units (11303 Iris Lane, 3700A & 3700B Cypress Avenue, and 3642 Cypress Avenue) totaling less than 18,000 square feet.

The proposed site plan is shown on Figure 2. The proposed project consists of redeveloping the project site with approximately 110 dwelling units of multi-family residential land use. One full access project driveway is proposed at Cypress Avenue and ne full access project driveway is proposed at Orchard Street. The proposed driveways and drive aisles are approximately 26 feet wide, which is of sufficient width to accommodate one travel lane in each direction.

EXISTING PROJECT SITE TRIP GENERATION

Table 1 shows the existing project site trip generation estimate based upon rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017). The existing trips generated are calculated by multiplying the trip generation rates by the existing land use quantity. Trip generation rates for Land Use Code 130 – Industrial Park were used, which is defined as follows:

> "An industrial park contains a number of industrial or related facilities. It is characterized by a mix of manufacturing, service, and warehouse facilities with a wide variation in the proportion of each type of use from one location to another. Many industrial parks contain highly diversified facilities—some with a large number of small businesses and others with one or two dominant industries."

As previously noted, existing industrial business park uses total approximately 156,096 square feet and are fully occupied, except approximately 18,000 square feet. Consistent with recent case law (North County

Advocates v. City of Carlsbad (2015)—Cal.App.4th—Case No. D066488), this trip generation analysis is based on 100 percent occupancy and includes these vacant use's historical operational information in establishing the environmental baseline for the Project's impact analysis.

As shown in Table 1, the existing project site is estimated to generate approximately 526 daily trips on a typical weekday, including 62 trips during the AM peak hour and 62 trips during the PM peak hour.

Since a truck will generally utilize more capacity than a passenger car, several jurisdictions throughout the region require land uses that generate a substantial amount of truck traffic, such as industrial and warehousing land uses, to convert truck trips into Passenger Car Equivalent (PCE) trips. For example, a large truck may be considered the equivalent of two passenger cars. For purposes of this this trip generation analysis, the existing project site trip generation was not converted to PCE trips; this provides a conservative estimate of the net project trip generation since trips generated by existing uses will be subtracted from the trip generation forecast for the proposed land use.

PROJECT TRIP GENERATION

Table 2 shows the project trip generation based upon rates obtained from the Los Angeles County Traffic Impact Analysis Report Guidelines (December 2013). The Los Angeles County guidelines indicate that trip generation rates from the latest edition of the ITE Trip Generation Manual should be used, except in the case of condominiums/townhomes, for which the guidelines provide trip generation rates that are slightly higher than those for the multi-family housing land use as contained in the current ITE Trip Generation Manual. Therefore, the trip generation rates for condominiums/townhomes as contained in the Los Angeles County guidelines were used to provide a conservative analysis. The existing trips generated are calculated by multiplying the trip generation rates by the proposed land use quantity.

As shown in Table 2, the proposed project is forecast to generate approximately 880 daily trips on a typical weekday, including 60 trips during the AM peak hour and 81 trips during the PM peak hour.

TRIP GENERATION COMPARISON

Table 3 shows the net project trip generation based on the difference between trips forecast to be generated by the proposed project minus trips currently estimated to be generated by existing land uses that would be displaced. As shown in Table 3, the proposed project is forecast to generate approximately 354 net new daily trips, including 2 fewer trips during the AM peak hour and 19 net new trips during the PM peak hour, compared to existing uses.

In accordance with the Los Angeles County Congestion Management Program, several jurisdictions throughout the region generally use a project trip contribution threshold of 50 peak hour trips for identifying potential study intersections and the need to prepare a full traffic impact analysis. The proposed project is forecast to generate fewer than 50 net new trips during the peak hours; therefore, the project is not expected to result in appreciable traffic impacts and further traffic analysis is typically not required.

CONCLUSION

We appreciate the opportunity to assist you on this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 795-3100 x 104.

DRAFT

Table 1
Existing Project Site Trip Generation

Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			
Land Use	Source[1]	Units[2]	% In	% Out	Total	% In	% Out	Total	Daily
Industrial Park	ITE 130	TSF	0.32	0.08	0.40	0.08	0.32	0.40	3.37

Trips Generated								
		AM Peak Hour			PM Peak Hour			
Land Use	Quantity	In	Out	Total	In	Out	Total	Daily
Industrial Park	156.096 TSF	50	12	62	12	50	62	526

Notes:
(1) ITE = Institute of Transportation Engineers Trip Generation Manual (10th Edition, 2017); ### = Land Use Code.

(2) TSF = Thousand Square Feet

DRAFT

Table 2
Proposed Project Trip Generation

Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			
Land Use	Source[1]	Units[2]	In	Out	Total	In	Out	Total	Daily
Condominiums/Townhomes	LAC	DU	0.06	0.48	0.54	0.47	0.26	0.73	8.00

Trips Generated								
		AM Peak Hour			PM Peak Hour			
Land Use	Quantity	In	Out	Total	In	Out	Total	Daily
Condominiums/Townhomes	110 DU	7	53	60	52	29	81	880

Notes:
(1) LAC = Los Angeles County Traffic Impact Analysis Report Guidelines (December 2013).
(2) DU = Dwelling Units

DRAFT

Table 3
Trip Generation Comparison

Trip Generation Rates							
	AM Peak Hour			PM Peak Hour			
Land Use	In	Out	Total	In	Out	Total	Daily
Existing Uses[1]	50	12	62	12	50	62	526
Proposed Project[2]	7	53	60	52	29	81	880
Net Trip Generation	**-43**	**+41**	**-2**	**+40**	**-21**	**+19**	**+354**

Notes:
(1) See Table 1.

(2) See Table 2.

DRAFT



Figure 1
Project Location Map

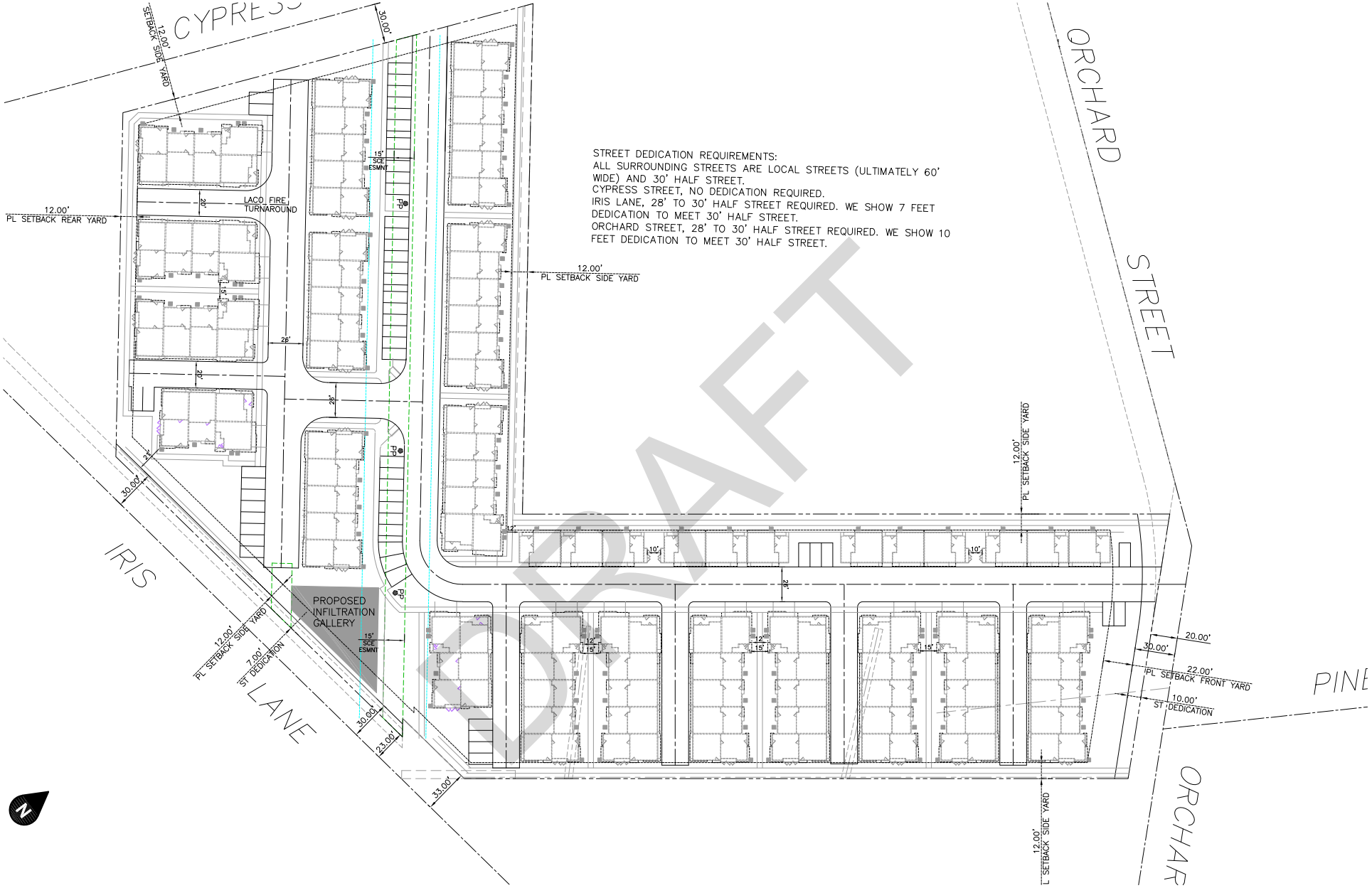
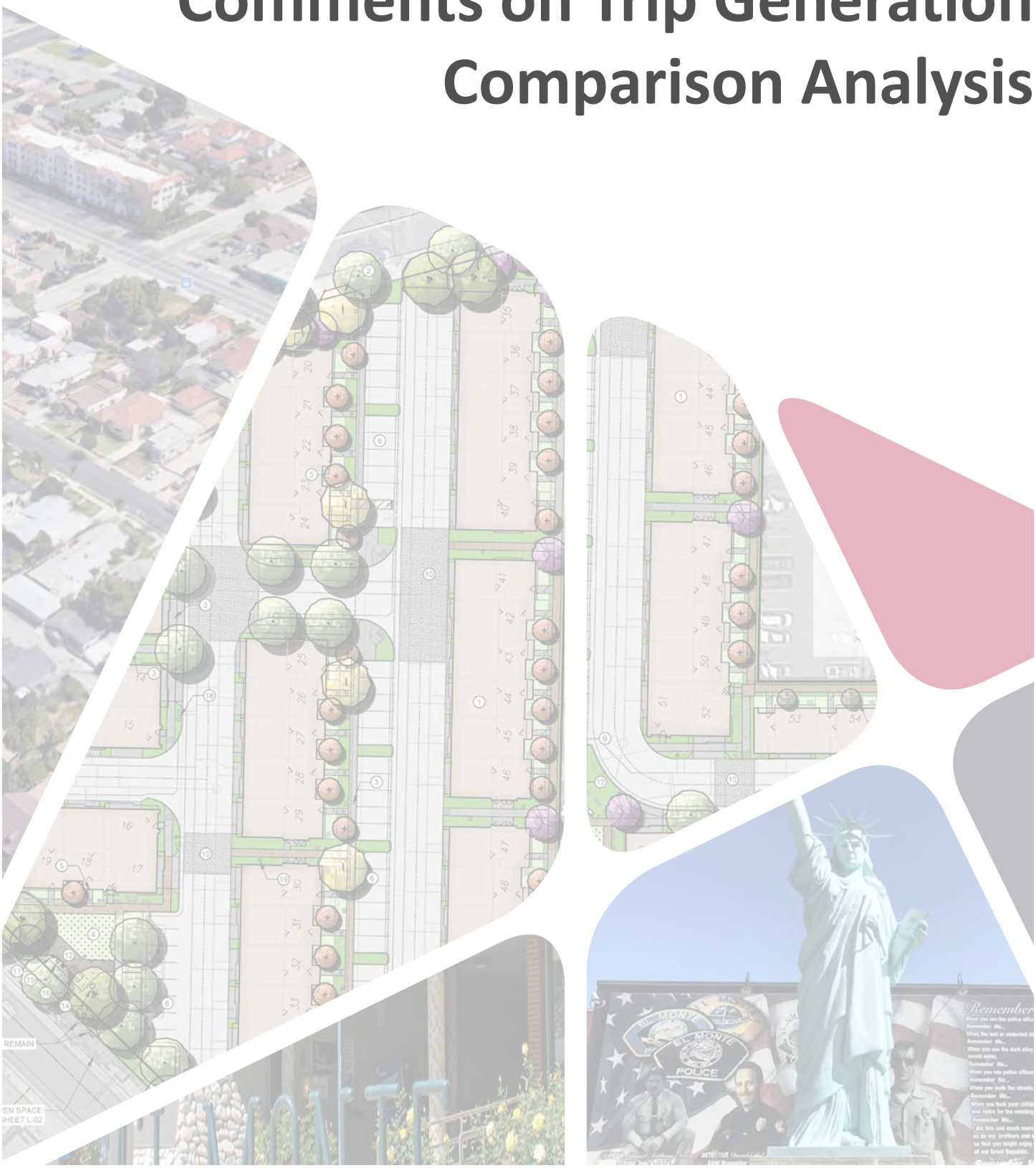


Figure 2
Preliminary Site Plan

Appendix J2

Comments on Trip Generation Comparison Analysis



P.O. Box 18355
Irvine CA 92623
E-mail: tepirvine@sbcglobal.net

Phone: 949 552 4357
Mobile: 909 263 0383

Date: August 19, 2019

To: Alan Palermo, P.E. – City of El Monte
From: Craig S. Neustaedter, P.E. – Principal, TEP, Inc.
Ed Studor, Senior Planning Consultant, TEP, Inc.

Subject: Comments on Orchard and Cypress Residential Project
Trip Generation Comparison Analysis

Project Description

The proposed project is a 110 unit multifamily, townhouse/condominium residential development situated on the site of an existing 156,096 square foot industrial park. The site is located north of Iris Lane and south of both Cypress Avenue and Orchard Street. While the memorandum does not indicate the size of the site, it appears to be approximately 6.5 acres.

Issue

The primary issue is whether further traffic analysis of the project is warranted, as the traffic impacts of the existing industrial park and the multifamily housing project are quite similar in terms of trip generation.

Analysis

While it is true that the number of trips generated by the existing industrial park versus the proposed multifamily residential project is very similar, the characteristics of the traffic generated are different, with industrial park uses generally including a much higher percentage of truck traffic.

For purposes of this analysis no adjustment was made to convert truck trips into Passenger Car Equivalent (PCE) trips. As such, the resulting assessment of trip generation for the existing industrial park produces lower traffic projection figures. This is a conservative approach. If PCEs were applied the analysis would show that the proposed multifamily residential project produces fewer trips than the existing industrial park.

The trip generation comparison, as presented in Table 3 from the technical memorandum and shown below demonstrates that the proposed redevelopment of the industrial park as a townhouse/condominium project fails to meet the 50 peak hour trip threshold for new trips which would warrant further analysis.

Trip Generation Comparison

Trip Generation Rates							
	AM Peak Hour			PM Peak Hour			
Land Use	In	Out	Total	In	Out	Total	Daily
Existing Uses[1]	50	12	62	12	50	62	526
Proposed Project[2]	7	53	60	52	29	81	880
Net Trip Generation	**-43**	**+41**	**-2**	**+40**	**-21**	**+19**	**+354**

Notes:
(1) See Table 1.

(2) See Table 2.

Conclusion

The traffic comparison analysis prepared Ganddini Group presents a fair and reasonable comparison of the existing land use trip generation versus the trip generation for the proposed use. As the proposed redevelopment of the site adds only 19 trips to the PM Peak Hour traffic and actually reduces AM Peak Hour traffic by 2 trips, the proposal does not meet the threshold of adding 50 Peak Hour trips to any potential study intersections. Unless there are other extenuating circumstances that would warrant further analysis, it is recommended that the technical memorandum be accepted as presented and the project be allowed to proceed without further traffic analysis.

Thank you for the opportunity to be of service.

Appendix J3

Due Diligence Traffic Analysis



March 25, 2019

Mr. David Lelie, Senior Project Manager
KB HOME
25152 Springfield Court, Suite 180
Valencia, CA 91355

RE: Orchard and Cypress Residential Feasibility Project Due Diligence Traffic Analysis
19-0057

Dear Mr. Lelie:

INTRODUCTION

Ganddini Group, Inc. is pleased to provide this due diligence traffic analysis for the Orchard and Cypress Residential Feasibility Project in the City of El Monte. The purpose of this due diligence traffic analysis is to provide a cursory overview of potential traffic/transportation related issues with respect to development of the proposed project. This due diligence traffic analysis provides a preliminary evaluation based on our professional judgement in the selection of study area and analysis methodologies. A formal scoping process with City of El Monte staff may result in additional analysis requirements, including the need for assessment of cumulative traffic impacts, which are not considered in this report.

This letter-report summarizes the methodology, calculations, and findings. Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with terms related to transportation engineering.

PROJECT DESCRIPTION

The project site is located at 3700, 3640, 3630 Cypress Avenue and 11312 Orchard Street in the City of El Monte. The project site is currently developed with a mix of primarily industrial land uses. Preliminary plans for the proposed project consist of redeveloping the project site with approximately 110 dwelling units of multi-family residential land use. Project site access is currently being considered at Cypress Avenue and Orchard Street. For the purposes of this analysis, the proposed project is assumed to be constructed and fully operational in Year 2021. The project site plan is illustrated on Figure 2.

Site Access

Project access is proposed at Cypress Avenue and Orchard Street. The proposed full access driveways and drive aisles are approximately 26 feet wide; sufficient width to accommodate one inbound lane and one outbound lane.

The project is proposing two separate access points that can be utilized for emergency vehicle access. Emergency vehicle access requirements vary based on the service provider. The project site plan should be reviewed by the Los Angeles County Fire Department to ensure adequate emergency vehicle circulation is provided.

PROJECT TRIP GENERATION AND ASSIGNMENT

Table 1 shows the project trip generation based upon rates obtained from the Los Angeles County, Traffic Impact Analysis Report Guidelines, December 2013. Trip generation rates were determined for weekday daily and AM/PM peak hours for the proposed land use. The project trips are determined by multiplying the trip generation rates by the land use quantity. To provide a conservative assessment of potential impacts, no trip generation credit has been assumed for trips associated with existing land uses at the project site that would be displaced by the proposed project.

As shown in Table 1, the proposed project is forecast to generate approximately 880 daily trips on a typical weekday, including 60 trips during the AM peak hour and 81 trips during the PM peak hour.

To determine the trip distributions for the proposed project, peak hour intersection turning movement counts of the existing directional distribution of traffic volumes for existing areas in the vicinity of the site, and other additional information on future development and traffic impacts in the area were reviewed.

Figures 3 and 4 contain the directional distributions of the project trips for the proposed land use. Based on the identified trip generation and distribution patterns, AM and PM peak hour intersection turning movement volumes expected from the project are shown on Figures 5 and 6, respectively.

TRAFFIC IMPACT ANALYSIS CRITERIA

The technique used to assess project traffic impacts in the City of El Monte is based on the guidelines established by the County of Los Angeles Traffic Impact Analysis Report Guidelines (December 2013).

Signalized Intersections

The technique used to assess the performance of a signalized study intersection in the City of El Monte is known as the Intersection Capacity Utilization methodology. The Intersection Capacity Utilization methodology compares the traffic volumes using the intersection to the capacity of the intersection. The resulting calculation is expressed as a decimal value known as the volume to capacity (V/C) ratio. The volume to capacity ratio represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. In accordance with City of El Monte requirements, this analysis uses the following parameters: 1,600 vehicles per hour per lane for through and turn lanes, 2,880 vehicles per hour for dual left-turn lanes, and a total clearance time of 10 percent.

The volume to capacity ratio is then correlated to a performance measure known as Level of Service based on the following thresholds:

Level of Service	Signalized Intersection Volume to Capacity (V/C)
A	≤ 0.600
B	0.601 to 0.700
C	0.701 to 0.800
D	0.801 to 0.900
E	0.901 to 1.000
F	> 1.000

Source: Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington, D.C., 2000 and Interim Materials on Highway Capacity, NCHRP Circular 212, 1982.

Level of Service is used to qualitatively describe the performance of a signalized intersection, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure).

Unsignalized Intersections

The technique used to assess the performance of an unsignalized study intersection is known as the intersection delay method based on the procedures contained in the Highway Capacity Manual (Transportation Research Board, 6th Edition). The methodology compares the traffic volumes using the intersection to the capacity of the intersection to calculate the delay associated with the traffic control at the intersection. The intersection delay is then correlated to a performance measure known as Level of Service based on the following thresholds:

Level of Service	Unsignalized Intersection Control Delay (Seconds/Vehicle)
A	≤ 10.0
B	> 10.0 to ≤ 15.0
C	> 15.0 to ≤ 25.0
D	> 25.0 to ≤ 35.0
E	> 35.0 to ≤ 50.0
F	> 50.0

Source: Highway Capacity Manual (Transportation Research Board, 6th Edition).

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure).

Significant Impact Thresholds

Based on the County of Los Angeles Traffic Impact Analysis Report Guidelines, a project traffic impact at a signalized intersection is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

Pre-Project Conditions		Project-Related Volume/Capacity Increase
Level of Service	Volume/Capacity	
C	0.71 - 0.80	0.04 or more
D	0.81 - 0.90	0.02 or more
E/F	0.91 - more	0.01 or more

It should be noted that many jurisdictions, including the City of El Monte/County of Los Angeles, do not have established significant impact thresholds for unsignalized intersections. Generally for a traffic impact analysis, a project impact at an unsignalized intersection is considered significant if the addition of project-generated trips is forecast to cause or worsen Level of Service E or F and installation of a traffic signal is warranted. However, all study area intersections analyzed as part of this due diligence traffic analysis are signalized intersections.

EXISTING TRAFFIC CONDITIONS

Existing Roadway System

Figure 7 identifies the existing lane geometry and intersection traffic controls for the project site primary access roadways based on a field survey of the study area. Regional access for the project site is provided by Interstate 110 Freeway approximately 0.4 miles south of the project site. Key roadways providing local circulation include Valley Mall, Valley Boulevard, Orchard Street, Lee Lane, Peck Road, and Ramona Boulevard. The project site is bounded by Cypress Avenue along the northwestern boundary, Iris Lane along the southern boundary, and Orchard Street along the northeastern boundary.

Valley Mall is a two-lane divided roadway trending in a north-south direction in the project vicinity. Valley Mall is not classified in the City of El Monte General Plan Circulation Element. On-street parking is provided north of Esmeralda Avenue and generally prohibited south of Esmeralda Avenue; there are no dedicated bicycle lanes but Valley Mall is classified as a Class II Bike Lane, and sidewalks are provided on both sides of the roadway. The posted speed limit 15 miles per hour.

Valley Boulevard is a four-lane divided roadway trending in a north-south direction in the project vicinity. Valley Boulevard is classified as a Major Arterial (100 or 104 to 116 foot right-of-way) in the City of El Monte General Plan Circulation Element. On-street parking is intermittently provided both north and south of Ramona Boulevard; there are no dedicated bicycle lanes and sidewalks are provided on both sides of the roadway. The posted speed limit 35 miles per hour.

Orchard Street is a two-lane undivided roadway trending in a north-south direction in the project vicinity. Orchard Street is not classified in the City of El Monte General Plan Circulation Element. On-street parking is generally permitted; there are no dedicated bicycle lanes and sidewalks are provided on both sides of the roadway. There are no posted speed limits on Orchard Street in the project vicinity (the statutory speed limit on residential roadways is 25 miles per hour).

Lee Lane is a two-lane undivided roadway trending in a north-south direction in the project vicinity. Lee Lane is not classified in the City of El Monte General Plan Circulation Element. On-street parking is permitted north of Coffield Avenue and prohibited south of Coffield Avenue; there are no dedicated bicycle lanes and sidewalks are provided on both sides of the roadway. The posted speed limit 25 miles per hour.

Peck Road is a four-lane to six-lane divided roadway trending in a north-south direction in the project vicinity. Peck Road is classified as a Major Arterial (100 or 104 to 116 foot right-of-way) in the City of El Monte General Plan Circulation Element. On-street parking is intermittently provided north of Ramona Boulevard and prohibited south of Ramona Boulevard; there are no dedicated bicycle lanes and sidewalks are provided on both sides of the roadway. The posted speed limit 35 miles per hour.

Ramona Boulevard is a four-lane undivided to divided roadway trending in an east-west direction in the project vicinity. Ramona \ Boulevard is classified as a Secondary Arterial (84 to 88 foot right-of-way) in the City of El Monte General Plan Circulation Element. On-street parking is generally prohibited; there are no dedicated bicycle lanes but Ramona Boulevard is classified as a Class II Bike Lane west of Valley Boulevard, and sidewalks are provided on both sides of the roadway. The posted speed limit 30 miles per hour west of Valley Boulevard and 35 miles per hour east of Valley Boulevard.

Existing Pedestrian, Bicycle, and Transit Facilities

Existing pedestrian, bicycle, and transit facilities in the project vicinity are shown on Figure 8. As shown on Figure 8 a pedestrian sidewalk is currently provided along all project site frontages at Cypress Avenue, Orchard Street, and Iris Lane; there are no existing bicycle lanes in the project vicinity. Foothill Transit Routes 190, 194, and 488 run along Ramona Boulevard with stops located west of Orchard Street and Routes 190, 194, 270 and 488 run along Ramona Boulevard/Peck Road with stops at the intersection of Peck Road at Ramona Boulevard. Detailed transit maps and schedules are provided in Appendix B.

General Plan Context

Figure 9 shows the City of Gardena General Plan Circulation Element Roadway Network. This figure shows the nature and extent of arterial and collector roadways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan. The City of El Monte General Plan standard roadway cross-sections are illustrated on Figure 10. Figure 11 illustrates the City of El Monte Bicycle Network as established in the General Plan.

Existing Traffic Volumes

Existing peak hour volumes are based upon weekday AM and PM peak period intersection turning movement volume counts conducted in March 2019. The weekday AM peak period was counted between 7:00 AM and 9:00 AM and the weekday PM peak period was counted between 4:00 PM and 6:00 PM. The actual peak hour within the peak period is the four consecutive 15-minute periods with the highest total volume when all movements are added together. Thus, the PM peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15-minute periods have the highest combined volume. Intersection turning movement volume count worksheets are provided in Appendix C.

It should be noted that due to close proximity and coordination with the intersection of Valley Boulevard at Ramona Boulevard, traffic counts were also taken at Valley Mall at Ramona Boulevard. These turning movements for Valley Mall at Ramona Boulevard were separated based on their directional movement through the intersection of Valley Boulevard at Ramona Boulevard and aggregated to the turning movement counts for Valley Boulevard at Ramona Boulevard.

Figures 12 and 13 show the Existing AM peak hour and PM peak hour intersection turning movement volumes, respectively.

Existing Intersection Level of Service

The study intersection Levels of Service for Existing conditions have been calculated and are shown in Table 2. Existing Level of Service worksheets are provided in Appendix D.

It should be noted that due to close proximity and coordination with the intersection of Valley Boulevard at Ramona Boulevard, traffic counts were also taken at Valley Mall at Ramona Boulevard. These turning movements for Valley Mall at Ramona Boulevard were separated based on their directional movement through the intersection of Valley Boulevard at Ramona Boulevard and aggregated to the turning movement counts for Valley Boulevard at Ramona Boulevard. The critical movement volume-to-capacity ratio for the southbound movements on Valley Mall were independently calculated and added to the Intersection Capacity Utilization for the intersection of Valley Boulevard at Ramona Boulevard to compute the overall Intersection Capacity Utilization for this intersection. This has been done for all analysis scenarios and is included in Appendix D.

As shown in Table 2, the study intersections currently operate at Levels of Service D or better during the peak hours for Existing conditions.

EXISTING PLUS PROJECT CONDITIONS

The intersection turning movement volumes for Existing Plus Project conditions have been developed by adding the project generated trips to existing intersection turning movement volumes. Existing Plus Project AM and PM peak hour intersection turning movement volumes are shown on Figures 14 and 15, respectively.

The study intersection Levels of Service for Existing Plus Project conditions are shown in Table 3. As shown in Table 3, the study intersections are projected to operate at Level of Service D or better during the peak hours for Existing Plus Project conditions.

Table 4 evaluates the project impact at the study intersections for Existing Plus Project conditions. As shown in Table 4, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Existing Plus Project conditions based on the established thresholds of significance.

OPENING YEAR (2021) WITHOUT PROJECT CONDITIONS

The intersection turning movement volumes for Opening Year (2021) Without Project conditions have been developed by adding ambient growth to existing intersection turning movement volumes. To account for ambient growth on roadways, Opening Year (2021) traffic volumes have been calculated based on an annual growth rate over a two year period. The City of El Monte approved annual ambient growth rate is one percent (1%). Opening Year (2021) Without Project AM and PM peak hour intersection turning movement volumes are shown on Figures 16 and 17, respectively.

The study intersection Levels of Service for Opening Year (2021) Without Project conditions are shown in Table 5. As shown in Table 5, the study intersections are projected to operate at Level of Service D or better during the peak hours for Opening Year (2021) Without Project conditions, except for the intersection of Peck Road at Ramona Boulevard that is forecast to operate at Level of Service E during the PM peak hour.

OPENING YEAR (2021) WITH PROJECT CONDITIONS

The intersection turning movement volumes for Opening Year (2021) With Project conditions have been developed by adding project trips to Opening Year (2021) Without Project intersection turning movement volumes. Opening Year (2021) With Project AM and PM peak hour intersection turning movement volumes are shown on Figures 18 and 19, respectively.

The study intersection Levels of Service for Opening Year (2021) With Project conditions are shown in Table 6. As shown in Table 6, the study intersections are projected to operate at Level of Service D or better during the peak hours for Opening Year (2021) With Project conditions, except for the intersection of Peck Road at Ramona Boulevard that is forecast to operate at Level of Service E during the PM peak hour.

Table 7 evaluates the project impact at the study intersections for Opening Year (2021) With Project conditions. As shown in Table 7, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Opening Year (2021) With Project conditions based on the established thresholds of significance.

Mr. David Lelie, Senior Project Manager
KB HOME
March 25, 2019

CONCLUSIONS

The proposed project is forecast to generate approximately 880 daily trips on a typical weekday, including 60 trips during the AM peak hour and 81 trips during the PM peak hour. The proposed project is forecast to result in no significant traffic impacts at the study intersections for Existing Plus Project and Opening Year (2021) With Project conditions based on the established thresholds of significance.

In summary, the major signalized study intersections in the project vicinity are forecast to operate at Level of Service C or better, except for the intersection of Peck Road at Ramona Boulevard. The intersection of Peck Road at Ramona Boulevard is forecast to operate at Level of Service E during the PM peak hour for Opening Year With Project conditions; however, the project-related impact (V/C increase by 0.001) is forecast to be well-below the established threshold of significance (V/C increase by 0.01 or more).

General Recommendations

Final roadway design, traffic signing and striping, and traffic control improvements relating to the proposed project should be constructed in accordance with applicable engineering standards to the satisfaction of City of El Monte Public Works Department.

Site-adjacent roadways should be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development, as necessary, to the satisfaction of City of El Monte Public Works Department.

The final grading, landscaping, and street improvement plans should demonstrate that sight distance standards are met in accordance with applicable City of El Monte/California Department of Transportation sight distance standards.

It appears that adequate emergency access is provided since there is more than one way to access the project site and a turnaround area is provided for dead-end roadways extending more than 150 feet. The proposed site plan should also be reviewed by the County of Los Angeles emergency service providers to ensure adequate emergency access is provided.

As is the case for any roadway design, the City of El Monte should periodically review traffic operations in the vicinity of the project once the project is constructed to ensure that the traffic operations are satisfactory.

It has been a pleasure to assist you with this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 795-3100.

Respectfully submitted,

GANDDINI GROUP, INC.

Bryan Crawford
Senior Transportation Planner



Giancarlo Ganddini, PE, PTP
Principal Traffic Engineer

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Appendices

Appendix A Glossary of Transportation Terms
Appendix B Transit Maps and Schedules
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Table 1
Project Trip Generation

Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			
Land Use	Source[1]	Units[2]	In	Out	Total	In	Out	Total	Daily
Condominiums/Townhomes	LAC	DU	0.06	0.48	0.54	0.47	0.26	0.73	8.00

Trips Generated								
		AM Peak Hour			PM Peak Hour			
Land Use	Quantity	In	Out	Total	In	Out	Total	Daily
Condominiums/Townhomes	110 DU	7	53	60	52	29	81	880

Notes:
(1) LAC = Los Angeles County, Traffic Impact Analysis Report Guidelines, December 2013.

(2) DU = Dwelling Units

Table 2
Existing Intersection Level of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
			ICU (V/C)[2]	Level of Service	ICU (V/C)[2]	Level of Service
1.	Valley Boulevard/Valley Mall at Ramona Boulevard	TS	0.613	B	0.714	C
2.	Orchard Street/Lee Lane at Ramona Boulevard	TS	0.446	B	0.467	A
3.	Peck Road at Ramona Boulevard	TS	0.660	B	0.888	D

Notes:

(1) TS = Traffic Signal

(2) Intersection Capacity Utilization (ICU) has been calculated using the following software: Vistro (Version 6.00-00).

Table 3
Existing Plus Project Intersection Level of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
			ICU (V/C)[2]	Level of Service	ICU (V/C)[2]	Level of Service
1.	Valley Boulevard/Valley Mall at Ramona Boulevard	TS	0.617	B	0.718	C
2.	Orchard Street/Lee Lane at Ramona Boulevard	TS	0.459	B	0.473	A
3.	Peck Road at Ramona Boulevard	TS	0.662	B	0.889	D

Notes:

(1) TS = Traffic Signal

(2) Intersection Capacity Utilization (ICU) has been calculated using the following software: Vistro (Version 6.00-00).

Table 4
Existing Plus Project Significant Impact Evaluation

ID	Study Intersection	Peak Hour - V/C - LOS[1]				Change in V/C		Significant Impact?
		Without Project		With Project		AM Peak Hour	PM Peak Hour	
		AM	PM	AM	PM			
1.	Valley Blvd/Valley Mall at Ramona Blvd	0.613-B	0.714-C	0.617-B	0.718-C	+0.004	+0.004	No
2.	Orchard St/Lee Lane at Ramona Blvd	0.446-B	0.467-A	0.459-B	0.473-A	+0.013	+0.006	No
3.	Peck Rd at Ramona Blvd	0.660-B	0.888-D	0.662-B	0.889-D	+0.002	+0.001	No

Notes:
(1) See Tables 2 and 3.

Table 5
Opening Year (2021) Without Project Intersection Level of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour ICU (V/C)[2]	AM Peak Hour Level of Service	PM Peak Hour ICU (V/C)[2]	PM Peak Hour Level of Service
1.	Valley Boulevard/Valley Mall at Ramona Boulevard	TS	0.622	B	0.724	C
2.	Orchard Street/Lee Lane at Ramona Boulevard	TS	0.453	B	0.474	A
3.	Peck Road at Ramona Boulevard	TS	0.672	B	0.903	E

Notes:
(1) TS = Traffic Signal

(2) Intersection Capacity Utilization (ICU) has been calculated using the following software: Vistro (Version 6.00-00).

Table 6
Opening Year (2021) With Project Intersection Level of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
			ICU (V/C)[2]	Level of Service	ICU (V/C)[2]	Level of Service
1.	Valley Boulevard/Valley Mall at Ramona Boulevard	TS	0.626	B	0.728	C
2.	Orchard Street/Lee Lane at Ramona Boulevard	TS	0.466	B	0.480	A
3.	Peck Road at Ramona Boulevard	TS	0.674	B	0.904	E

Notes:

(1) TS = Traffic Signal

(2) Intersection Capacity Utilization (ICU) has been calculated using the following software: Vistro (Version 6.00-00).

Table 7
Opening Year (2021) With Project Significant Impact Evaluation

ID	Study Intersection	Peak Hour - V/C - LOS[1]				Change in V/C		Significant Impact?
		Without Project		With Project		AM Peak Hour	PM Peak Hour	
		AM	PM	AM	PM			
1.	Valley Blvd/Valley Mall at Ramona Blvd	0.622-B	0.724-C	0.626-B	0.728-C	+0.004	+0.004	No
2.	Orchard St/Lee Lane at Ramona Blvd	0.453-B	0.474-A	0.466-B	0.480-A	+0.013	+0.006	No
3.	Peck Rd at Ramona Blvd	0.672-B	0.903-E	0.674-B	0.904-E	+0.002	+0.001	No

Notes:
(1) See Tables 5 and 6.



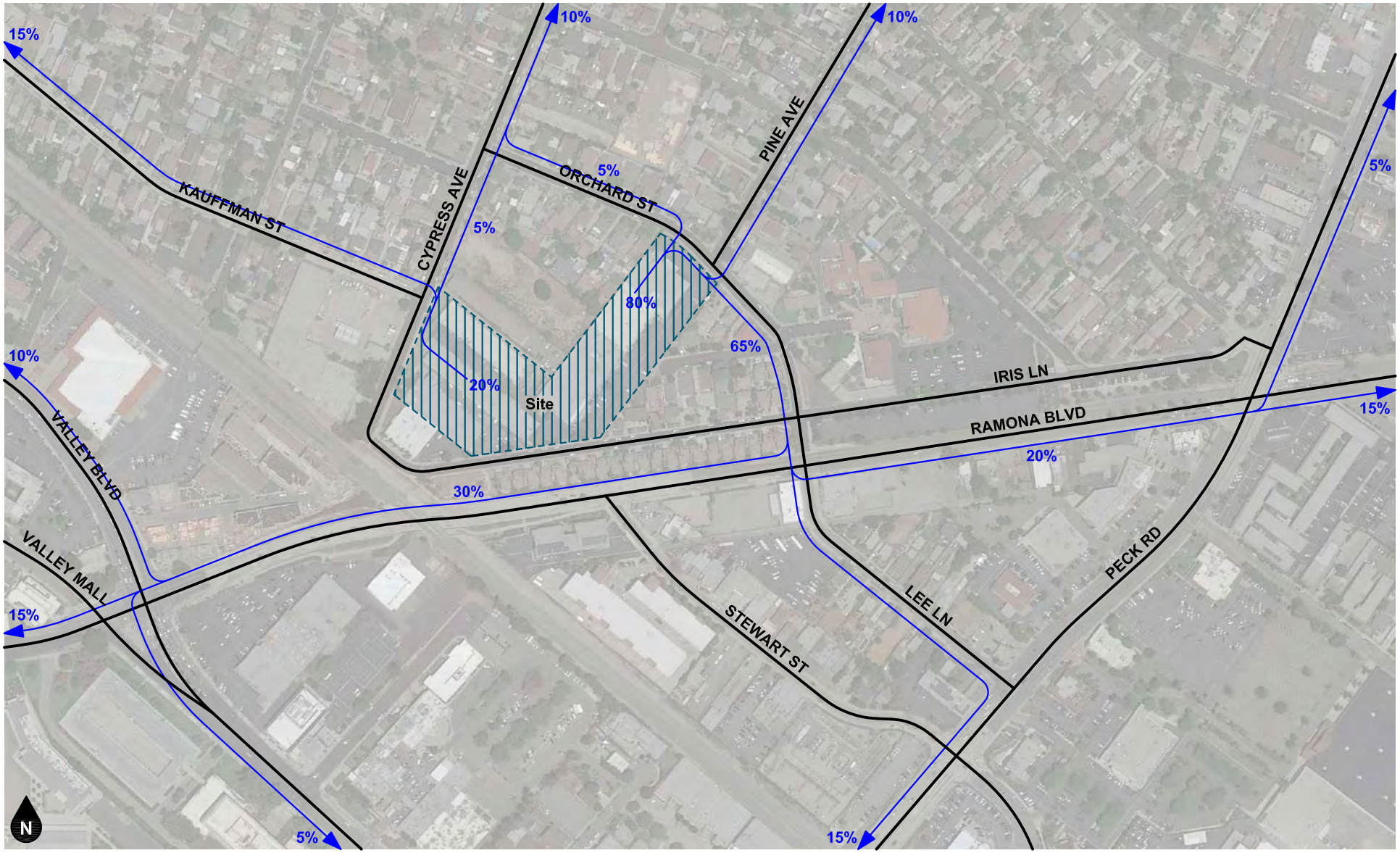
Legend

(#) Study Intersection

Figure 1
Project Location Map



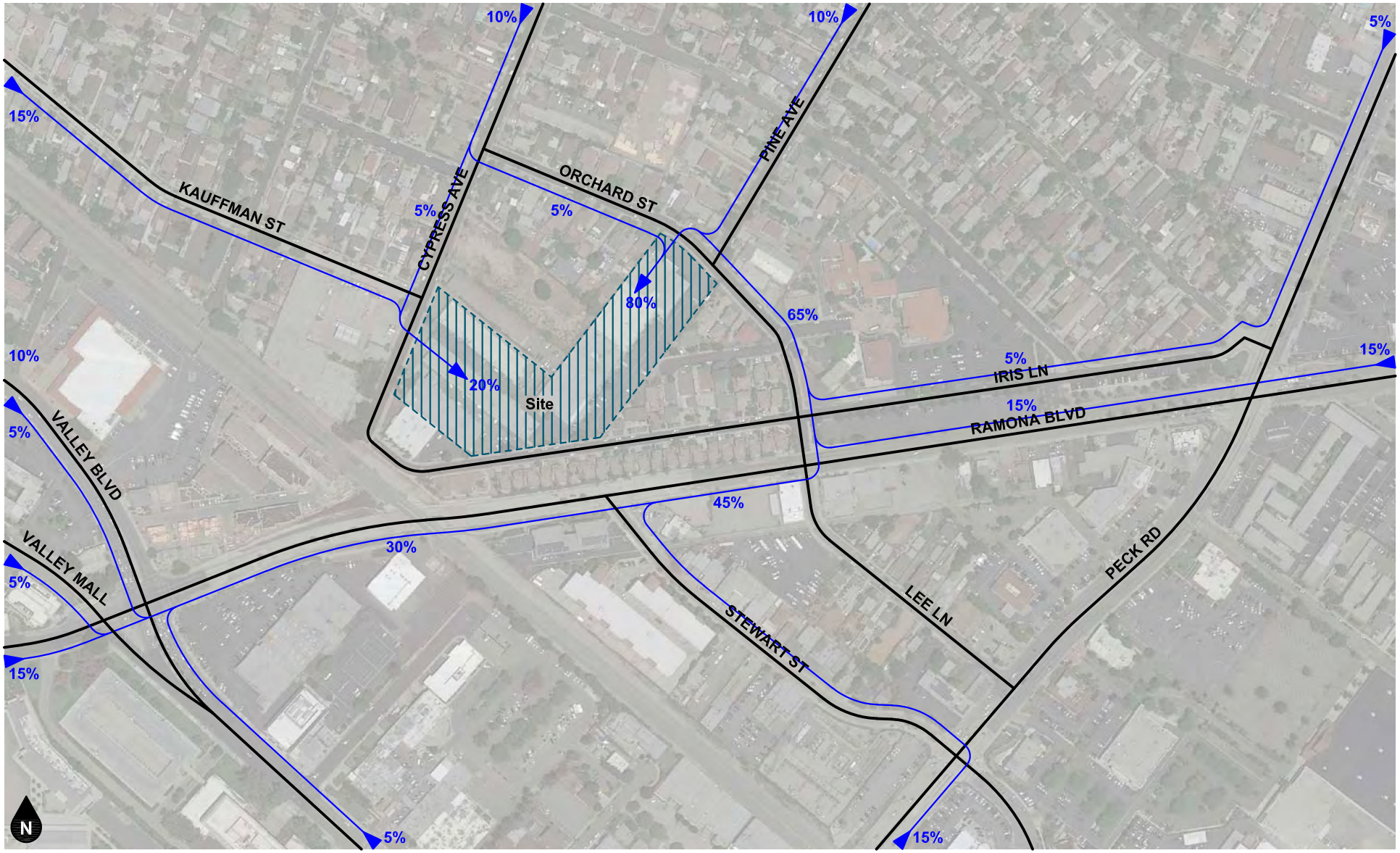
Figure 2
Preliminary Site Plan



Legend

10% Percent From Project

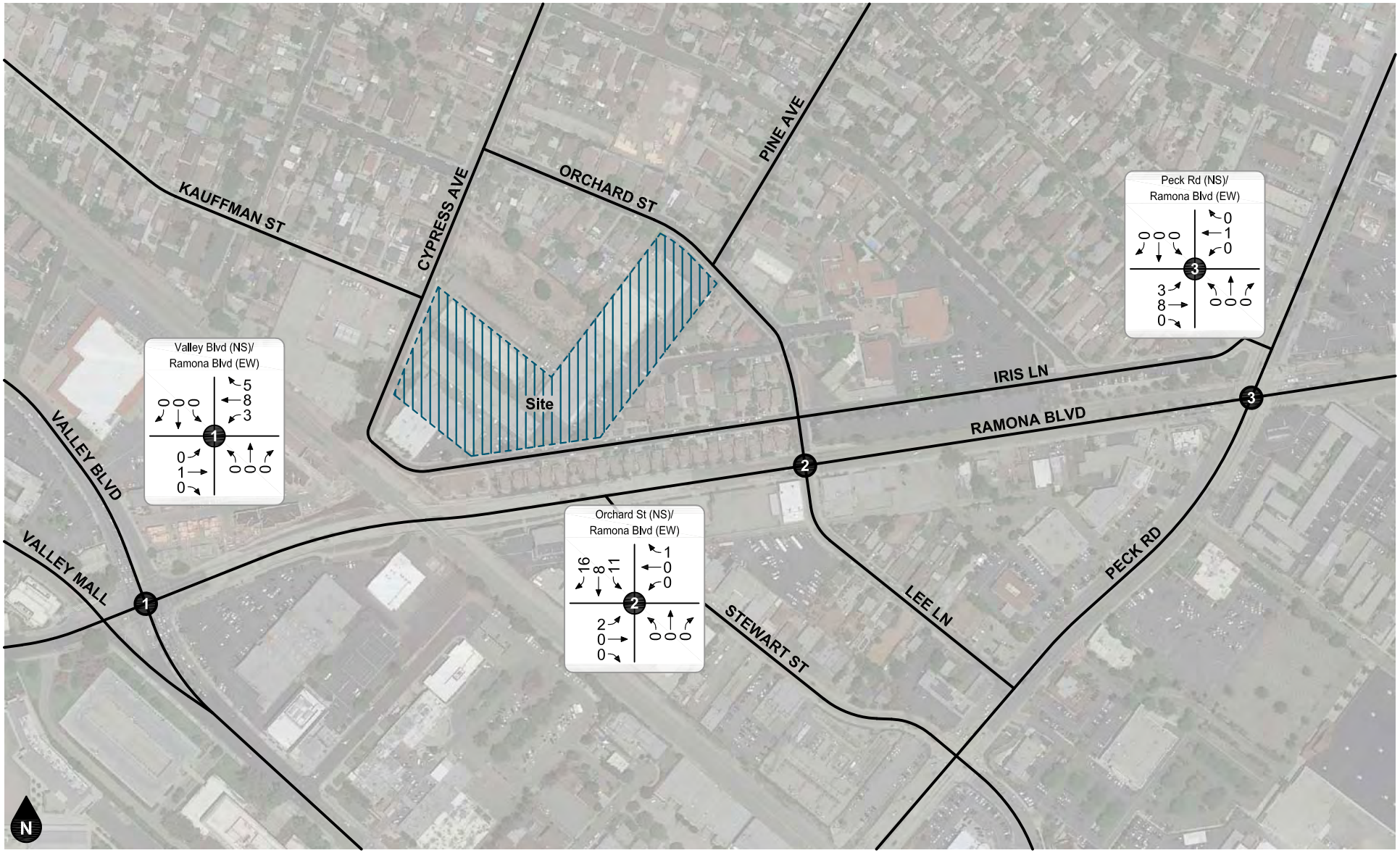
Figure 3
Project Outbound Trip Distribution



Legend

10% Percent To Project

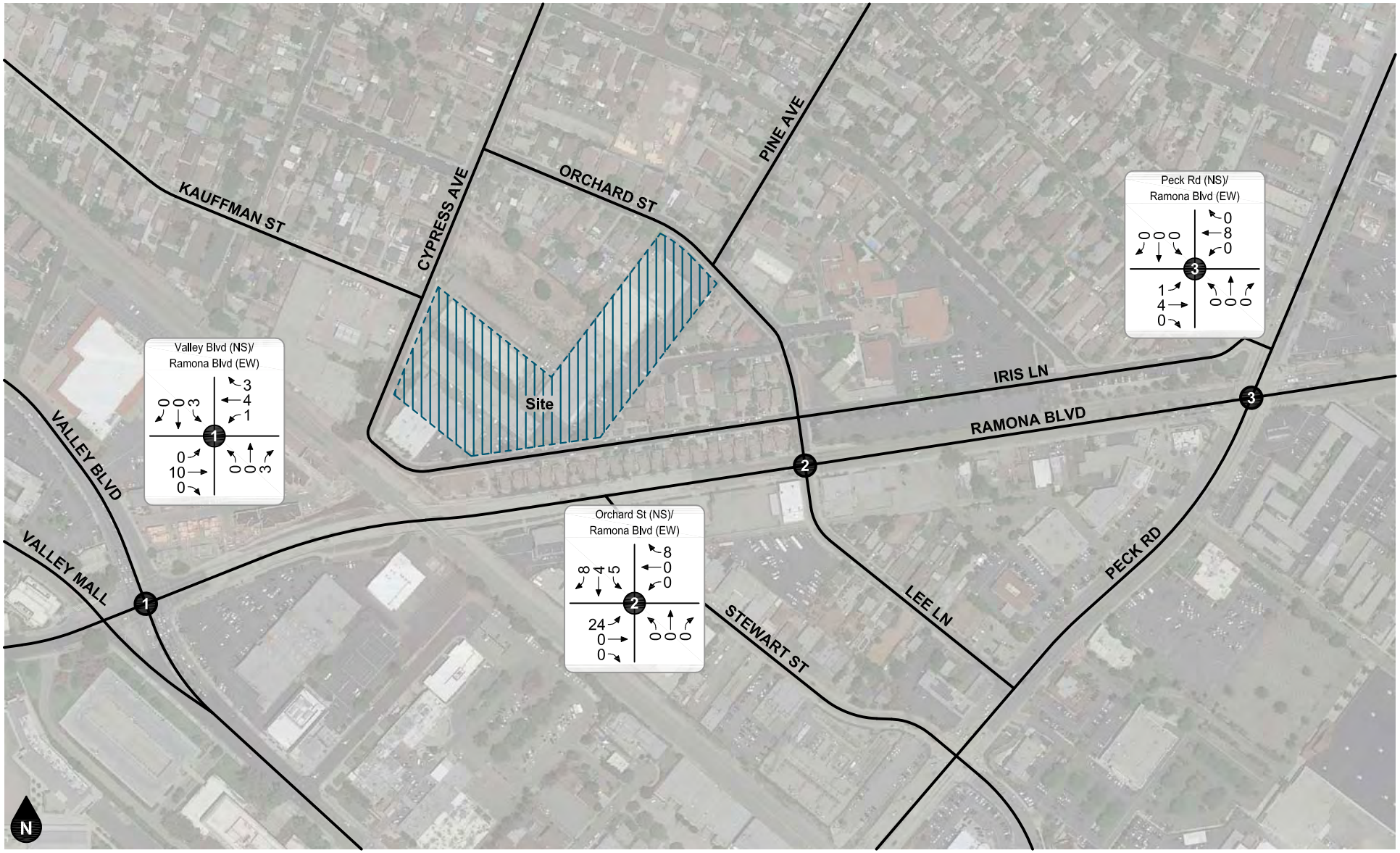
Figure 4
Project Inbound Trip Distribution



Legend

(#) Study Intersection

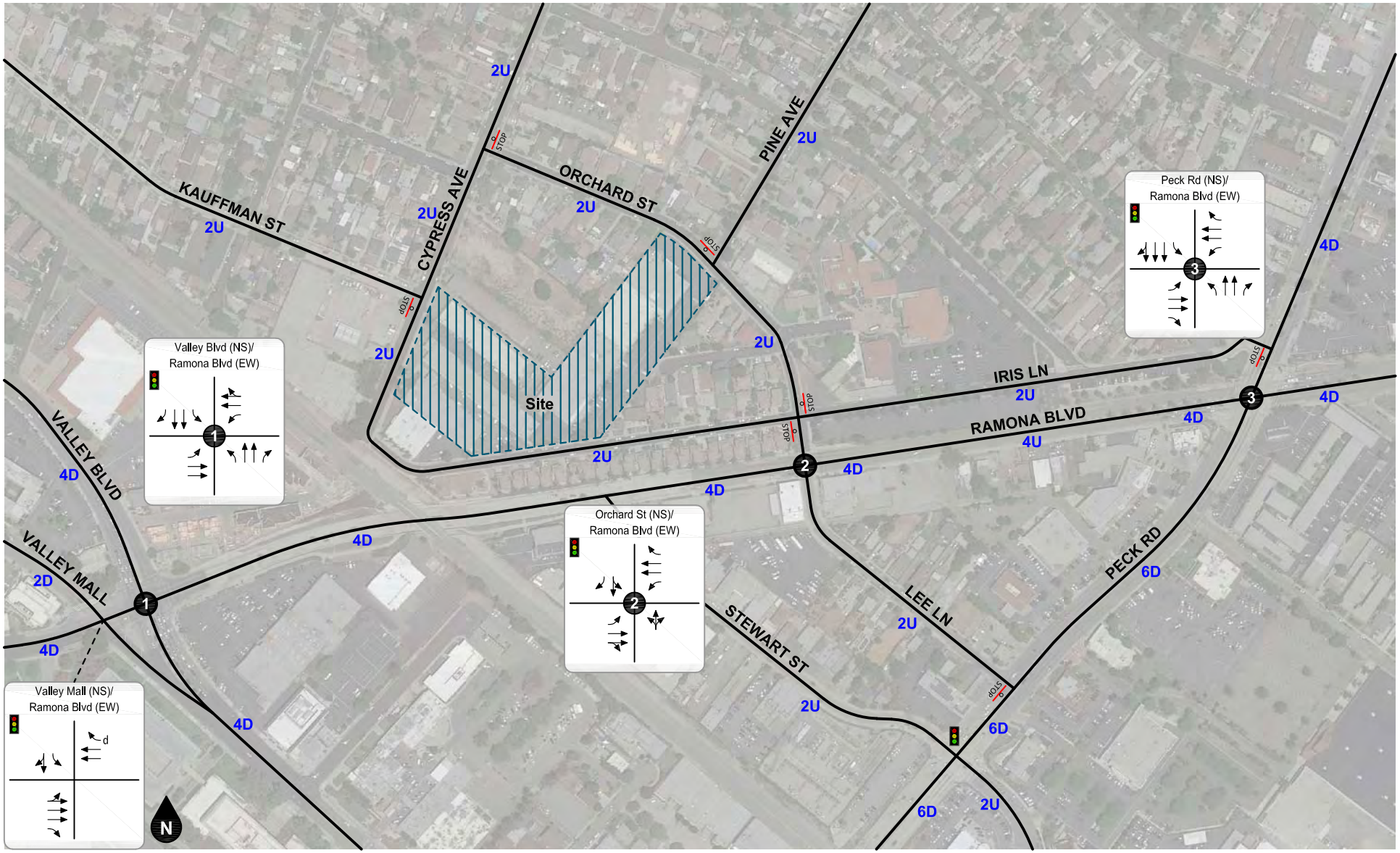
Figure 5
Project AM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

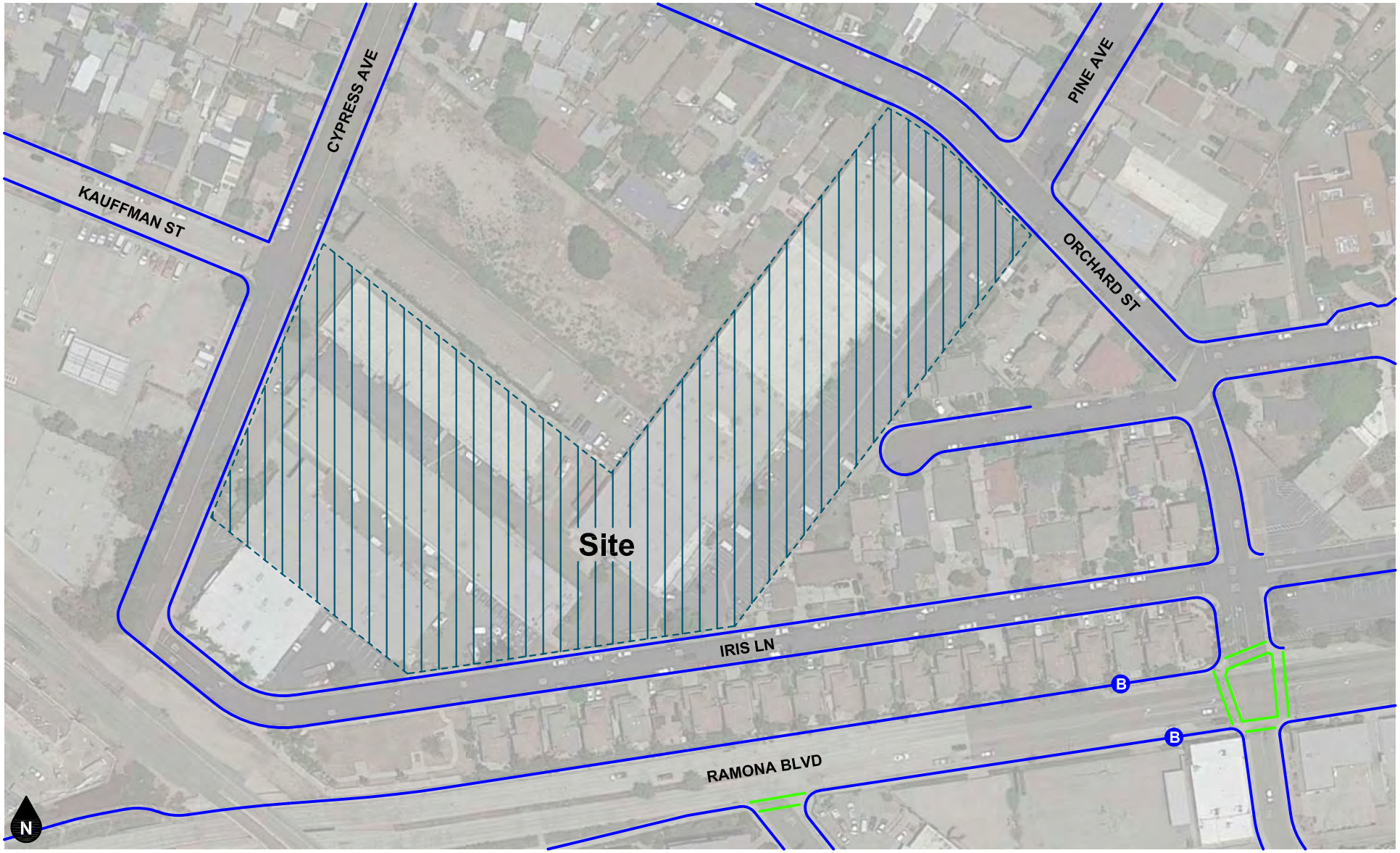
Figure 6
Project PM Peak Hour Intersection Turning Movement Volumes



Legend

- Traffic Signal
- Stop Sign
- #D #-Lane Divided Roadway
- #U #-Lane Undivided Roadway
- Existing Lane
- d De Facto Right Turn Lane

Figure 3
Existing Lane Geometry and Intersection Traffic Controls



Legend
- Sidewalk
- Cross Walk
- B Bus Stop

Figure 8
Existing Pedestrian, Bicycle, and Transit Facilities



Figure 9
City of El Monte General Plan Circulation Element Roadway Network

Source: City of El Monte

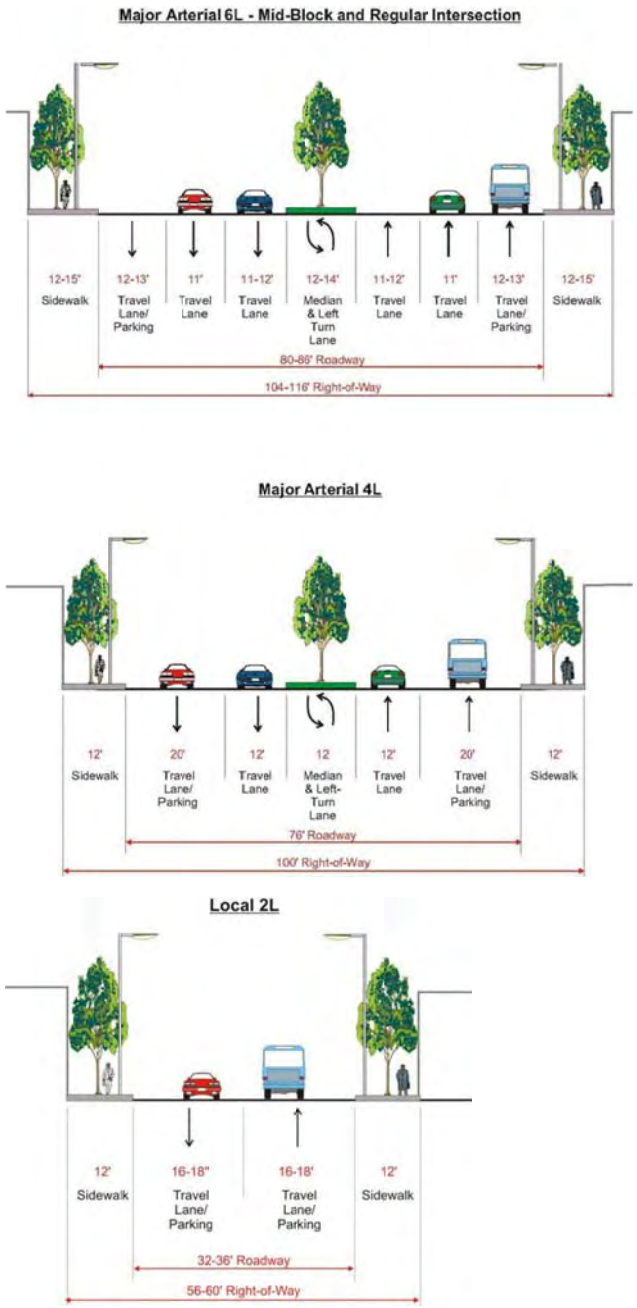


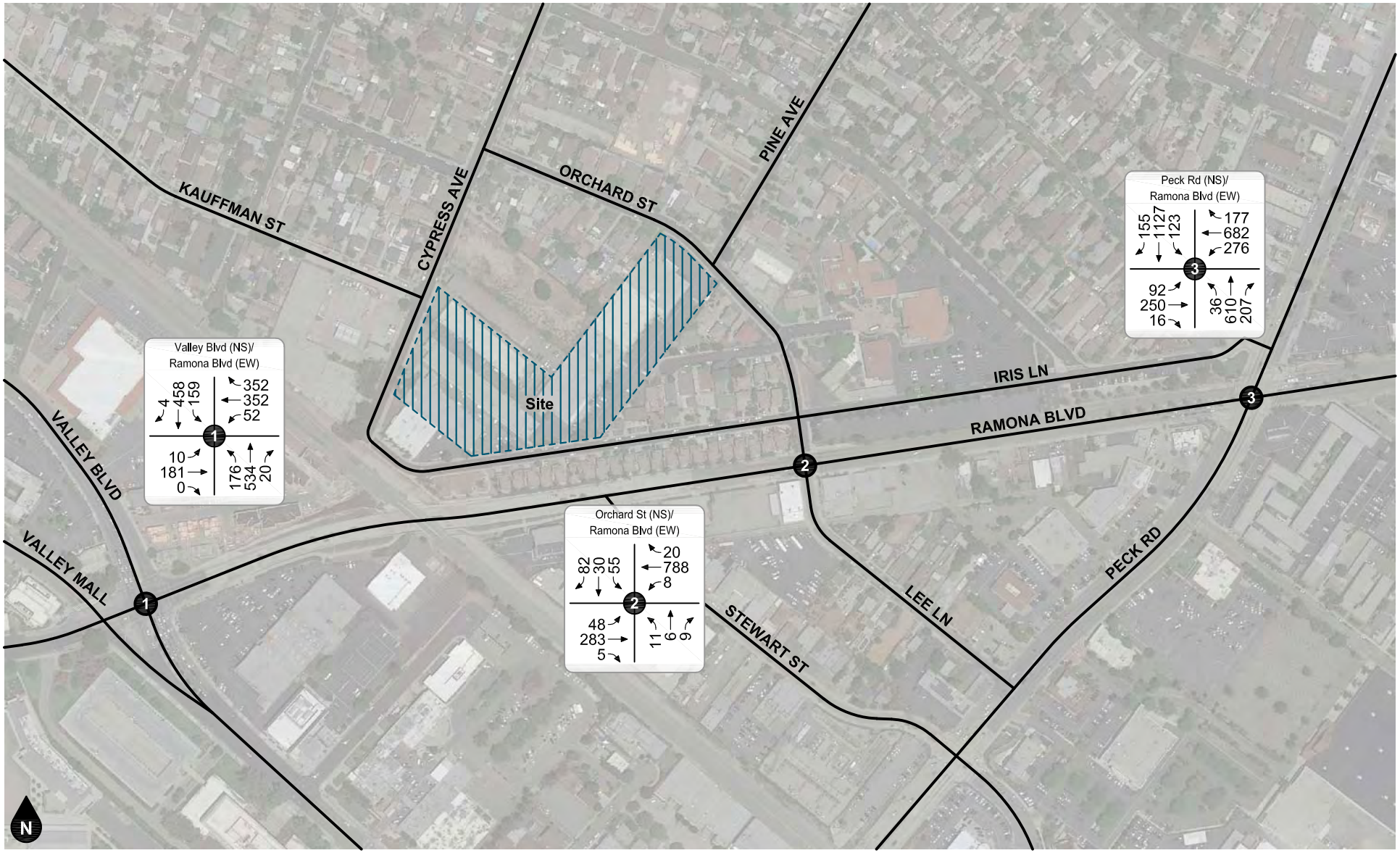
Figure 10
City of El Monte General Plan Roadway Cross-Sections

Source: City of El Monte



Figure 11
City of El Monte Bikeway plan

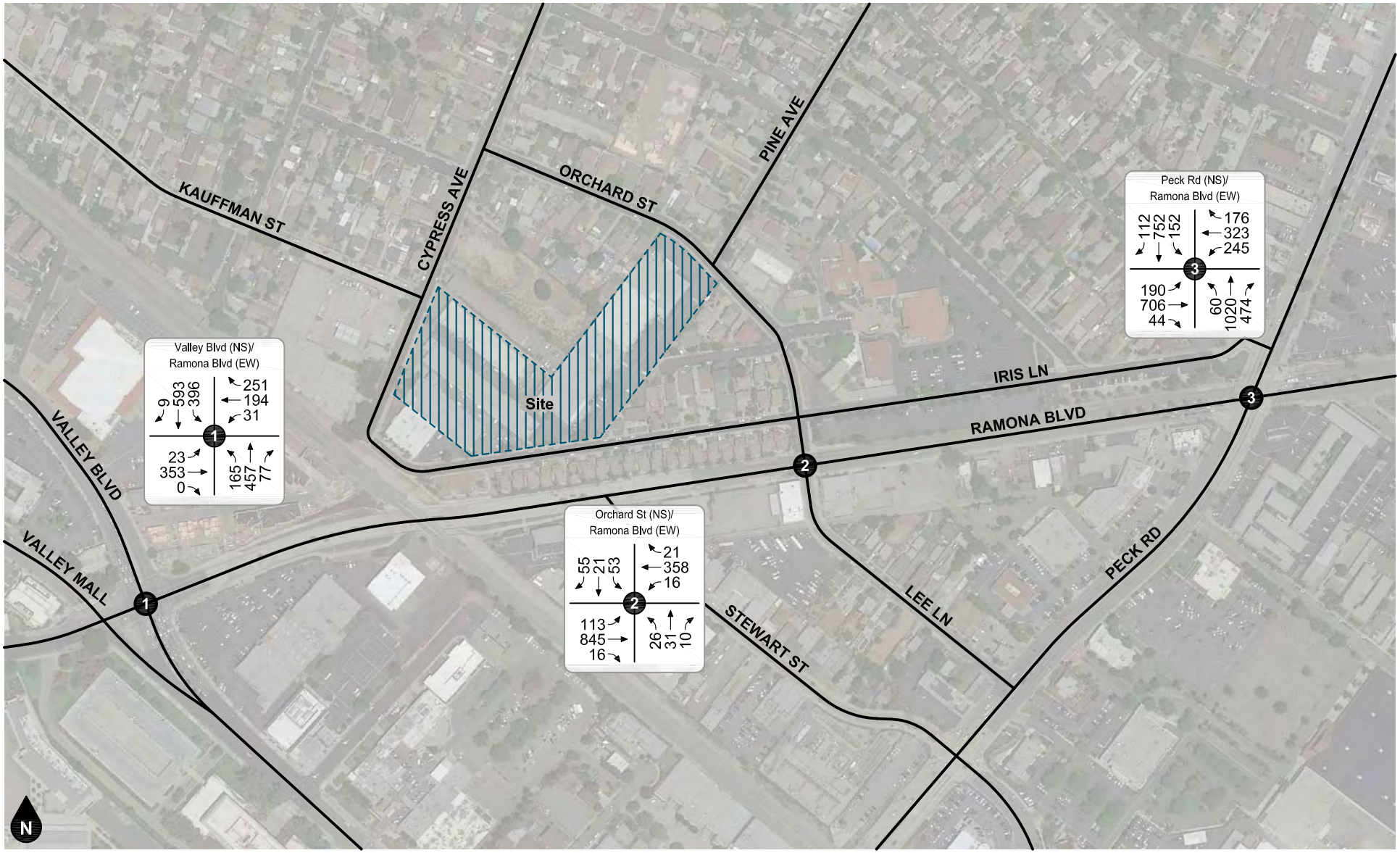
Source: City of El Monte



Legend

(#) Study Intersection

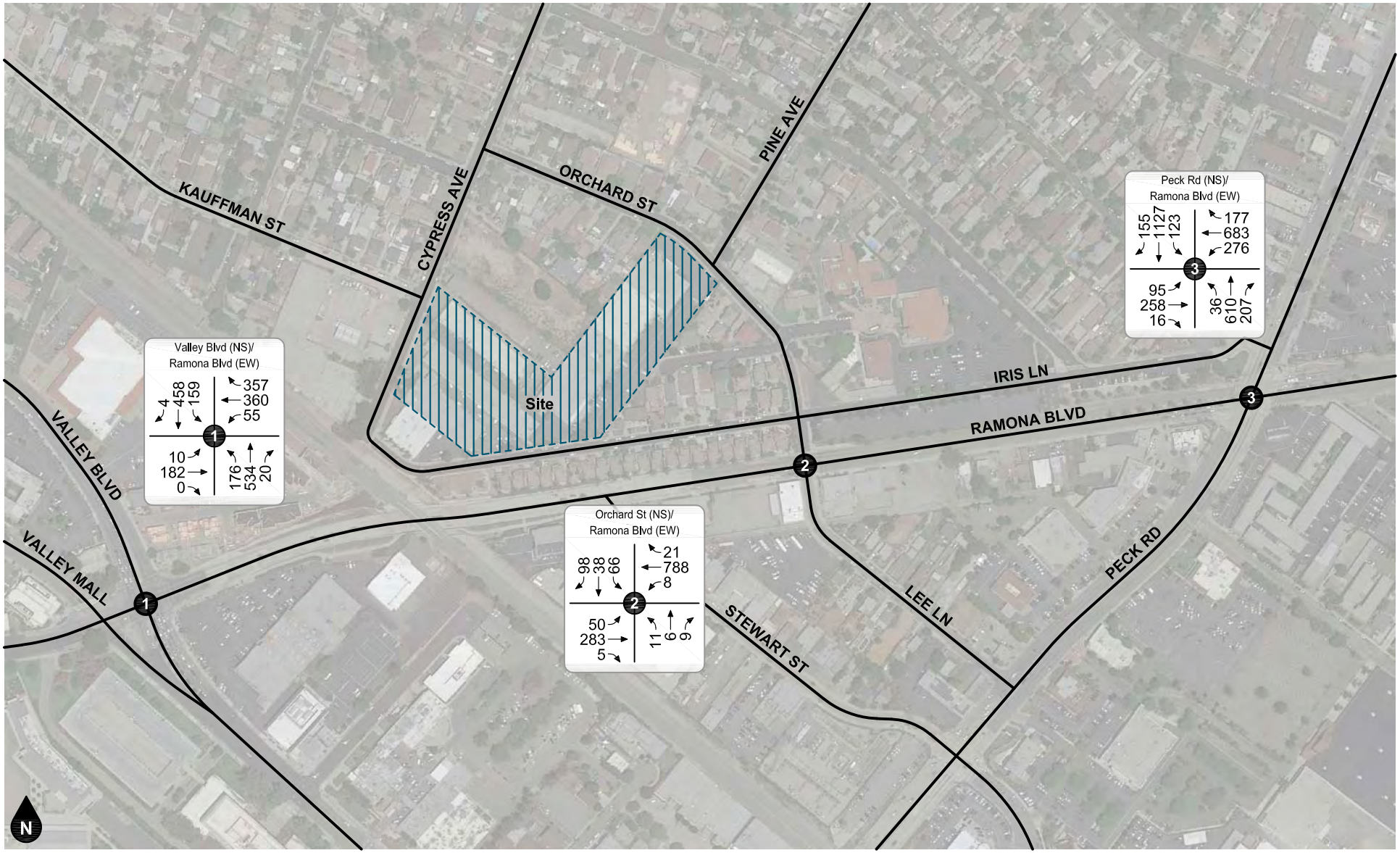
Figure 12
Existing AM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

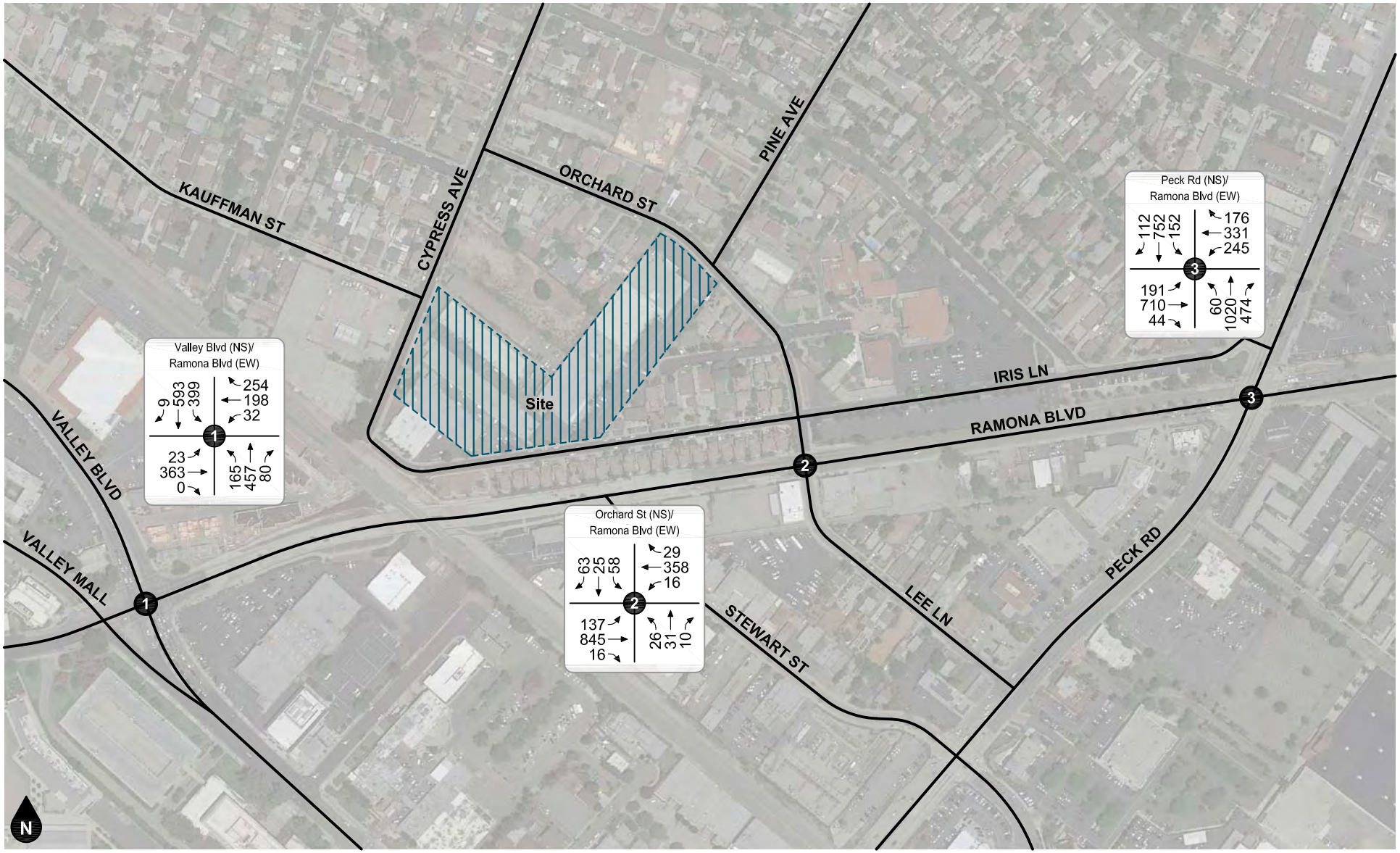
Figure 13
Existing PM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

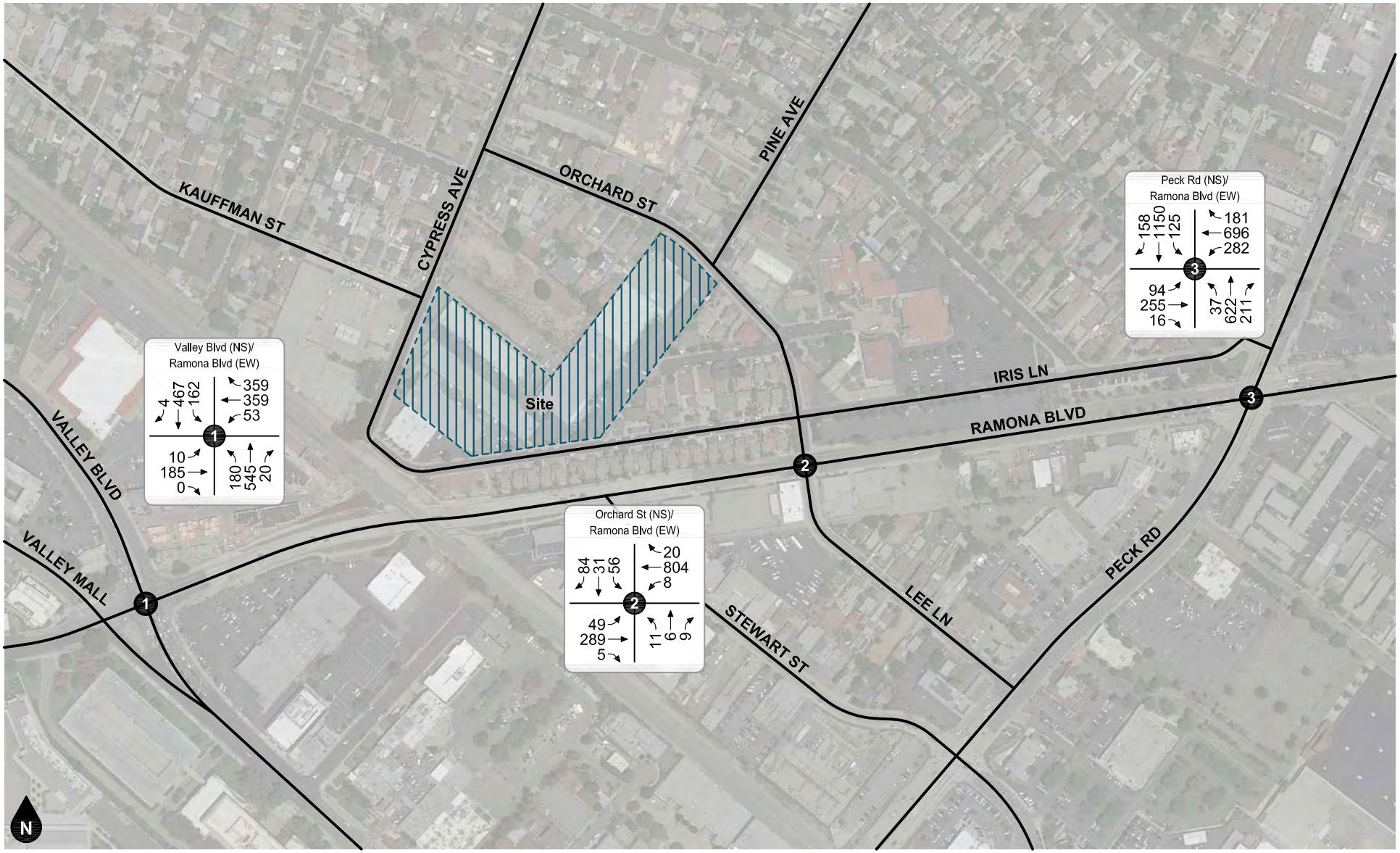
Figure 14
Existing Plus Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

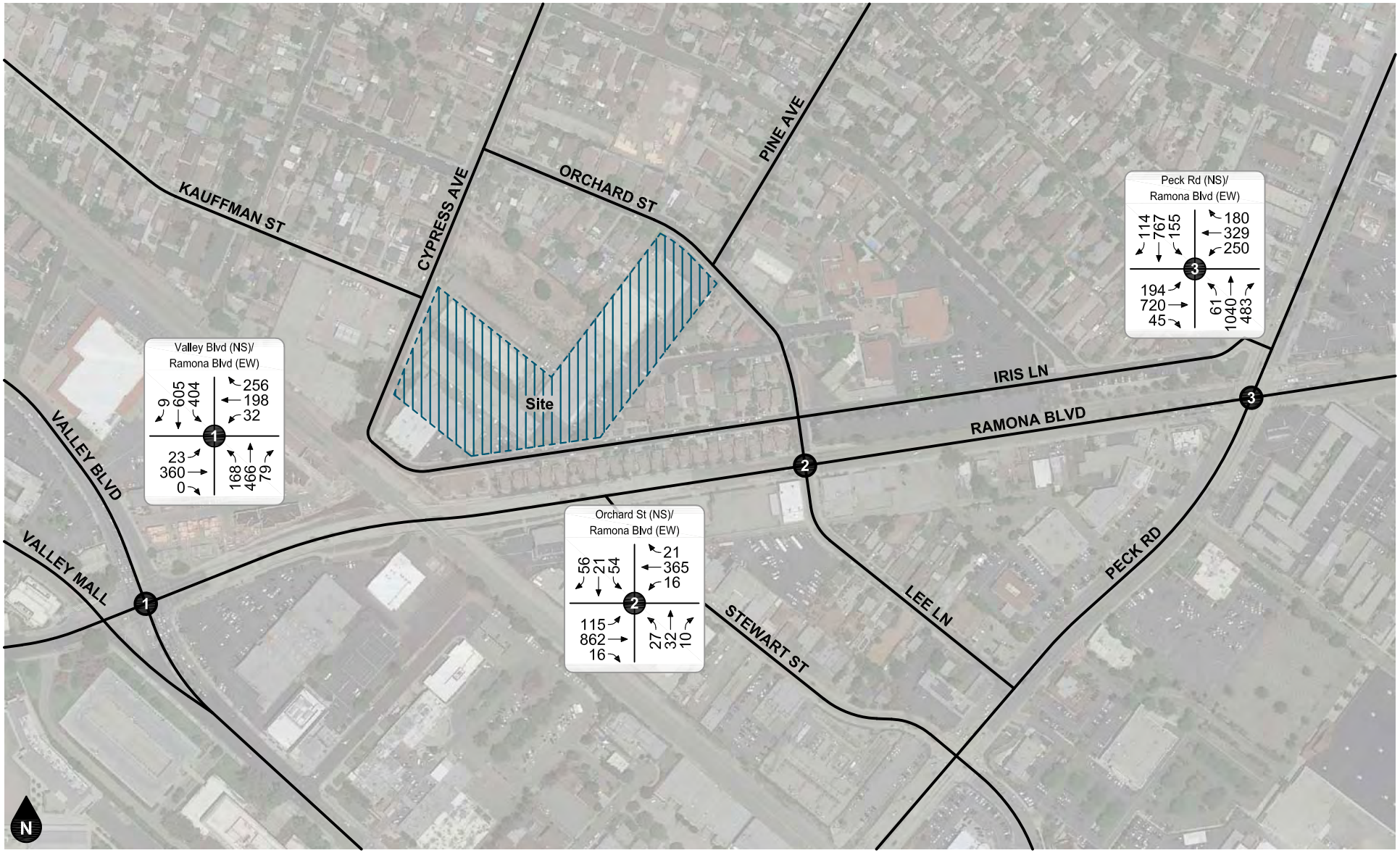
Figure 15
Existing Plus Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

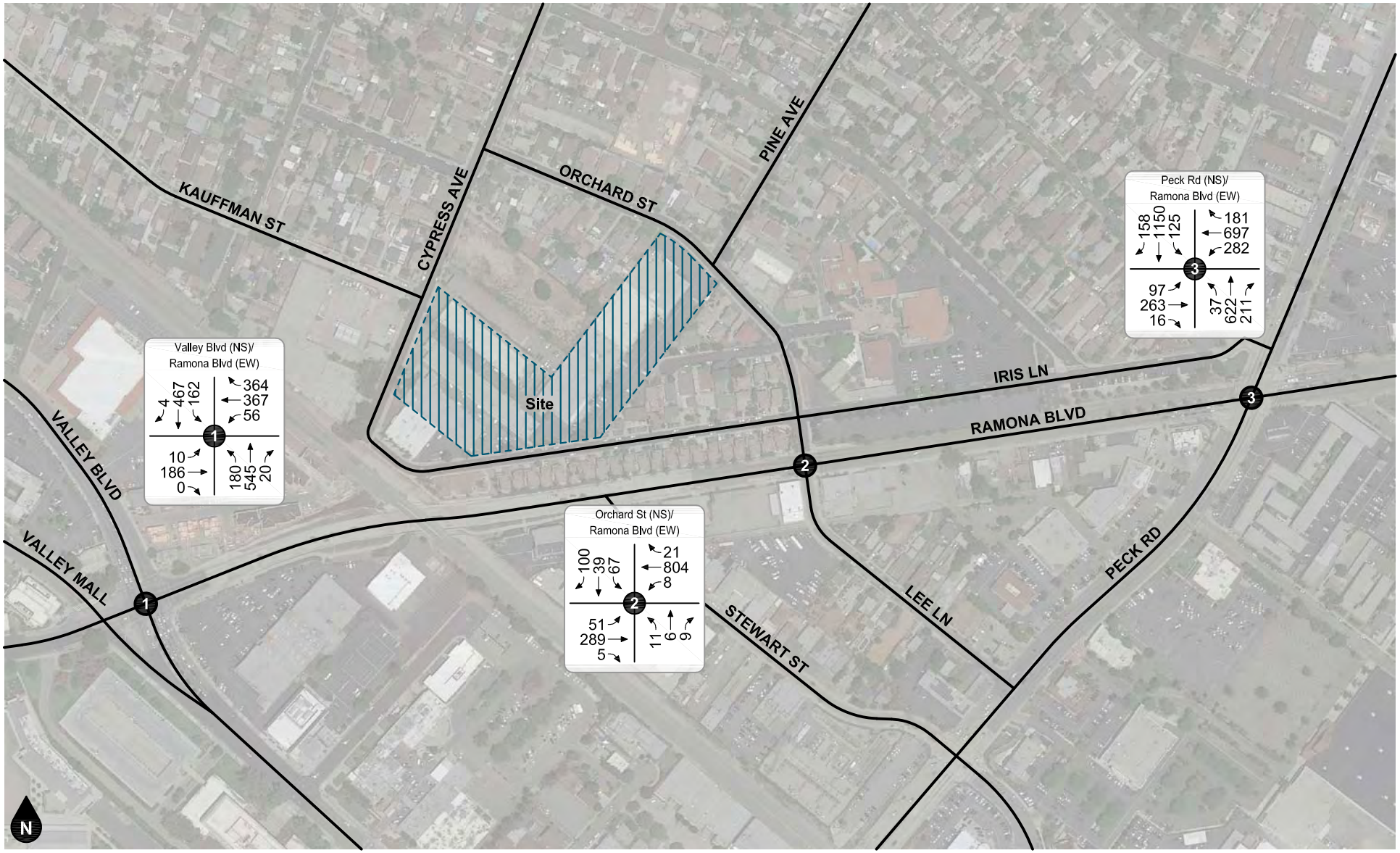
Figure 16
Opening Year (2021) Without Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

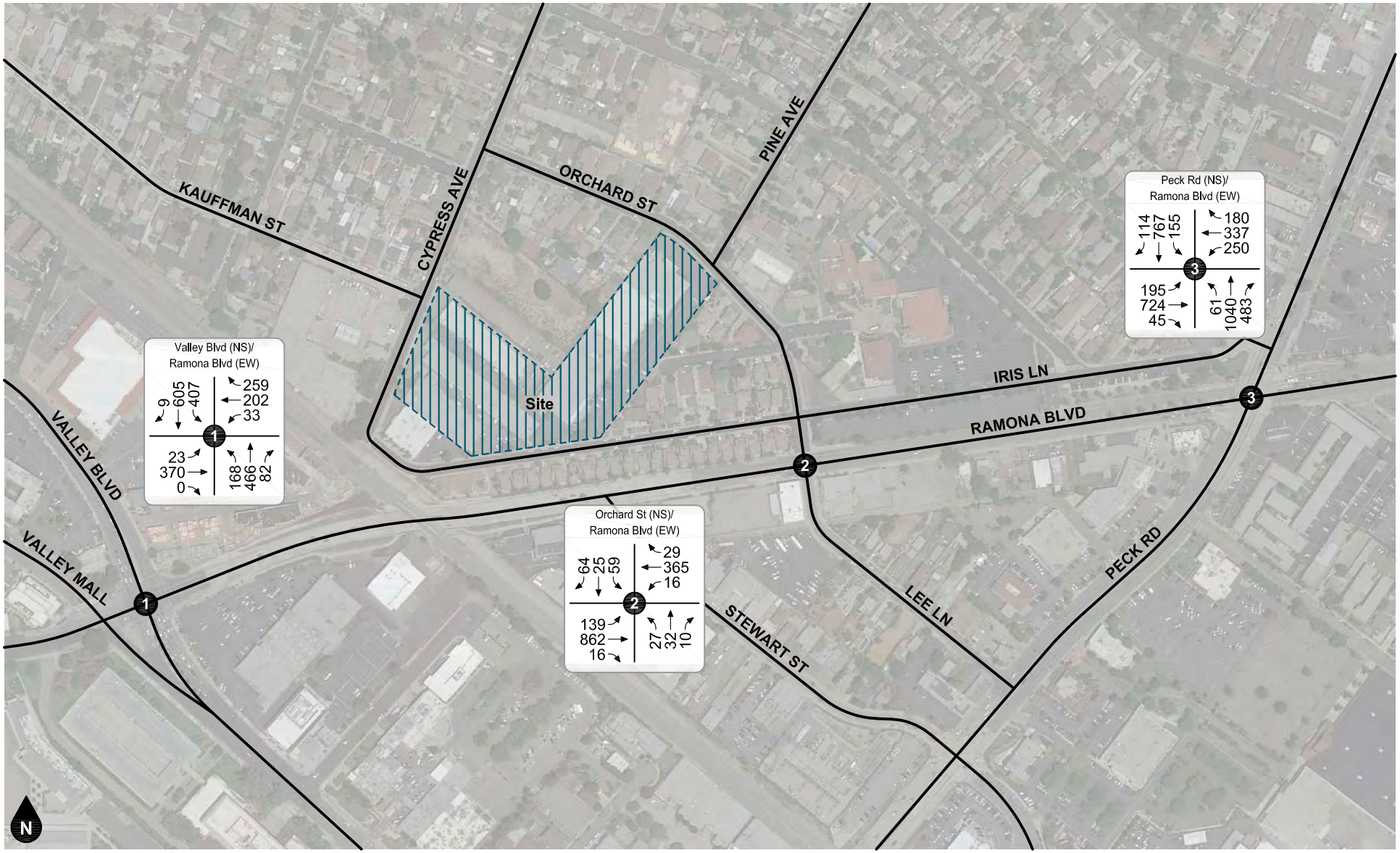
Figure 17
Opening Year (2021) Without Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

Figure 18
Opening Year (2021) With Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

Figure 19
Opening Year (2021) With Project
PM Peak Hour Intersection Turning Movement Volumes

APPENDIX A

GLOSSARY

GLOSSARY OF TERMS

ACRONYMS

AC	Acres
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
DU	Dwelling Unit
ICU	Intersection Capacity Utilization
LOS	Level of Service
TSF	Thousand Square Feet
V/C	Volume/Capacity
VMT	Vehicle Miles Traveled

TERMS

AVERAGE DAILY TRAFFIC: The average 24-hour volume for a stated period divided by the number of days in that period. For example, Annual Average Daily Traffic is the total volume during a year divided by 365 days.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A point of constriction along a roadway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CONTROL DELAY: The component of delay, typically expressed in seconds per vehicle, resulting from the type of traffic control at an intersection. Control delay is measured by comparison with the uncontrolled condition; it includes delay incurred by slowing down, stopping/waiting, and speeding up.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

CORNER SIGHT DISTANCE: The minimum sight distance required by the driver of a vehicle to cross or enter the lanes of the major roadway without requiring approaching traffic travelling at a given speed to radically alter their speed or trajectory. Corner sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 36 inches above the pavement in the center of the nearest approach lane.

CYCLE LENGTH: The time period in seconds required for a traffic signal to complete one full cycle of indications.

CUL-DE-SAC: A local street open at one end only and with special provisions for turning around.

DAILY CAPACITY: A theoretical value representing the daily traffic volume that will typically result in a peak hour volume equal to the capacity of the roadway.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

PASSENGER CAR EQUIVALENT (PCE): A metric used to assess the impact of larger vehicles, such as trucks, recreational vehicles, and buses, by converting the traffic volume of larger vehicles to an equivalent number of passenger cars.

PEAK HOUR: The 60 consecutive minutes with the highest number of vehicles.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

QUEUE: The number of vehicles waiting at a service area such as a traffic signal, stop sign, or access gate.

QUEUE LENGTH: The length of vehicle queue, typically expressed in feet, waiting at a service area such as a traffic signal, stop sign, or access gate.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

SHARED/RECIPROCAL PARKING AGREEMENT: A written binding document executed between property owners to provide a designated number of off-street parking stalls within a designated area to be available for specified businesses or land uses.

SIGHT DISTANCE: The continuous length of roadway visible to a driver or roadway user.

SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STACKING DISTANCE: The length of area available behind a service area, such as a traffic signal or gate, for vehicle queueing to occur.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through an intersection.

STOPPING SIGHT DISTANCE: The minimum distance required by the driver of a vehicle on the major roadway travelling at a given speed to bring the vehicle to a stop after an object on the road becomes visible. Stopping sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 6 inches above the pavement.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

TRIP-END: One end of a trip at either the origin or destination (i.e., each trip has two trip-ends). A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

TURNING RADIUS: The circular arc formed by the smallest turning path radius of the front outside tire of a vehicle, such as that performed by a U-turn maneuver. This is based on the length and width of the wheel base as well as the steering mechanism of the vehicle.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

APPENDIX B

TRANSIT MAPS AND SCHEDULES

FOOTHILL TRANSIT
BUS BOOK

SCHEDULE AND INFORMATION GUIDE

$1

EFFECTIVE FEBRUARY 10, 2019 ENGLISH / ESPAÑOL / 中文



THE ART ISSUE
LA EDICIÓN DE ARTE
艺术刊号

Foothill Transit
Going Good Places

E BUS BOOK
SCHEDULE AND INFORMATION GUIDE

Routes

190 Line 190

194 Line 194

270 Line 270

488 Line 488

Foothill Transit
GOING GOOD PLACES



Line 190
Línea
El Monte-West Covina-Pomona
Legend
Route 190
Timepoint - See schedule for time bus departs stop
Transfer Point, route number & direction of travel
M = MTA
O = Omnitrans
Transit Center
Park & Ride Lot
NORTH
© 10/17 FOOTHILL TRANSIT
El Monte
Baldwin Park
Covina
West Covina
Valinda
La Puente
Industry
Walnut
Pomona
Diamond Bar
Cal Poly
Mt San Antonio College
Eastland Center
Baldwin Park Park-Ride & Ride
El Monte Metrolink
El Monte Station
El Monte Transit Store
Norwalk Line 7
SEE PG. 50 FOR CONNECTING SERVICE
SEE PG. 49 FOR CONNECTING SERVICE
Glendora
Grand
Cypress
San Bernardino
Badillo
Citrus
Workman
Puente
Rowland
Azusa
Lark Ellen
Vincent
Ramona
Sunset
Orange
Pacific
Maine
Baldwin Park
Merced
Los Angeles
Frazier
Francisquito
Peck
Lower Azusa
Santa Anita
Rosemead
Ramona
Durfee
Valley
Garvey
Tyler
Rush
Weaver
Barranca
Covina Hills
Holt
Via Verde
Cameron
Hollenbeck
Cortez
Vine
Merced
Francisquito
W Covina Pkwy
Valinda
Azusa
Maplegrove
Amar
Temple
Valley
Workman Mill
Don Julian
Nelson
Puente
Turnbull Cyn
Gale
Hacienda
Stimson
Brea Canyon
La Puente
Lemon
Grand
Temple
Pomona
South Campus
Valley
10
57
60
605

Line-Línea

190

WEEKDAY
ENTRE SEMANA

WESTBOUND/EN DIRECCíON OESTE

POMONA TO EL MONTE
POMONA HACIA EL MONTE

Temple Ave. & Pomona Blvd. (A)	Eastland Center (Workman Ave. & Palmetto Ave.) (B)	Azusa Ave. & San Bernardino Rd. (C)	Ramona Blvd. & Francisquito Ave. (D)	El Monte Station (E)
.....	4:40	4:47	5:04	5:19
.....	5:10	5:19	5:37	5:52
.....	5:30	5:39	5:57	6:12
.....	5:50	5:59	6:19	6:36
5:50	6:07	6:16	6:36	6:53
.....	6:25	6:34	6:54	7:12
6:21	6:40	6:49	7:09	7:27
.....	6:55	7:02	7:23	7:42
.....	7:10	7:20	7:41	7:59
.....	7:25	7:33	7:54	8:14
7:17	7:40	7:50	8:11	8:29
.....	7:55	8:06	8:27	8:45
7:50	8:13	8:24	8:45	9:03
8:05	8:28	8:39	9:00	9:18
8:35	8:58	9:09	9:30	9:48
9:05	9:28	9:40	10:02	10:20
9:35	9:59	10:13	10:35	10:53
10:05	10:29	10:43	11:05	11:23
10:35	10:59	11:13	11:35	11:53
11:05	11:30	11:44	**12:06**	**12:24**
11:35	**12:00**	**12:14**	**12:36**	**12:54**
12:05	**12:30**	**12:44**	**1:06**	**1:24**
12:35	**1:00**	**1:14**	**1:36**	**1:54**
1:05	**1:30**	**1:44**	**2:06**	**2:24**
1:35	**2:00**	**2:14**	**2:36**	**2:54**
2:05	**2:28**	**2:42**	**3:04**	**3:22**
2:20	**2:43**	**2:57**	**3:19**	**3:37**
2:35	**3:00**	**3:14**	**3:36**	**3:54**
2:50	**3:15**	**3:29**	**3:51**	**4:09**
3:05	**3:30**	**3:44**	**4:06**	**4:24**
3:25	**3:50**	**4:04**	**4:26**	**4:44**
3:55	**4:20**	**4:34**	**4:56**	**5:14**
4:25	**4:50**	**5:04**	**5:26**	**5:44**
4:55	**5:20**	**5:34**	**5:56**	**6:14**
5:15	**5:40**	**5:52**	**6:14**	**6:31**
5:45	**6:10**	**6:22**	**6:44**	**7:01**
6:45	**7:07**	**7:18**	**7:36**	**7:52**
7:45	**8:07**	**8:18**	**8:36**	**8:52**
8:45	**9:05**	**9:14**	**9:30**	**9:44**
9:45	**10:04**	**10:13**	**10:29**	**10:43**
11:00	**11:16**	**11:24**	**11:38**	**11:50**
12:00	12:16	12:24	12:38	12:50

Line-Línea

190

WEEKDAY
ENTRE SEMANA

EASTBOUND/EN DIRECCíON ESTE

EL MONTE TO POMONA
EL MONTE HACIA POMONA

El Monte Station E	Ramona Blvd. & Francisquito Ave. D	Azusa Ave. & San Bernardino Rd. C	Eastland Center B	Temple Ave. & Valley Blvd. A
5:10	5:25	5:44	5:52	6:12
5:45	6:00	6:19	6:26	.....
6:10	6:27	6:47	6:56	7:18
6:30	6:47	7:07	7:14	.....
6:45	7:02	7:22	7:31	7:53
7:00	7:17	7:38	7:49	8:11
7:20	7:38	7:59	8:10	8:32
7:45	8:03	8:24	8:35	8:57
8:15	8:34	8:55	9:06	9:28
8:45	9:06	9:27	9:38	9:59
9:25	9:46	10:07	10:18	10:39
10:05	10:26	10:48	10:59	11:20
10:45	11:06	11:28	11:39	**12:00**
11:25	11:46	**12:08**	**12:19**	**12:40**
12:05	**12:25**	**12:51**	**1:02**	**1:23**
12:45	**1:05**	**1:31**	**1:42**	**2:03**
1:20	**1:40**	**2:06**	**2:17**	**2:38**
1:45	**2:05**	**2:31**	**2:42**	**3:03**
2:10	**2:30**	**2:56**	**3:07**	**3:28**
2:30	**2:50**	**3:16**	**3:27**	**3:48**
2:50	**3:11**	**3:37**	**3:48**	.....
3:10	**3:36**	**4:04**	**4:15**	**4:36**
3:30	**3:56**	**4:24**	**4:35**	.....
3:50	**4:16**	**4:44**	**4:55**	**5:16**
4:05	**4:31**	**4:59**	**5:10**	.....
4:20	**4:46**	**5:14**	**5:25**	**5:46**
4:35	**5:01**	**5:29**	**5:40**	**6:01**
4:50	**5:16**	**5:44**	**5:55**	.....
5:05	**5:30**	**5:55**	**6:06**	**6:26**
5:20	**5:45**	**6:10**	**6:21**	.....
5:35	**6:00**	**6:26**	**6:37**	**6:57**
5:50	**6:15**	**6:41**	**6:52**	**7:11**
6:05	**6:30**	**6:56**	**7:07**	.....
6:20	**6:45**	**7:11**	**7:22**	**7:41**
6:40	**7:05**	**7:31**	**7:42**	.....
7:20	**7:40**	**8:02**	**8:11**	**8:29**
8:00	**8:16**	**8:33**	**8:42**	**8:59**
9:05	**9:20**	**9:35**	**9:42**	**9:58**
10:10	**10:25**	**10:40**	**10:47**	**11:03**
11:10	**11:25**	**11:40**	**11:47**	.....
12:10	12:25	12:40	12:47	.....

LIGHT TYPE = AM
BOLD TYPE = PM

Line-Línea

190

WESTBOUND/EN DIRECCíON OESTE

POMONA TO EL MONTE
POMONA HACIA EL MONTE

SATURDAY
SÁBADO

Temple Ave. & Pomona Blvd.	Eastland Center (Workman Ave. & Palmetto Ave.)	Azusa Ave. & San Bernardino Rd.	Ramona Blvd. & Francisquito Ave.	El Monte Station
A	B	C	D	E
.....	5:55	6:03	6:21	6:36
.....	6:25	6:33	6:51	7:06
6:40	6:56	7:04	7:23	7:38
.....	7:31	7:39	7:58	8:13
7:40	7:57	8:06	8:26	8:41
8:10	8:27	8:37	8:57	9:12
8:45	9:02	9:12	9:33	9:48
.....	9:41	9:51	10:12	10:27
9:50	10:09	10:20	10:41	10:56
10:30	10:49	11:00	11:21	11:36
11:30	11:49	**12:00**	**12:21**	**12:36**
12:30	**12:49**	**1:00**	**1:21**	**1:36**
1:30	**1:49**	**2:00**	**2:21**	**2:36**
2:30	**2:49**	**3:00**	**3:21**	**3:36**
3:30	**3:49**	**4:00**	**4:21**	**4:36**
4:30	**4:49**	**5:00**	**5:21**	**5:36**
5:30	**5:49**	**5:59**	**6:19**	**6:34**
6:35	**6:54**	**7:04**	**7:22**	**7:37**
7:40	**7:57**	**8:05**	**8:21**	**8:34**
8:50	**9:06**	**9:14**	**9:30**	**9:43**
10:00	**10:15**	**10:22**	**10:36**	**10:47**
11:05	**11:20**	**11:27**	**11:41**	**11:52**

SUNDAY/HOLIDAY
DOMINGO Y DÍA FESTIVO

A	B	C	D	E
.....	6:09	6:17	6:32	6:47
6:55	7:10	7:18	7:35	7:50
7:45	7:59	8:07	8:25	8:40
8:45	9:00	9:09	9:27	9:42
9:40	9:55	10:04	10:22	10:37
10:35	10:54	11:05	11:24	11:39
11:35	11:54	**12:05**	**12:24**	**12:39**
12:35	**12:54**	**1:05**	**1:24**	**1:39**
1:35	**1:54**	**2:05**	**2:24**	**2:39**
2:35	**2:54**	**3:05**	**3:24**	**3:39**
3:35	**3:54**	**4:05**	**4:24**	**4:39**
4:35	**4:54**	**5:05**	**5:24**	**5:39**
5:35	**5:54**	**6:03**	**6:21**	**6:36**
6:45	**7:01**	**7:09**	**7:26**	**7:41**
7:45	**8:00**	**8:08**	**8:23**	**8:36**
8:50	**9:05**	**9:12**	**9:25**	**9:36**
10:05	**10:19**	**10:26**	**10:39**	**10:50**
11:05	**11:20**	**11:27**	**11:40**	**11:51**

Line-Línea

190

EASTBOUND/EN DIRECCíON ESTE

EL MONTE TO POMONA
EL MONTE HACIA POMONA

SATURDAY / SÁBADO

El Monte Station (E)	Ramona Blvd. & Francisquito Ave. (D)	Azusa Ave. & San Bernardino Rd. (C)	Eastland Center (B)	Temple Ave. & Valley Blvd. (A)
5:29	5:42	5:59	6:07	6:25
6:20	6:35	6:52	7:00	7:18
7:10	7:25	7:44	7:52	8:10
8:10	8:26	8:47	8:56	9:15
9:10	9:28	9:49	9:58	10:17
10:10	10:28	10:49	10:58	11:17
11:10	11:28	11:49	11:58	**12:17**
12:10	**12:28**	**12:49**	**12:58**	**1:17**
1:10	**1:28**	**1:49**	**1:58**	**2:17**
2:05	**2:23**	**2:44**	**2:53**	**3:12**
2:55	**3:13**	**3:34**	**3:43**	**4:02**
3:30	**3:48**	**4:09**	**4:19**	**4:38**
4:05	**4:23**	**4:45**	**4:55**	**5:13**
4:40	**4:58**	**5:20**	**5:30**	.....
5:15	**5:33**	**5:55**	**6:05**	**6:24**
5:55	**6:12**	**6:33**	**6:42**	**7:00**
6:40	**6:57**	**7:16**	**7:25**	**7:43**
7:25	**7:41**	**8:00**	**8:09**	**8:27**
8:10	**8:26**	**8:42**	**8:51**	**9:07**
9:05	**9:20**	**9:35**	**9:42**	**9:57**
10:10	**10:25**	**10:40**	**10:47**	**11:02**
11:10	**11:25**	**11:40**	**11:47**	.....
12:10	12:25	12:40	12:47	.....

SUNDAY/HOLIDAY / DOMINGO Y DÍA FESTIVO

E	D	C	B	A
6:15	6:28	6:45	6:52	7:10
7:20	7:34	7:51	7:58	8:16
8:20	8:34	8:51	8:59	9:17
9:20	9:35	9:54	10:03	10:22
10:20	10:38	10:59	11:09	11:28
11:20	11:38	11:59	**12:09**	**12:28**
12:20	**12:38**	**12:59**	**1:09**	**1:28**
1:20	**1:38**	**1:59**	**2:09**	**2:28**
2:20	**2:38**	**2:59**	**3:08**	**3:26**
3:20	**3:38**	**3:59**	**4:08**	**4:26**
4:20	**4:38**	**4:59**	**5:08**	**5:26**
5:00	**5:18**	**5:39**	**5:48**	**6:06**
5:40	**5:58**	**6:19**	**6:28**	**6:44**
6:30	**6:48**	**7:07**	**7:15**	**7:33**
7:20	**7:36**	**7:53**	**8:01**	**8:16**
8:20	**8:33**	**8:47**	**8:54**	**9:08**
9:05	**9:18**	**9:32**	**9:39**	**9:54**
10:10	**10:23**	**10:37**	**10:44**	**10:59**
11:10	**11:23**	**11:37**	**11:44**	.....
12:10	12:23	12:37	12:44	.....

LIGHT TYPE = AM
BOLD TYPE = PM

Line 194
Línea
El Monte-Industry-
La Puente-Pomona
Legend
Route 194
Timepoint - See schedule for time bus departs stop
Transfer Point, route number & direction of travel
M = MTA
O = Omnitrans
NORTH
SEE PG. 50 FOR CONNECTING SERVICE
El Monte Station
El Monte Transit Store
El Monte Metrolink
Metrolink Station
Baldwin Park-Park & Ride
Cal Poly South Campus
Mt San Antonio College
Pomona
Diamond Bar
Walnut
La Puente
Industry
West Covina
Valinda
Baldwin Park
El Monte
SEE INSET
© 4/18 FOOTHILL TRANSIT

Line-Línea

194

WEEKDAY
ENTRE SEMANA

WESTBOUND/EN DIRECCíON OESTE

POMONA TO EL MONTE
POMONA HACIA EL MONTE

Temple Ave. & Pomona Blvd. Ⓐ	Valley Blvd. & Lemon Ave. Ⓑ	Old Valley Blvd. & Stimson Ave. Ⓒ	Valley Blvd. & Garvey Ave. Ⓓ	El Monte Station Ⓔ
4:15	4:28	4:42	4:58	5:08
4:45	4:58	5:12	5:28	5:38
5:15	5:28	5:42	5:58	6:08
5:35	5:51	6:07	6:28	6:39
5:55	6:11	6:27	6:48	6:59
.....	6:27	6:43	7:07	7:22
6:25	6:39	6:55	7:19	7:34
.....	6:47	7:08	7:32	7:47
6:45	7:00	7:21	7:45	8:00
.....	7:13	7:34	7:58	8:13
7:10	7:25	7:46	8:10	8:25
.....	7:40	8:02	8:26	8:41
7:35	7:50	8:11	8:35	8:50
.....	8:16	8:38	9:02	9:17
8:25	8:45	9:07	9:31	9:46
9:05	9:25	9:47	10:11	10:26
9:45	10:05	10:27	10:51	11:06
10:25	10:46	11:08	11:32	11:47
11:05	11:26	11:48	**12:12**	**12:27**
11:45	**12:06**	**12:28**	**12:52**	**1:07**
12:25	**12:46**	**1:08**	**1:32**	**1:47**
12:55	**1:16**	**1:38**	**2:02**	**2:17**
1:20	**1:41**	**2:03**	**2:27**	**2:42**
1:40	**2:01**	**2:20**	**2:46**	**3:01**
1:55	**2:16**	**2:35**	**3:01**	**3:16**
2:15	**2:36**	**2:55**	**3:21**	**3:36**
2:50	**3:11**	**3:30**	**3:56**	**4:11**
3:15	**3:36**	**3:55**	**4:21**	**4:36**
3:35	**3:56**	**4:15**	**4:41**	**4:56**
3:50	**4:12**	**4:31**	**4:57**	**5:12**
4:00	**4:24**	**4:43**	**5:09**	**5:24**
4:15	**4:39**	**4:58**	**5:24**	**5:39**
.....	**4:54**	**5:13**	**5:39**	**5:54**
4:55	**5:19**	**5:38**	**6:04**	**6:19**
.....	**5:34**	**5:51**	**6:16**	**6:31**
5:35	**5:59**	**6:16**	**6:41**	**6:56**
6:00	**6:21**	**6:38**	**7:04**	**7:18**
6:20	**6:41**	**6:58**	**7:24**	**7:38**
7:00	**7:21**	**7:38**	**8:04**	**8:18**
7:40	**7:59**	**8:15**	**8:37**	**8:51**
8:50	**9:07**	**9:20**	**9:36**	**9:45**
10:00	**10:17**	**10:30**	**10:46**	**10:55**
11:05	**11:21**	**11:34**	**11:50**	**11:59**
12:05	12:21	12:34	12:50	12:59
1:05	1:21	1:34	1:50	1:59

LIGHT TYPE = AM
BOLD TYPE = PM

Line-Línea

194

WEEKDAY
ENTRE SEMANA

EASTBOUND/EN DIRECCíON ESTE

EL MONTE TO POMONA
EL MONTE HACIA POMONA

El Monte Station (E)	Valley Blvd. & Garvey Ave. (D)	Old Valley Blvd. & Stimson Ave. (C)	Valley Blvd. & Lemon Ave. (B)	Temple Ave. & Valley Blvd. (A)
4:25	4:34	4:52	5:05	5:20
4:50	4:59	5:17	5:30	5:45
5:20	5:30	5:51	6:05	.....
5:35	5:45	6:06	6:20	6:37
5:50	6:00	6:21	6:35	.....
6:02	6:14	6:35	6:51	7:10
6:14	6:26	6:47	7:03	.....
6:25	6:37	6:58	7:14	7:33
6:40	6:52	7:16	7:34	.....
6:55	7:07	7:31	7:49	8:08
7:10	7:22	7:46	8:04	.....
7:25	7:37	8:01	8:19	8:38
7:40	7:52	8:16	8:34	.....
7:55	8:07	8:31	8:49	9:08
8:10	8:22	8:46	9:04	.....
8:30	8:42	9:06	9:24	9:43
9:05	9:18	9:46	10:04	10:23
9:45	9:58	10:26	10:44	11:03
10:25	10:38	11:06	11:24	11:43
11:05	11:18	11:46	**12:04**	**12:23**
11:45	11:58	**12:26**	**12:44**	**1:03**
12:25	**12:38**	**1:06**	**1:24**	**1:43**
1:05	**1:18**	**1:46**	**2:04**	**2:23**
1:30	**1:43**	**2:11**	**2:29**	**2:48**
1:55	**2:08**	**2:36**	**2:54**	**3:13**
2:20	**2:33**	**3:01**	**3:19**	**3:38**
2:40	**2:54**	**3:22**	**3:40**	**3:59**
3:00	**3:14**	**3:42**	**4:00**	**4:19**
3:20	**3:34**	**4:02**	**4:20**	**4:39**
3:40	**3:54**	**4:22**	**4:40**	.....
4:05	**4:19**	**4:47**	**5:05**	**5:24**
4:25	**4:39**	**5:07**	**5:25**	.....
4:40	**4:54**	**5:22**	**5:40**	**5:59**
4:55	**5:09**	**5:37**	**5:55**	.....
5:10	**5:24**	**5:52**	**6:10**	.....
5:25	**5:39**	**6:07**	**6:25**	**6:44**
5:40	**5:54**	**6:22**	**6:40**	.....
6:05	**6:19**	**6:47**	**7:05**	**7:24**
6:30	**6:43**	**7:08**	**7:26**	**7:45**
7:00	**7:12**	**7:32**	**7:48**	.....
7:40	**7:52**	**8:12**	**8:28**	**8:47**
8:20	**8:31**	**8:48**	**9:02**	.....
9:00	**9:11**	**9:28**	**9:42**	**9:58**
10:10	**10:19**	**10:34**	**10:46**	**10:56**
11:10	**11:19**	**11:34**	**11:46**	**11:56**
12:10	12:19	12:34	12:46	12:56
1:10	1:19	1:34	1:46	1:56

Line-Línea

194

SATURDAY
SÁBADO

WESTBOUND/EN DIRECCíON OESTE

POMONA TO EL MONTE
POMONA HACIA EL MONTE

Temple Ave. & Pomona Blvd. (A)	Valley Blvd. & Lemon Ave. (B)	Old Valley Blvd. & Stimson Ave. (C)	Valley Blvd. & Garvey Ave. (D)	El Monte Station (E)
5:05	5:16	5:31	5:46	6:01
5:55	6:09	6:25	6:42	6:57
6:25	6:37	6:53	7:10	7:25
.....	7:06	7:22	7:39	7:54
7:10	7:25	7:41	7:58	8:13
.....	7:43	7:59	8:17	8:32
7:45	8:00	8:16	8:34	8:49
.....	8:20	8:36	8:54	9:09
8:25	8:40	8:56	9:14	9:29
.....	9:01	9:17	9:36	9:51
9:05	9:20	9:36	9:55	10:10
.....	9:41	9:57	10:16	10:31
9:45	10:00	10:16	10:35	10:50
.....	10:21	10:37	10:56	11:11
10:25	10:40	10:56	11:15	11:30
.....	11:00	11:17	11:36	11:51
11:05	11:21	11:38	11:57	**12:12**
.....	11:40	11:57	**12:16**	**12:31**
11:45	**12:00**	**12:18**	**12:37**	**12:52**
.....	**12:16**	**12:33**	**12:52**	**1:07**
12:25	**12:41**	**12:58**	**1:17**	**1:32**
.....	**1:00**	**1:17**	**1:36**	**1:51**
1:05	**1:21**	**1:38**	**1:57**	**2:12**
.....	**1:40**	**1:57**	**2:16**	**2:31**
1:45	**2:01**	**2:18**	**2:37**	**2:52**
.....	**2:23**	**2:40**	**2:59**	**3:14**
2:25	**2:41**	**2:58**	**3:17**	**3:32**
.....	**3:04**	**3:20**	**3:38**	**3:53**
3:00	**3:16**	**3:32**	**3:50**	**4:05**
3:20	**3:33**	**3:49**	**4:07**	**4:22**
.....	**3:48**	**4:04**	**4:22**	**4:37**
3:50	**4:06**	**4:22**	**4:40**	**4:55**
4:10	**4:26**	**4:42**	**5:00**	**5:15**
.....	**4:46**	**5:02**	**5:19**	**5:34**
4:50	**5:06**	**5:22**	**5:39**	**5:54**
5:15	**5:31**	**5:46**	**6:03**	**6:18**
.....	**6:20**	**6:34**	**6:50**	**7:05**
6:55	**7:11**	**7:25**	**7:41**	**7:56**
7:55	**8:09**	**8:22**	**8:36**	**8:51**
8:55	**9:08**	**9:21**	**9:33**	**9:45**
10:00	**10:13**	**10:26**	**10:38**	**10:50**
11:05	**11:18**	**11:31**	**11:43**	**11:55**
12:05	12:18	12:31	12:43	12:55
1:05	1:18	1:31	1:43	1:55

LIGHT TYPE = AM
BOLD TYPE = PM

Line-Línea

194

SATURDAY
SÁBADO

EASTBOUND/EN DIRECCíON ESTE

EL MONTE TO POMONA
EL MONTE HACIA POMONA

El Monte Station E	Valley Blvd. & Garvey Ave. D	Old Valley Blvd. & Stimson Ave. C	Valley Blvd. & Lemon Ave. B	Temple Ave. & Valley Blvd. A
4:50	5:00	5:18	5:33	5:45
5:45	5:55	6:13	6:28	6:41
6:25	6:35	6:54	7:09	7:23
6:55	7:05	7:24	7:39	7:53
7:20	7:30	7:49	8:04	.....
7:40	7:50	8:09	8:24	8:38
8:00	8:10	8:29	8:44	.....
8:20	8:30	8:49	9:04	9:18
8:40	8:50	9:10	9:25	.....
9:00	9:10	9:31	9:46	10:00
9:20	9:30	9:51	10:06	.....
9:40	9:50	10:12	10:28	10:42
10:00	10:10	10:32	10:48	.....
10:20	10:30	10:52	11:08	11:23
10:40	10:50	11:12	11:28	.....
11:00	11:10	11:33	11:49	**12:04**
11:20	11:30	11:53	**12:09**	.....
11:40	11:50	**12:13**	**12:29**	**12:44**
12:00	**12:10**	**12:34**	**12:50**	.....
12:20	**12:30**	**12:53**	**1:09**	**1:24**
12:40	**12:50**	**1:13**	**1:29**	.....
1:00	**1:10**	**1:33**	**1:49**	**2:04**
1:25	**1:35**	**1:58**	**2:14**	.....
1:45	**1:55**	**2:18**	**2:34**	**2:50**
2:05	**2:15**	**2:38**	**2:54**	.....
2:25	**2:35**	**2:58**	**3:14**	**3:30**
2:45	**2:55**	**3:18**	**3:34**	.....
3:05	**3:15**	**3:38**	**3:54**	**4:10**
3:25	**3:35**	**3:58**	**4:14**	.....
3:45	**3:55**	**4:18**	**4:34**	**4:47**
4:05	**4:15**	**4:38**	**4:54**	**5:10**
4:25	**4:35**	**4:58**	**5:14**	**5:30**
4:45	**4:55**	**5:18**	**5:34**	.....
5:05	**5:15**	**5:38**	**5:54**	**6:06**
5:25	**5:35**	**5:58**	**6:13**	.....
5:45	**5:55**	**6:17**	**6:33**	**6:48**
6:05	**6:15**	**6:36**	**6:52**	**7:04**
6:25	**6:35**	**6:56**	**7:11**	**7:25**
7:00	**7:10**	**7:29**	**7:44**	**7:56**
7:45	**7:55**	**8:13**	**8:26**	**8:39**
8:30	**8:40**	**8:57**	**9:09**	**9:18**
9:05	**9:15**	**9:28**	**9:40**	**9:52**
10:10	**10:20**	**10:33**	**10:45**	**10:57**
11:10	**11:20**	**11:33**	**11:45**	**11:57**
12:10	12:20	12:33	12:45	12:57
1:10	1:20	1:33	1:45	1:54

Line-Línea

194

SUNDAY/HOLIDAY
DOMINGO Y DÍA FESTIVO

WESTBOUND/EN DIRECCíON OESTE

POMONA TO EL MONTE
POMONA HACIA EL MONTE

Temple Ave. & Pomona Blvd. Ⓐ	Valley Blvd. & Lemon Ave. Ⓑ	Old Valley Blvd. & Stimson Ave. Ⓒ	Valley Blvd. & Garvey Ave. Ⓓ	El Monte Station Ⓔ
.....	4:45	4:58	5:13	5:23
5:15	5:27	5:40	5:55	6:05
6:20	6:32	6:45	7:00	7:11
7:20	7:34	7:49	8:04	8:16
8:00	8:14	8:29	8:44	8:56
8:20	8:34	8:49	9:04	9:17
9:00	9:14	9:29	9:44	9:57
9:20	9:35	9:50	10:05	10:19
10:00	10:15	10:30	10:45	10:59
10:20	10:35	10:50	11:05	11:19
11:00	11:16	11:31	11:46	11:59
11:20	11:36	11:51	**12:06**	**12:20**
12:00	**12:17**	**12:32**	**12:47**	**1:01**
12:20	**12:36**	**12:51**	**1:06**	**1:20**
1:00	**1:16**	**1:31**	**1:46**	**2:00**
1:20	**1:36**	**1:51**	**2:06**	**2:20**
2:00	**2:16**	**2:31**	**2:46**	**3:00**
2:20	**2:36**	**2:51**	**3:06**	**3:20**
3:00	**3:16**	**3:31**	**3:46**	**4:00**
3:20	**3:36**	**3:51**	**4:06**	**4:20**
4:00	**4:16**	**4:31**	**4:46**	**5:00**
4:20	**4:36**	**4:51**	**5:06**	**5:20**
5:00	**5:16**	**5:31**	**5:45**	**5:59**
5:20	**5:36**	**5:50**	**6:04**	**6:18**
6:00	**6:16**	**6:30**	**6:44**	**6:58**
6:25	**6:40**	**6:54**	**7:08**	**7:21**
7:10	**7:24**	**7:37**	**7:51**	**8:04**
8:00	**8:14**	**8:27**	**8:41**	**8:54**
8:55	**9:08**	**9:21**	**9:33**	**9:45**
10:00	**10:13**	**10:26**	**10:38**	**10:50**
11:05	**11:18**	**11:31**	**11:40**	**11:50**
12:05	12:18	12:31	12:43	12:55
1:05	1:18	1:31	1:43	1:55

LIGHT TYPE = AM
BOLD TYPE = PM

Line-Línea

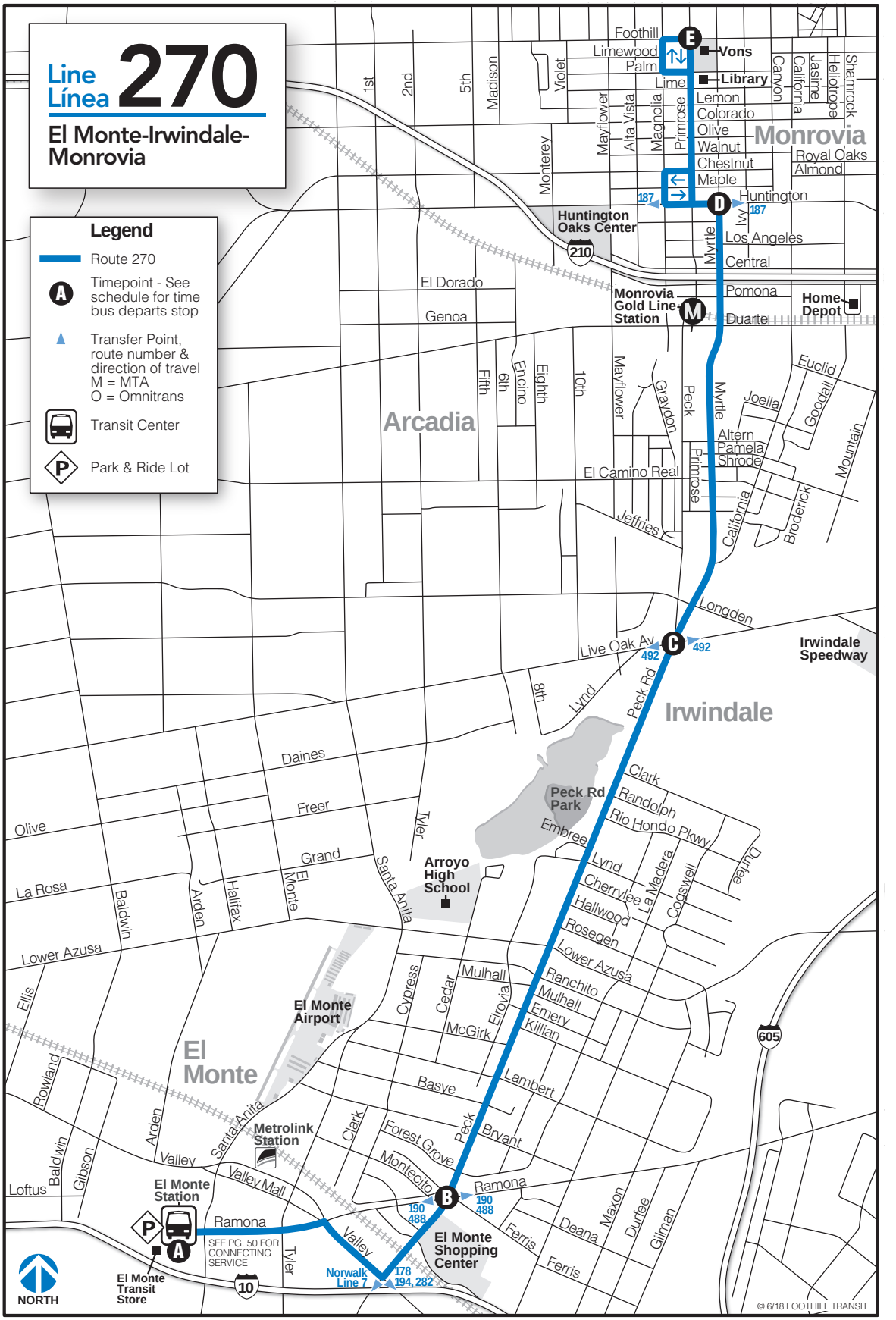
194

SUNDAY/HOLIDAY
DOMINGO Y DÍA FESTIVO

EASTBOUND/EN DIRECCíON ESTE

EL MONTE TO POMONA
EL MONTE HACIA POMONA

El Monte Station E	Valley Blvd. & Garvey Ave. D	Old Valley Blvd. & Stimson Ave. C	Valley Blvd. & Lemon Ave. B	Temple Ave. & Valley Blvd. A
5:40	5:50	6:04	6:16	6:28
6:40	6:50	7:06	7:19	7:32
7:05	7:15	7:32	7:45	7:58
7:40	7:50	8:07	8:20	8:33
8:00	8:10	8:27	8:40	8:53
8:40	8:50	9:07	9:21	9:34
9:00	9:10	9:28	9:42	9:55
9:40	9:50	10:08	10:22	10:35
10:00	10:10	10:29	10:43	10:56
10:40	10:50	11:09	11:23	11:36
11:00	11:10	11:31	11:45	11:58
11:40	11:50	**12:11**	**12:25**	**12:38**
12:00	**12:10**	**12:32**	**12:46**	**12:59**
12:40	**12:50**	**1:11**	**1:26**	**1:40**
1:00	**1:10**	**1:31**	**1:46**	**2:00**
1:40	**1:50**	**2:11**	**2:26**	**2:40**
2:00	**2:10**	**2:31**	**2:45**	**2:59**
2:40	**2:50**	**3:11**	**3:25**	**3:39**
3:00	**3:10**	**3:31**	**3:45**	**3:59**
3:40	**3:50**	**4:11**	**4:26**	**4:40**
4:00	**4:10**	**4:31**	**4:46**	**5:00**
4:40	**4:50**	**5:11**	**5:26**	**5:40**
5:20	**5:30**	**5:51**	**6:06**	**6:19**
6:05	**6:15**	**6:34**	**6:48**	**7:01**
6:55	**7:05**	**7:23**	**7:36**	**7:49**
7:55	**8:05**	**8:21**	**8:33**	**8:45**
9:00	**9:10**	**9:23**	**9:35**	**9:47**
10:10	**10:20**	**10:33**	**10:45**	**10:57**
11:10	**11:20**	**11:33**	**11:45**	**11:57**
12:10	12:20	12:33	12:45	12:57
1:10	1:20	1:33	1:45	1:54


Line 270
Línea 270
El Monte-Irwindale-Monrovia
Legend
Route 270
Timepoint - See schedule for time bus departs stop
Transfer Point, route number & direction of travel
M = MTA
O = Omnitrans
Transit Center
Park & Ride Lot
Foothill
Limewood
Palm
Lime
Primrose
Magnolia
Alta Vista
Mayflower
Monterey
Madison
1st
2nd
5th
Violet
Vons
Library
Lemon
Colorado
Olive
Walnut
Chestnut
Maple
Monrovia
Canyon
California
Jasmine
Heliotrope
Shamrock
Royal Oaks
Almond
Huntington
Ivy
Myrtle
Los Angeles
Central
Huntington Oaks Center
210
El Dorado
Genoa
Monrovia Gold Line Station
Pomona
Duarte
Home Depot
Arcadia
Fifth
6th
Encino
Eighth
10th
Mayflower
Graydon
Peck
Myrtle
Euclid
Joella
Goodall
Altern
Pamela
Shrode
Mountain
El Camino Real
Primrose
California
Broderick
Jeffries
Longden
Live Oak Av
492
Irwindale Speedway
Irwindale
8th
Lynd
Peck Rd
Daines
Freer
Olive
Grand
La Rosa
Tyler
Santa Anita
Arroyo High School
Peck Rd Park
Clark
Randolph
Rio Hondo Pkwy
Embree
Lynd
Cherrylee
La Madera
Cogswell
Durfee
Hallwood
Rosegen
Lower Azusa
Ranchito
Mulhall
Emery
Killian
Baldwin
Arden
Halifax
El Monte
Lower Azusa
Ellis
Cypress
Cedar
Elrovia
McGirk
El Monte Airport
605
Rowland
Basye
Lambert
Arden
Santa Anita
Metrolink Station
Clark
Forest Grove
Peck
Bryant
Valley
Montecito
Ramona
Loftus
Baldwin
Gibson
El Monte Station
Valley Mall
190
488
Ramona
SEE PG. 50 FOR CONNECTING SERVICE
Valley
Tyler
Deana
Maxon
Durfee
Gilman
Ferris
El Monte Shopping Center
Norwalk Line 7
178
194, 282
El Monte Transit Store
10
NORTH
© 6/18 FOOTHILL TRANSIT

Line-Línea

270

NORTHBOUND/EN DIRECCíON NORTE

EL MONTE TO MONROVIA
EL MONTE HACIA MONROVIA

WEEKDAY
ENTRE SEMANA

El Monte Station	Peck Rd. & Ramona Blvd.	Peck Rd. & Live Oak Ave.	Huntington Dr. & Myrtle Ave.	Primrose Ave. & Foothill Blvd.
A	B	C	D	E
4:58	5:06	5:13	5:23	5:31
5:44	5:54	6:03	6:13	6:21
6:34	6:44	6:53	7:03	7:11
7:22	7:33	7:42	7:52	8:00
8:09	8:20	8:29	8:39	8:47
8:57	9:08	9:17	9:27	9:35
9:49	10:00	10:09	10:19	10:27
10:43	10:55	11:05	11:15	11:23
11:44	11:56	**12:06**	**12:16**	**12:24**
12:34	**12:46**	**12:56**	**1:06**	**1:14**
1:22	**1:34**	**1:44**	**1:54**	**2:02**
2:13	**2:25**	**2:35**	**2:45**	**2:53**
3:10	**3:23**	**3:33**	**3:43**	**3:51**
4:16	**4:29**	**4:39**	**4:49**	**4:57**
5:07	**5:20**	**5:30**	**5:40**	**5:48**
5:55	**6:08**	**6:18**	**6:28**	**6:36**
6:46	**6:58**	**7:06**	**7:16**	**7:24**
7:42	**7:54**	**8:02**	**8:12**	**8:20**
8:46	**8:58**	**9:06**	**9:16**	**9:24**

WEEKEND/HOLIDAY
FIN DE SEMANA Y DÍA FESTIVO

A	B	C	D	E
5:54	6:03	6:09	6:13	6:21
6:51	7:00	7:06	7:10	7:18
7:46	7:55	8:02	8:06	8:15
8:42	8:51	8:58	9:02	9:11
9:38	9:47	9:54	9:58	10:07
10:38	10:49	10:58	11:02	11:11
11:38	11:49	11:58	**12:02**	**12:11**
12:38	**12:49**	**12:58**	**1:02**	**1:11**
1:38	**1:49**	**1:58**	**2:02**	**2:11**
2:38	**2:46**	**2:55**	**2:59**	**3:09**
3:38	**3:46**	**3:55**	**3:59**	**4:09**
4:38	**4:46**	**4:54**	**4:58**	**5:08**
5:38	**5:46**	**5:54**	**5:58**	**6:08**
6:39	**6:47**	**6:55**	**6:59**	**7:09**

LIGHT TYPE = AM
BOLD TYPE = PM

Line-Línea

270

SOUTHBOUND/EN DIRECCíON SUR

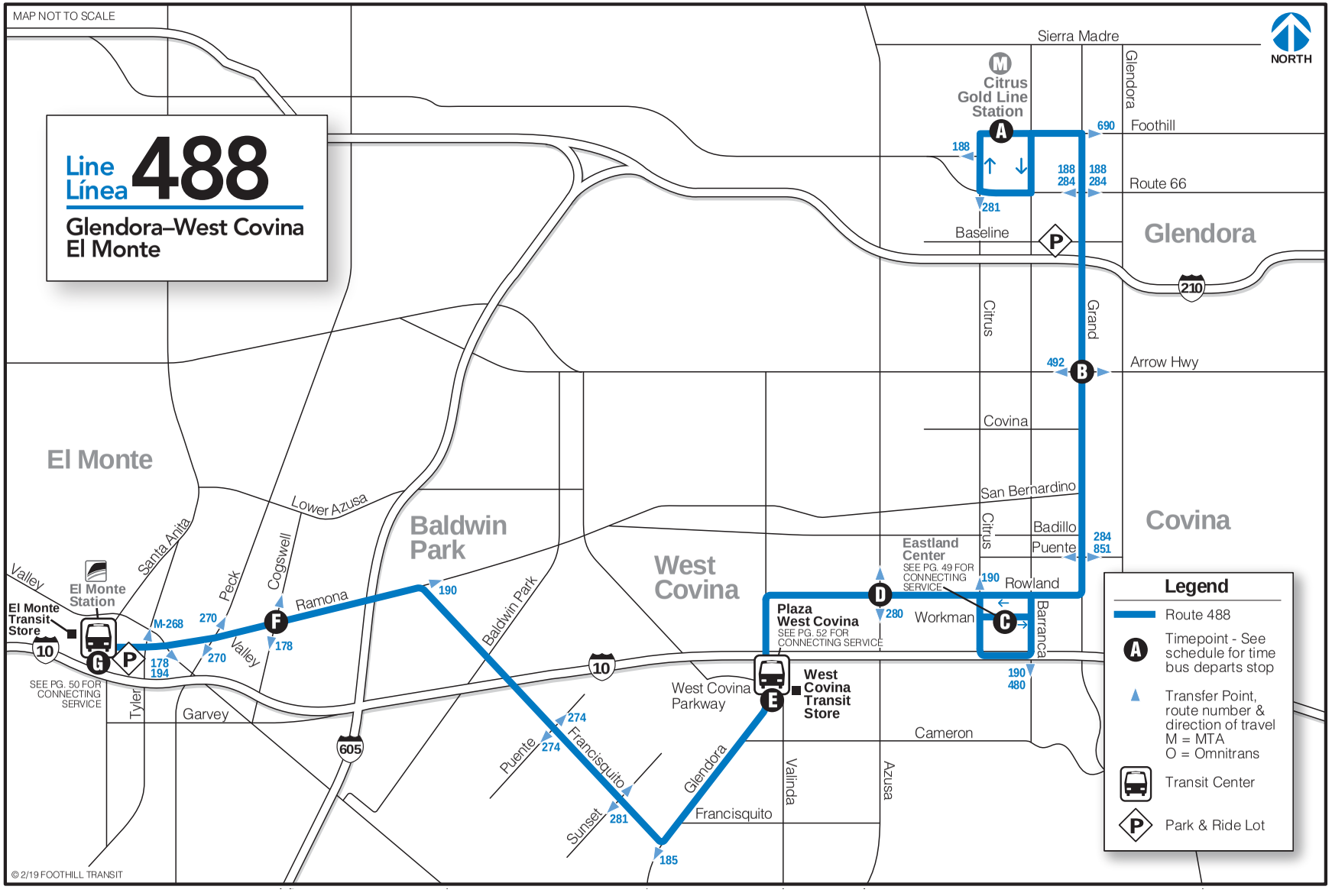
MONROVIA TO EL MONTE
MONROVIA HACIA EL MONTE

WEEKDAY
ENTRE SEMANA

Primrose Ave. & Foothill Blvd.	Huntington Dr. & Myrtle Ave.	Peck Rd. & Live Oak Ave.	Peck Rd. & Ramona Blvd.	El Monte Station
E	D	C	B	A
4:46	4:51	4:59	5:08	5:16
5:33	5:38	5:49	5:59	6:08
6:21	6:26	6:37	6:47	6:56
7:11	7:16	7:27	7:37	7:49
8:11	8:16	8:27	8:37	8:49
8:57	9:02	9:13	9:23	9:35
9:44	9:49	10:00	10:10	10:22
10:37	10:42	10:53	11:03	11:15
11:30	11:35	11:46	11:56	**12:09**
12:32	**12:37**	**12:48**	**12:58**	**1:11**
1:23	**1:28**	**1:39**	**1:49**	**2:02**
2:11	**2:16**	**2:27**	**2:37**	**2:50**
3:02	**3:07**	**3:19**	**3:29**	**3:40**
4:00	**4:05**	**4:17**	**4:27**	**4:38**
5:06	**5:11**	**5:23**	**5:33**	**5:44**
5:57	**6:02**	**6:14**	**6:24**	**6:35**
6:44	**6:49**	**7:01**	**7:11**	**7:20**
7:32	**7:37**	**7:49**	**7:59**	**8:08**

WEEKEND/HOLIDAY
FIN DE SEMANA Y DÍA FESTIVO

A	B	C	D	E
6:31	6:36	6:43	6:53	7:02
7:28	7:33	7:40	7:50	7:59
8:27	8:32	8:40	8:50	9:00
9:25	9:30	9:38	9:48	9:58
10:24	10:29	10:37	10:47	10:57
11:23	11:28	11:37	11:47	11:58
12:23	**12:28**	**12:37**	**12:47**	**12:58**
1:23	**1:28**	**1:37**	**1:47**	**1:58**
2:24	**2:29**	**2:38**	**2:48**	**2:59**
3:24	**3:29**	**3:38**	**3:46**	**3:56**
4:26	**4:31**	**4:40**	**4:48**	**4:58**
5:23	**5:28**	**5:37**	**5:45**	**5:55**


MAP NOT TO SCALE
Line 488
Línea 488
Glendora–West Covina
El Monte
NORTH
Sierra Madre
Citrus Gold Line Station
Glendora
Foothill
Route 66
Baseline
Glendora
210
Citrus
Grand
Arrow Hwy
Covina
San Bernardino
Badillo
Puente
Rowland
Workman
Barranca
Eastland Center
SEE PG. 49 FOR CONNECTING SERVICE
Plaza West Covina
SEE PG. 52 FOR CONNECTING SERVICE
West Covina Transit Store
West Covina Parkway
Cameron
Francisquito
Valinda
Azusa
Glendora
Puente
Sunset
Garvey
Tyler
605
10
Baldwin Park
West Covina
El Monte
Lower Azusa
Santa Anita
Peck
Cogswell
Ramona
Valley
El Monte Station
El Monte Transit Store
SEE PG. 50 FOR CONNECTING SERVICE
M-268
188
690
188
284
188
284
281
492
284
851
190
280
190
480
178
194
270
270
178
190
274
274
281
185
Legend
Route 488
Timepoint - See schedule for time bus departs stop
Transfer Point, route number & direction of travel
M = MTA
O = Omnitrans
Transit Center
Park & Ride Lot
© 2/19 FOOTHILL TRANSIT

Line-Línea

488

WESTBOUND/EN DIRECCíON OESTE

GLENDORA TO EL MONTE
GLENDORA HACIA EL MONTE

WEEKDAY
ENTRE SEMANA

Citrus Gold Line (Citrus Ave. & Foothill Blvd.)	Grand Ave. & Arrow Hwy.	Eastland Center	Rowland Ave. & Azusa Ave.	Vincent Ave. & Glendora Ave.	Ramona Blvd. & Cogswell Rd.	El Monte Station
A	B	C	D	E	F	G
4:10	4:22	4:32	4:40	4:47	5:13	5:22
5:10	5:22	5:32	5:40	5:47	6:14	6:23
5:35	5:47	5:57	6:06	6:15	6:42	6:51
5:59	6:13	6:26	6:35	6:44	7:11	7:20
6:25	6:39	6:52	7:01	7:10	7:38	7:47
6:50	7:04	7:20	7:29	7:38	8:06	8:15
7:10	7:24	7:40	7:49	7:58	8:26	8:35
7:30	7:44	8:00	8:09	8:18	8:46	8:55
8:00	8:14	8:30	8:39	8:48	9:16	9:25
8:35	8:49	9:05	9:14	9:23	9:51	10:00
9:35	9:49	10:05	10:14	10:23	10:51	11:00
10:35	10:49	11:05	11:14	11:23	11:51	**12:00**
11:35	11:49	**12:05**	**12:14**	**12:23**	**12:51**	**1:00**
12:35	**12:49**	**1:05**	**1:14**	**1:23**	**1:51**	**2:00**
1:30	**1:44**	**2:00**	**2:09**	**2:18**	**2:46**	**2:55**
2:00	**2:14**	**2:30**	**2:39**	**2:48**	**3:16**	**3:25**
2:30	**2:44**	**3:00**	**3:09**	**3:18**	**3:46**	**3:55**
3:00	**3:14**	**3:30**	**3:39**	**3:48**	**4:16**	**4:25**
3:30	**3:44**	**4:00**	**4:09**	**4:18**	**4:46**	**4:55**
4:00	**4:14**	**4:30**	**4:39**	**4:48**	**5:16**	**5:25**
4:30	**4:44**	**5:00**	**5:09**	**5:18**	**5:46**	**5:55**
5:02	**5:16**	**5:32**	**5:41**	**5:50**	**6:18**	**6:27**
5:32	**5:46**	**6:02**	**6:11**	**6:20**	**6:48**	**6:57**
6:30	**6:44**	**7:00**	**7:09**	**7:18**	**7:46**	**7:55**
7:30	**7:44**	**8:00**	**8:07**	**8:14**	**8:38**	**8:49**
8:30	**8:44**	**8:57**	**9:04**	**9:11**	**9:35**	**9:46**

WEEKEND/HOLIDAY
FIN DE SEMANA Y DÍA FESTIVO

A	B	C	D	E	F	G
6:50	7:08	7:21	7:28	7:34	8:00	8:09
7:50	8:08	8:21	8:28	8:34	9:00	9:09
8:50	9:09	9:24	9:30	9:36	10:04	10:13
9:50	10:10	10:25	10:31	10:37	11:05	11:14
10:50	11:10	11:25	11:31	11:37	**12:05**	**12:14**
11:50	**12:10**	**12:25**	**12:31**	**12:37**	**1:05**	**1:14**
12:50	**1:10**	**1:25**	**1:31**	**1:37**	**2:05**	**2:14**
1:50	**2:10**	**2:25**	**2:31**	**2:37**	**3:05**	**3:14**
2:50	**3:10**	**3:25**	**3:31**	**3:37**	**4:05**	**4:14**
3:50	**4:10**	**4:25**	**4:31**	**4:37**	**5:05**	**5:14**
4:50	**5:10**	**5:25**	**5:31**	**5:37**	**6:05**	**6:14**
5:50	**6:10**	**6:24**	**6:30**	**6:36**	**7:02**	**7:11**
6:50	**7:10**	**7:24**	**7:30**	**7:36**	**8:02**	**8:11**
7:50	**8:10**	**8:24**	**8:30**	**8:36**	**9:02**	**9:11**
8:50	**9:10**	**9:24**	**9:30**	**9:36**	**10:02**	**10:11**
9:50	**10:10**	**10:24**	**10:30**	**10:36**	**11:02**	**11:11**

LIGHT TYPE = AM
BOLD TYPE = PM
160

Line-Línea

488

EASTBOUND/EN DIRECCíON ESTE

EL MONTE TO GLENDORA
EL MONTE HACIA GLENDORA

WEEKDAY
ENTRE SEMANA

El Monte Station	Ramona Blvd. & Cogswell Rd.	Vincent Ave. & Glendora Ave.	Rowland Ave. & Azusa Ave.	Eastland Center	Grand Ave. & Arrow Hwy.	Citrus Gold Line (Citrus Ave. & Foothill Blvd.)
G	F	E	D	C	B	A
5:45	5:51	6:18	6:24	6:30	6:44	7:05
6:15	6:21	6:48	6:54	7:00	7:14	7:35
6:45	6:51	7:19	7:26	7:34	7:48	8:09
7:05	7:11	7:40	7:47	7:55	8:08	8:29
7:25	7:31	8:00	8:07	8:15	8:28	8:49
7:45	7:51	8:20	8:27	8:35	8:48	9:09
8:05	8:11	8:40	8:47	8:55	9:08	9:29
8:30	8:36	9:05	9:12	9:20	9:33	9:54
9:30	9:36	10:05	10:12	10:20	10:33	10:54
10:30	10:36	11:05	11:12	11:20	11:33	11:54
11:30	11:36	**12:05**	**12:12**	**12:20**	**12:34**	**12:55**
12:30	**12:36**	**1:07**	**1:14**	**1:22**	**1:36**	**1:57**
1:30	**1:36**	**2:07**	**2:14**	**2:22**	**2:36**	**2:57**
2:15	**2:21**	**2:52**	**2:59**	**3:07**	**3:21**	**3:42**
2:35	**2:41**	**3:12**	**3:19**	**3:27**	**3:41**	**4:02**
2:55	**3:01**	**3:32**	**3:39**	**3:47**	**4:01**	**4:22**
3:12	**3:18**	**3:49**	**3:56**	**4:04**	**4:18**	**4:39**
3:42	**3:48**	**4:19**	**4:26**	**4:34**	**4:48**	**5:09**
4:14	**4:20**	**4:51**	**4:58**	**5:06**	**5:20**	**5:41**
4:45	**4:51**	**5:21**	**5:27**	**5:35**	**5:49**	**6:10**
5:15	**5:21**	**5:51**	**5:57**	**6:05**	**6:18**	**6:39**
5:45	**5:51**	**6:21**	**6:27**	**6:35**	**6:48**	**7:09**
6:15	**6:21**	**6:51**	**6:57**	**7:04**	**7:17**	**7:38**
7:10	**7:16**	**7:43**	**7:49**	**7:56**	**8:08**	**8:29**
8:05	**8:11**	**8:36**	**8:42**	**8:48**	**9:00**	**9:21**
9:00	**9:06**	**9:31**	**9:37**	**9:43**	**9:55**	**10:16**

WEEKEND/HOLIDAY
FIN DE SEMANA Y DÍA FESTIVO

G	F	E	D	C	B	A
7:00	7:12	7:35	7:41	7:46	7:57	8:18
8:00	8:12	8:37	8:43	8:48	9:00	9:21
9:00	9:12	9:39	9:46	9:51	10:03	10:24
10:00	10:12	10:40	10:46	10:51	11:03	11:24
11:00	11:14	11:39	11:45	11:51	**12:03**	**12:24**
12:00	**12:14**	**12:39**	**12:45**	**12:51**	**1:03**	**1:24**
1:00	**1:15**	**1:45**	**1:51**	**1:56**	**2:08**	**2:29**
2:00	**2:14**	**2:45**	**2:52**	**2:57**	**3:09**	**3:30**
3:00	**3:13**	**3:43**	**3:50**	**3:55**	**4:07**	**4:28**
4:00	**4:13**	**4:41**	**4:47**	**4:52**	**5:04**	**5:25**
5:00	**5:13**	**5:41**	**5:47**	**5:52**	**6:04**	**6:25**
6:00	**6:13**	**6:41**	**6:47**	**6:52**	**7:04**	**7:25**
7:00	**7:13**	**7:41**	**7:47**	**7:52**	**8:04**	**8:25**
8:00	**8:12**	**8:38**	**8:44**	**8:49**	**9:01**	**9:22**
9:00	**9:12**	**9:38**	**9:44**	**9:49**	**10:01**	**10:22**
10:00	**10:12**	**10:38**	**10:44**	**10:49**	**11:01**	**11:22**

LIGHT TYPE = AM
BOLD TYPE = PM

APPENDIX C

TRAFFIC COUNT WORKSHEETS

INTERSECTION TURNING MOVEMENT COUNTS

T218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

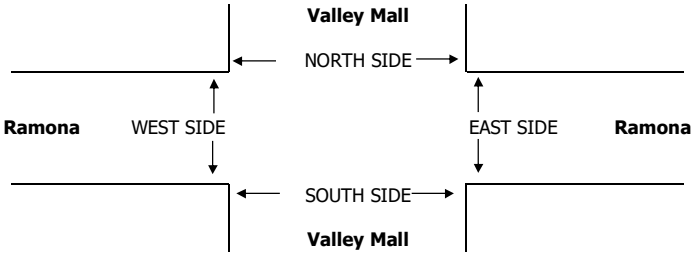
DATE:	LOCATION:	El Monte	PROJECT #:	SC
Thu, Mar 7, 19	NORTH & SOUTH:	Valley Mall	LOCATION #:	1
	EAST & WEST:	Ramona	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

☐ Add U-Turns to Left Turns

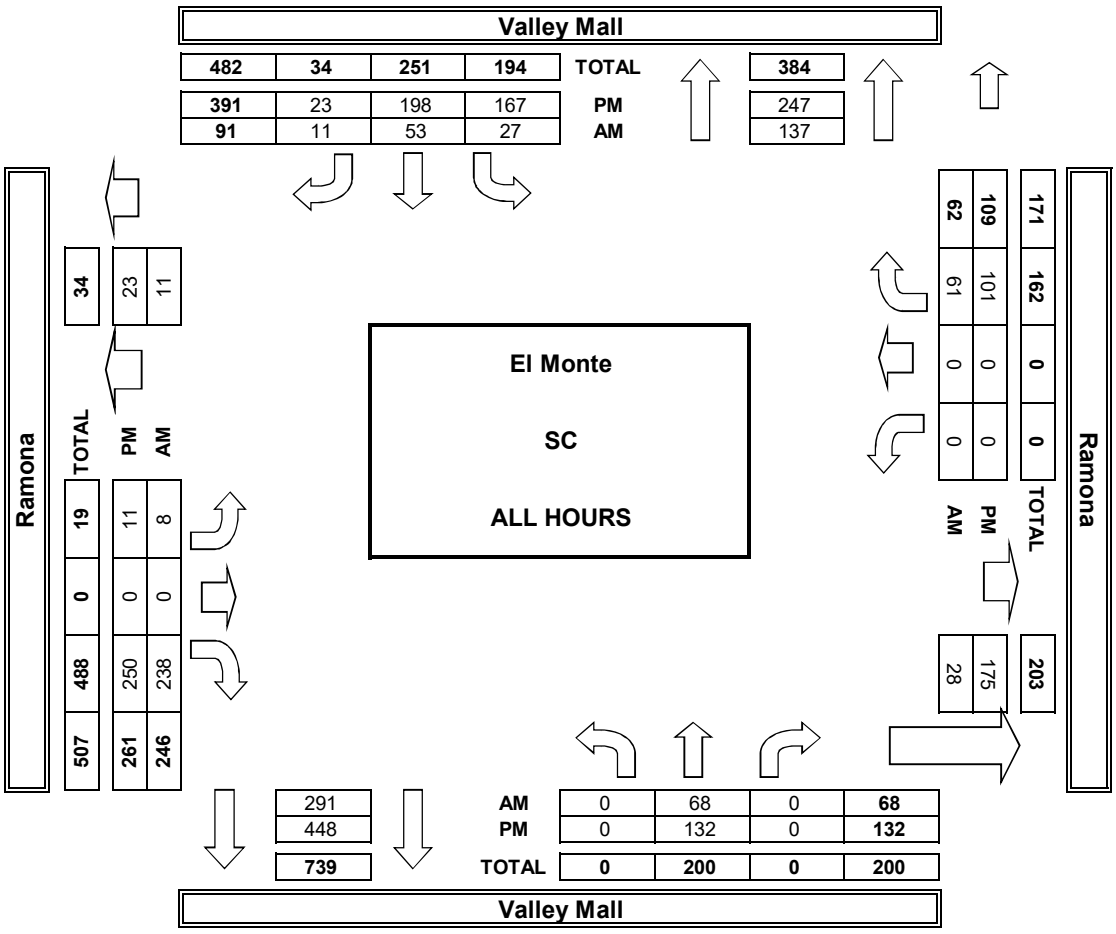
		NORTHBOUND Valley Mall			SOUTHBOUND Valley Mall			EASTBOUND Ramona			WESTBOUND Ramona				U-TURNS				
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 1	SR 0	EL 0.5	ET 2.5	ER 1	WL 1	WT 2	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	0	1	0	3	3	1	0	0	16	0	0	2	26	0	0	0	0	0
	7:15 AM	0	6	0	0	3	1	1	0	19	0	0	1	31	0	0	0	0	0
	7:30 AM	0	4	0	1	5	2	0	0	42	0	0	6	60	0	0	0	0	0
	7:45 AM	0	9	0	1	7	1	1	0	54	0	0	7	80	0	0	0	0	0
	8:00 AM	0	11	0	6	7	2	1	0	35	0	0	7	69	0	0	0	0	0
	8:15 AM	0	13	0	1	8	1	0	0	26	0	0	11	60	0	0	0	0	0
	8:30 AM	0	14	0	7	6	1	1	0	25	0	0	12	66	0	0	0	0	0
	8:45 AM	0	10	0	8	14	2	4	0	21	0	0	15	74	0	0	0	1	1
	VOLUMES	0	68	0	27	53	11	8	0	238	0	0	61	467	0	0	0	1	1
	APPROACH %	0%	100%	0%	30%	58%	12%	3%	0%	97%	0%	0%	98%						
	APP/DEPART	68	/	137	91	/	291	246	/	28	62	/	11	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	0	47	0	15	28	5	3	0	140	0	0	37	275					
	APPROACH %	0%	100%	0%	31%	58%	10%	2%	0%	98%	0%	0%	100%						
	PEAK HR FACTOR		0.839			0.800			0.650			0.771		0.859					
	APP/DEPART	47	/	87	48	/	168	143	/	15	37	/	5	0					
PM	4:00 PM	0	8	0	31	25	1	0	0	32	0	0	11	108	0	0	0	0	0
	4:15 PM	0	26	0	15	21	5	5	0	35	0	0	9	116	0	1	0	1	2
	4:30 PM	0	12	0	20	27	1	1	0	40	0	0	23	124	0	1	0	1	2
	4:45 PM	0	15	0	30	28	7	0	0	32	0	0	7	119	0	1	0	2	3
	5:00 PM	0	19	0	15	20	3	2	0	23	0	0	14	96	0	0	0	0	0
	5:15 PM	0	16	0	26	27	4	0	0	28	0	0	15	116	0	0	0	1	1
	5:30 PM	0	21	0	15	23	1	1	0	36	0	0	12	109	0	0	0	2	2
	5:45 PM	0	15	0	15	27	1	2	0	24	0	0	10	94	0	0	0	1	1
	VOLUMES	0	132	0	167	198	23	11	0	250	0	0	101	893	0	3	0	8	11
	APPROACH %	0%	100%	0%	43%	51%	6%	4%	0%	96%	0%	0%	93%						
	APP/DEPART	132	/	247	391	/	448	261	/	175	109	/	23	0					
	BEGIN PEAK HR		4:00 PM																
	VOLUMES	0	61	0	96	101	14	6	0	139	0	0	50	474					
	APPROACH %	0%	100%	0%	45%	47%	7%	4%	0%	96%	0%	0%	93%						
	PEAK HR FACTOR		0.587			0.811			0.884			0.563		0.940					
	APP/DEPART	61	/	120	214	/	240	145	/	100	54	/	14	0					

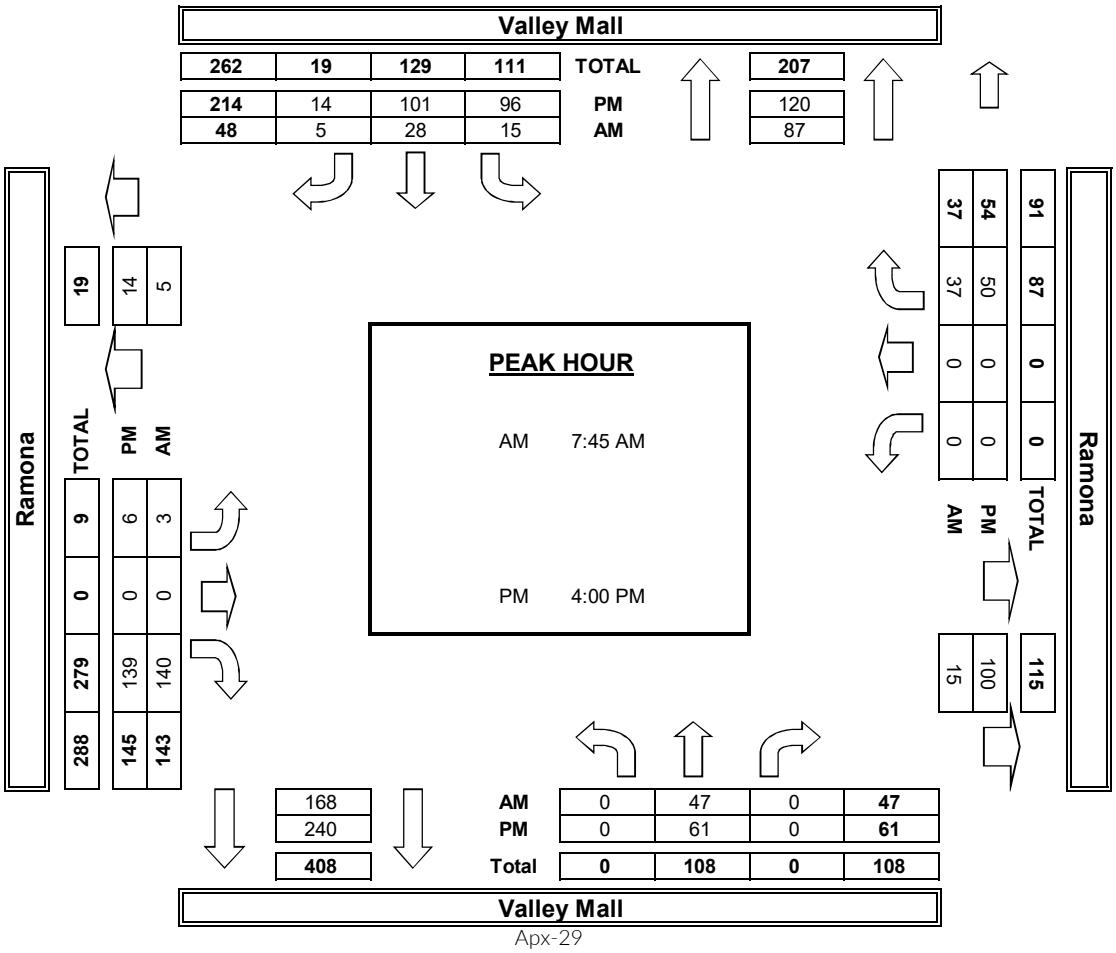


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	AM BEGIN PEAK HR	7:45 AM					0	0	0	0	0					
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PM BEGIN PEAK HR	4:00 PM					0	0	0	0	0					

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Mar 7, 19

LOCATION: El Monte
NORTH & SOUTH: Valley
EAST & WEST: Ramona

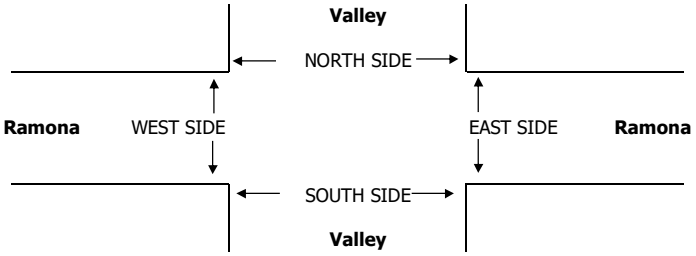
PROJECT #: SC
LOCATION #: 1
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

☑ Add U-Turns to Left Turns

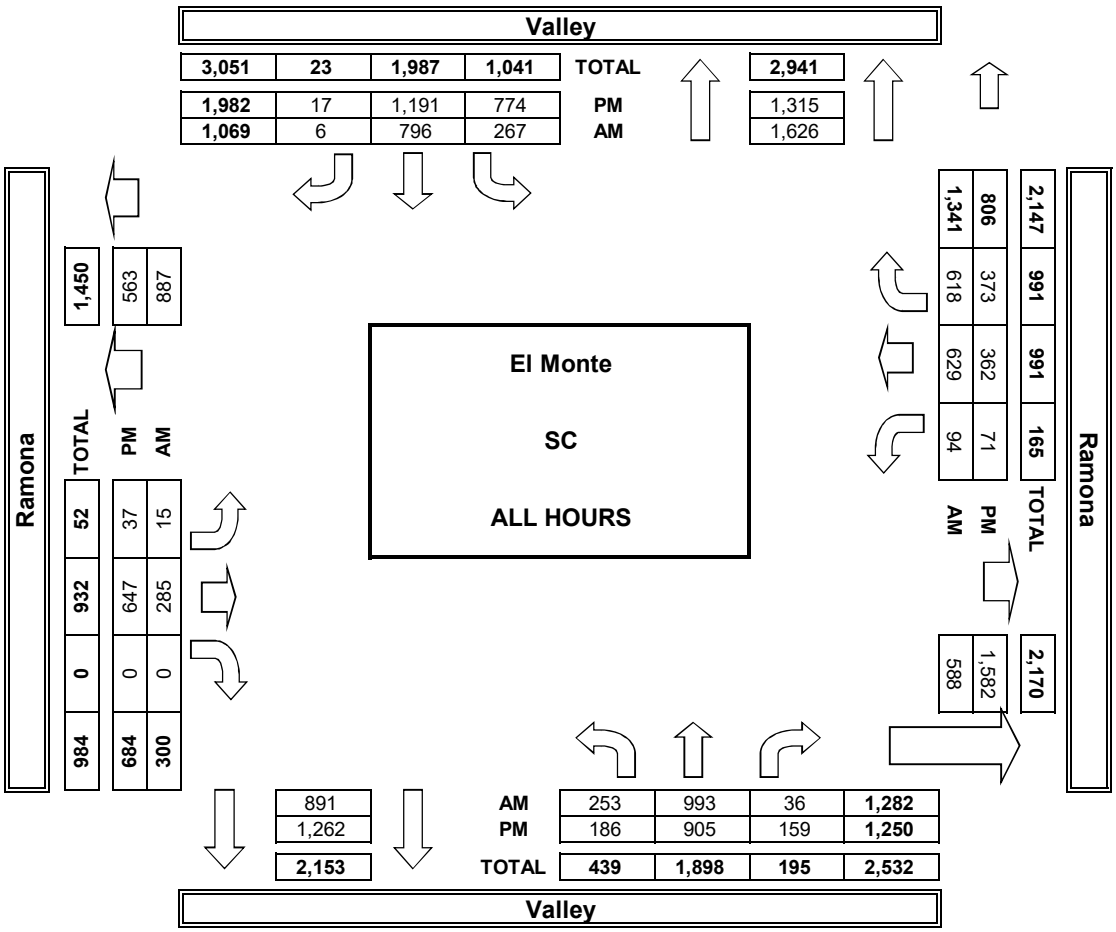
		NORTHBOUND Valley			SOUTHBOUND Valley			EASTBOUND Ramona			WESTBOUND Ramona				U-TURNS				
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER X	WL 1	WT 2	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	19	87	4	20	55	0	0	27	0	18	81	83	394	0	0	0	0	0
	7:15 AM	27	116	6	26	87	1	1	27	0	12	99	87	489	0	0	0	0	0
	7:30 AM	38	127	4	34	105	2	4	49	0	10	94	91	558	0	0	0	0	0
	7:45 AM	48	144	4	44	120	1	1	59	0	19	109	101	650	0	0	0	0	0
	8:00 AM	20	133	4	41	118	1	1	38	0	18	87	67	528	0	0	0	0	0
	8:15 AM	33	130	8	40	115	0	4	35	0	5	62	62	494	0	0	0	0	0
	8:30 AM	32	123	1	31	107	1	2	27	0	7	49	71	451	0	0	0	0	0
	8:45 AM	36	133	5	31	89	0	2	23	0	5	48	56	428	1	0	0	0	1
	VOLUMES	253	993	36	267	796	6	15	285	0	94	629	618	3,992	1	0	0	0	1
	APPROACH %	20%	77%	3%	25%	74%	1%	5%	95%	0%	7%	47%	46%						
	APP/DEPART	1,282	/	1,626	1,069	/	891	300	/	588	1,341	/	887	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	139	534	20	159	458	4	10	181	0	52	352	321	2,230					
	APPROACH %	20%	77%	3%	26%	74%	1%	5%	95%	0%	7%	49%	44%						
	PEAK HR FACTOR		0.884			0.941			0.796			0.791		0.858					
	APP/DEPART	693	/	865	621	/	510	191	/	360	725	/	495	0					
PM	4:00 PM	12	123	21	94	183	2	5	82	0	10	35	57	624	0	0	0	0	0
	4:15 PM	22	99	12	84	124	1	4	56	0	10	33	37	482	0	0	0	0	0
	4:30 PM	32	142	14	84	143	3	8	101	0	8	51	55	641	2	0	0	0	2
	4:45 PM	17	105	21	111	150	3	7	84	0	8	52	46	604	0	0	0	1	1
	5:00 PM	33	111	22	101	165	1	2	79	0	9	46	50	619	0	0	0	1	1
	5:15 PM	21	99	20	100	135	2	6	89	0	6	45	41	564	0	0	0	0	0
	5:30 PM	22	119	31	109	154	4	2	59	0	7	41	37	585	0	0	0	0	0
	5:45 PM	27	107	18	91	137	1	3	97	0	13	59	50	603	0	0	0	0	0
	VOLUMES	186	905	159	774	1,191	17	37	647	0	71	362	373	4,722	2	0	0	2	4
	APPROACH %	15%	72%	13%	39%	60%	1%	5%	95%	0%	9%	45%	46%						
	APP/DEPART	1,250	/	1,315	1,982	/	1,262	684	/	1,582	806	/	563	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	103	457	77	396	593	9	23	353	0	31	194	192	2,428					
	APPROACH %	16%	72%	12%	40%	59%	1%	6%	94%	0%	7%	47%	46%						
	PEAK HR FACTOR		0.847			0.934			0.862			0.914		0.947					
	APP/DEPART	637	/	672	998	/	624	376	/	828	417	/	304	0					

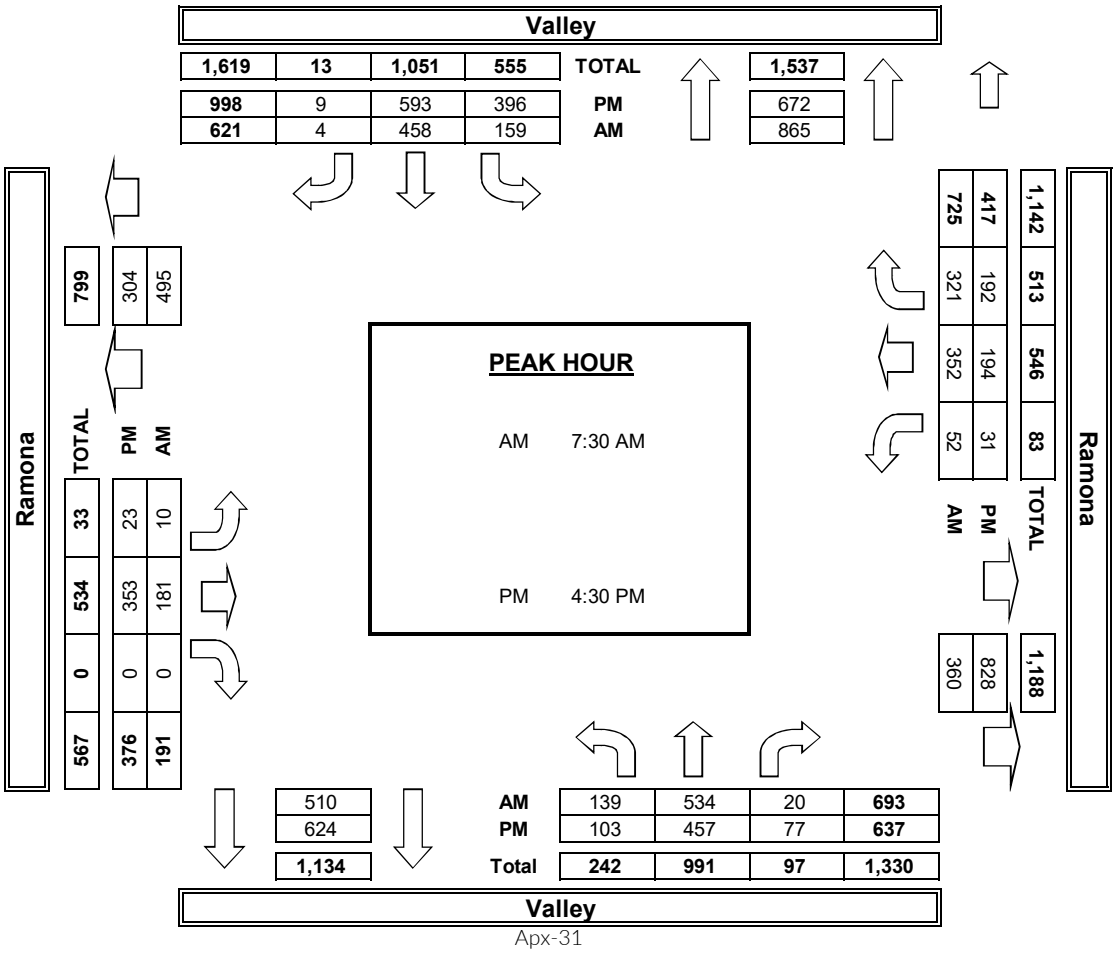


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	AM BEGIN PEAK HR	7:30 AM					0	0	0	0	0					
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PM BEGIN PEAK HR	4:30 PM					0	0	0	0	0					

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Mar 7, 19

LOCATION: El Monte
NORTH & SOUTH: Orchard
EAST & WEST: Ramona

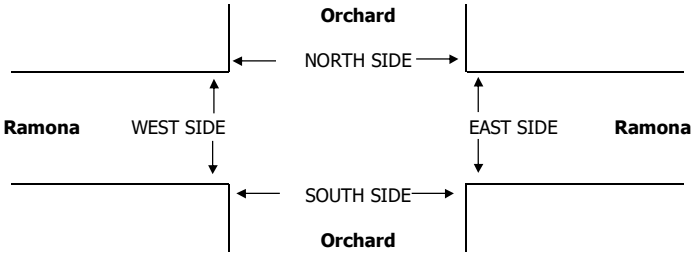
PROJECT #: SC
LOCATION #: 2
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

☑ Add U-Turns to Left Turns

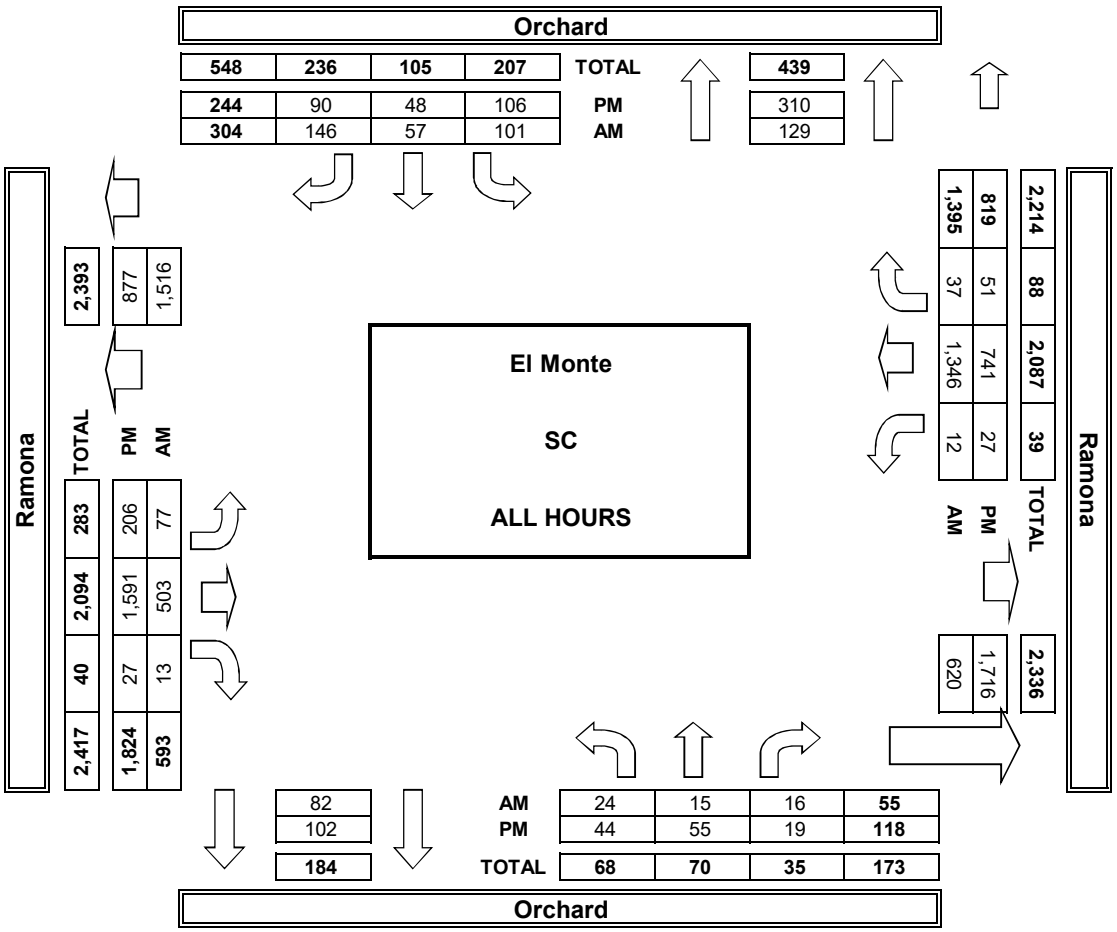
		NORTHBOUND Orchard			SOUTHBOUND Orchard			EASTBOUND Ramona			WESTBOUND Ramona				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0.5	ST 0.5	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	3	3	5	6	6	19	5	38	1	0	165	4	255	0	0	0	0	0
	7:15 AM	2	1	3	11	7	22	10	50	3	0	181	7	297	0	0	0	0	0
	7:30 AM	3	0	2	9	8	21	7	67	0	0	226	8	351	0	0	0	0	0
	7:45 AM	4	3	2	14	6	15	15	84	1	2	208	4	358	0	0	0	0	0
	8:00 AM	2	2	2	21	9	24	16	82	1	6	173	1	339	0	0	0	0	0
	8:15 AM	2	2	0	17	6	14	9	67	2	2	140	3	264	0	0	0	0	0
	8:30 AM	5	2	1	11	10	13	4	63	1	2	138	7	257	0	0	0	0	0
	8:45 AM	3	2	1	12	5	18	11	52	4	0	115	3	226	0	0	0	0	0
	VOLUMES	24	15	16	101	57	146	77	503	13	12	1,346	37	2,347	0	0	0	0	0
	APPROACH %	44%	27%	29%	33%	19%	48%	13%	85%	2%	1%	96%	3%						
	APP/DEPART	55	/	129	304	/	82	593	/	620	1,395	/	1,516	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	11	6	9	55	30	82	48	283	5	8	788	20	1,345					
	APPROACH %	42%	23%	35%	33%	18%	49%	14%	84%	1%	1%	97%	2%						
	PEAK HR FACTOR		0.722			0.773			0.840			0.872		0.939					
	APP/DEPART	26	/	74	167	/	43	336	/	347	816	/	881	0					
PM	4:00 PM	4	4	3	15	4	5	29	187	2	2	102	8	365	0	0	0	0	0
	4:15 PM	3	3	3	11	11	9	17	182	2	1	87	8	337	0	0	0	0	0
	4:30 PM	3	7	0	12	6	6	20	174	3	3	111	9	354	0	0	0	0	0
	4:45 PM	3	6	3	13	4	16	30	233	4	7	101	7	427	0	0	0	0	0
	5:00 PM	9	6	1	11	5	11	31	197	7	1	88	7	374	0	0	1	0	1
	5:15 PM	5	10	4	16	8	14	26	223	2	4	85	3	400	0	0	0	0	0
	5:30 PM	9	9	2	13	4	14	26	192	3	4	84	4	364	0	0	1	0	1
	5:45 PM	8	10	3	15	6	15	27	203	4	5	83	5	384	0	0	0	0	0
	VOLUMES	44	55	19	106	48	90	206	1,591	27	27	741	51	3,005	0	0	2	0	2
	APPROACH %	37%	47%	16%	43%	20%	37%	11%	87%	1%	3%	90%	6%						
	APP/DEPART	118	/	310	244	/	102	1,824	/	1,716	819	/	877	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	26	31	10	53	21	55	113	845	16	16	358	21	1,565					
	APPROACH %	39%	46%	15%	41%	16%	43%	12%	87%	2%	4%	91%	5%						
	PEAK HR FACTOR		0.838			0.849			0.912			0.859		0.916					
	APP/DEPART	67	/	163	129	/	53	974	/	908	395	/	441	0					

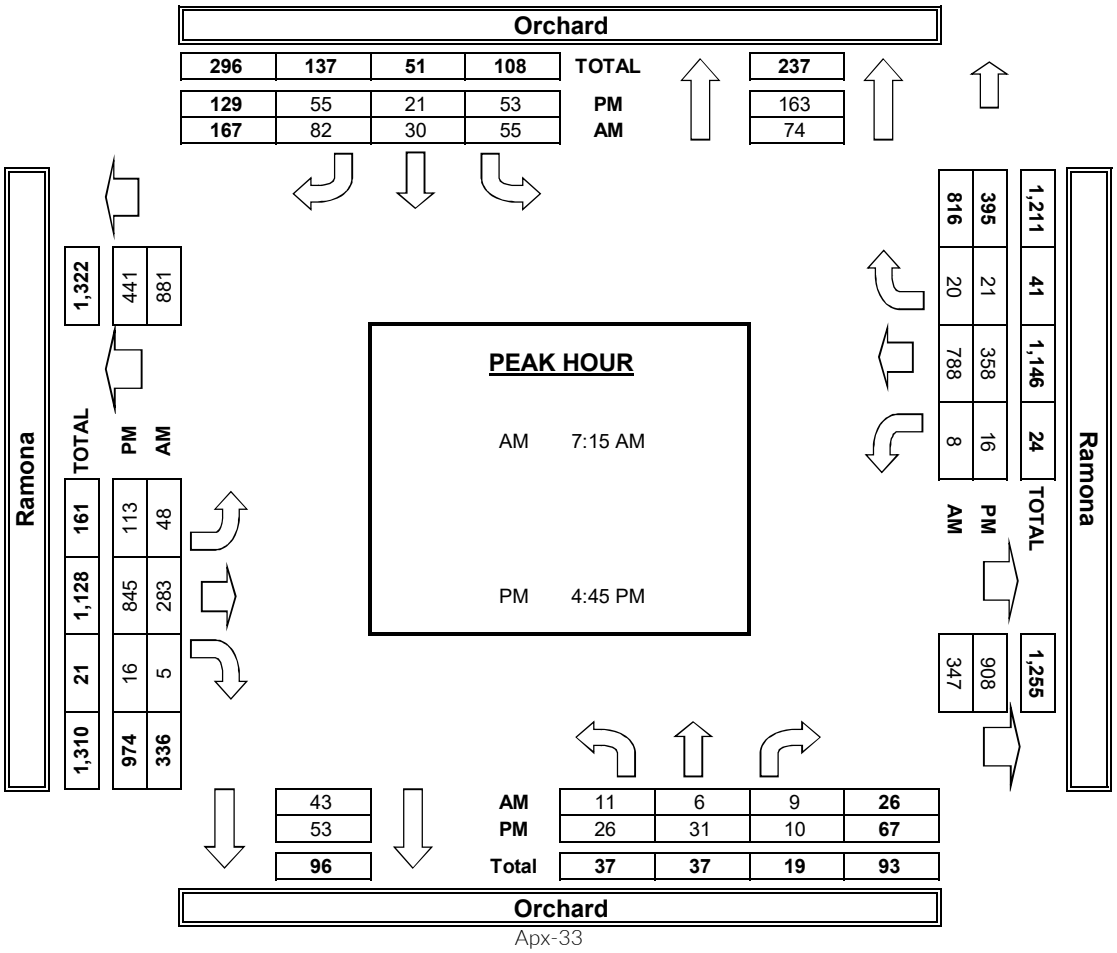


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	AM BEGIN PEAK HR	7:15 AM					0	0	0	0	0					
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PM BEGIN PEAK HR	4:45 PM					0	0	0	0	0					

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Mar 7, 19

LOCATION: El Monte
NORTH & SOUTH: Peck
EAST & WEST: Ramona

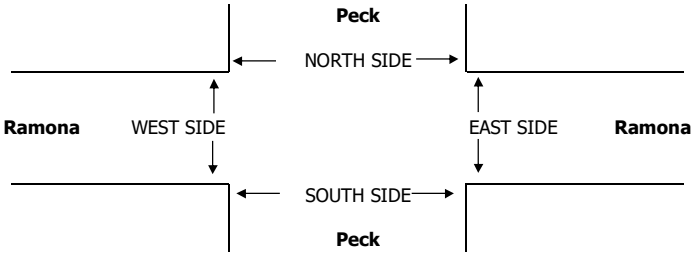
PROJECT #: SC
LOCATION #: 3
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

☑ Add U-Turns to Left Turns

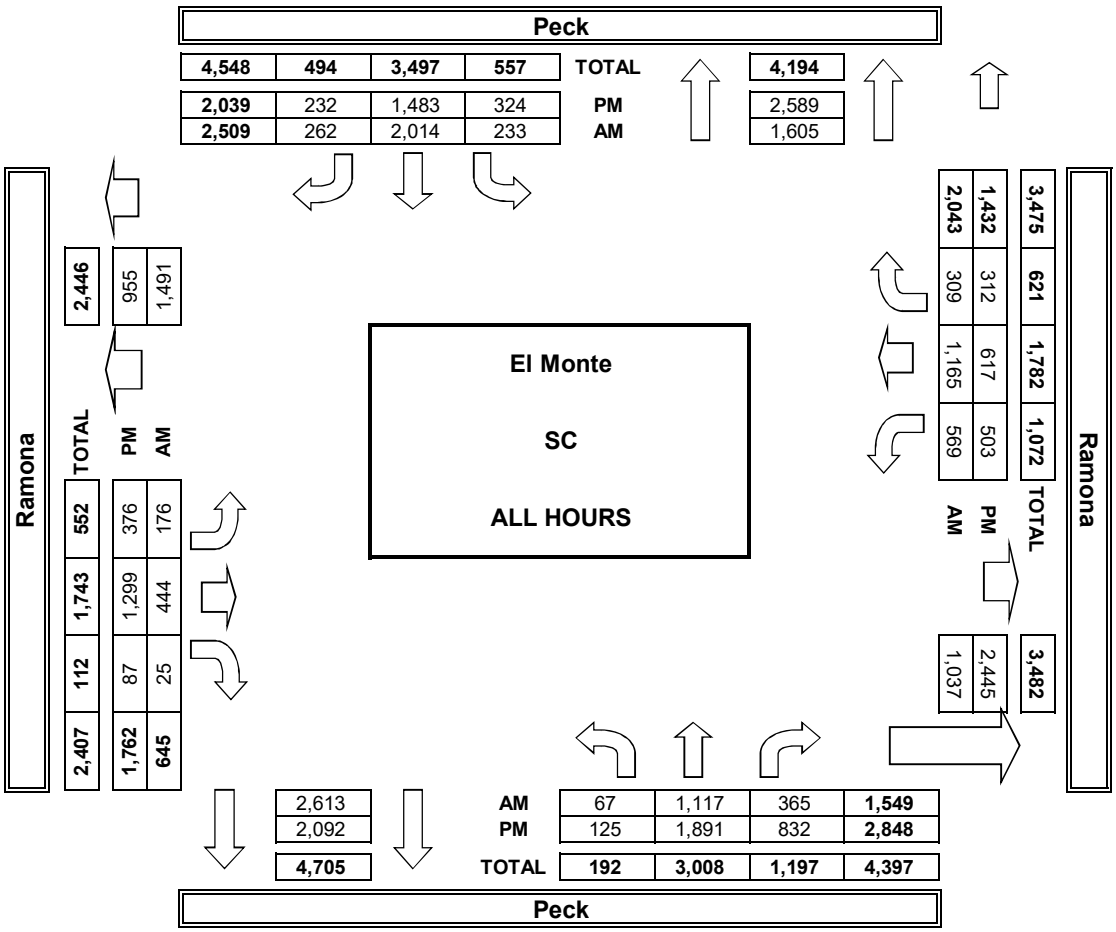
		NORTHBOUND Peck			SOUTHBOUND Peck			EASTBOUND Ramona			WESTBOUND Ramona				U-TURNS				
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2.5	SR 0.5	EL 1	ET 2	ER 1	WL 1	WT 2	WR 1	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	11	101	19	17	223	22	16	39	0	69	145	31	693	0	0	0	1	1
	7:15 AM	9	121	26	21	291	30	24	45	4	76	172	54	873	1	0	1	0	2
	7:30 AM	7	158	38	26	285	37	21	61	2	61	214	40	950	0	1	2	0	3
	7:45 AM	9	164	96	33	295	51	23	73	7	72	169	51	1,043	1	0	0	0	1
	8:00 AM	11	167	47	43	256	37	24	71	3	67	127	32	885	0	1	0	0	1
	8:15 AM	7	140	43	33	254	25	25	55	5	79	125	23	814	2	0	0	0	2
	8:30 AM	9	143	55	33	203	34	24	51	2	79	121	45	799	2	3	0	0	5
	8:45 AM	4	123	41	27	207	26	19	49	2	66	92	33	689	0	1	0	0	1
	VOLUMES	67	1,117	365	233	2,014	262	176	444	25	569	1,165	309	6,746	6	6	3	1	16
	APPROACH %	4%	72%	24%	9%	80%	10%	27%	69%	4%	28%	57%	15%						
	APP/DEPART	1,549	/	1,605	2,509	/	2,613	645	/	1,037	2,043	/	1,491	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	36	610	207	123	1,127	155	92	250	16	276	682	177	3,751					
	APPROACH %	4%	72%	24%	9%	80%	11%	26%	70%	4%	24%	60%	16%						
	PEAK HR FACTOR		0.793			0.927			0.869			0.901		0.899					
	APP/DEPART	853	/	878	1,405	/	1,421	358	/	578	1,135	/	874	0					
PM	4:00 PM	24	199	84	54	170	32	49	140	9	64	74	34	933	1	0	0	0	1
	4:15 PM	12	216	97	41	185	26	53	140	10	63	60	38	941	3	1	0	0	4
	4:30 PM	12	215	82	35	179	34	35	146	11	59	82	37	927	1	0	0	1	2
	4:45 PM	17	241	95	42	197	28	49	167	13	72	78	27	1,026	4	1	1	0	6
	5:00 PM	14	268	131	46	193	25	45	166	10	49	83	44	1,074	0	0	0	0	0
	5:15 PM	14	229	102	40	198	24	50	194	12	62	74	56	1,055	4	1	0	0	5
	5:30 PM	12	256	129	34	193	29	46	170	11	70	82	36	1,068	3	3	0	0	6
	5:45 PM	20	267	112	32	168	34	49	176	11	64	84	40	1,057	4	5	0	0	9
	VOLUMES	125	1,891	832	324	1,483	232	376	1,299	87	503	617	312	8,081	20	11	1	1	33
	APPROACH %	4%	66%	29%	16%	73%	11%	21%	74%	5%	35%	43%	22%						
	APP/DEPART	2,848	/	2,589	2,039	/	2,092	1,762	/	2,445	1,432	/	955	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	60	1,020	474	152	752	112	190	706	44	245	323	176	4,254					
	APPROACH %	4%	66%	31%	15%	74%	11%	20%	75%	5%	33%	43%	24%						
	PEAK HR FACTOR		0.941			0.962			0.918			0.969		0.990					
	APP/DEPART	1,554	/	1,395	1,016	/	1,052	940	/	1,323	744	/	484	0					

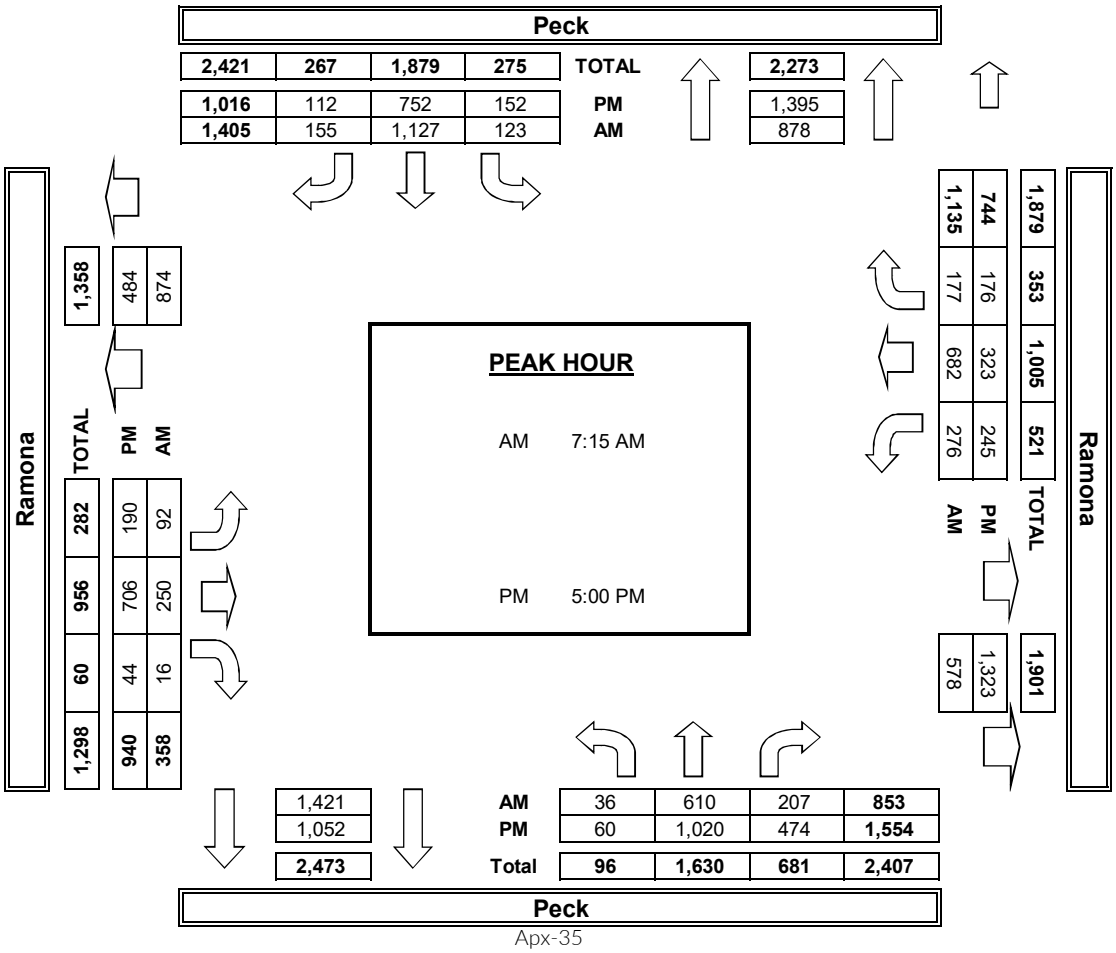


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	AM BEGIN PEAK HR	7:15 AM					0	0	0	0	0					
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PM BEGIN PEAK HR	5:00 PM					0	0	0	0	0					

AimTD LLC

TURNING MOVEMENT COUNTS





APPENDIX C

INTERSECTION CAPACITY UTILIZATION AND LEVEL OF SERVICE WORKSHEETS

EXISTING

Orchard and Cypress Residential Project

Vistro File: C:\...\AME.vistro
Report File: C:\...\AME.pdf

Scenario 1 Existing Morning Peak Hour
3/22/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Valley Blvd at Ramona Blvd	Signalized	ICU 1	WB Thru	0.593	-	A
2	Orchard St at Ramona Blvd	Signalized	ICU 1	WB Thru	0.446	-	A
3	Peck Rd at Ramona Blvd	Signalized	ICU 1	SB Thru	0.660	-	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Valley Blvd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	176	534	20	159	458	4	10	181	0	52	352	352
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	176	534	20	159	458	4	10	181	0	52	352	352
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	134	5	40	115	1	3	45	0	13	88	88
Total Analysis Volume [veh/h]	176	534	20	159	458	4	10	181	0	52	352	352
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.17	0.01	0.10	0.14	0.00	0.01	0.06	0.00	0.03	0.22	0.22
Intersection LOS	A											
Intersection V/C	0.593											

Intersection Level Of Service Report
Intersection 2: Orchard St at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.446

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	11	6	9	55	30	82	48	283	5	8	788	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	6	9	55	30	82	48	283	5	8	788	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	2	2	14	8	21	12	71	1	2	197	5
Total Analysis Volume [veh/h]	11	6	9	55	30	82	48	283	5	8	788	20
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.02	0.03	0.05	0.05	0.03	0.09	0.09	0.01	0.25	0.01
Intersection LOS	A											
Intersection V/C	0.446											

Intersection Level Of Service Report
Intersection 3: Peck Rd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.660

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	36	610	207	123	1127	155	92	250	16	276	682	177
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	610	207	123	1127	155	92	250	16	276	682	177
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	153	52	31	282	39	23	63	4	69	171	44
Total Analysis Volume [veh/h]	36	610	207	123	1127	155	92	250	16	276	682	177
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.19	0.13	0.08	0.27	0.27	0.06	0.08	0.01	0.17	0.21	0.11
Intersection LOS	B											
Intersection V/C	0.660											

Orchard and Cypress Residential Project

Vistro File: C:\...\PME.vistro
Report File: C:\...\PME.pdf

Scenario 1 Existing Evening Peak Hour
3/22/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Valley Blvd at Ramona Blvd	Signalized	ICU 1	SB Left	0.644	-	B
2	Orchard St at Ramona Blvd	Signalized	ICU 1	EB Thru	0.467	-	A
3	Peck Rd at Ramona Blvd	Signalized	ICU 1	NB Thru	0.888	-	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Valley Blvd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.644

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	165	457	77	396	593	9	23	353	0	31	194	251
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	165	457	77	396	593	9	23	353	0	31	194	251
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	114	19	99	148	2	6	88	0	8	49	63
Total Analysis Volume [veh/h]	165	457	77	396	593	9	23	353	0	31	194	251
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.14	0.05	0.25	0.19	0.01	0.01	0.11	0.00	0.02	0.14	0.14
Intersection LOS	B											
Intersection V/C	0.644											

Intersection Level Of Service Report
Intersection 2: Orchard St at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.467

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	26	31	10	53	21	55	113	845	16	16	358	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	26	31	10	53	21	55	113	845	16	16	358	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	8	3	13	5	14	28	211	4	4	90	5
Total Analysis Volume [veh/h]	26	31	10	53	21	55	113	845	16	16	358	21
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.04	0.04	0.03	0.05	0.03	0.07	0.27	0.27	0.01	0.11	0.01
Intersection LOS	A											
Intersection V/C	0.467											

Intersection Level Of Service Report
Intersection 3: Peck Rd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.888

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	60	1020	474	152	752	112	190	706	44	245	323	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	1020	474	152	752	112	190	706	44	245	323	176
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	255	119	38	188	28	48	177	11	61	81	44
Total Analysis Volume [veh/h]	60	1020	474	152	752	112	190	706	44	245	323	176
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.32	0.30	0.10	0.18	0.18	0.12	0.22	0.03	0.15	0.10	0.11
Intersection LOS	D											
Intersection V/C	0.888											

EXISTING PLUS PROJECT

Orchard and Cypress Residential Project

Vistro File: C:\...\AME.vistro
Report File: C:\...\AMEP.pdf

Scenario 2 Existing Plus Project Morning Peak Hour
3/22/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Valley Blvd at Ramona Blvd	Signalized	ICU 1	WB Thru	0.597	-	A
2	Orchard St at Ramona Blvd	Signalized	ICU 1	WB Thru	0.459	-	A
3	Peck Rd at Ramona Blvd	Signalized	ICU 1	SB Thru	0.662	-	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Valley Blvd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.597

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	176	534	20	159	458	4	10	181	0	52	352	352
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	1	0	3	8	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	176	534	20	159	458	4	10	182	0	55	360	357
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	134	5	40	115	1	3	46	0	14	90	89
Total Analysis Volume [veh/h]	176	534	20	159	458	4	10	182	0	55	360	357
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.17	0.01	0.10	0.14	0.00	0.01	0.06	0.00	0.03	0.22	0.22
Intersection LOS	A											
Intersection V/C	0.597											

Intersection Level Of Service Report
Intersection 2: Orchard St at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.459

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	11	6	9	55	30	82	48	283	5	8	788	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	11	8	16	2	0	0	0	0	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	6	9	66	38	98	50	283	5	8	788	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	2	2	17	10	25	13	71	1	2	197	5
Total Analysis Volume [veh/h]	11	6	9	66	38	98	50	283	5	8	788	21
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.02	0.04	0.07	0.06	0.03	0.09	0.09	0.01	0.25	0.01
Intersection LOS	A											
Intersection V/C	0.459											

Intersection Level Of Service Report
Intersection 3: Peck Rd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.662

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	36	610	207	123	1127	155	92	250	16	276	682	177
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	3	8	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	610	207	123	1127	155	95	258	16	276	683	177
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	153	52	31	282	39	24	65	4	69	171	44
Total Analysis Volume [veh/h]	36	610	207	123	1127	155	95	258	16	276	683	177
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.19	0.13	0.08	0.27	0.27	0.06	0.08	0.01	0.17	0.21	0.11
Intersection LOS	B											
Intersection V/C	0.662											

Orchard and Cypress Residential Project

Vistro File: C:\...\PME.vistro
Report File: C:\...\PMEP.pdf

Scenario 2 Existing Plus Project Evening Peak Hour
3/22/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Valley Blvd at Ramona Blvd	Signalized	ICU 1	SB Left	0.648	-	B
2	Orchard St at Ramona Blvd	Signalized	ICU 1	EB Thru	0.473	-	A
3	Peck Rd at Ramona Blvd	Signalized	ICU 1	NB Thru	0.889	-	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Valley Blvd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.648

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	165	457	77	396	593	9	23	353	0	31	194	251
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	3	3	0	0	0	10	0	1	4	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	165	457	80	399	593	9	23	363	0	32	198	254
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	114	20	100	148	2	6	91	0	8	50	64
Total Analysis Volume [veh/h]	165	457	80	399	593	9	23	363	0	32	198	254
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.14	0.05	0.25	0.19	0.01	0.01	0.11	0.00	0.02	0.14	0.14
Intersection LOS	B											
Intersection V/C	0.648											

Intersection Level Of Service Report
Intersection 2: Orchard St at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.473

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	26	31	10	53	21	55	113	845	16	16	358	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	5	4	8	24	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	26	31	10	58	25	63	137	845	16	16	358	29
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	8	3	15	6	16	34	211	4	4	90	7
Total Analysis Volume [veh/h]	26	31	10	58	25	63	137	845	16	16	358	29
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.04	0.04	0.04	0.05	0.04	0.09	0.27	0.27	0.01	0.11	0.02
Intersection LOS	A											
Intersection V/C	0.473											

Intersection Level Of Service Report
Intersection 3: Peck Rd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.889

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	60	1020	474	152	752	112	190	706	44	245	323	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	1	4	0	0	8	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	1020	474	152	752	112	191	710	44	245	331	176
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	255	119	38	188	28	48	178	11	61	83	44
Total Analysis Volume [veh/h]	60	1020	474	152	752	112	191	710	44	245	331	176
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.32	0.30	0.10	0.18	0.18	0.12	0.22	0.03	0.15	0.10	0.11
Intersection LOS	D											
Intersection V/C	0.889											

OPENING YEAR (2021) WITHOUT PROJECT

Orchard and Cypress Residential Project

Vistro File: C:\...\AME.vistro

Scenario 3 Opening Year (2021) Without Project Morning Peak Hour

Report File: C:\...\AMOYWO.pdf

3/22/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Valley Blvd at Ramona Blvd	Signalized	ICU 1	WB Thru	0.602	-	B
2	Orchard St at Ramona Blvd	Signalized	ICU 1	WB Thru	0.453	-	A
3	Peck Rd at Ramona Blvd	Signalized	ICU 1	SB Thru	0.672	-	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Valley Blvd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.602

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	176	534	20	159	458	4	10	181	0	52	352	352
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	180	545	20	162	467	4	10	185	0	53	359	359
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	136	5	41	117	1	3	46	0	13	90	90
Total Analysis Volume [veh/h]	180	545	20	162	467	4	10	185	0	53	359	359
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.17	0.01	0.10	0.15	0.00	0.01	0.06	0.00	0.03	0.22	0.22
Intersection LOS	B											
Intersection V/C	0.602											

Intersection Level Of Service Report
Intersection 2: Orchard St at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.453

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	11	6	9	55	30	82	48	283	5	8	788	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	6	9	56	31	84	49	289	5	8	804	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	2	2	14	8	21	12	72	1	2	201	5
Total Analysis Volume [veh/h]	11	6	9	56	31	84	49	289	5	8	804	20
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.02	0.04	0.05	0.05	0.03	0.09	0.09	0.01	0.25	0.01
Intersection LOS	A											
Intersection V/C	0.453											

Intersection Level Of Service Report
Intersection 3: Peck Rd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.672

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	36	610	207	123	1127	155	92	250	16	276	682	177
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	622	211	125	1150	158	94	255	16	282	696	181
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	156	53	31	288	40	24	64	4	71	174	45
Total Analysis Volume [veh/h]	37	622	211	125	1150	158	94	255	16	282	696	181
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.19	0.13	0.08	0.27	0.27	0.06	0.08	0.01	0.18	0.22	0.11
Intersection LOS	B											
Intersection V/C	0.672											

Orchard and Cypress Residential Project

Vistro File: C:\...\PME.vistro

Scenario 3 Opening Year (2021) Without Project Evening Peak Hour

Report File: C:\...\PMOYWO.pdf

3/22/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Valley Blvd at Ramona Blvd	Signalized	ICU 1	SB Left	0.654	-	B
2	Orchard St at Ramona Blvd	Signalized	ICU 1	EB Thru	0.474	-	A
3	Peck Rd at Ramona Blvd	Signalized	ICU 1	NB Thru	0.903	-	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Valley Blvd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.654

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	165	457	77	396	593	9	23	353	0	31	194	251
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	168	466	79	404	605	9	23	360	0	32	198	256
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	117	20	101	151	2	6	90	0	8	50	64
Total Analysis Volume [veh/h]	168	466	79	404	605	9	23	360	0	32	198	256
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.15	0.05	0.25	0.19	0.01	0.01	0.11	0.00	0.02	0.14	0.14
Intersection LOS	B											
Intersection V/C	0.654											

Intersection Level Of Service Report
Intersection 2: Orchard St at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.474

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	26	31	10	53	21	55	113	845	16	16	358	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	32	10	54	21	56	115	862	16	16	365	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	8	3	14	5	14	29	216	4	4	91	5
Total Analysis Volume [veh/h]	27	32	10	54	21	56	115	862	16	16	365	21
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.04	0.04	0.03	0.05	0.04	0.07	0.27	0.27	0.01	0.11	0.01
Intersection LOS	A											
Intersection V/C	0.474											

Intersection Level Of Service Report
Intersection 3: Peck Rd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.903

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	60	1020	474	152	752	112	190	706	44	245	323	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	61	1040	483	155	767	114	194	720	45	250	329	180
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	260	121	39	192	29	49	180	11	63	82	45
Total Analysis Volume [veh/h]	61	1040	483	155	767	114	194	720	45	250	329	180
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.33	0.30	0.10	0.18	0.18	0.12	0.23	0.03	0.16	0.10	0.11
Intersection LOS	E											
Intersection V/C	0.903											

OPENING YEAR (2021) WITH PROJECT

Orchard and Cypress Residential Project

Vistro File: C:\...\AME.vistro

Scenario 4 Opening Year (2021) With Project Morning Peak Hour

Report File: C:\...\AMOYW.pdf

3/22/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Valley Blvd at Ramona Blvd	Signalized	ICU 1	WB Thru	0.606	-	B
2	Orchard St at Ramona Blvd	Signalized	ICU 1	WB Thru	0.466	-	A
3	Peck Rd at Ramona Blvd	Signalized	ICU 1	SB Thru	0.674	-	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Valley Blvd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.606

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	176	534	20	159	458	4	10	181	0	52	352	352
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	1	0	3	8	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	180	545	20	162	467	4	10	186	0	56	367	364
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	136	5	41	117	1	3	47	0	14	92	91
Total Analysis Volume [veh/h]	180	545	20	162	467	4	10	186	0	56	367	364
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.17	0.01	0.10	0.15	0.00	0.01	0.06	0.00	0.04	0.23	0.23
Intersection LOS	B											
Intersection V/C	0.606											

Intersection Level Of Service Report
Intersection 2: Orchard St at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.466

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	11	6	9	55	30	82	48	283	5	8	788	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	11	8	16	2	0	0	0	0	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	6	9	67	39	100	51	289	5	8	804	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	2	2	17	10	25	13	72	1	2	201	5
Total Analysis Volume [veh/h]	11	6	9	67	39	100	51	289	5	8	804	21
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.02	0.04	0.07	0.06	0.03	0.09	0.09	0.01	0.25	0.01
Intersection LOS	A											
Intersection V/C	0.466											

Intersection Level Of Service Report
Intersection 3: Peck Rd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.674

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	36	610	207	123	1127	155	92	250	16	276	682	177
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	3	8	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	622	211	125	1150	158	97	263	16	282	697	181
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	156	53	31	288	40	24	66	4	71	174	45
Total Analysis Volume [veh/h]	37	622	211	125	1150	158	97	263	16	282	697	181
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.19	0.13	0.08	0.27	0.27	0.06	0.08	0.01	0.18	0.22	0.11
Intersection LOS	B											
Intersection V/C	0.674											

Orchard and Cypress Residential Project

Vistro File: C:\...\PME.vistro

Scenario 4 Opening Year (2021) With Project Evening Peak Hour

Report File: C:\...\PMOYW.pdf

3/22/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Valley Blvd at Ramona Blvd	Signalized	ICU 1	SB Left	0.658	-	B
2	Orchard St at Ramona Blvd	Signalized	ICU 1	EB Thru	0.480	-	A
3	Peck Rd at Ramona Blvd	Signalized	ICU 1	NB Thru	0.904	-	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Valley Blvd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.658

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	165	457	77	396	593	9	23	353	0	31	194	251
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	3	3	0	0	0	10	0	1	4	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	168	466	82	407	605	9	23	370	0	33	202	259
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	117	21	102	151	2	6	93	0	8	51	65
Total Analysis Volume [veh/h]	168	466	82	407	605	9	23	370	0	33	202	259
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.15	0.05	0.25	0.19	0.01	0.01	0.12	0.00	0.02	0.14	0.14
Intersection LOS	B											
Intersection V/C	0.658											

Intersection Level Of Service Report
Intersection 2: Orchard St at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.480

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	26	31	10	53	21	55	113	845	16	16	358	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	5	4	8	24	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	32	10	59	25	64	139	862	16	16	365	29
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	8	3	15	6	16	35	216	4	4	91	7
Total Analysis Volume [veh/h]	27	32	10	59	25	64	139	862	16	16	365	29
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.04	0.04	0.04	0.05	0.04	0.09	0.27	0.27	0.01	0.11	0.02
Intersection LOS	A											
Intersection V/C	0.480											

Intersection Level Of Service Report
Intersection 3: Peck Rd at Ramona Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.904

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	60	1020	474	152	752	112	190	706	44	245	323	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	1	4	0	0	8	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	61	1040	483	155	767	114	195	724	45	250	337	180
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	260	121	39	192	29	49	181	11	63	84	45
Total Analysis Volume [veh/h]	61	1040	483	155	767	114	195	724	45	250	337	180
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.33	0.30	0.10	0.18	0.18	0.12	0.23	0.03	0.16	0.11	0.11
Intersection LOS	E											
Intersection V/C	0.904											

VALLEY BOULEVARD AT RAMONA BOULEVARD SPREADSHEET

Appendix D
Valley Boulevard/Valley Mall at Ramona Boulevard Intersection Capacity Utilization and Levels of Service

Existing		
	Peak Hour	
Descriptor	AM	PM
Valley Boulevard at Ramona Boulevard ICU:	0.593	0.644
Valley Mall SB Left Turn Movements (1 Lane):	9	91
Valley Mall SB Left Turn Movement V/C Ratio:	0.01	0.06
Valley Mall SB Through/Right Turn Movements (1 Lane):	33	116
Valley Mall SB Through/Right Turn Movement V/C Ratio:	0.02	0.07
Valley Mall SB Critical Movement:	SB Thru/Right	SB Thru/Right
Combined Intersection ICU:	**0.613**	**0.714**
Combined Intersection Level of Service:	**B**	**C**

Existing Plus Project		
	Peak Hour	
Descriptor	AM	PM
Valley Boulevard at Ramona Boulevard ICU:	0.597	0.648
Valley Mall SB Left Turn Movements (1 Lane):	9	94
Valley Mall SB Left Turn Movement V/C Ratio:	0.01	0.06
Valley Mall SB Through/Right Turn Movements (1 Lane):	33	116
Valley Mall SB Through/Right Turn Movement V/C Ratio:	0.02	0.07
Valley Mall SB Critical Movement:	SB Thru/Right	SB Thru/Right
Combined Intersection ICU:	**0.617**	**0.718**
Combined Intersection Level of Service:	**B**	**C**

Opening Year (2021) Without Project		
	Peak Hour	
Descriptor	AM	PM
Valley Boulevard at Ramona Boulevard ICU:	0.602	0.654
Valley Mall SB Left Turn Movements (1 Lane):	9	93
Valley Mall SB Left Turn Movement V/C Ratio:	0.01	0.06
Valley Mall SB Through/Right Turn Movements (1 Lane):	34	118
Valley Mall SB Through/Right Turn Movement V/C Ratio:	0.02	0.07
Valley Mall SB Critical Movement:	SB Thru/Right	SB Thru/Right
Combined Intersection ICU:	**0.622**	**0.724**
Combined Intersection Level of Service:	**B**	**C**

Opening Year (2021) With Project		
	Peak Hour	
Descriptor	AM	PM
Valley Boulevard at Ramona Boulevard ICU:	0.606	0.658
Valley Mall SB Left Turn Movements (1 Lane):	9	96
Valley Mall SB Left Turn Movement V/C Ratio:	0.01	0.06
Valley Mall SB Through/Right Turn Movements (1 Lane):	34	118
Valley Mall SB Through/Right Turn Movement V/C Ratio:	0.02	0.07
Valley Mall SB Critical Movement:	SB Thru/Right	SB Thru/Right
Combined Intersection ICU:	**0.626**	**0.728**
Combined Intersection Level of Service:	**B**	**C**